

# **TIA PORTAL OPENNESS**

**(Funcionalidades)**

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# 1. Main folder files list

Tendo em conta a quantidade de ficheiros que são gerados por parte do programa, foi criada uma estrutura de pastas para facilitar a organização dos mesmos.

Todas estas pastas são criadas automaticamente quando iniciado o TIA Portal Openness.

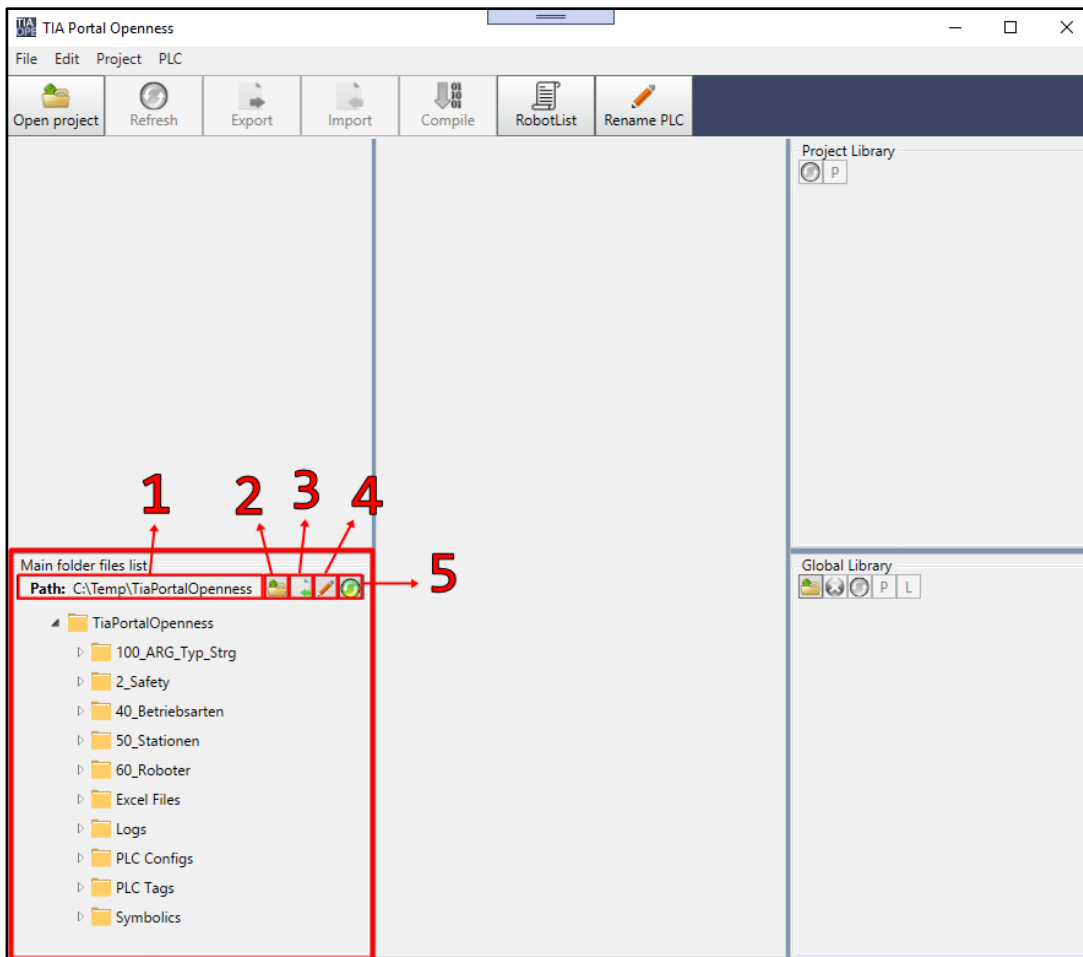


Figura 1 - Main folder files list (Ações)

Conforme mostrado na Figura 1, esta funcionalidade é composta por cinco principais pontos:

1. **Path:** Mostra onde está guardada a estrutura de pastas (pode ser alterado nas “*Settings*”);
2. **Import files from folder:** Permite selecionar uma pasta e de seguida o programa identificará automaticamente os ficheiros XML que sejam do tipo “*Symbolic*” ou “*PLC Tag*”, e os ficheiros Excel do tipo “*Symbolic*”, “*PLC DB*” ou “*Sequence*”, depois importa para a pasta “*Excel Files*” os ficheiros Excel, para a pasta “*Symbolics*” os ficheiros do tipo “*Symbolic*” e para a pasta “*PLC Tags*” os ficheiros do tipo “*PLC Tag*”;
3. **Import files:** Permite a múltipla seleção de ficheiros e organiza-os de maneira semelhante à opção “*Import files from folder*”;
4. **Edit file:** Caso o ficheiro selecionado da lista seja válido, o programa irá abrir o formulário correto com base na formatação do mesmo;
5. **Refresh navigation:** Usado para atualizar a lista de pastas / ficheiros.

## 2. PLC DB

### 2.1. PLC DB Generator

Esta janela é aberta depois de selecionado um ficheiro Excel do tipo “PLC DB” na “Main Folder Files List”.

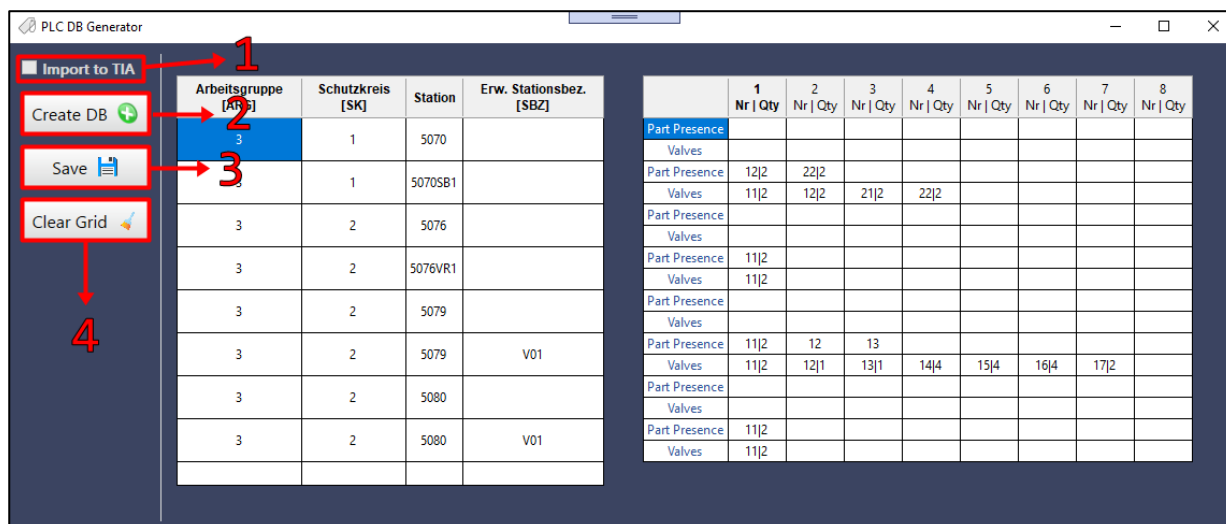


Figura 2 - PLC DB Generator (Ações)

Conforme mostrado na Figura 2, é possível realizar quatro ações:

- 1. Import to TIA:** Se existir uma ligação estável, importa todos os ficheiros gerados para o TIA Portal;
- 2. Create DB:** Gera as seguintes bases de dados em XML:
  - 2\_Safety (DB-Answender)
    - >F
    - F>
  - 40\_Betriebsarten (DB-Anwender)
  - 50\_Stationen (DB-Anwender)
  - 100\_ARG\_Typ\_Strg (DB-Anwender)
- 3. Save:** Grava diretamente na folha de Excel os valores das tabelas;
- 4. Clear Grid:** Limpa todos os valores das tabelas.

## 2.2. PLC Tags

Esta janela é aberta depois de selecionada a Worksheet “PLC Tags” de um ficheiro Excel do tipo “PLC DB”, ou um ficheiro XML do tipo “PLC Tag” na “Main Folder Files List”.

* 1	2 Name	3 Path	Data Type	Logical Address	Comment	Hmi Visible	Hmi Accessible	Hmi Writable
1	3IA1PFK83PIN1	EA_STEP7symbols	BOOL	%A0.0	Standmenge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	3IA1PFK83PIN2	EA_STEP7symbols	BOOL	%A0.1	Standmenge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	3IA1PFK83PIN3	EA_STEP7symbols	BOOL	%A0.2	Standmenge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	3AB1K200	EA_STEP7symbols	BOOL	%A2.0	Zentralabsaugung Ein	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	31IG1PFRES1	EA_STEP7symbols	BOOL	%A82.0	Reserve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	31IG1PFWE2_3	EA_STEP7symbols	BOOL	%A82.1	Reserve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	31IG1PFWE2_2	EA_STEP7symbols	BOOL	%A82.2	Reserve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	31IG1PFWE2_1	EA_STEP7symbols	BOOL	%A82.3	Reserve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	31IG1PFRES2	EA_STEP7symbols	BOOL	%A82.4	Reserve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	31IG1PFLBGS1	EA_STEP7symbols	BOOL	%A82.5	Freigabe Schutzbereich	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	31IG1PFLK90	EA_STEP7symbols	BOOL	%A82.6	Freigabe Zutritt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	31IG1PFLK40E	EA_STEP7symbols	BOOL	%A82.7	Start Ein	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	31IG1AM1PFK91	EA_STEP7symbols	BOOL	%A85.0	Verklemmanzeige Schutzbereich	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	325075R01PFWE7	EA_STEP7symbols	BOOL	%A118.0	E7 Prozessgeschwindigkeit bei Single-Step	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	32IG1PFWE2_3	EA_STEP7symbols	BOOL	%A118.1	Reserve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	32IG1PFWE2_2	EA_STEP7symbols	BOOL	%A118.2	Reserve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	325075R01PFWE2	EA_STEP7symbols	BOOL	%A118.3	E2 Überbrückung Schutzkreis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	32IG1PFRES2	EA_STEP7symbols	BOOL	%A118.4	Reserve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	32IG1PFLBGS1	EA_STEP7symbols	BOOL	%A118.5	Freigabe Schutzbereich	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	32IG1PFLK90	EA_STEP7symbols	BOOL	%A118.6	Freigabe Zutritt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	32IG1PFLK40E	EA_STEP7symbols	BOOL	%A118.7	Start Ein	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	32IG1AM1PFK91	EA_STEP7symbols	BOOL	%A121.0	Verklemmanzeige Schutzbereich	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	3IB1I01SFWE7	EA_STEP7symbols	BOOL	%A121.4	E7-Überbrückung Verriegelung Nebenbedienpult	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	325080R03PFWE2	EA_STEP7symbols	BOOL	%A154.0	E2 Überbrückung Schutzkreis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	325080R02PFWE2	EA_STEP7symbols	BOOL	%A154.1	E2 Überbrückung Schutzkreis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	325080R01PFWE2	EA_STEP7symbols	BOOL	%A154.2	E2 Überbrückung Schutzkreis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figura 3 - PLC Tags (Ações)

Conforme mostrado na Figura 3, é possível realizar quatro ações:

1. **Save:** Grava diretamente na folha de Excel os valores da tabela (apenas se esta janela tiver sido aberta com base num ficheiro Excel);
2. **Clear:** Limpa os valores da tabela;
3. **Generate:** Gera as PLC Tags em ficheiros XML com base nos valores da tabela, e guarda os ficheiros gerados na pasta “PLC Tags”;
4. **Import to TIA:** Se existir uma ligação estável, importa todos os ficheiros gerados para o TIA Portal.

## 3. Symbolic

### 3.1. Select Robot

Esta janela é aberta depois de selecionado um ficheiro Excel do tipo “*Symbolic*” na “*Main Folder Files List*”.

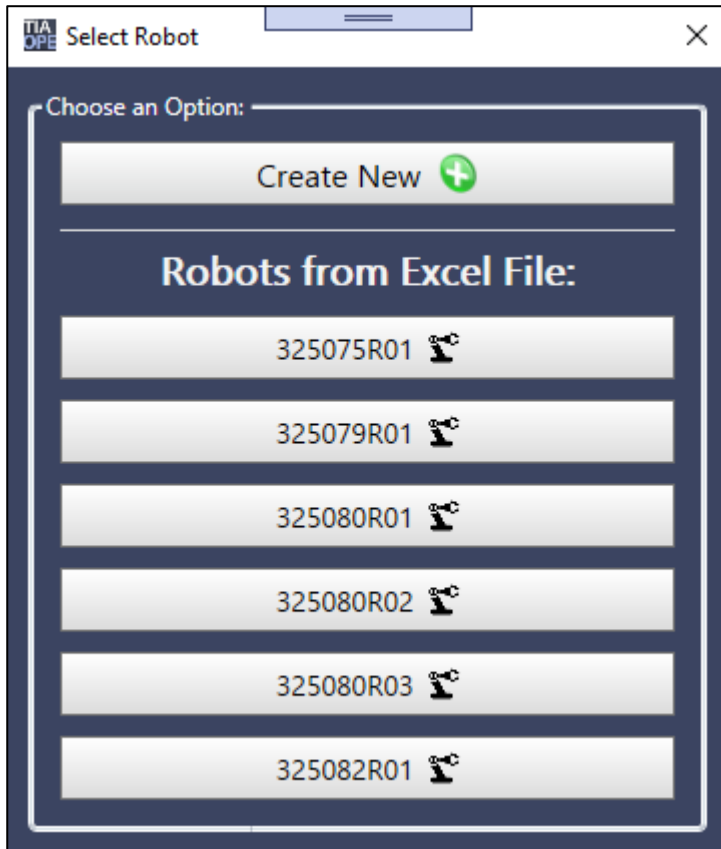


Figura 4 - Symbolic, janela "Select Robot"

A primeira janela a ser mostrada é a “*Select Robot*”, onde podemos criar um novo simbólico (botão “*Create New*”) ou selecionar um existente na folha de Excel.

Depois de selecionada uma opção, a janela “*Generate Symbolic*” aparecerá.



## 3.2. Generate Symbolic

**NOTA:** Se um ficheiro XML do tipo “Symbolic” for selecionado na “Main Folder Files List”, esta será a primeira janela a ser apresentada.

**Name:** 325075R01

**StartAddress:** 1024

**Rob Safe:** Range Monitoring

**Type:** Basic Slave

**Technologies:**

	Name	
1	Bolzenschweissen_BZ1_Option12	<input type="checkbox"/>
2	Bolzenschweissen_BZ2_Option9	<input type="checkbox"/>
3	Buckeln_BM1_Option5	<input type="checkbox"/>
4	Buckeln_Var2_BM1_Option5	<input type="checkbox"/>
5	Buersten_Schleifkopf_BU1_Option9	<input type="checkbox"/>
6	Buersten_Schleifkopf_BU2_Option10	<input type="checkbox"/>
7	Clean_Laser_LR1_Option3	<input type="checkbox"/>
8	Docken_Fraesen_Schwenken_Reinigen (bei Basic-Slave immer benutzen)	<input checked="" type="checkbox"/>
9	Drahtabschneider_DA_Option11	<input type="checkbox"/>
10	Durchsetzfuegen_Pneumohydraulisch_(Flatclinch) CZ1_Option7	<input type="checkbox"/>
11	Durchsetzfuegen_Pneumohydraulisch_CZ1_Option7	<input type="checkbox"/>
12	Durchsetzfuegen_Pneumohydraulisch_CZ2_Option5	<input type="checkbox"/>
13	Durchsetzfuegen_Servo_CZ1_OptionD	<input type="checkbox"/>
14	Durchsetzfuegen_Servo_CZ2_OptionC	<input type="checkbox"/>
15	Entmagnetisieren_EM_Option1	<input type="checkbox"/>
16	Fehlerausgabe	<input type="checkbox"/>

☐ Import tags to TIA

Create +

Figura 5 - Symbolic, janela "Generate Symbolic"

Caso seja selecionado um simbólico já criado no ficheiro Excel, todos os campos desta janela serão preenchido automaticamente com base nas opções escolhidas dentro do ficheiro.

Ao clicar no botão “Create”, será gerado o simbólico do robô num ficheiro XML (guardado na pasta “Symbolics”) com as opções escolhidas. Se existir uma conexão estável com o TIA Portal, pode ser seleccionada a opção “Import tags to TIA” que para além de gerar os ficheiros, irá importá-los diretamente para o TIA Portal.

## 4. Sequence Generator

Esta janela é aberta depois de seleccionado um ficheiro Excel do tipo “Sequence” na “Main Folder Files List”.

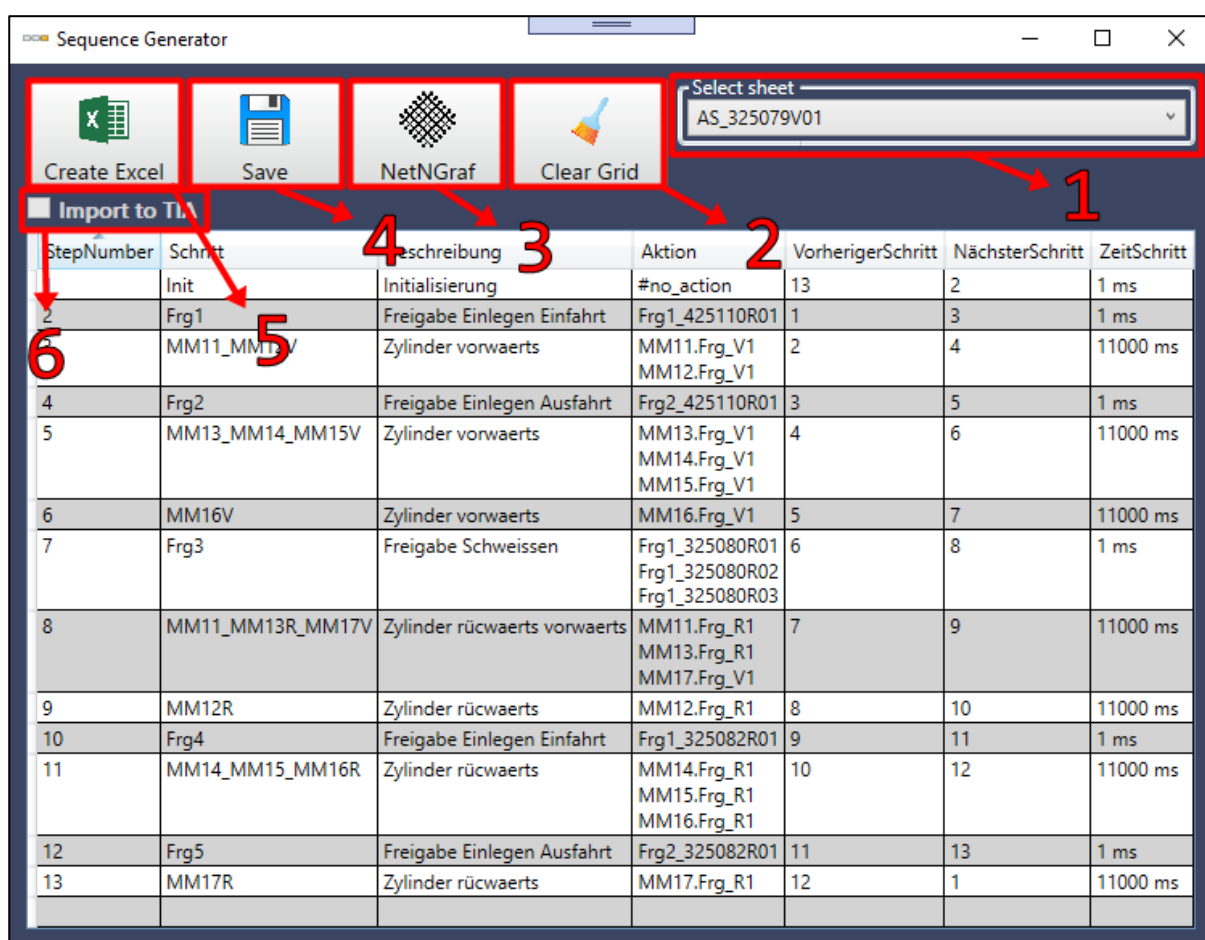


Figura 6 - Sequence Generator (Ações)

Conforme mostrado na Figura 6, é possível realizar seis ações:

1. **Select Sheet:** Permite selecionar uma *Worksheet* do ficheiro Excel que se pretende alterar;
2. **Clear Grid:** Limpa os valores da tabela;
3. **NetNGraf:** Gera um *Grafcet* com os valores da tabela e guarda os ficheiros XML gerados na pasta “50\_Stationen”;
4. **Save:** Grava diretamente na folha de Excel os valores da tabela;
5. **Create Excel:** 4.1;
6. **Import to TIA:** Se existir uma ligação estável, importa todos os ficheiros gerados para o TIA Portal.

## 4.1. Create Excel

Esta janela é aberta depois do botão “*Create Excel*”, presente na janela “*Sequence Generator*”, ser clicado.

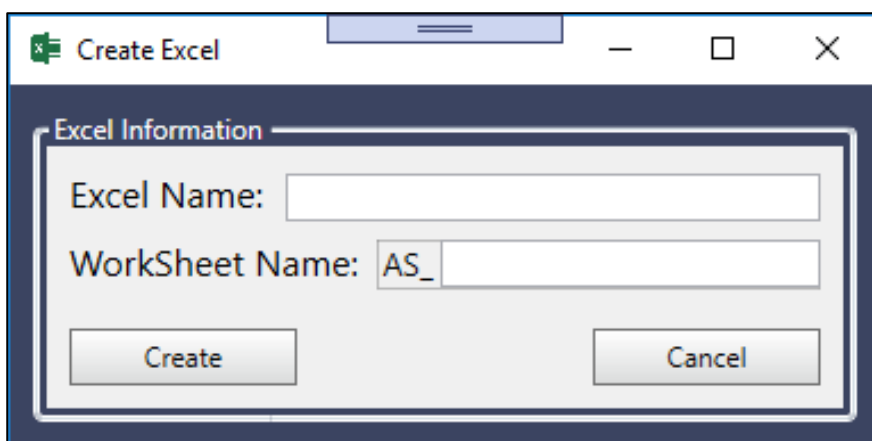


Figura 7 - Create Excel

Permite criar um ficheiro Excel com as informações da tabela presente na janela “*Sequence Generator*”. Depois de indicado o nome do Excel e o nome da worksheet, é gerado um ficheiro Excel guardado na pasta “*Excel Files*”.

## 5. Rename PLC

Esta janela é aberta depois do botão “*Rename PLC*”, presente na janela principal “*Main Window*”, ser clicado.

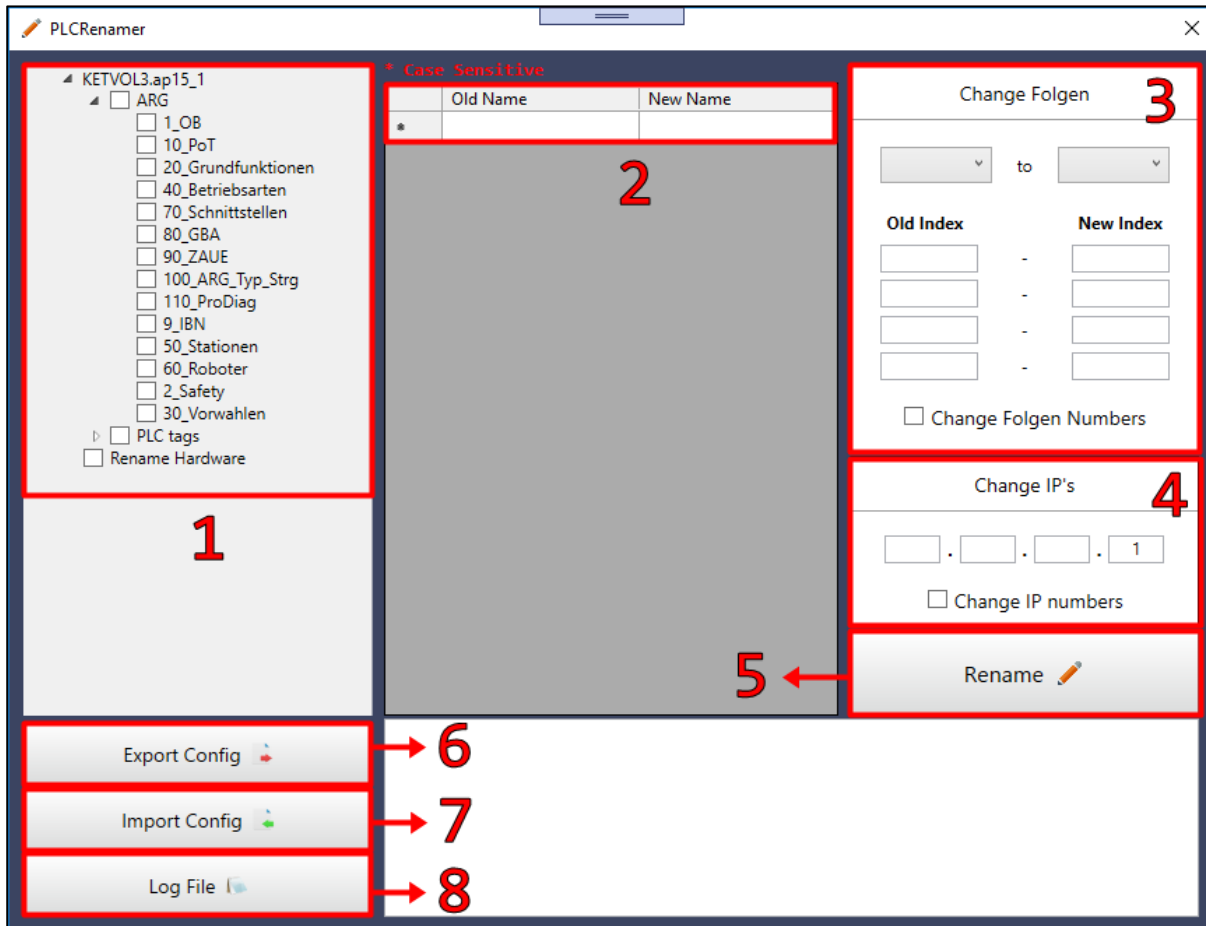


Figura 8 - Funcionalidades Rename PLC

Esta janela tem como principal objetivo a renomeação de um *PLC*. Para tal, é necessário:

1. **Selecionar o que se pretende alterar:** Grupos, *PLC Tags*, ou *Hardware*;
2. **Indicar a alteração:** Texto antigo e o novo texto a substituir;
3. **Alterar *Folges*:** Caso se pretenda alterar as *Folges*, deve-se selecionar a opção “*Change Folgen Numbers*” e indicar quais os números das *Folges* antigas e quais os novos números;
4. **Alterar IP's (hardware):** Caso se pretenda alterar os IP's, deve-se selecionar a opção “*Change IP numbers*” e indicar para qual IP alterar.

Podem ainda ser realizadas quatro ações nesta janela:

5. **Rename:** Renomeia o *PLC* com as opções escolhidas e, no fim do processo, guarda em ficheiro de texto, dentro da pasta “*Log Files*”, as alterações feitas;
6. **Export Config:** Exporta as opções escolhidas em formato *XML* (este ficheiro é gravado com o nome do projeto do TIA Portal);
7. **Import Config:** Permite a importação de um ficheiro *XML* contendo as opções a serem utilizadas na renomeação;
8. **Log File:** Abre, no bloco de notas, as alterações já feitas ao *PLC* (caso exista um ficheiro de texto guardado na pasta “*Log Files*” com o mesmo nome do projeto no TIA Portal).

**NOTA:** Tendo em conta que a plataforma TIA Portal não suporta a importação ou alteração de blocos de segurança, e que não é possível realizar um “*Find & Replace*” dentro dos blocos / tags utilizando uma aplicação externa, esta funcionalidade só pode ser realizada da seguinte forma:

1. Exporta os blocos / tags selecionados;
2. Elimina os blocos no TIA Portal;
3. Renomeia os blocos / tags exportados para os novos textos;
4. Importa os blocos / tags modificados.

Se algum bloco / tag não for importado (normalmente porque tem presente na sua estrutura elementos de segurança) um aviso aparecerá no final do processo a indicar quais foram esses blocos / tags, e o caminho para os encontrar.

A alteração dos IP's e renomeação do *Hardware* é feito sem necessitar de exportação.

## 6. RobotList

A funcionalidade “*RobotList*” abre o ficheiro Excel “*Schnittstelle*” escolhido nas “*Settings*” e percorre todas as *Worksheets* referentes a robôs e gera, com base na informação contida em cada *Worksheet*, um ficheiro XML com as informações recolhidas do robô e outro contendo a sua base de dados (*DB\_Anwender*). Estes ficheiros são guardados dentro da pasta “*60\_Roboter*”.

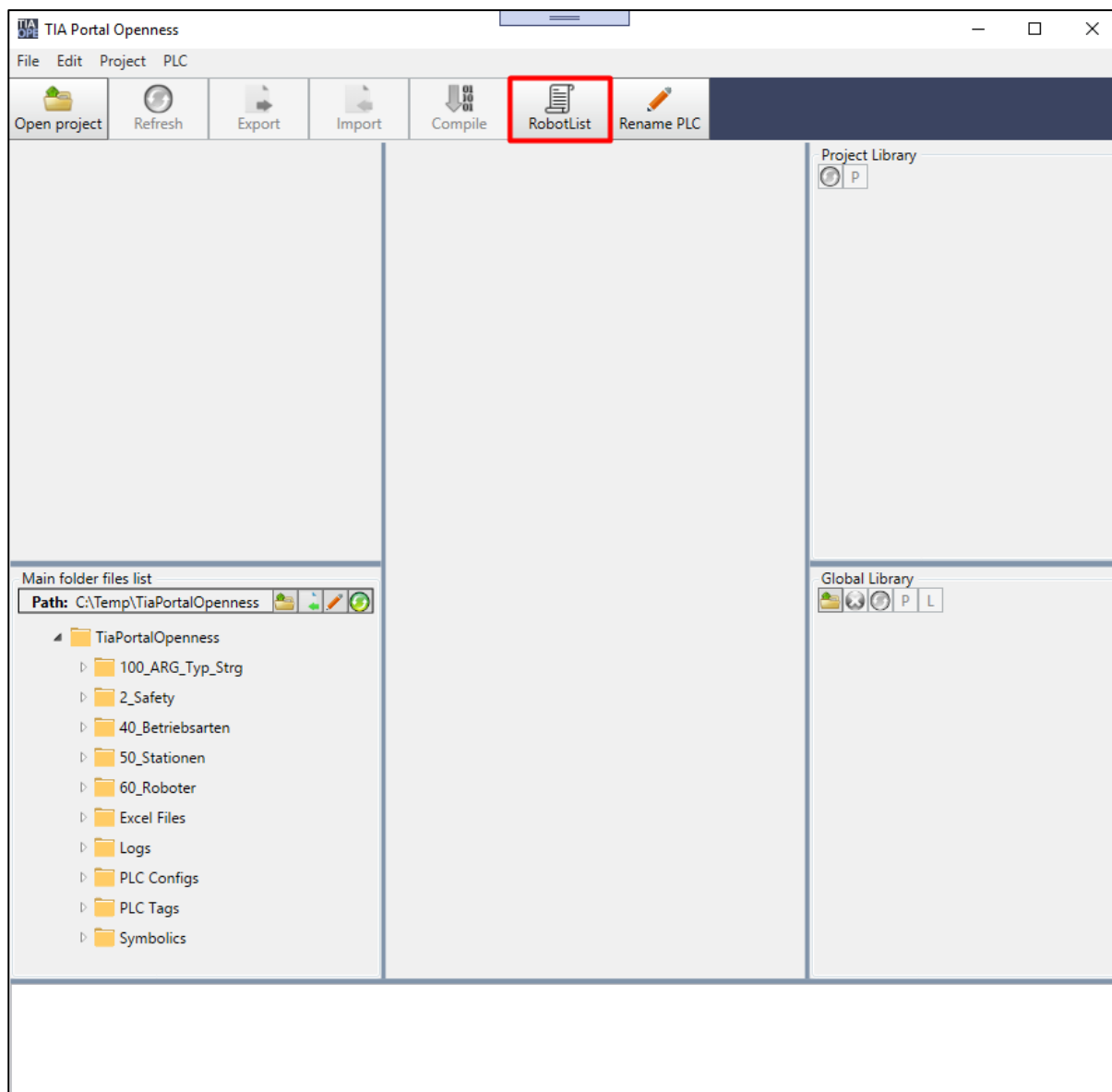


Figura 9 - Funcionalidade “*RobotList*”

## 7. Hardware Generator

Esta janela é aberta depois do botão “*Generate HW*”, presente na janela principal “*Main Window*”, ser clicado. Para este botão poder ser clicado, é necessário que exista uma conexão ao TIA Portal.

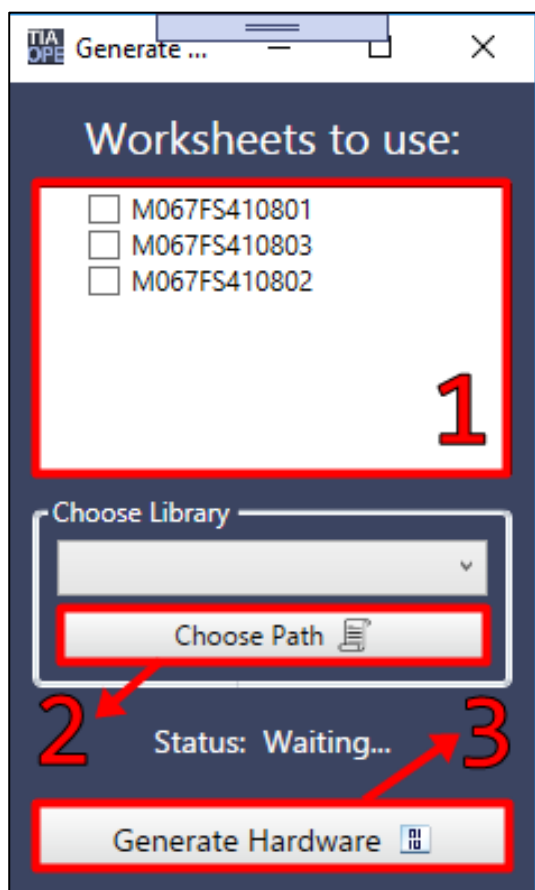


Figura 10 – Hardware Generator (Ações)

Conforme mostrado na Figura 10, é possível realizar três ações:

1. **Select Worksheets:** Permite selecionar as *Worksheets*, do ficheiro Excel “*NetworkList*”, que se pretendem utilizar na criação do *hardware*;
2. **Choose Path / Choose TIA Library:** Permite alterar entre utilizar uma livreria presente no TIA Portal, ou selecionar um ficheiro;
3. **Generate Hardware:** Gera o *hardware* diretamente no TIA Portal.

## 8. Formatação correta de ficheiros

Para que os ficheiros sejam identificados corretamente na “*Main Folder Files List*”, é necessária a leitura de uma parte dos mesmos.



## 8.1. Ficheiros Excel

### 8.1.1. PLC DB (Excel)

AF45															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
1	Generate	Arbeitsgruppe [ARG]	Schutkreis [SK]	Station	Erw. Stationsbez. [SBZ]			1	2	3	4	5	6	7	
2								Nr   Qty							
3							Part Presence								
4	X	3	1	5070			Valves								
5							Part Presence	12   2	22   2						
6	X	3	1	5070SB1			Valves	11   2	12   2	21   2	22   2				
7							Part Presence								
8	X	3	2	5076			Valves								
9							Part Presence	11   2							
10	X	3	2	5076VR1			Valves	11   2							
11							Part Presence								
12	X	3	2	5079			Valves								
13							Part Presence	11   2	12	13					
14	X	3	2	5079	V01		Valves	11   2	12   1	13   1	14   4	15   4	16   4	17   2	
15							Part Presence								
16	X	3	2	5080			Valves								
17							Part Presence	11   2							
18	X	3	2	5080	V01		Valves	11   2							
19							Part Presence								
20	X						Valves								
21							Part Presence								
22	X						Valves								
23							Part Presence								
24	X						Valves								
25							Part Presence								
26	X						Valves								
27							Part Presence								
28	X						Valves								
29							Part Presence								
30	X						Valves								
31							Part Presence								
32	X						Valves								
33							Part Presence								
34	X						Valves								
35							Part Presence								
36	X						Valves								
37							Part Presence								
38	X						Valves								
39							Part Presence								
40	X						Valves								
41							Part Presence								
42	X						Valves								
43							Part Presence								
44	X						Valves								
45							Part Presence								
46							Valves								

Figura 11 – Formatação Excel “PLC DB”

Para a correta identificação do ficheiro de Excel “PLC DB”, é necessário que este contenha:

- Uma *Worksheet* com o nome “EngAssist”;
  - A célula A2 com a palavra “Generate”;
  - A célula B2 com a palavra “Arbeitsgruppe”;
  - A célula C2 com a palavra “Schutkreis”;
  - A célula D2 com a palavra “Station”;
  - A célula E2 com a palavra “Erw.”.

### 8.1.1.1. Worksheet “PLC Tags” (Excel)

	A	B	C	D	E	F	G	H
1	Name	Path	Data Type	Logical Address	Comment	Hmi Visible	Hmi Accessible	Hmi Writeable
2	3IA1PFK83PIN1	EA_STEP7 symbols	BOOL	%A0.0	Standmenge	false	false	false
3	3IA1PFK83PIN2	EA_STEP7 symbols	BOOL	%A0.1	Standmenge	false	false	false
4	3IA1PFK83PIN3	EA_STEP7 symbols	BOOL	%A0.2	Standmenge	false	false	false
5	3AB1K200	EA_STEP7 symbols	BOOL	%A2.0	Zentralabsaugung Ein	false	false	false
6	31IG1PFRES1	EA_STEP7 symbols	BOOL	%A82.0	Reserve	false	false	false
7	31IG1PFWE2_3	EA_STEP7 symbols	BOOL	%A82.1	Reserve	false	false	false
8	31IG1PFWE2_2	EA_STEP7 symbols	BOOL	%A82.2	Reserve	false	false	false
9	31IG1PFWE2_1	EA_STEP7 symbols	BOOL	%A82.3	Reserve	false	false	false
10	31IG1PFRES2	EA_STEP7 symbols	BOOL	%A82.4	Reserve	false	false	false
11	31IG1PFLBGS1	EA_STEP7 symbols	BOOL	%A82.5	Freigabe Schutzbereich	false	false	false
12	31IG1PFLK90	EA_STEP7 symbols	BOOL	%A82.6	Freigabe Zutritt	false	false	false
13	31IG1PFLK40E	EA_STEP7 symbols	BOOL	%A82.7	Start Ein	false	false	false
14	31IG1AM1PFK91	EA_STEP7 symbols	BOOL	%A85.0	Verklemmmanzeige Schutzbereich	false	false	false
15	32S07SR01PFWE7	EA_STEP7 symbols	BOOL	%A118.0	E7 Prozessgeschwindigkeit bei Single-Step	false	false	false
16	32IG1PFWE2_3	EA_STEP7 symbols	BOOL	%A118.1	Reserve	false	false	false
17	32IG1PFWE2_2	EA_STEP7 symbols	BOOL	%A118.2	Reserve	false	false	false
18	32S07SR01PFWE2	EA_STEP7 symbols	BOOL	%A118.3	E2 Überbrückung Schutzkreis	false	false	false
19	32IG1PFRES2	EA_STEP7 symbols	BOOL	%A118.4	Reserve	false	false	false
20	32IG1PFLBGS1	EA_STEP7 symbols	BOOL	%A118.5	Freigabe Schutzbereich	false	false	false
21	32IG1PFLK90	EA_STEP7 symbols	BOOL	%A118.6	Freigabe Zutritt	false	false	false
22	32IG1PFLK40E	EA_STEP7 symbols	BOOL	%A118.7	Start Ein	false	false	false
23	32IG1AM1PFK91	EA_STEP7 symbols	BOOL	%A121.0	Verklemmmanzeige Schutzbereich	false	false	false
24	3IB1I01SFWE7	EA_STEP7 symbols	BOOL	%A121.4	E7-Überbrückung Verriegelung Nebenbedienpult	false	false	false
25	32S08OR03PFWE2	EA_STEP7 symbols	BOOL	%A154.0	E2 Überbrückung Schutzkreis	false	false	false
26	32S08OR02PFWE2	EA_STEP7 symbols	BOOL	%A154.1	E2 Überbrückung Schutzkreis	false	false	false
27	32S08OR01PFWE2	EA_STEP7 symbols	BOOL	%A154.2	E2 Überbrückung Schutzkreis	false	false	false
28	32S07SR01PFWE2	EA_STEP7 symbols	BOOL	%A154.3	E2 Überbrückung Schutzkreis	false	false	false
29	32S082R01PFWE2	EA_STEP7 symbols	BOOL	%A154.4	E2 Überbrückung Schutzkreis	false	false	false
30	32IG2PFLBGS1	EA_STEP7 symbols	BOOL	%A154.5	Freigabe Schutzbereich	false	false	false
31	32IG2PFLK90	EA_STEP7 symbols	BOOL	%A154.6	Freigabe Zutritt	false	false	false
32	32IG2PFLK40E	EA_STEP7 symbols	BOOL	%A154.7	Start Ein	false	false	false
33	32IG2AM1PFK91	EA_STEP7 symbols	BOOL	%A157.0	Verklemmmanzeige Schutzbereich	false	false	false
34	3IB2I01SFWE7	EA_STEP7 symbols	BOOL	%A157.4	E7-Überbrückung Verriegelung Nebenbedienpult	false	false	false
35	32S076VR1V1K100	EA_STEP7 symbols	BOOL	%A246.0	Stellglieder Start Ventilinsel	false	false	false
36	32S08OV01V1K100	EA_STEP7 symbols	BOOL	%A246.1	Stellglieder Start Ventilinsel	false	false	false
37	32S07SR01KF1K36	EA_STEP7 symbols	BOOL	%A252.0	Schutzkreis für Schwenkeinheit	false	false	false
38	32S082R01KF1K36	EA_STEP7 symbols	BOOL	%A252.1	Schutzkreis für Schwenkeinheit	false	false	false

Figura 12 - Formatação Worksheet "PLC TAGS"

Para a correta identificação da *Worksheet* “PLC Tags”, do Excel “PLC DB”, é necessário que esta contenha:

- O nome “PLC Tags”;
  - A célula A1 com a palavra “Name”;
  - A célula B1 com a palavra “Path”;
  - A célula C1 com a palavra “Data Type”;
  - A célula D1 com a palavra “Logical Address”;
  - A célula E1 com a palavra “Comment”.

### 8.1.2. Symbolic (Excel)

	A	B	C	D	E	F	G	H	I
1	Stations								
2	Generate	Page	Station	Nummer	StartAddress IO		Sheet names		
4		KP8	31	1	0082		SEW AMA BIN		
5		KP8	32	1	0118		SEW AMA Var		
6		KP8	32	2	0154		SEW Modulo		
7							SEW Movipro ADC AMA BIN		
8							SEW Movipro ADC AMA Var		
9							SEW Movipro ADC Modulo		
10							SEW Movifit AMX RB		
11							SEW Movifit AMX VR		
12							SEW Movifit AMX TR		
13							SEW Movifit AMB		
14							Motorstarter F-RS		
15							Schweissssteuerung		
16							InlineMessen		
17							<b>Sick_S3000</b>		
18							RB_Schnittstelle		
19							FestoCMAX		
20							PMM		
21							LNK		
22							PCDaten		
23							G120D TR (freies Telegramm)		
24							G120D BIN (Telegramm 111)		
25							G120D Safety (Telegramm 30_900)		
26							Markator		
27							Bolzen		
28							KP8		
29		KP8	12	3	0082				
30		Sick_S3000	123240	12	0300				
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									

Double click to jump to page

Double click on cell A1 to get back from page

EngAssist
Changes
Export DB
Export xls
DB
Aenderungsindex
Grund
Basic\_Slave
Laser\_Slave

*Figura 13 – Formatação Excel “Symbolic”*

Para a correta identificação do ficheiro de Excel “*Symbolic*”, é necessário que este contenha:

- Uma *Worksheet* com o nome “EngAssist”;
  - A célula A2 com a palavra “Generate”;
  - A célula B2 com a palavra “Page”;
  - A célula C2 com a palavra “Station”;
  - A célula D2 com a palavra “Nummer”;
  - A célula E2 com a palavra “StartAddress”.

### 8.1.3. Sequence (Excel)

R37

✕

✓

f<sub>x</sub>

A

B

C

D

E

F

G

H

1

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11

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36

37

Schritt

Beschreibung

Aktion

vorheriger Schritt

nächster Schritt

Warning 70%

Zeit Schritt

1

Init

#no\_action

10

2

1 ms

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

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19

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Figura 14 – Formatação Excel "Sequence"

Para a correta identificação do ficheiro de Excel "Sequence", é necessário que este contenha:

- Pelo menos uma *Worksheet* com a palavra "AS\_" no nome, não sendo válida a *Worksheet* "AS\_000000";
  - A célula C3 com a palavra "Schritt";
  - A célula D3 com a palavra "Beschreibung";
  - A célula E3 com a palavra "Aktion";
  - A célula F3 com a palavra "Vorheriger";
  - A célula G3 com a palavra "Nächster";
  - A célula H3 com a palavra "Zeit".

## 8.1.4. Schnittstelle (Excel)

Y37																	
A B C D E F G H I J K L M N O P Q R S T U V W																	
Folgen		RoboterAusgänge zur SPS								RoboterEingänge von SPS				Fertigmeldungen		Technologie	
FM	Beschreibung	Freigabe	Ein	Maxi	Profil	Station	Beschreibung	Funktion	Maxi	Profil	Station	Beschreibung	Funktion	FM	Beschreibung	Beschreibung	
		24	57		000000R01467		Werkzeugfräse 24			000000R01557		Stellungfräse 24					
		23	56		000000R01468		Werkzeugfräse 23			000000R01558		Stellungfräse 23					
		22	55		000000R01469		Werkzeugfräse 22			000000R01559		Stellungfräse 22					
		21	60		000000R01480		Werkzeugfräse 21			000000R01560		Stellungfräse 21					
		20	61		000000R01481		Werkzeugfräse 20			000000R01561		Stellungfräse 20					
		19	62		000000R01482		Werkzeugfräse 19			000000R01562		Stellungfräse 19					
		18	63		000000R01483		Werkzeugfräse 18			000000R01563		Stellungfräse 18					
		17	64		000000R01484		Werkzeugfräse 17			000000R01564		Stellungfräse 17					
		16	65		000000R01485		Werkzeugfräse 16			000000R01565		Stellungfräse 16					
		15	66		000000R01486		Werkzeugfräse 15			000000R01566		Stellungfräse 15					
		14	67		000000R01487		Werkzeugfräse 14			000000R01567		Stellungfräse 14					
		13	68		000000R01488		Werkzeugfräse 13			000000R01568		Stellungfräse 13					
		12	69		000000R01489		Werkzeugfräse 12			000000R01569		Stellungfräse 12					
		11	70		000000R01470		Werkzeugfräse 11			000000R01570		Stellungfräse 11					
		10	71		000000R01471		Werkzeugfräse 10			000000R01571		Stellungfräse 10					
		9	72		000000R01472		Werkzeugfräse 9			000000R01572		Stellungfräse 9					
		8	73		000000R01473		Werkzeugfräse 8			000000R01573		Stellungfräse 8					
		7	74		000000R01474		Werkzeugfräse 7			000000R01574		Stellungfräse 7					
		6	75		000000R01475		Werkzeugfräse 6			000000R01575		Stellungfräse 6					
		5	76		000000R01476		Werkzeugfräse 5			000000R01576		Stellungfräse 5					
		4	77		000000R01477		Werkzeugfräse 4			000000R01577		Stellungfräse 4					
		3	78		000000R01478		Werkzeugfräse 3			000000R01578		Stellungfräse 3					
		2	79		000000R01479		Werkzeugfräse 2			000000R01579		Stellungfräse 2					
		1	80		000000R01480		Werkzeugfräse 1			000000R01580		Stellungfräse 1					
000000R01 HOWTO Anti-Kollisionen 32507SR01 32507SR01 32508OR01 32508OR02 32508OR03 32508OR01																	

Figura 15 - Formatação Excel “Schnittstelle”

Para a correta identificação do ficheiro de Excel “Schnittstelle”, é necessário que este contenha:

- Uma *Worksheet* com o nome “000000R01”;
  - A célula B2 com a palavra “Folgen”;
  - A célula G2 com a palavra “RoboterAusgänge zur sps”;
  - A célula M2 com a palavra “RoboterAusgänge von sps”;
  - A célula T2 com a palavra “Fertigmeldungen”;
  - A célula W2 com a palavra “Technologie”;

## 8.1.5. NetworkList (Excel)

#	A	B	C	D	E	F	G	H	I	J	K	L
1	IP-Range	10.235.6.0/23			SPS Name		Halle	709	Erstellt von			
2	Maske	255.255.254.0					Ebene	EG				
3	Gateway	10.235.6.1			FS410801		Achse	P1	Datum			
4	DNS-Server	53.26.8.31/32					SPS	3				
5	Profinet // IP-Adresse		Orts-kennung PN-A	Funktions-gruppe PN-B	Klassifizierung Gerätenummer PN-C	PN-Name 1-Teil PN-A+PN-B+PN-C	PN-Name 2-Teil m067g080sf411	Endgerätename M067FS410801	Bemerkung	Startadresse	EPLAN	PLC
7	10.235.6.1	Gateway			KF001				Gateway			
8	10.235.6.2	Router			KF002				Netzwerk			
9	10.235.6.3	Router			KF003				Netzwerk			
10	10.235.6.4	Scaleance XM16-4C	+H101	001SPS101	XF004	5101-001tps101-x004	m067g080sf411	M067FS41080SC	Netzwerk			
11	10.235.6.5	mGuard RS4000 TX/TX Firewall	+H101	001SPS101	XF005	5101-001tps101-x005	m067g080sf411	M067FS41080FW	Firewall			
12	10.235.6.6	Scaleance XC216 Stationsschrank	+H111	001EK_111	XF006	5111-001ek-111-x006	m067g080sf411		Netzwerk Switch			
13	10.235.6.7	Scaleance XC216 Stationsschrank	+H111	001EK_111	XF007	5111-001ek-111-x007	m067g080sf411		Netzwerk Switch			
14	10.235.6.8	Scaleance XF204 EBF	+P101	001BR_010	XF008	5101-001br-010-x008	m067g080sf411		Netzwerk Switch			
15	10.235.6.9	Scaleance XF204 Remote EBF	+P102	001BR_020	XF009	5102-001br-020-x009	m067g080sf411		Netzwerk Switch			
16	10.235.6.10	Scaleance XC216 Stationsschrank	+H112	001EK_112	XF010	5112-001ek-112-x010	m067g080sf411		Netzwerk Switch			
17	10.235.6.11	Scaleance XC216 Stationsschrank	+H112	001EK_112	XF011	5112-001ek-112-x011	m067g080sf411		Netzwerk Switch			
18	10.235.6.12								Netzwerk Switch			
19	10.235.6.13								Netzwerk Switch			
20	10.235.6.14								Netzwerk Switch			
21	10.235.6.15								Netzwerk Switch			
22	10.235.6.16								Reserviert durch IT			
23	10.235.6.17								Reserviert durch IT			
24	10.235.6.18								Reserviert durch IT			
25	10.235.6.19								SPS			
26	10.235.6.20	S7-1500 CPU 1517F	+H101	001SPS101	KF020	5101-001tps101-x020	m067g080sf411	M067FS410801	HMI EBF	10		
27	10.235.6.21	KP32F-PN-PROFIsafe	+P101	001BR_010	KF021	5101-001br-010-x021	m067g080sf411					
28	10.235.6.22	ET200sp F-PME	+H111	001EK_111	KF023	5111-001ek-111-x023	m067g080sf411		Reserviert ET200sp All Energy Power Meter	200		
29	10.235.6.23	ET200sp AI Energy Meter	+H001	001EA001	KF024	5001-001tea001-x024	m067g080sf411			500, 1000, 1100		
30	10.235.6.24											
31	10.235.6.25											
32	10.235.6.26											
33	10.235.6.27								Frei			
34	10.235.6.28	Locc-Box	+H111	001EK_111	KF028	5111-001ek-111-x028	m067g080sf411		Locc-Box	100		
35	10.235.6.29	VI Switch	+P100	001VWAS001	FN029	5100-001was001-x029	m067g080sf411		Reserviert VI Switch in Zentral SPS	80		
36	10.235.6.30	KP32F-PN-PROFIsafe	+P102	001BR_020	KF030	5102-001br-020-x030	m067g080sf411		HMI Remote EBF	40		
37	10.235.6.31	EATON Gateway	+H011	001EEA011	KF031	5011-001tea011-x031	m067g080sf411		Reserviert EATON Gateway +H011	700		
38	10.235.6.32											
39	10.235.6.33								Frei			
40	10.235.6.34	ET200sp F-PME	+H112	001EK_112	KF034	5112-001ek-112-x034	m067g080sf411			860		
41	10.235.6.35	Locc-Box	+H112	001EK_112	KF035	5112-001ek-112-x035	m067g080sf411		Locc-Box	350		
42	10.235.6.36	PN-PN Coupler	+H101	001EV001	KF036	5101-001ev-001-x036	m067g080sf411			9200		
43	10.235.6.37	PN-PN Coupler	+H101	001EV001	#NAME?	#NAME?	#NAME?			9100		
44	10.235.6.38	PN-PN Coupler	+H101	003EV001	#NAME?	#NAME?	#NAME?			9200		

Figura 16 - Formatação Excel "NetworkList"


Para a correta identificação do ficheiro de Excel "NetworkList", é necessário que este contenha:

- Pelo menos uma *Worksheet* que contenha:
  - A célula A5 com a palavra "Profinet";
  - A célula B5 com a palavra "Endgerätetyp";
  - A célula C5 com a palavra "Orts-";
  - A célula D5 com a palavra "Funktions-";
  - A célula E5 com a palavra "Klassifizierer";
  - A célula F5 com a palavra "PN-Name 1";
  - A célula G5 com a palavra "PN-Name 2";
  - A célula H5 com a palavra "Endgerätename";
  - A célula I5 com a palavra "Bemerkung";
  - A célula J5 com a palavra "Startadresse";

## 8.2. Ficheiros XML

### 8.2.1. Symbolic (XML)

Para a correta identificação do ficheiro XML “*Symbolic*”, é necessário que este apresente a seguinte estrutura:



```
<?xml version="1.0" encoding="utf-8"?>
<Document>
  <Robot name="" startaddress="" robsafe="" type="">
    <Default>
      <Base>
        <Tag symbolic="" datatype="" address="" comment="" />
        <!-- (...) -->
        <!-- (...) -->
        <!-- (...) -->
      </Base>
      <Technologies>
        <Basicslave>
          <Tag fbnumber="" symbolic="" datatype="" address="" comment="">NAME</Tag>
          <!-- (...) -->
          <!-- (...) -->
          <!-- (...) -->
        </Basicslave>
        <Laserslave>
          <Tag fbnumber="" symbolic="" datatype="" address="" comment="">NAME</Tag>
          <!-- (...) -->
          <!-- (...) -->
          <!-- (...) -->
        </Laserslave>
      </Technologies>
      <Robsafe>
        <Rangemonitoring>
          <Tag symbolic="" datatype="" address="" comment="" />
          <!-- (...) -->
          <!-- (...) -->
          <!-- (...) -->
        </Rangemonitoring>
        <Operation>
          <Tag symbolic="" datatype="" address="" comment="" />
          <!-- (...) -->
          <!-- (...) -->
          <!-- (...) -->
        </Operation>
      </Robsafe>
    </Default>
    <Technologies>
      <Technologie>NAME</Technologie>
      <!-- (...) -->
      <!-- (...) -->
      <!-- (...) -->
    </Technologies>
  </Robot>
</Document>
```

Figura 17 - Formatação XML "Symbolic"

**NOTA:** Este ficheiro é gerado automaticamente quando criado um novo simbólico de um robô.

## 8.2.2. PLC Tag (XML)

Para a correta identificação do ficheiro XML “PLC Tag”, é necessário que este contenha o elemento “SW.Tags.PlcTagTable” dentro da sua estrutura:



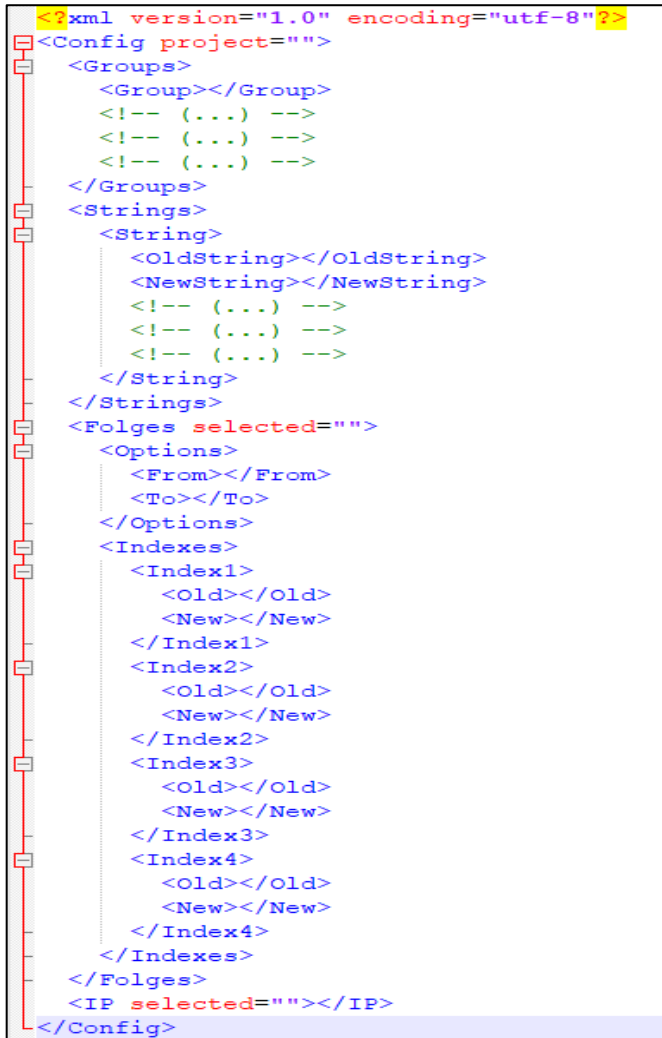
```
<?xml version="1.0" encoding="utf-8"?>
<Document>
  <Engineering version="V15" />
  <DocumentInfo>
    <Created>2020-01-10T11:19:29 </Created>
    <ExportSettings>WithDefaults, WithReadOnly</ExportSettings>
    <InstalledProducts>
      <Product>
        <DisplayName>Totally Integrated Automation Portal</DisplayName>
        <DisplayVersion>V15</DisplayVersion>
      </Product>
      <OptionPackage>
        <DisplayName>TIA Portal Openness</DisplayName>
        <DisplayVersion>V15</DisplayVersion>
      </OptionPackage>
      <Product>
        <DisplayName>STEP 7 Professional</DisplayName>
        <DisplayVersion>V15</DisplayVersion>
      </Product>
      <OptionPackage>
        <DisplayName>STEP 7 Safety</DisplayName>
        <DisplayVersion>V15</DisplayVersion>
      </OptionPackage>
      <Product>
        <DisplayName>WinCC Professional</DisplayName>
        <DisplayVersion>V15</DisplayVersion>
      </Product>
      <OptionPackage>
        <DisplayName>SIMATIC Visualization Architect</DisplayName>
        <DisplayVersion>V15</DisplayVersion>
      </OptionPackage>
    </InstalledProducts>
  </DocumentInfo>
  <SW.Tags.PlcTagTable ID="0">
    <AttributeList>
      <Name>315070</Name>
    </AttributeList>
    <ObjectList>
      <SW.Tags.PlcTag ID="1" CompositionName="Tags">
        <AttributeList>
          <DataTypeName>BOOL</DataTypeName>
          <ExternalAccessible>false</ExternalAccessible>
          <ExternalVisible>false</ExternalVisible>
          <ExternalWritable>false</ExternalWritable>
          <LogicalAddress>%E198.1</LogicalAddress>
          <Name>315070I01SFWE2</Name>
        </AttributeList>
        <ObjectList>
          <MultilingualText ID="2" CompositionName="Comment">
            <ObjectList>
              <MultilingualTextItem ID="3" CompositionName="Items">
```

Figura 18 - Formatação XML "PLC Tag"



### 8.2.3. Config (XML)

Para a correta identificação do ficheiro XML “Config”, o ficheiro XML deve respeitar a seguinte estrutura:



```
<?xml version="1.0" encoding="utf-8"?>
<Config project="">
  <Groups>
    <Group></Group>
    <!-- (...) -->
    <!-- (...) -->
    <!-- (...) -->
  </Groups>
  <Strings>
    <String>
      <OldString></OldString>
      <NewString></NewString>
      <!-- (...) -->
      <!-- (...) -->
      <!-- (...) -->
    </String>
  </Strings>
  <Polges selected="">
    <Options>
      <From></From>
      <To></To>
    </Options>
    <Indexes>
      <Index1>
        <Old></Old>
        <New></New>
      </Index1>
      <Index2>
        <Old></Old>
        <New></New>
      </Index2>
      <Index3>
        <Old></Old>
        <New></New>
      </Index3>
      <Index4>
        <Old></Old>
        <New></New>
      </Index4>
    </Indexes>
  </Polges>
  <IP selected=""></IP>
</Config>
```

Figura 19 - Formatação XML "Config" Rename PLC