PROCESS AUTOMATION

Freelance 2019

Engineering Manual
Bulk Data Manager

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Bulk Data Manager

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About this book

Use of warning, caution, information, and tip icons

This publication includes **Warning**, **Caution**, and **Information** where appropriate to point out safety related or other important information. It also includes **Tip** to point out useful hints to the reader. The corresponding symbols should be interpreted as follows:

Electrical warning icon indicates the presence of a hazard which could result in *electrical shock.*

Warning icon indicates the presence of a hazard which could result in *personal injury.*

Caution icon indicates important information or warning related to the concept discussed in the text. It might indicate the presence of a hazard which could result in *corruption of software or damage to equipment/property.*

Information icon alerts the reader to pertinent facts and conditions.

Tip icon indicates advice on, for example, how to design your project or how to use a certain function

Although **Warning** hazards are related to personal injury, and **Caution** hazards are associated with equipment or property damage, it should be understood that operation of damaged equipment could, under certain operational conditions, result in degraded process performance leading to personal injury or death. Therefore, comply fully with all **Warning** and **Caution** notices.

Terminology

The Glossary contains terms and abbreviations that are unique to ABB or have a usage or definition that is different from standard industry usage. Please make yourself familiar to that.

You will find the glossary at the end of the ***Engineering Manual System Configuration.***

Document conventions

The following conventions are used for the presentation of material:

- The words in names of screen elements (for example, the title in the title bar of a window, the label for a field of a dialog box) are initially capitalized.
- Capital letters are used for the name of a keyboard key if it is labeled on the keyboard. For example, press the ENTER key.
- Lowercase letters are used for the name of a keyboard key that is not labeled on the keyboard. For example, the **space bar**, **comma key**, and so on.
- Press CTRL+C indicates that you must hold down the CTRL key while pressing the C key (to copy a selected object in this case).
- Press **ESC, E, C** indicates that you press and release each key in sequence (to copy a selected object in this case).
- The names of push and toggle buttons are boldfaced. For example, click **OK**.
- The names of menus and menu items are boldfaced. For example, the **File** menu.
  - The following convention is used for menu operations: MenuName > MenuItem > CascadedMenuItem. For example: select **File** > **New** > **Type**.
  - The **Start** menu name always refers to the **Start** menu on the Windows Task Bar.
- System prompts/messages are shown in the Courier font, and user responses/input are in the boldfaced Courier font. For example, if you enter a value out of range, the following message is displayed:

```
Entered value is not valid. The value must be 0 to 30.
```

You may be told to enter the string TIC132 in a field. The string is shown as follows in the procedure:

TIC132

Variables are shown using lowercase letters.

sequence name

1 Introduction

1.1 Overview

Developing an application program in the Freelance Engineering project often requires the creation of similar functions to be used in same or many areas of the plant.

Freelance Bulk Data Manager (BDM) is a off line bulk engineering tool that allows manipulation of small or large application entities through Microsoft Excel during engineering with Freelance Engineering. Key functionalities comprise of Import / Export of Tag and Variable lists, replication of program typicals, function block parameter configuration so on.

BDM is a useful tool for application engineers, project engineers and related personnel involved in developing medium or large process applications for process plants.

The tool is available with Freelance software and is installed by default at the Engineering station by the Freelance setup. The package also includes standard excel templates with default settings for Function block parameter filters.

The following project tree of Freelance Engineering are supported at present:

- Program Lists, Programs and Tasks
- Function Block Diagram
- Function Blocks
- Function Block Parameters
- Tags
- Variables
- Graphic Display
- Group Display
- Trend Display

- User Tasks

The following project tree objects of Freelance Engineering are not supported by Freelance BDM

- System Tasks
- Task lists
- All Hardware objects
- OPC and Gateway objects
- POOL

The BDM tool is available as a bonus component and can be used “as is”, free of charge.

BDM is recommended to run on Windows Operating System.

1.2 Architecture

Figure 1 explains the architecture of Freelance BDM:

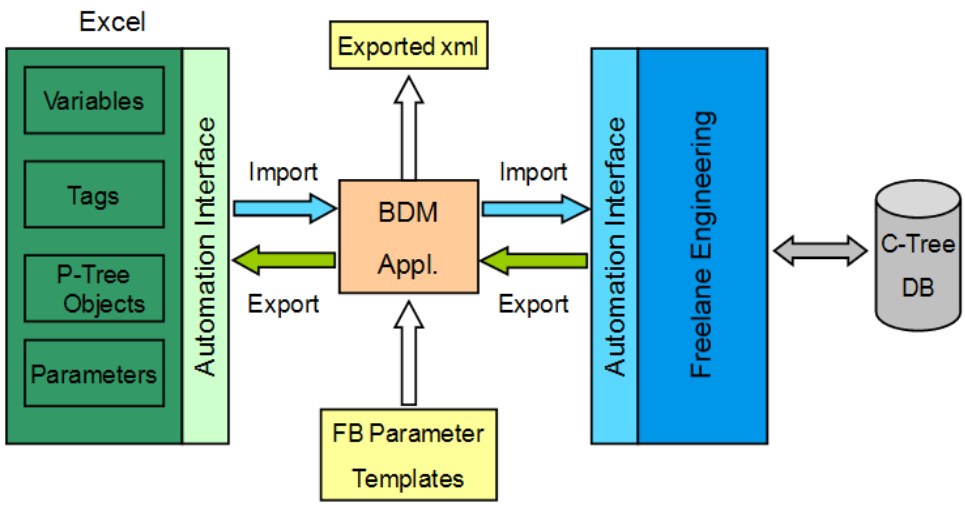


Figure 1. Architecture of Freelance BDM

1.3 Installation

The Freelance BDM is available as a selectable component in the Freelance Setup, under Engineering Station bonus pack in the Feature tree.

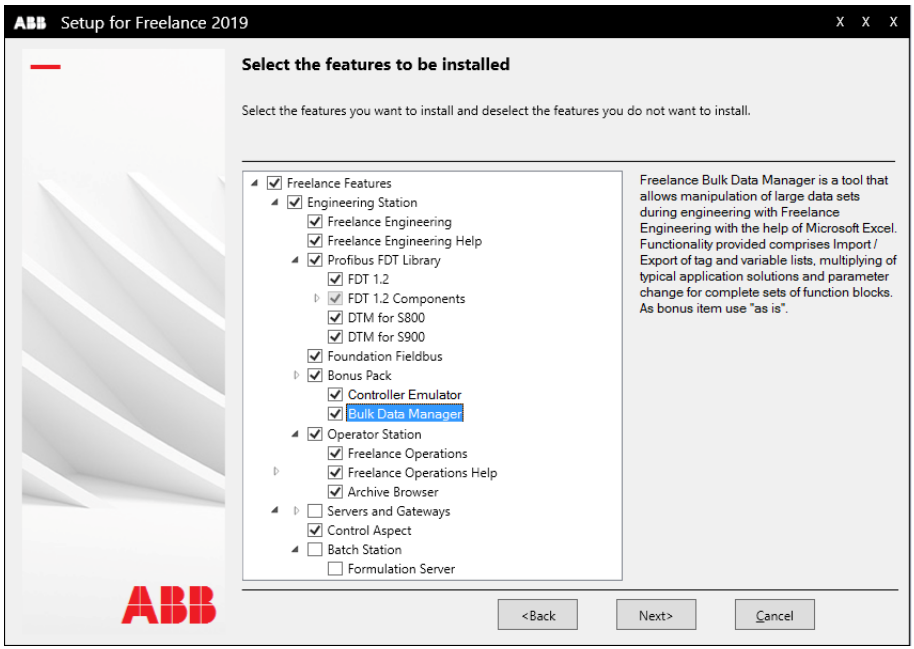


Figure 2. Freelance Setup with BDM component checked

1.4 BDM Excel sheet overview

A Microsoft excel file with pre-defined worksheets is the core of the BDM engineering workflow. The worksheets are designed to handle the manipulation of

respective objects / entities of the Freelance Engineering project tree. Figure 3 below shows an example of the excel sheet with the pre-defined sheets.

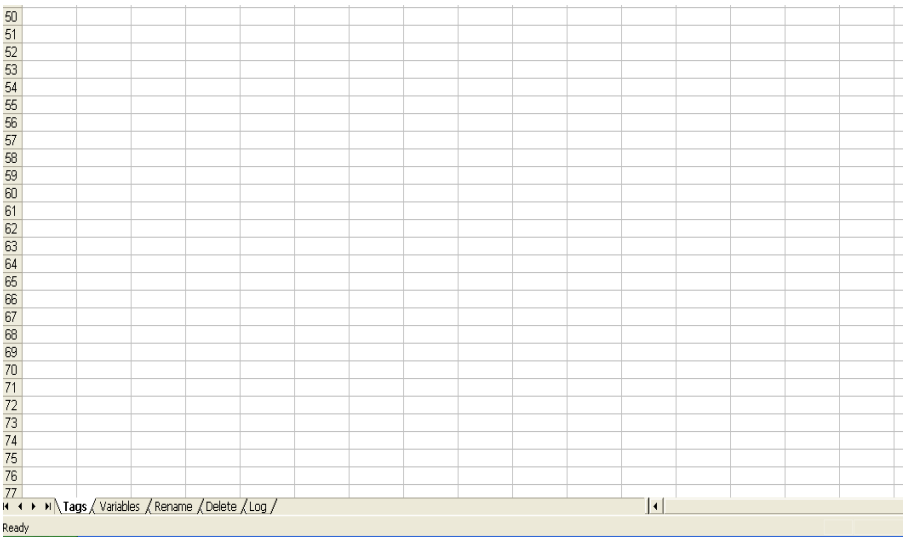


Figure 3. BDM Excel Sheet Overview

1.4.1 Tags sheet

This is designed for handling the tag list of Freelance Engineering project. Upon exporting the tag list from the Freelance Engineering, this sheet is populated with the existing tags of the project. Necessary bulk engineering on the tags can then be performed on this sheet before importing back into Freelance Engineering project.

	A	B	C	D	E
1	BDM				
2	TagList				
3	Name	FBTtype	Area	ShortComment	LongComment

Figure 4. Tag List Sheet

1.4.2 Variables sheet

This is designed for handling the variable list of Freelance Engineering project. Upon exporting the variable list from the Freelance Engineering, this sheet is populated with the existing variables of the project. Necessary bulk engineering on the variables can then be performed on this sheet before importing back into Freelance Engineering project.

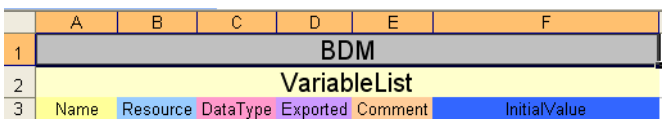


Figure 5. Variable List Sheet

1.4.3 Rename sheet

Here the Tags, Variables, Program, Program Lists can be renamed by providing new names against the existing names. While importing back into Freelance Engineering, these entities are renamed accordingly in the project.

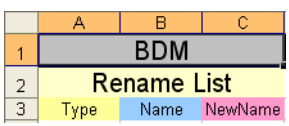


Figure 6. Rename List Sheet

1.4.4 Delete sheet

Here the unwanted Tags, Variables, Program blocks and FBDs can be deleted by providing their respective names. While importing back into Freelance Engineering, these entities are deleted from the project.

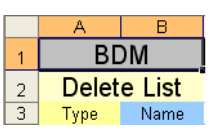


Figure 7. Delete List Sheet

1.4.5 Log sheet

Reserved for future versions

A log.txt file is created in **<FreelanceData>\Proj\BDM\test**, wherein *test* is the name of the project directory.

Detailed workflow related to the sheets is explained in Section 2, Working with Freelance BDM.

2 Working with Freelance BDM

2.1 Invoking Freelance BDM applications

The BDM application can be invoked by following methods:

1. Right-click context menu of any supported project tree object in the Freelance Engineering.

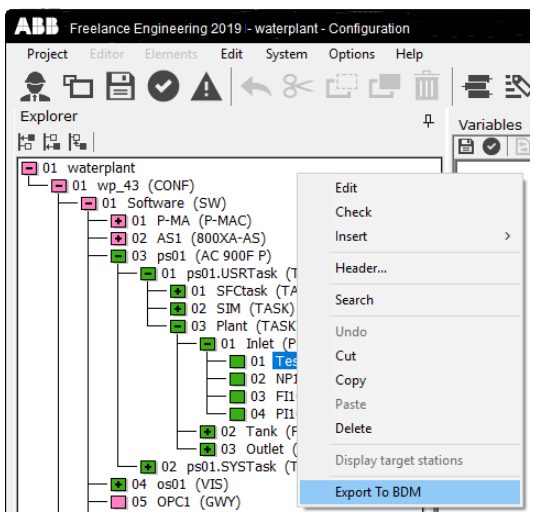


Figure 8. Invoking BDM through project tree context menu

Here the BDM dialog is called with the current project selected. Excel file name is also proposed but can be changed.

2. Through Windows **Start** menu.

Click **Start > Programs > ABB > Freelance <version> > Bulk data manager**.

Here only the BDM dialog is opened. Browse and provide both the Freelance Engineering project (*.pro) and Excel file name.

Whichever method user takes to invoke the BDM, the commissioning mode will be disabled if Freelance detects the running of BDM. As a result of the disabled commissioning mode, the color of the title bar goes to red and the commissioning icon grayed out, and the commissioning item under Project menu goes to unselectable. Meanwhile, the commissioning mode in project manager is also disabled.

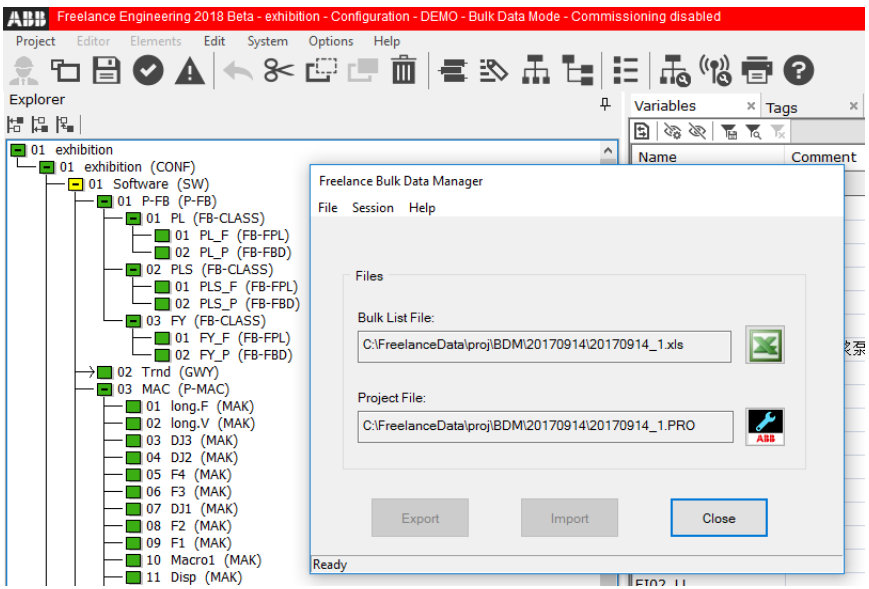


Figure 9. Commissioning Mode disabled

2.2 Exporting project

The following objects can be exported from Freelance Engineering project into Excel sheet for Bulk data management.

- Programs (PL/Programs/Tags/Variables/Tasks)
- Free Graphics
- Group/Trend Display
- Function Block Parameters

2.2.1 Exporting tags and variables

The following are the steps to export tags and variables to BDM:

1. Launch the BDM tool.
2. The **Freelance Bulk data manager** window opens as shown in Figure 10.

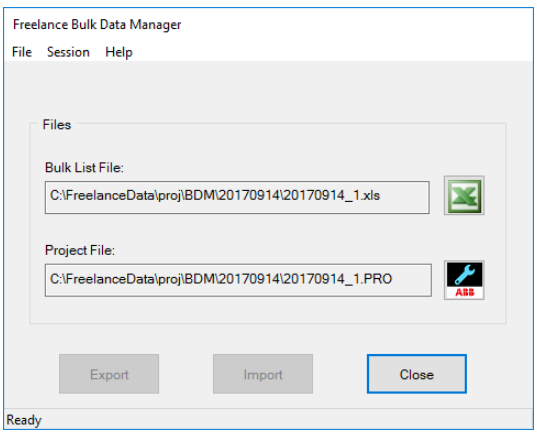


Figure 10. BDM main dialog

3. Specify the path for the project file and Excel file.
4. Select **Session > Start session**.
5. Click **Export** in the BDM main dialog.

BDM template export selection dialog is displayed as shown in Figure 11.

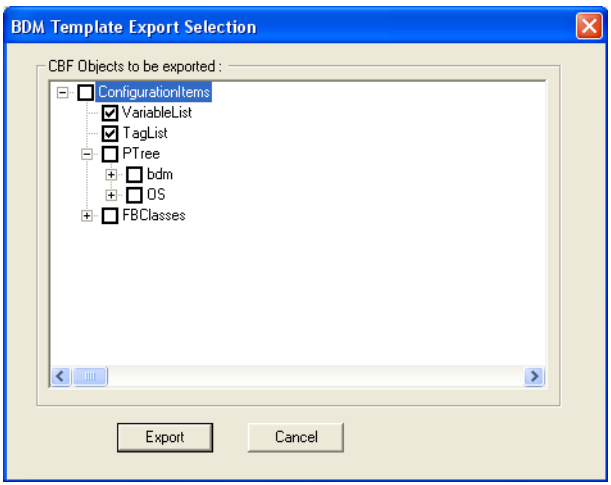


Figure 11. BDM template export selection dialog

6. Select the **VariableList** and **TagList** check boxes under **ConfigurationItems** and then click **Export**

BDMApp dialog box is displayed as shown in Figure 12.

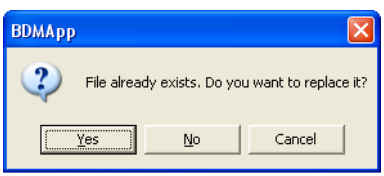


Figure 12. BDMApp dialog

7. Click **Yes**, to overwrite the excel file clearing the previous data.
8. Click **No**, to append data to the existing excel file.

Tag and variable sheets created are empty and contain only header information if nothing is selected for export.

9. The Excel application is launched.

All the variables and tags from the Freelance Engineering project are exported and populated into the respective sheet of the Excel file.

Figure 13 shows the sample of exported variable list in the Excel sheet.

1	BDM					
2	VariableList					
3	Name	Resource	DataType	Exported	Comment	InitialValue
4	FIC_1001_OUT	CON1	REAL	FALSE		
5	FIC_1001_PV	CON1	REAL	FALSE		
6	LIC_1002_OUT	CON1	REAL	TRUE		
7	LIC_1002_PV	CON1	REAL	TRUE		
8	PIC_1003_OUT	CON1	REAL	FALSE		
9	PIC_1003_PV	CON1	REAL	FALSE		
10						

Figure 13. Excel sheet sample - variable list

Figure 14 shows the sample of exported tag list in the Excel sheet.

	A	B	C	D	E
1	BDM				
2	TagList				
3	Name	FBTtype	Area	ShortComment	LongComment
4	Catalog	HWSTR	-		
5	HWSYS	HWSYS	-		
6	LibRoot	HW_LIB_ROOT	-		
7	Tag1	M_ANA	A	AT	ssd
8	Tag2	M_ANA	A	AT	ssd
9	Tag2a	M_ANA	-		

Figure 14. Excel sheet sample - tag list

2.2.2 Exporting project tree typicals

Following are the steps to export the program typicals to BDM:

1. Launch the BDM application.

The **Freelance Bulk data manager** window opens

2. Specify the path of project file and Excel file.
3. Select **Session > Start session**.

4. Click **Export** in the BDM main dialog box. **BDM export selection** dialog is displayed as shown in Figure 15.

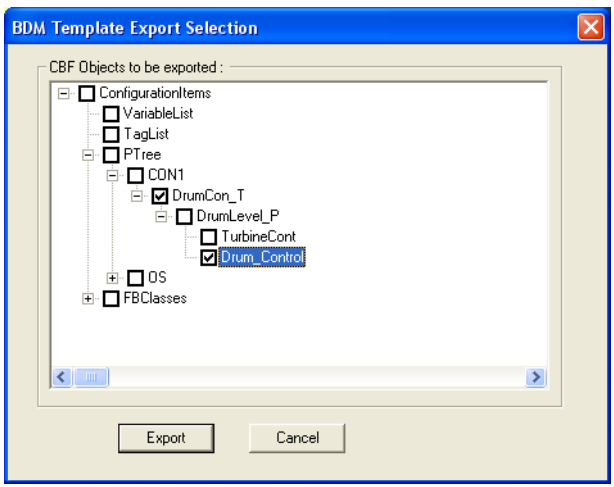


Figure 15. BDM template export selection dialog

5. Select **project tree sub-object** to export into the Excel sheet.

If no project tree element is selected then no sheets will be generated for these typicals.

6. Click **Export**.

The Export progress bar appears and launches the Excel application. All the selected objects are populated in the respective Excel sheets. System creates separate Excel sheet for each selected typical and fills in the data.

Figure 16 and Figure 17 shows the sample of exported typicals in the Excel sheet.

	A	B	C	D	E	F	G
1	BDM						
2	P-Tree Typical Instanciation						
3	Path	Program	Tag 1 ()	Tag 2 ()	Var 1 (REAL)	Var 2 (REAL)	
4	PS/UT1/PL1	ffg	C_CU1	cs1	PV1	OUT1	
5							

Figure 16. Excel sheet example - program list

1	BDM				
2	P-Tree Typical Instanciation				
3	Path	Program	Var 1 (REAL)	Var 2 (REAL)	Var 3 (REAL)
4	OS	DrumLevel_T	FIC_1001_OUT	LIC_1002_OUT	PIC_1003_OUT
5					

Figure 17. Excel sheet example - program

The source typicals that are exported can be replicated as many times as required in the Excel sheet by dragging the Excel rows.

The path name that is replicated should exist in Freelance Engineering.

2.3 Renaming of tags, variables, program, program list

This section describes renaming of tags and variables from the changed or modified BDM Excel template.

The following are the steps for renaming the tags and variables:

1. Choose the Rename worksheet in BDM Excel.

The Rename and Delete sheets are empty and contain only header information to begin with.

	A	B	C	D	E	F
1	BDM					
2	Rename List					
3	Type	Name	NewName			
4	Tag	TIC2319	TIC2319_A			
5	Variable	TIC4711_Var	TIC4711_A_Var			
6		C2317_P	TIC2317_A_P			
7	Tag					
8	Variable					
9	Program					
10	ProgramList					
11	ProcessStati					
12	Task					
13	GroupDisplay					
	TrendDisplay					

Figure 18. BDM rename sheet

2. Enter the tag or variable to be renamed in the `Name` field.

3. Select the **type** from the list.
4. Specify the new name for the tag or variable in the new name column
5. Click **Import** from the BDM main dialog.

Bulk data manager preview dialog for Renamed tags is displayed.

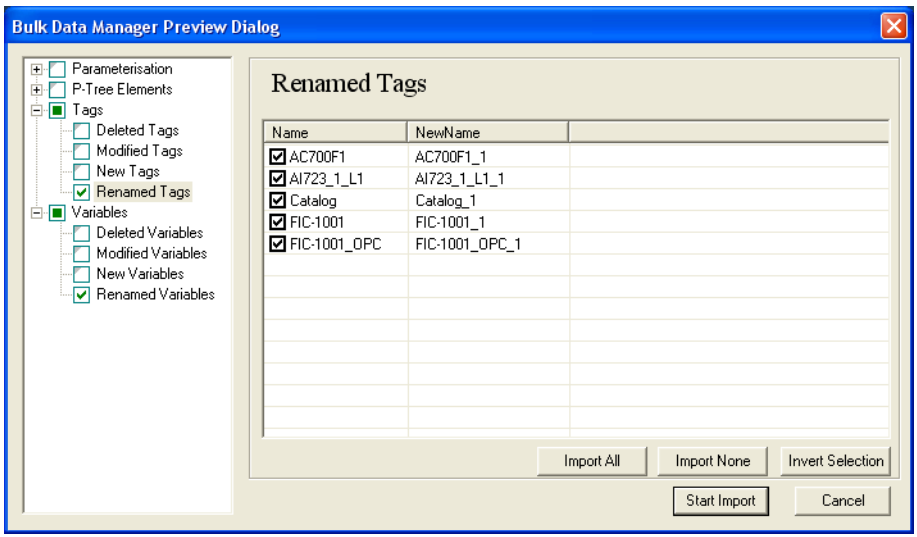


Figure 19. BDM renamed tags

6. Check the rename checkbox under Tags and/or variables
7. Click **Start import**.

After required changes, the system displays the progress of the rename changes in the progress dialog.

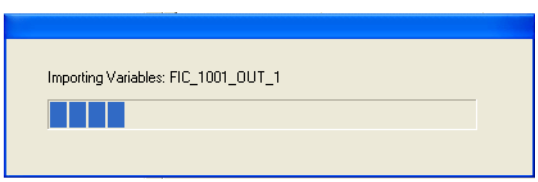


Figure 20. Rename progress bar

2.4 Deleting tags, variables, program, program list

This section describes the procedure to delete the list of tags, variables and project tree objects.

Following are the steps to delete tags and variables:

1. Choose the **Delete** worksheet in BDM Excel.
2. Enter the name of the tag or variable to be deleted in the name field. Select the required type from the list.

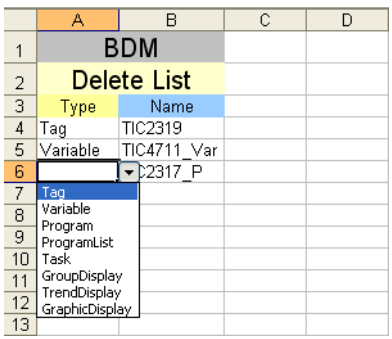


Figure 21. BDM Excel sheet for deletion

3. Click **Import** in the BDM main dialog

Bulk data manager preview dialog for deleted variables is displayed.

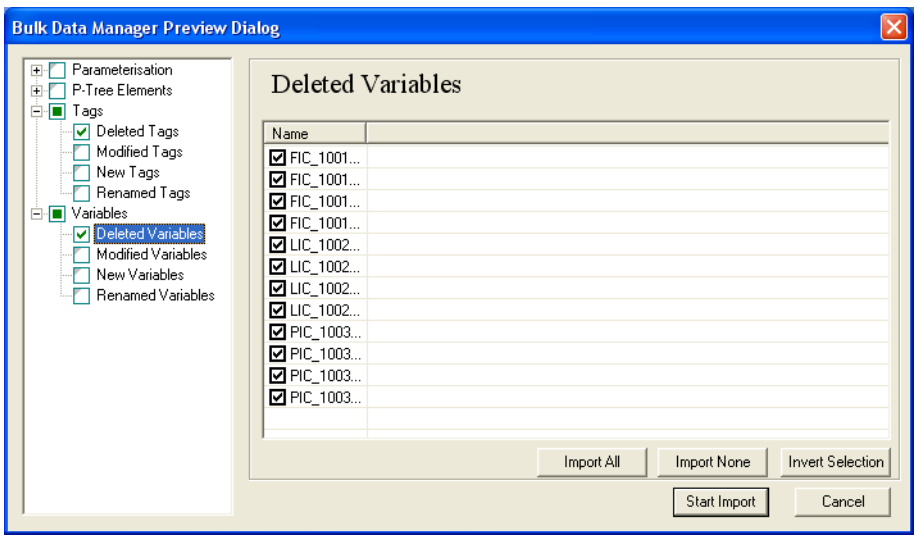


Figure 22. BDM preview dialog for deleted variables

4. Select the **Deleted tags** checkbox under tags and/or variables
5. Click on **Start import**

After required changes, system displays the progress of the delete operation changes in the progress dialog.

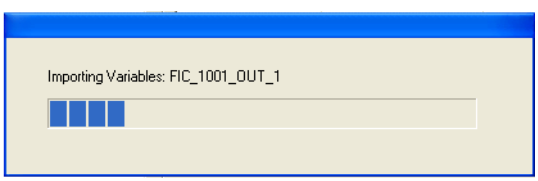


Figure 23. Deletion progress bar

2.5 Importing Excel sheet

The data filled in the BDM Excel sheet is brought into the Freelance Engineering project by means of the **Import** function.

Import operations are performed in the following order:

- New objects
- Modified object
- Renamed objects
- Deleted objects

Make the necessary changes in the BDM Excel sheet i.e rename, delete, modify instantiate etc. Save and close the Excel sheet.

1. Click **Import** in the BDM main dialog.

BDM preview dialog is displayed as shown in Figure 24. The following steps are to be followed to bring the contents into Freelance Engineering project.

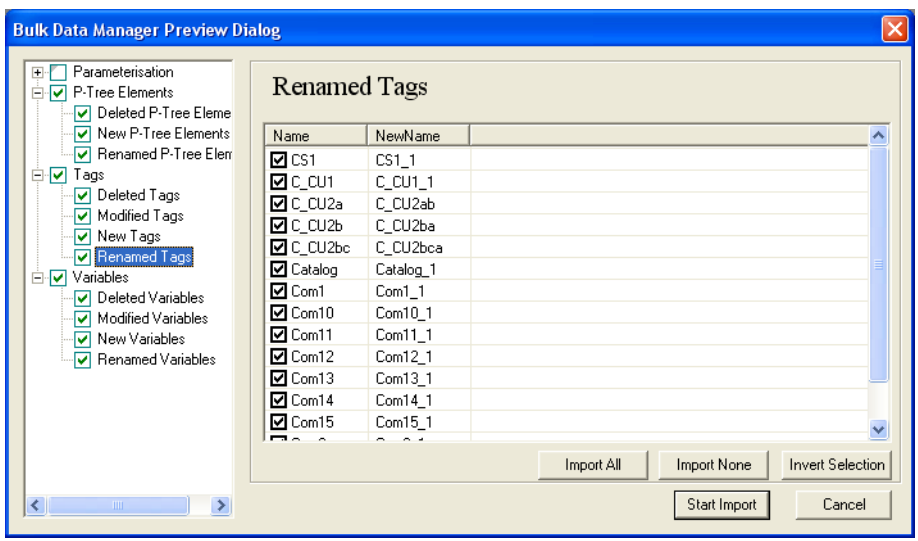


Figure 24. BDM import -preview dialog

2. Select the sheets that are to be imported
3. Check/Uncheck the required tag list nodes and project tree elements.
4. Click on **Start import**.

The import progress bar is shown as in Figure 25.

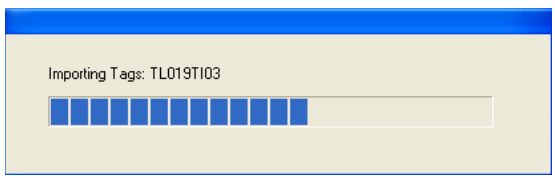


Figure 25. Progress bar during the BDM import

Message box indicating that the import is completed is displayed.

Figure 26. Import finished

5. Click **OK** and Freelance Engineering is launched with the current project session file.
6. The results of the Import can be seen in the log.txt file at the location **<FreelanceData>\proj\BDM\<name of the project>**

If **Export**, **Close session** or **Abort session** is clicked again the Project session file is closed and Freelance Engineering goes into invisible mode.

2.5.1 Session log

This section explains the log generation in the **Log** worksheet of the BDM Excel sheet. The session log records all the events in a particular BDM session for every session. Figure 27 shows an example of the session log.

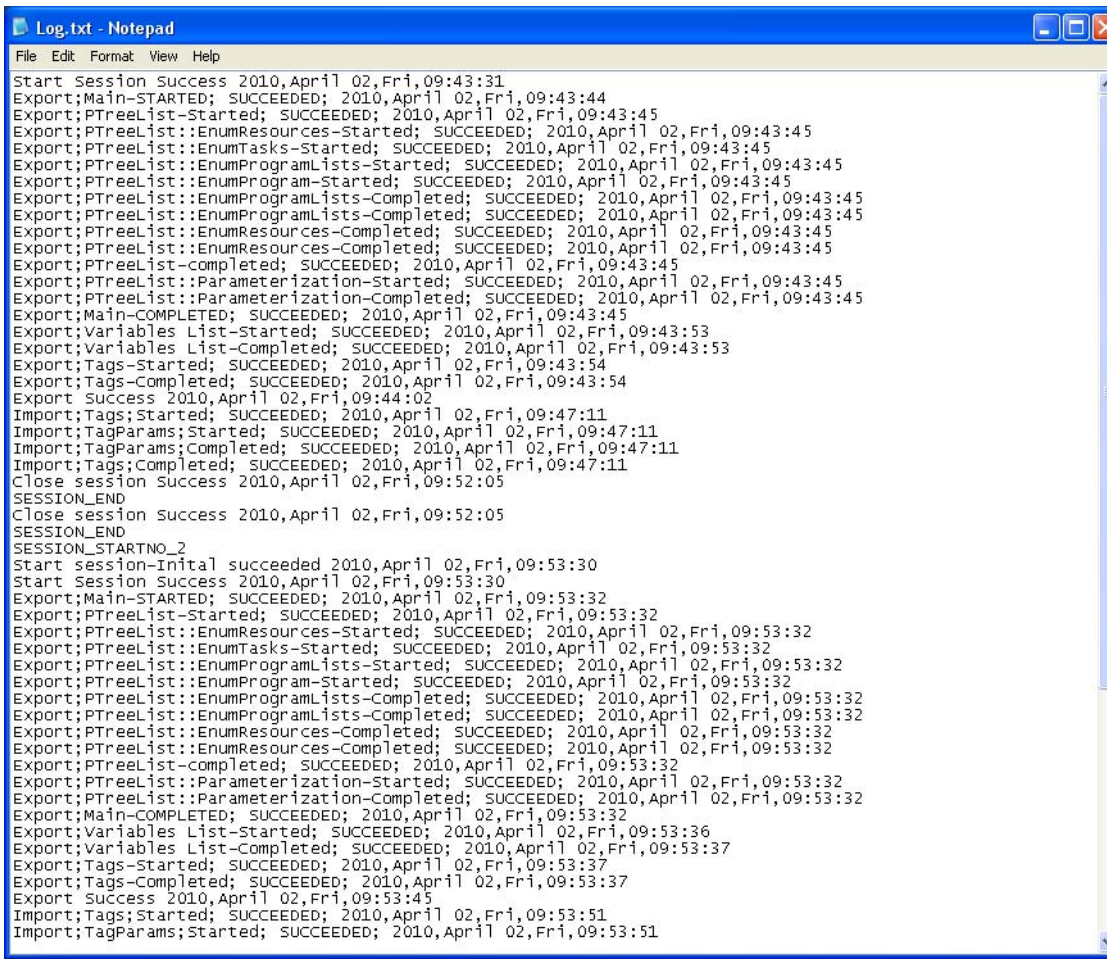


Figure 27. Log details

The `log.txt` file can be imported into a Microsoft Excel sheet as follows:

1. Open a empty Excel sheet and import data as follows

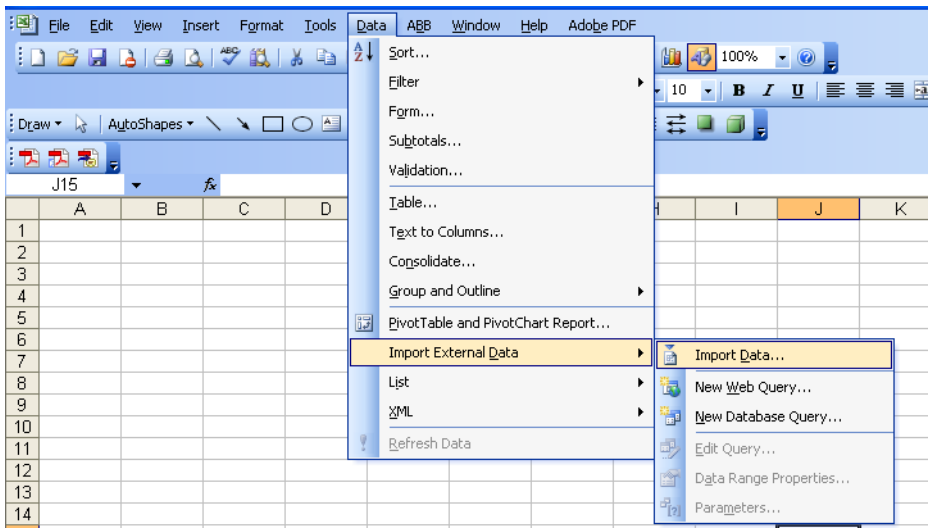


Figure 28. Importing log.txt into Excel

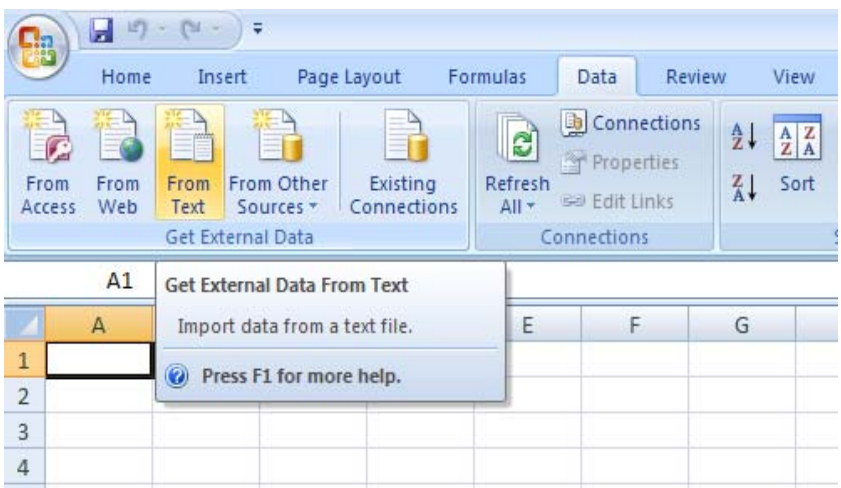


Figure 29. Importing log.txt into Excel

2. Select the following options before the data import.

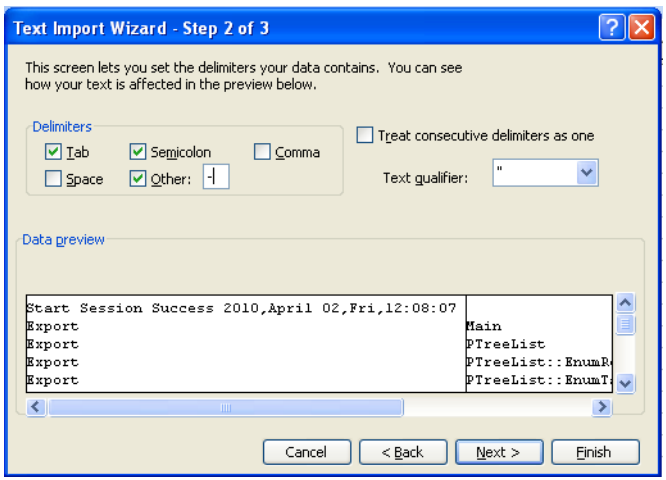


Figure 30. Importing log.txt into Excel options

3. Click **Next**

The data from `log.txt` is imported into the Excel sheet as shown below.

	A	B	C	D
1	Start Session Success 2010	2-Apr	Fri	12:08:07
2	Export;Main	STARTED; SUCCEEDED; 2010	2-Apr	Fri
3	Export;PTreeList	Started; SUCCEEDED; 2010	2-Apr	Fri
4	Export;PTreeList::EnumResources	Started; SUCCEEDED; 2010	2-Apr	Fri
5	Export;PTreeList::EnumTasks	Started; SUCCEEDED; 2010	2-Apr	Fri
6	Export;PTreeList::EnumProgramLists	Started; SUCCEEDED; 2010	2-Apr	Fri
7	Export;PTreeList::EnumProgram	Started; SUCCEEDED; 2010	2-Apr	Fri
8	Export;PTreeList::EnumProgramLists	Completed; SUCCEEDED; 2010	2-Apr	Fri
9	Export;PTreeList::EnumProgramLists	Completed; SUCCEEDED; 2010	2-Apr	Fri
10	Export;PTreeList::EnumResources	Completed; SUCCEEDED; 2010	2-Apr	Fri
11	Export;PTreeList::EnumResources	Completed; SUCCEEDED; 2010	2-Apr	Fri
12	Export;PTreeList	completed; SUCCEEDED; 2010	2-Apr	Fri
13	Export;PTreeList::Parameterization	Started; SUCCEEDED; 2010	2-Apr	Fri
14	Export;PTreeList::Parameterization	Completed; SUCCEEDED; 2010	2-Apr	Fri
15	Export;Main	COMPLETED; SUCCEEDED; 2010	2-Apr	Fri
16	Export;Variables List	Started; SUCCEEDED; 2010	2-Apr	Fri
17	Export;Variables List	Completed; SUCCEEDED; 2010	2-Apr	Fri
18	Export;Tags	Started; SUCCEEDED; 2010	2-Apr	Fri
19	Export;Tags	Completed; SUCCEEDED; 2010	2-Apr	Fri
20	Export Success 2010	2-Apr	Fri	12:08:20

Figure 31. Importing log.txt into Excel-output

2.6 Function block parameterization

Function Block (FB) Parameterization feature allows setting the parameters of existing function blocks in Freelance Engineering project in BDM Excel and then bringing the changed parameters into Freelance Engineering through **Import** function.

Parameterization of function blocks is made easier by means of Excel templates available for standard Freelance function blocks. The parameters that will appear in the Excel sheet can be customized for the function block types available in the BDM template, as required or retain default template settings.

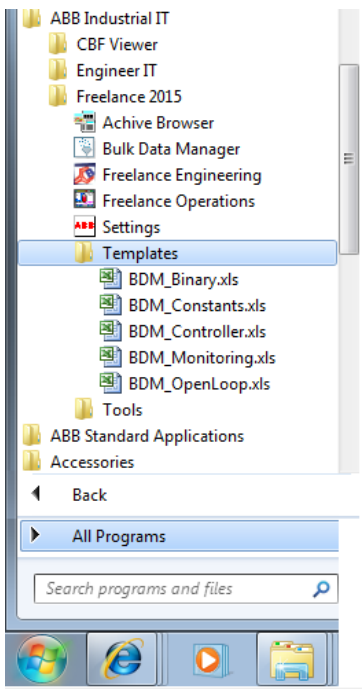


Figure 32. Function block templates in Windows

The templates can also be accessed directly from the **<FreelanceData>\proj\BDM\Templates** path.

For example if the Mbe (scale end) of all M_ANA function blocks have to be modified to the value 100.00, FB Parameterization is used to as follows:

1. Open the corresponding template (in this case BDM_Monitoring.xls)
2. The FB Parameter that is to be modified (in this case Mbe) should have the value YES in the option column.

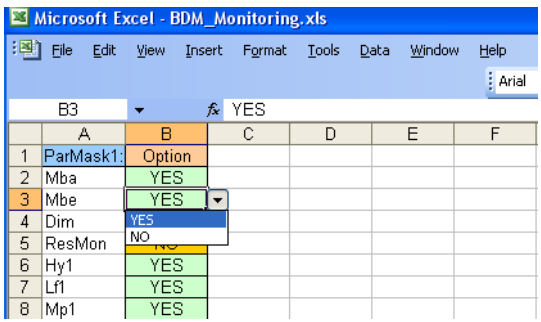
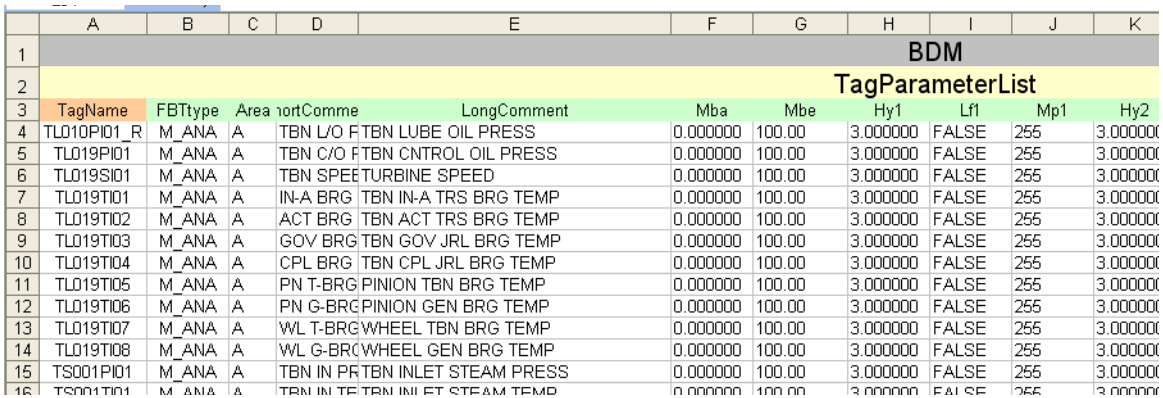


Figure 33. Function block templates

3. Save the template and close it.
4. Open the BDM tool and export the corresponding FBClass (in this case M_ANA) in the BDM export selection dialog.

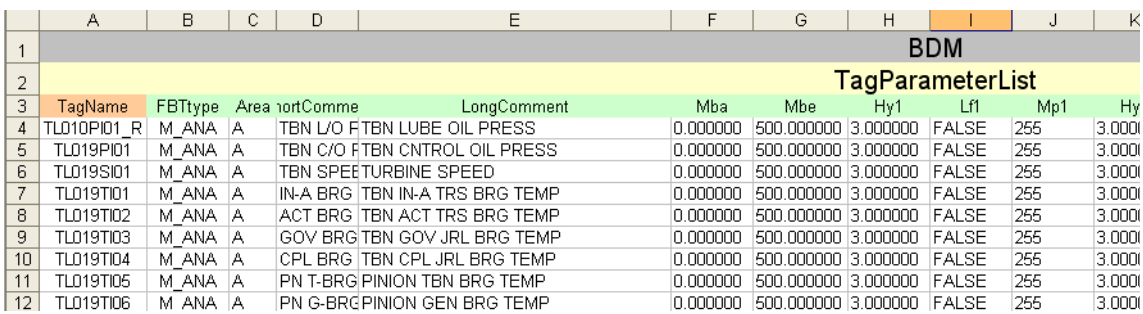
5. The BDM Excel sheet with FBClass tab (M_ANA) has the column Mbe available as per template settings.



	A	B	C	D	E	F	G	H	I	J	K
1	BDM										
2	TagParameterList										
3	TagName	FBTtype	Area	ortComme	LongComment	Mba	Mbe	Hy1	Lf1	Mp1	Hy2
4	TL010PI01_R	M_ANA	A	TBN L/O F	TBN LUBE OIL PRESS	0.000000	100.00	3.000000	FALSE	255	3.000000
5	TL019PI01	M_ANA	A	TBN C/O F	TBN CNTROL OIL PRESS	0.000000	100.00	3.000000	FALSE	255	3.000000
6	TL019SI01	M_ANA	A	TBN SPEE	TURBINE SPEED	0.000000	100.00	3.000000	FALSE	255	3.000000
7	TL019TI01	M_ANA	A	IN-A BRG	TBN IN-A TRS BRG TEMP	0.000000	100.00	3.000000	FALSE	255	3.000000
8	TL019TI02	M_ANA	A	ACT BRG	TBN ACT TRS BRG TEMP	0.000000	100.00	3.000000	FALSE	255	3.000000
9	TL019TI03	M_ANA	A	GOV BRG	TBN GOV JRL BRG TEMP	0.000000	100.00	3.000000	FALSE	255	3.000000
10	TL019TI04	M_ANA	A	CPL BRG	TBN CPL JRL BRG TEMP	0.000000	100.00	3.000000	FALSE	255	3.000000
11	TL019TI05	M_ANA	A	PN T-BRG	PINION TBN BRG TEMP	0.000000	100.00	3.000000	FALSE	255	3.000000
12	TL019TI06	M_ANA	A	PN G-BRG	PINION GEN BRG TEMP	0.000000	100.00	3.000000	FALSE	255	3.000000
13	TL019TI07	M_ANA	A	WL T-BRG	WHEEL TBN BRG TEMP	0.000000	100.00	3.000000	FALSE	255	3.000000
14	TL019TI08	M_ANA	A	WL G-BRG	WHEEL GEN BRG TEMP	0.000000	100.00	3.000000	FALSE	255	3.000000
15	TS001PI01	M_ANA	A	TBN IN PR	TBN INLET STEAM PRESS	0.000000	100.00	3.000000	FALSE	255	3.000000
16	TS001TI01	M_ANA	A	TBN IN TE	TBN INLET STEAM TEMP	0.000000	100.00	3.000000	FALSE	255	3.000000

Figure 34. M_ANA tab before modification

6. Modify the *Mbe* value (e.g. Mbe changed from 100.00 to 500.00 for all the instances of function block M_ANA).



	A	B	C	D	E	F	G	H	I	J	K
1	BDM										
2	TagParameterList										
3	TagName	FBTtype	Area	ortComme	LongComment	Mba	Mbe	Hy1	Lf1	Mp1	Hy
4	TL010PI01_R	M_ANA	A	TBN L/O F	TBN LUBE OIL PRESS	0.000000	500.000000	3.000000	FALSE	255	3.000
5	TL019PI01	M_ANA	A	TBN C/O F	TBN CNTROL OIL PRESS	0.000000	500.000000	3.000000	FALSE	255	3.000
6	TL019SI01	M_ANA	A	TBN SPEE	TURBINE SPEED	0.000000	500.000000	3.000000	FALSE	255	3.000
7	TL019TI01	M_ANA	A	IN-A BRG	TBN IN-A TRS BRG TEMP	0.000000	500.000000	3.000000	FALSE	255	3.000
8	TL019TI02	M_ANA	A	ACT BRG	TBN ACT TRS BRG TEMP	0.000000	500.000000	3.000000	FALSE	255	3.000
9	TL019TI03	M_ANA	A	GOV BRG	TBN GOV JRL BRG TEMP	0.000000	500.000000	3.000000	FALSE	255	3.000
10	TL019TI04	M_ANA	A	CPL BRG	TBN CPL JRL BRG TEMP	0.000000	500.000000	3.000000	FALSE	255	3.000
11	TL019TI05	M_ANA	A	PN T-BRG	PINION TBN BRG TEMP	0.000000	500.000000	3.000000	FALSE	255	3.000
12	TL019TI06	M_ANA	A	PN G-BRG	PINION GEN BRG TEMP	0.000000	500.000000	3.000000	FALSE	255	3.000

Figure 35. M_ANA tab after modifications

7. Save and close the Excel sheet
8. Click **Import** in the BDM main dialog box.

The BDM preview dialog is displayed as shown in Figure 36.

Select the corresponding FBClass under **Parameterization > Modified Parameters**.

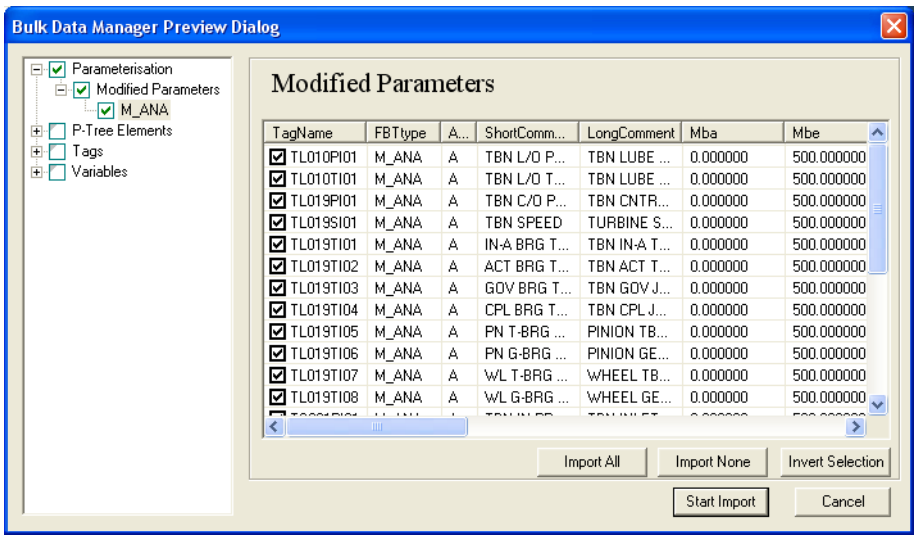


Figure 36. Preview dialog FB-parameterization

9. Click **Start import**

Import finished screen is displayed

Figure 37. Import finished

10. Click **OK**.

Freelance Engineering is launched with the corresponding session file.

2.7 Session management

Session management in BDM provides the capability to have intermediate copies of Freelance Engineering project file for each session.

When a BDM session is started, a copy of the original project (e.g. test.pro) is saved in the folder **<FreelanceData>\Proj\BDM\test** as **test_1.pro**. All the bulk operations are executed by opening this project in Freelance Engineering.

- In the subsequent sessions using the same project, a copy of the previously saved project *test_1.pro* (i.e. test_2.pro, test_3.pro and so on) is created.
- At the close of the session, Freelance Engineering saves the project as *test_<session_no>.pro*, where *session_no* is the number of the session.

2.7.1 Start session

When a BDM session is started using **Start session** with the original project (test.pro), a folder with the project name (test) is created in **<FreelanceData>\proj\BDM** and the project is copied to this folder by the name *test_1.pro*. Subsequent operations in this session are carried out on this file.

2.7.2 Close session

When the BDM session is closed using **Close session**, the current session file gets saved and closed.

Example:

If the current session number is 19 then the current session file *test_19.pro* is saved in the folder **<FreelanceData>\Proj\BDM\test** and is closed.

2.7.3 Abort session

When the BDM session is closed using **Abort session**, the current session file gets deleted.

Example:

If the current session number is 19 then the current session file *test_19.pro* is deleted from the folder **<FreelanceData>\Proj\BDM\test**.

2.7.4 Commit session

On **Commit session,**

- The current running session file will be closed and copied to the original location of the project (Example: If the current session number is 19 then the current session file *test_19.pro* is copied to the original folder where test.PRO is located.)
- BDM renames the original project file (*test.pro*) with *<test_ddmmyyhhmmss>.pro*.
- BDM renames the copied session file to original project name (Example: *test_19.pro* to *test.pro*).
- The *test* folder located at **<FreelanceData>\proj\BDM** is deleted along with the other session files.
- System displays the message as shown in Figure 38.

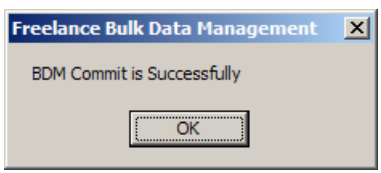


Figure 38. BDM commit successful message

It is possible to revert back to previous session by deleting the current active session file from **<FreelanceData>\proj \BDM\test**.

Example:

Test.pro will be saved as test_1.pro for the first session and test_10.pro for the tenth session. If required it is possible to revert back to the ninth session by deleting the test_10.pro session. Similarly to revert back to the sixth session the session files test_7.pro, test_8.pro, test_9.pro and test_10.pro have to be deleted.

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