

# SEW ECDriveS<sup>®</sup>

## Fieldbusmodule ECC-DFC-24-00

Description, Using UDTs in SIEMENS PLCs  
*based on SIEMENS TIA Portal V13<sup>®</sup>*

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## Integration UDTs Step by Step

### UDT = User Defined Types

UDTs are a supplier related command structure, which manage the data transport between the program source code and the IO Storage of the PLC. When using UDTs it is not necessary to do a manually assignment between offsets in the *IO Address Range* and commands in the program code

**Example:** Command Start right zone motor roller

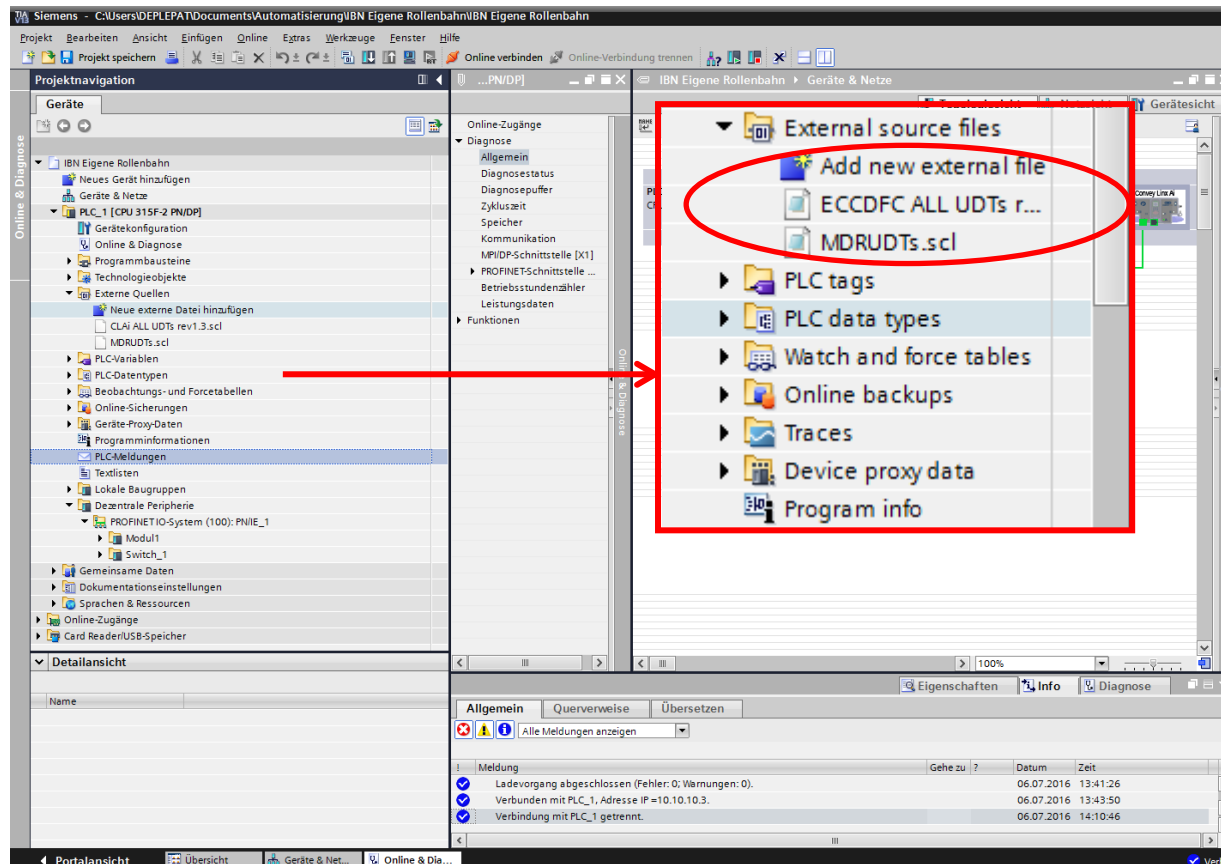
Used UDT: `.RightMDRControl.Run_MDR := True;`

→ *IO Address Assignment automatically via UDTs*

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## Integration UDTs Step by Step

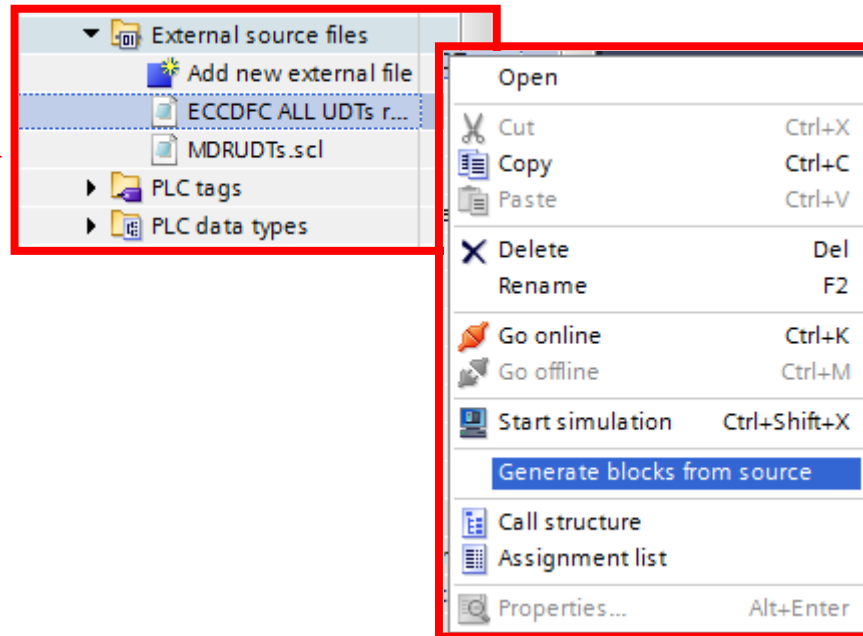
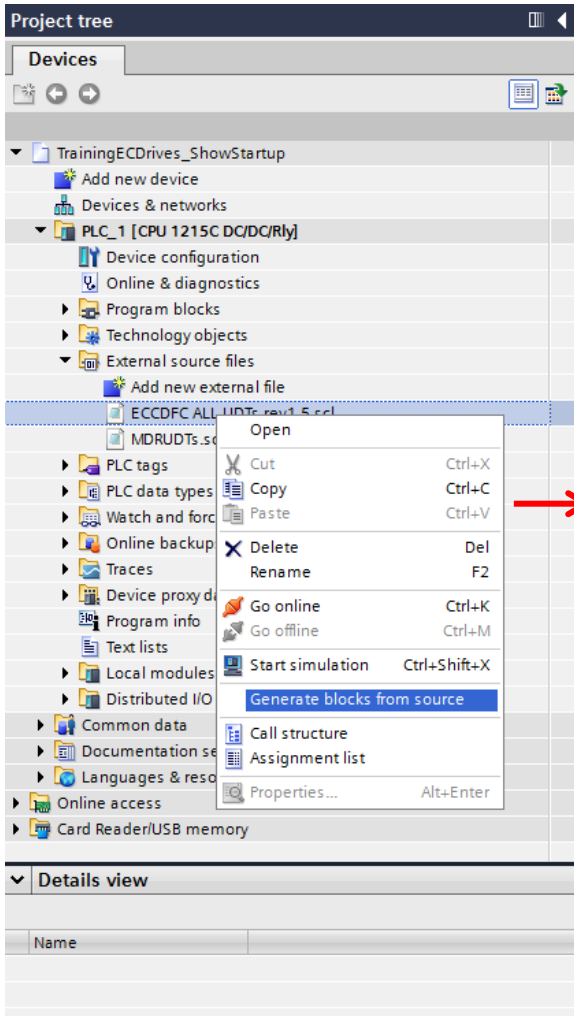
### 1. Load UDTs Files



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## Integration UDTs Step by Step, Built assemblies from UDT files

2. The UDTs must be integrated as assemblies/ function blocks into the configuration of the system



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## Integration UDTs Step by Step

### 3. Connect the UDTs to the IO Address Range of the module...

The screenshot shows the SIMATIC Manager interface with the 'Geräteübersicht' (Device Overview) window open. The table below is a representation of the data shown in the screenshot:

Module	Rack	Slot	I address	Q address	Type
Convey1	0	0			ECC-D...
Interface	0	0 X1			ECC-D...
virtual input module 64 byte...	0	1	256...319		virtual ...
virtual output module 64 byte...	0	2		256...319	virtual ...

The address range 256...319 is circled in red in the original image, indicating the IO address range for the UDTs.

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## Integration UDTs Step by Step, defining Variables

...This has to be done with defining variables of type ECC-DFC

	Name	Tag table	Data type	Address	Retain	Visibl...	Acces...
1	In1	Standard-Variab...	ECCDFCPLC_IN	%I256.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	Out1	Standard-Variablen...	*ECCDFCPLC_IN*		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	Start_Stop	Standard-Variablen...	*ECCDFCPLC_OUT*		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	<Add new>		*ECCDFCPLCmini_IN*		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			*ECCDFCPLCmini_OUT*				
			*ECCDFCZPA_IN*				
			*ECCDFCZPA_OUT*				
			*ECCDFCZPAmiini_IN*				
			*ECCDFCZPAmiini_OUT*				



	Name	Tag table	Data type	Address	Retain	Visibl...	Acces...	Comment
1	In1	Standard-Variab...	*ECCDFCPLC...	%I256.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2	Out1	Standard-Variablen...	*ECCDFCPLC_O...	%Q256.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

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## Integration UDTs Step by Step, Example of program source code

```
36
37 IF #Auto = 1 THEN
38     "Out5".LeftMDRSpeed := 30;
39     "Out5".LeftMDRDeccel := 100;
40     "Out5".RightMDRSpeed := 30;
41     "Out5".RightMDRDeccel :=100;
42 IF #"Sensor-Position0" = FALSE THEN
43     "Out5".LeftMDRControl.MDR_Direction := 1;
44     "Out5".RightMDRControl.MDR_Direction := 1;
45     "Out5".LeftMDRControl.Run_MDR := TRUE;
46     "Out5".RightMDRControl.Run_MDR := TRUE;
47 ELSIF #"Sensor-Position0" = TRUE THEN
48     "Out5".LeftMDRControl.Run_MDR := FALSE;
49     "Out5".RightMDRControl.Run_MDR := FALSE;
--     --
```

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## Integration UDTs Step by Step

### IBN PROFINET<sup>®</sup>, working with *GET IO* and *SET IO*

- In the case of newer Siemens versions (1200, 1500 series), global variables / tags can work directly with the **UDTs** and nothing else has to be considered in the PLC program.
- For older versions (e.g., 300 series), *GETIO* and *SETIO* function blocks must be used to transfer the input / output data to the **UDTs**



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Integration UDTs Step by Step, Working with [GET IO](#) and [SET IO](#)

Input data are getting picked up from the associated IO area using GETIO and written to variables

```
#GETIO(ID:=256, INPUTS:=#In);
#GETIO(ID := 320, INPUTS := #In2);
```

Now You can work with the UDTs in the program sequence

```
IF #In.AllSensors.RightPin4 = False AND #In2.AllSensors.LeftPin4 = TRUE THEN
  "Merker1" := TRUE;
  "Merker3" := TRUE;
```

```
#Out.RightMDRControl.Run_MDR := False;
#Out.LeftMDRControl.Run_MDR := False;
#Out2.RightMDRControl.Run_MDR := False;
#Out2.LeftMDRControl.Run_MDR := False;
```

```
#SETIO(ID := 320,|
  STATUS => #Status,
  OUTPUTS := #Out2);

#SETIO(ID := 256,
  STATUS => #Status,
  OUTPUTS := #Out);
```

At the End of the program, the association of the program variable to the IO Address range has to be done