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Configuring Aid • 05/2016

Industrial Identification with SIMATIC RF300 and RF170C

SIMATIC RF / ET 200pro / SIMATIC S7-300/400/1200/1500

https://support.industry.siemens.com/cs/ww/en/view/109483370

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1 Task

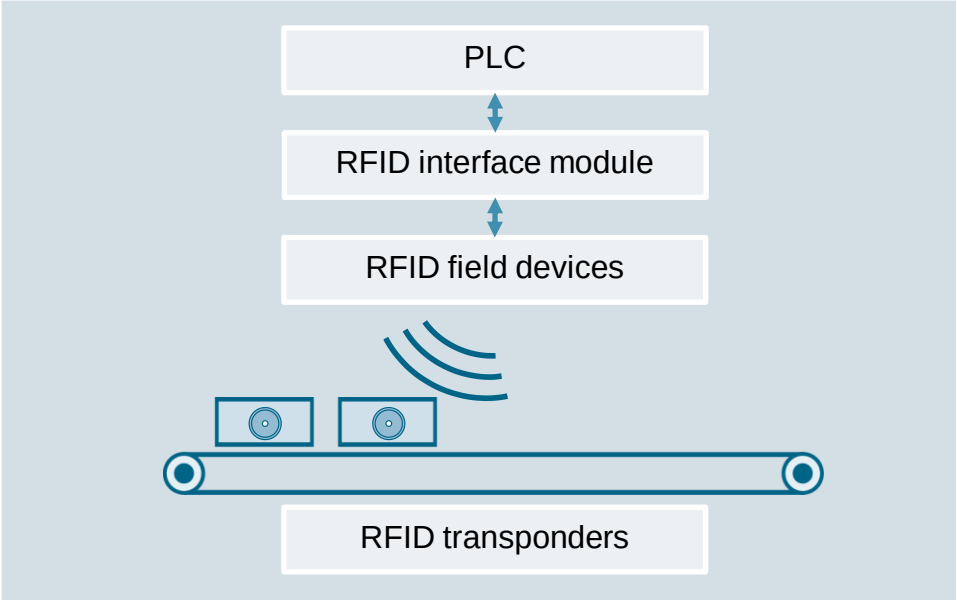
Introduction

To implement automatic identification of goods, materials and material carriers for process and production plants, the SIMATIC Ident product portfolio from Siemens offers customized modules for this task.
This application example shows what has to be considered when configuring RFID systems.

Overview of the automation task

The figure below provides an overview of the automation task.

Figure 1-1



A large number of interface and communication modules are available to integrate the SIMATIC Ident modules into a SIMATIC control system.

For running the SIMATIC RFID modules on SIMATIC S7 controllers, suitable function blocks are available for programming using STEP 7 TIA Portal.

Depending on the preferred transmission type, the user has to select the appropriate communication module.

Objective of this configuring aid

The aim of this application example is to connect the RFID readers to the control system **on a distributed basis using an ET 200 pro**. The communication module required for this is the **RF170C**. **SIMATIC RF300** is used as the RFID system for identification using transponders.

The goal of this application example is to support you in commissioning your SIMATIC Ident modules. The application example mainly focuses on the ready-to-use blocks of the “SIMATIC Ident” library. It additionally describes the project engineering and configuration of the SIMATIC Ident modules.

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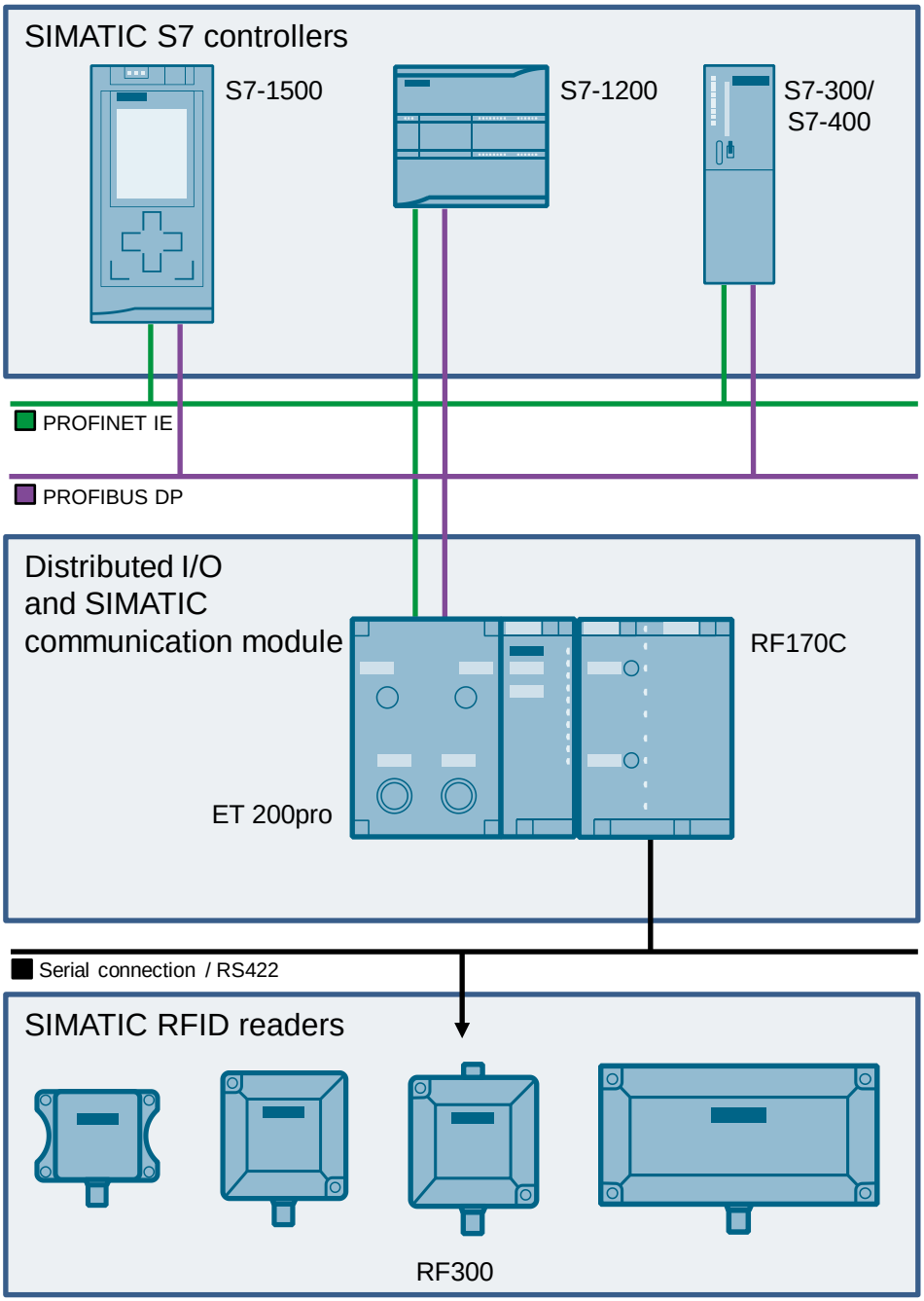
2 Solution

2.1 Overview

Diagrammatic representation

The diagrammatic representation below shows the most important components of the solution:

Figure 2-1



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Advantages

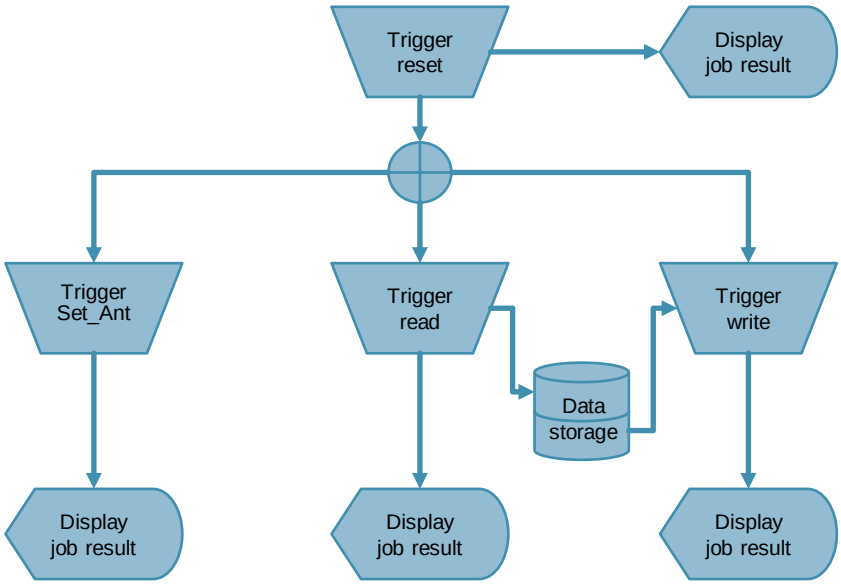
The solution presented here offers the following advantages:

- The illustrations and explanations included in this application example save you time and costs when commissioning your own automation solution.
- You can expand the supplied hardware configuration as desired or integrate it into your project.
- Using the RF170C allows you to integrate the SIMATIC RF readers into a control system on a distributed basis via PROFINET or PROFIBUS.
- The use of the ready-to-use Ident blocks significantly simplifies operating the SIMATIC RF readers.

2.2 Description of the core functionality

Sequence of the core functionality

Figure 2-2



A reset (initialization) through the Ident blocks sets the RFID reader to ready for operation. When the reset has been successfully performed, the user can choose between different RFID operations and monitor their status.

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2.3 Hardware and software components

This application example was created with the following components:

Hardware components

Table 2-1

Component	No.	Article number	Note
SIMATIC S7-300 CPU 317-2 PN/DP	1	6ES7317-2EK14-0AB0	Alternatively, a different S7-300/400 CPU can also be used.
SIMATIC S7-1200 CPU 1214 DC/DC/DC	1	6ES7214-1AG40-0XB0	Alternatively, a different S7-1200 CPU can also be used.
SIMATIC S7-1500 CPU 1516-3 PN/DP	1	6ES7516-3AN01-0AB0	Alternatively, a different S7-1500 CPU can also be used.
SIMATIC RF170C	1	6GT2002-0HD01	
SIMATIC RF310R	1	6GT2801-1AB10	Alternatively, a different SIMATIC RF300 reader can also be used.
SIMATIC RF340T	n	6GT2600-4AC00	Alternatively, different RF300 transponders can also be used.
KAB_KONF_ASM 456, RF170C-READER_2M	1	6GT2891-0FH20	

Note This document describes the automation solution with different S7 controller types. You only need one of the above controllers to install and start up the application example.

Hinweis When using a SIMATIC S7-400, only the function block "Ident_Profile" works.

Software components

Table 2-2

Component	No.	Article number	Note
STEP 7 TIA Portal	1	6ES7822-0A.03-..	V13 SP1 or higher

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Sample files and projects

The following list contains all files and projects that are used in this example.

Table 2-3

Component	Note
109483370_SIMATIC_RF300_RF170C_S7-300.zip	This zip file contains the STEP 7 project for the SIMATIC S7-300.
109483370_SIMATIC_RF300_RF170C_S7-1200.zip	This zip file contains the STEP 7 project for the SIMATIC S7-1200.
109483370_SIMATIC_RF300_RF170C_S7-1500.zip	This zip file contains the STEP 7 project for the SIMATIC S7-1500.
109483370_SIMATIC_RF300_RF170C_en.pdf	This document.

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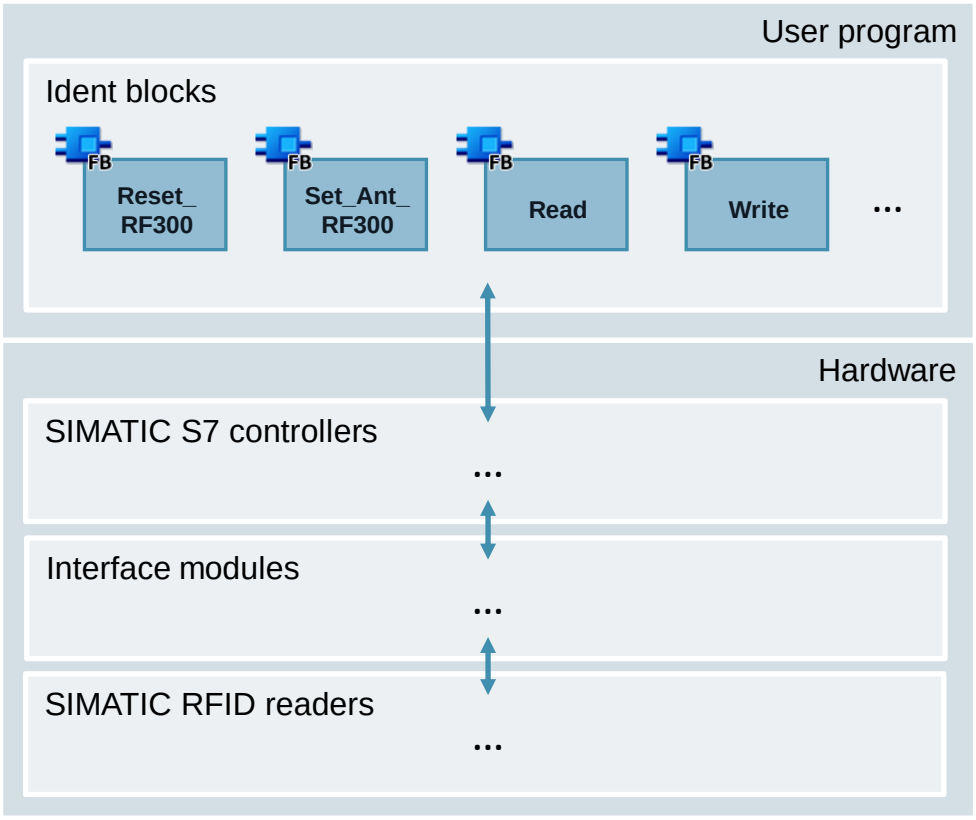
3 PLC Program

The following chapters describe the PLC program of the configuring aid.

3.1 Complete overview

The diagrammatic representation below shows the interaction between the user program and the SIMATIC hardware:

Figure 3-1



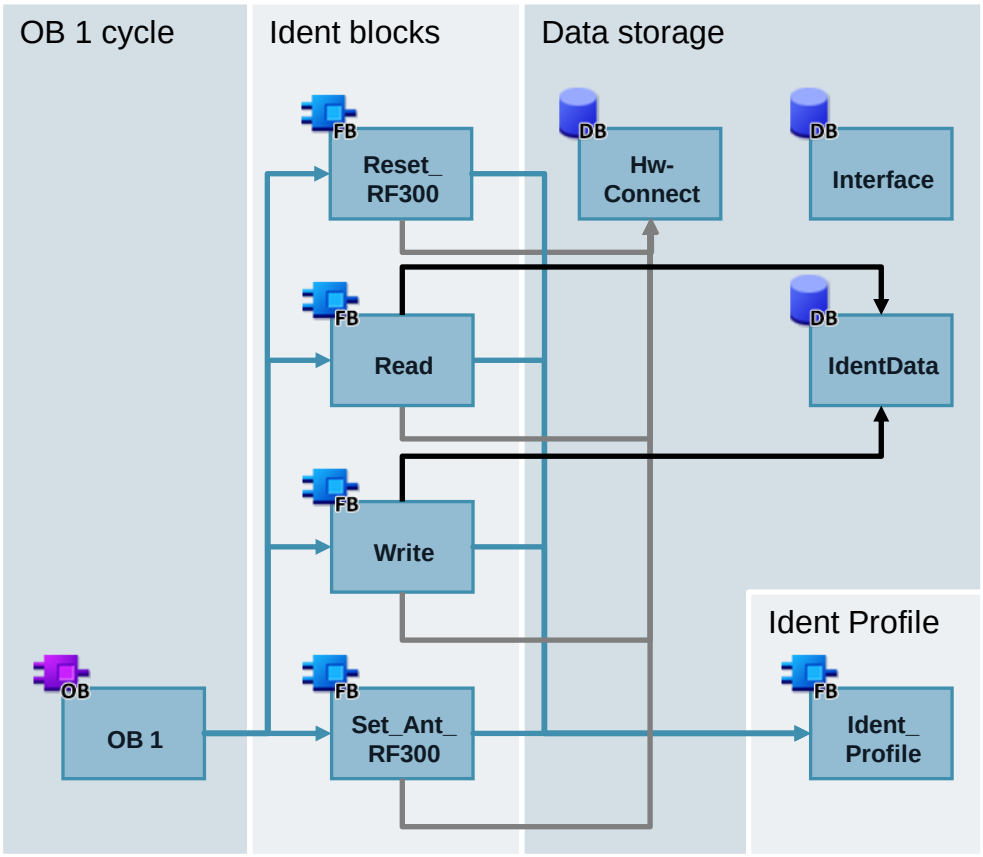
The Ident blocks from the “SIMATIC Ident” library integrated in TIA Portal control the RFID operations of the RFID readers. The command frames the Ident blocks generate are sent from the SIMATIC S7 controller to the SIMATIC RFID readers via the interface modules. The response frames of the RFID readers take the same path back to the user program and are provided to the user via the block outputs. For the Ident blocks, it is irrelevant whether the interface modules are connected to the control system via PROFIBUS, PROFINET or on a proprietary basis.

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Program overview

The following figure shows the call hierarchy of the user program of this application example:

Figure 3-2



To show the use of the Ident blocks in a simplified manner, this application example calls them directly in the OB 1 cycle. Therefore, a minimum PLC program will be created.
Each Ident block is responsible for a specific RFID functionality.
The transponder data read and to be written is stored in the “IdentData” data block.
The “Interface” data block includes all tags of the application example that are to be modified.
Internally, all Ident blocks call the basic block, “Ident_Profile”. Therefore, the Ident blocks are only an encapsulation of the complex Ident_Profile block to make implementing the RFID functionalities easier for the user.

The block names describe their basic core functionality. The following ready-to-use Ident blocks are available for the SIMATIC RF300 product portfolio:

Table 3-1

Ident block name	Implemented in this example
Reset_RF300	✓
Reset_Reader	✗
Set_ant_RF300	✓
Read	✓
Write	✓

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Ident block name	Implemented in this example
Read_UID	✘
AdvancedCMD	✘
Reader_Status	✘
Tag_Status	✘

This application example discusses only the four implemented blocks as they determine the basic operation of SIMATIC RF readers.

3.2 Basics of using the Ident blocks

To be able to use the Ident blocks, the following basics must be considered:

Call of the blocks

When an Ident block is called in TIA Portal, all required software components for the block are automatically generated and added to your project. This includes user-defined data types (UDTs), the basic "Ident_Profile" block and various system function blocks (SFCs and SFBs).
In TIA Portal, you can find the Ident blocks in "Instructions" > "Optional packages" > "SIMATIC Ident".

Addressing of the blocks

All Ident blocks have an INOUT parameter called "HW_CONNECT". Via this interface, the blocks must be provided with the address information of the configured interface module/reader: When an Ident block is called, the "IID_HW_CONNECT" UDT is automatically generated and stored for your use in the TIA project tree in "PLC date types".

For more information on using the "IID_HW_CONNECT" UDT, please refer to the next chapter, "3.3 Explanation of "HW_CONNECT"".

Edge-triggered execution of the blocks

All Ident blocks have an input parameter called "EXECUTE". Execution of the respective RFID functionality of the blocks is started via this interface. Please note that the "EXECUTE" input interface responds only to positive edges. This means that the blocks must be executed with a logic 0 ("false") at the EXECUTE parameter before they can detect the change to 1 ("true") in a later CPU cycle. Therefore, after successful or unsuccessful processing of the Ident blocks, it is important that the EXECUTE parameter be set to 0 ("false") to be able to start the block again at a later time.

Please see also chapter "7 Tips and Tricks".

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Reset of the blocks

Before a SIMATIC RFID reader can perform its function, a RESET must be performed. Special reset blocks are available for this purpose.

Command buffer for transponder operations

All transponder operations (e.g., “read” and “write”) are buffered on the SIMATIC RFID readers. This allows you to send a read job to the reader, even if there is no transponder in its RF field. The buffered job will not be executed before a transponder passes through the RF field. To cancel a running buffered job, you have to perform a reset.

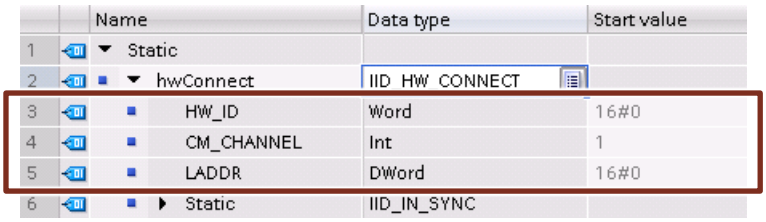
3.3 Explanation of “HW_CONNECT”

The “HW_CONNECT” input parameter of the Ident blocks is used to address the configured interface modules/readers and requires the “IID_HW_CONNECT” UDT as the data type. This data type is automatically generated when calling an Ident block; in the project tree, it can be found in “PLC data types”.

Details on the “IID_HW_CONNECT” UDT

The following figure shows the structure of the “IID_HW_CONNECT” UDT:

Figure 3-3



For addressing the interface modules/readers, the following three fields are provided in the UDT:

- “HW_ID”
- “CM_CHANNEL”
- “LADDR”

The “HW_ID” (only relevant for S7-1200/1500) is the hardware identifier of the interface module’s RFID communication channel. The “CM_CHANNEL” is the slot of the RFID reader on the communication module (1 or 2). “LADDR” is the I/O address of the RFID communication channel.

Using the “IID_HW_CONNECT” UDT

The following description explains the procedure for creating an addressing tag:

1. Create a tag of the “IID_HW_CONNECT” type.
2. Enter the correct address values in the tag (see below).
3. Connect this tag to the “HW_CONNECT” input parameter of the Ident blocks.

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Note You have to create a separate address tag for each SIMATIC RFID reader in your project.

Reading out the correct address values

The following figure shows where you can read out the correct values for addressing interface modules/readers:

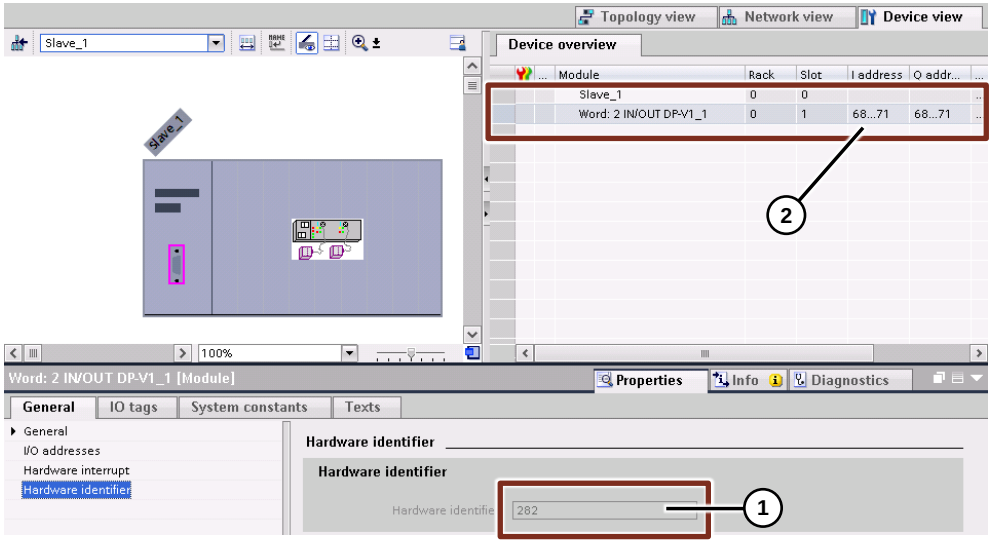


Table 3-2

No.	Description
1.	Value for “HW_ID” of the UDT (for S7-1200/1500 only)
2.	Value for “LADDR” of the UDT

The following description explains the procedure for reading out the address values:

1. In TIA Portal, navigate to the “Device view”.
2. Select your configured interface module.
3. In the “Device overview” window, select the “Word 2 IN/OUT DP-V1_1” module (next to ASM456).
4. In the Inspector window, click “Properties” > “Hardware identifier”.
5. In the “Hardware identifier” field, you will find the value you have to enter in the UDT in the “HW_ID” field **(1)** (in this example: 282).
6. Directly in the “I address” and “Q address” fields of the Device overview of the selected module, you will find the value for the “LADDR” field **(2)** of the UDT (in this example: 68). Make sure that the identical value is assigned to the I and Q address.
7. In the “CM_CHANNEL” field, specify whether the reader is connected to port 1 or port 2 of the interface module.

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3.4 Explanation of the Ident blocks

This chapter explains the most important Ident blocks.

General output parameters of the Ident blocks

All Ident blocks share the following output parameters:

Table 3-3

Parameter	Description
DONE	Job successfully completed
BUSY	Job active
ERROR	Job completed with error
STATUS	Error message regarding an erroneous job (ERROR = true)
PRESENCE	Transponder presence in the RF field

3.4.1 "RESET_RF300" functionality

The "Reset_RF300" block sets the reader to ready for operation. When the block is executed, all settings made at the block's input parameters are transferred to the reader.
Executing the block additionally cancels running jobs of the reader and acknowledges reader errors.

Program details on the block

Figure 3-4

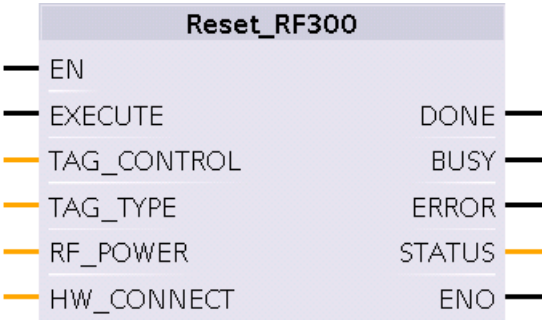


Table 3-4

Parameter	Description
EXECUTE	Starts the reset job
TAG_CONTROL	Presence check on/off
TAG_TYPE	Transponder type: • 1 = ISO transponder • 0 = RF300 transponder
RF_POWER	Transmitter power (for RF380R only): HF power from 0.5 W to 2 W in increments of 0.25 W (range of values: 0x02 ... 0x08); default value 0x04 ≙ 1 W
HW_CONNECT	Address tag

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3.4.2 “SET_ANT_RF300” functionality

The “SET_ANT_RF300” block is used to switch the RF field of the readers on and off. This block is mainly used to prevent overlapping fields between adjacent readers.

Program details on the block

Figure 3-5

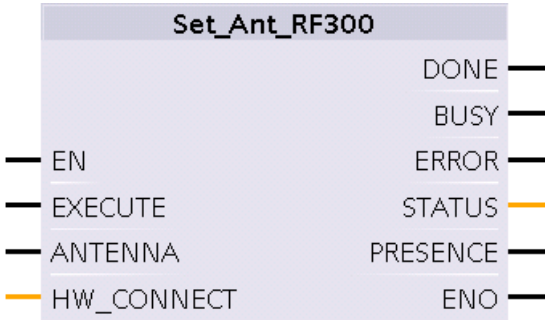


Table 3-5

Parameter	Description
EXECUTE	Starts the antenna job
ANTENNA	RF antenna on/off • 1 = RF field on • 0 = RF field off
HW_CONNECT	Address tag

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3.4.3 “READ” functionality

The “Read” block allows you to read process data from a transponder. The “ADDR_TAG” and “LEN_DATA” parameters are used to define the memory area to be read. The read data is provided via the “IDENT_DATA” parameter.

Program details on the block

Figure 3-6

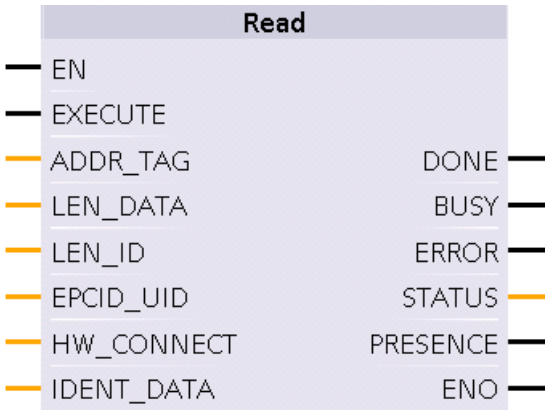


Table 3-6

Parameter	Description
EXECUTE	Starts the read job
ADDR_TAG	Physical address starting with which the transponder data is read
LEN_DATA	Length of the data to be read
LEN_ID	(For RF600 only)
EPCID_UID	(For RF600 only)
HW_CONNECT	Address tag
IDENT_DATA	Data buffer for the read transponder data; only an array of bytes with variable length is allowed

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3.4.4 “WRITE” functionality

The “Write” block allows you to write process data to a transponder. The “ADDR_TAG” and “LEN_DATA” parameters are used to define the transponder memory area to be written. The data to be written is provided via the “IDENT_DATA” parameter.

Program details on the block

Figure 3-7

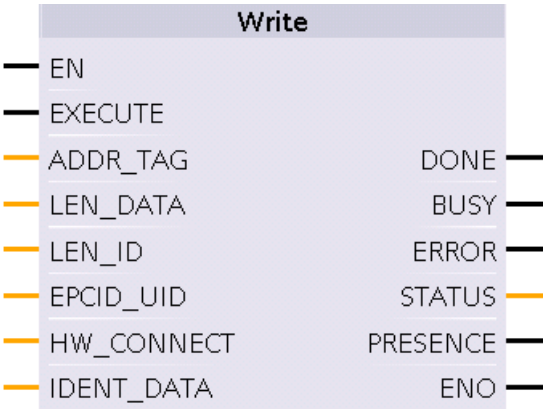


Table 3-7

Parameter	Description
EXECUTE	Starts the write job
ADDR_TAG	Physical address starting with which the transponder data is written
LEN_DATA	Length of the data to be written
LEN_ID	(For RF600 only)
EPCID_UID	(For RF600 only)
HW_CONNECT	Address tag
IDENT_DATA	Data buffer for the transponder data to be written

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3.5 Explanation of the “Ident_Profile” block

All Ident blocks are based on the “Ident_Profile” block. The simplified Ident blocks run the Ident profile with the suitable parameter interconnection for the respective RFID functionality. Therefore, the blocks are a simplified interface of the Ident profile.

Note It is not recommended to work directly with the “Ident_Profile” block if the Ident blocks can implement the required RFID functionalities.

The Ident profile is based on the standardized “Proxy Ident Function Block” protocol. For the specification of the protocol, please refer to the PROFIBUS User Organization (\10\).

3.6 Diagnostics and error messages

If an error has occurred, the “STATUS” output parameter of the Ident blocks provides different hex codes. For the meaning of the codes, please refer to the “SIMATIC Ident RFID systems Ident profile and Ident blocks, standard function for Ident systems” manual (\3\), chapter 4 “Error messages”.

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4 Configuration and Project Engineering

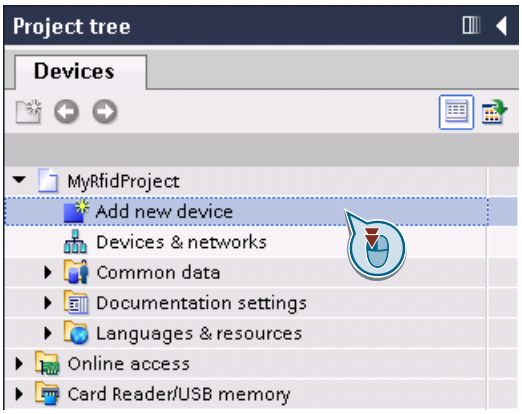
This chapter shows the configuration steps necessary to create a project with the SIMATIC S7 CPU, ASM 456 and SIMATIC RF300 reader.

Note Follow the instructions in this chapter if you are using alternative hardware. If you are using identical hardware (see chapter "2.3 Hardware and software components"), the below configuration steps do not have to be performed; they have already been included in this project. Continue with chapter "5 Installation and Startup".

NOTE These instructions apply for operating an ET 200pro with PROFINET interface.

1. Open your TIA Portal V13 SP1.
2. Create a new project.
3. In the TIA Portal project tree, double-click "Add new device".

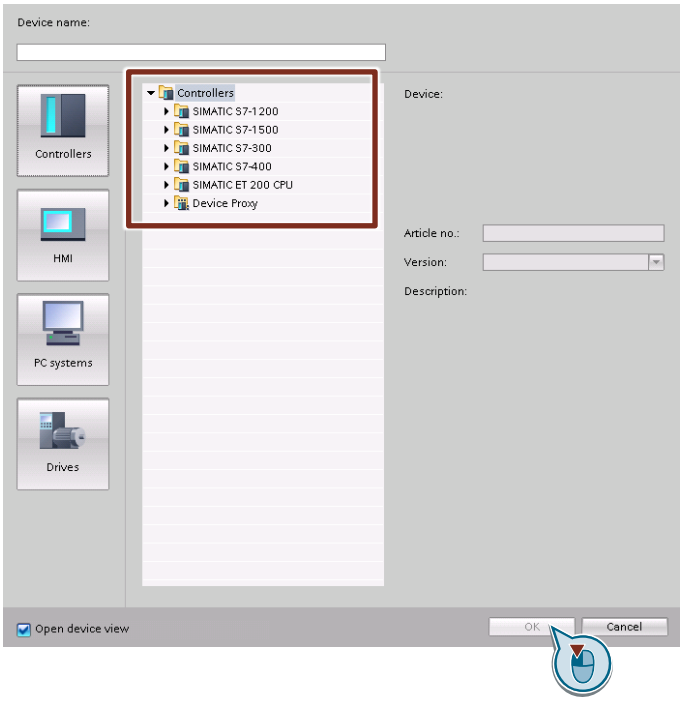
Figure 4-1



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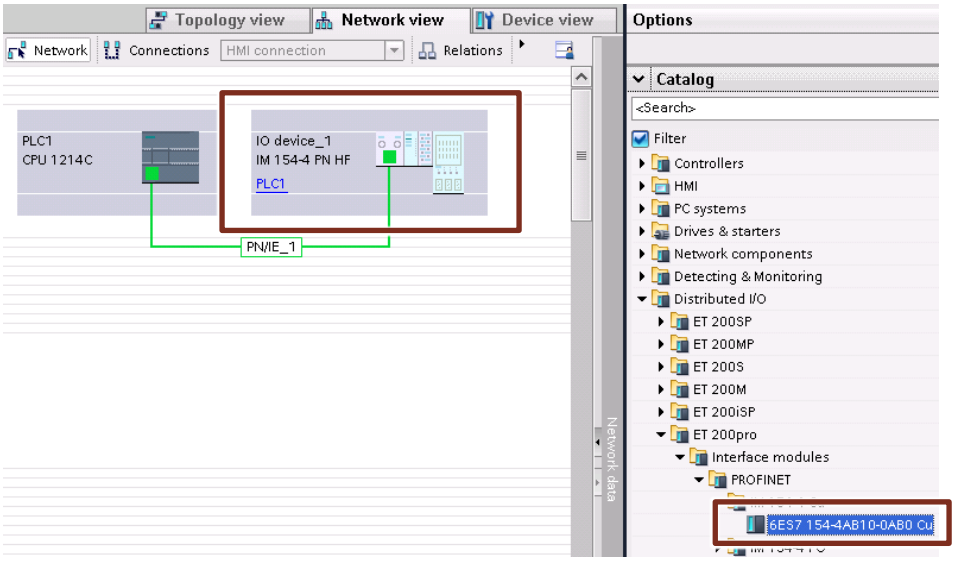
4. In the dialog that appears, select the S7 CPU you are using. Make sure that the CPU has a PROFINET port or add a PROFINET CP to the CPU. Then click “OK” to confirm.

Figure 4-2



5. Go to the “Network view”; in the “Hardware Catalog”, click “Distributed IO” > “ET 200pro” > “Interface modules” > “PROFINET” > “IM 154-4 Cu”. Use drag and drop to move the ET 200pro (“6ES7 154-4AB10-0AB0 Cu”) from the hardware catalog to your workspace and connect the PROFINET port to the CPU.

Figure 4-3

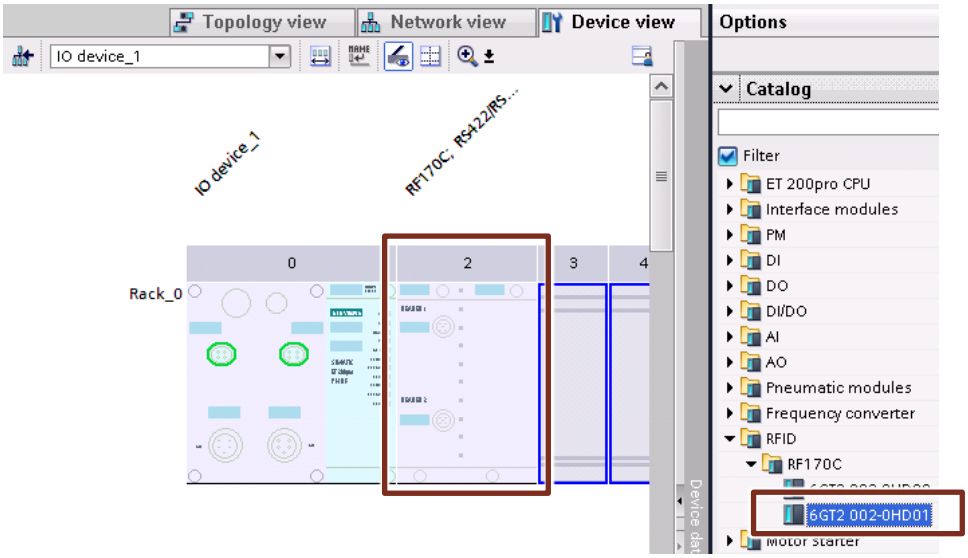


6. In TIA Portal, navigate to the “Device view”.

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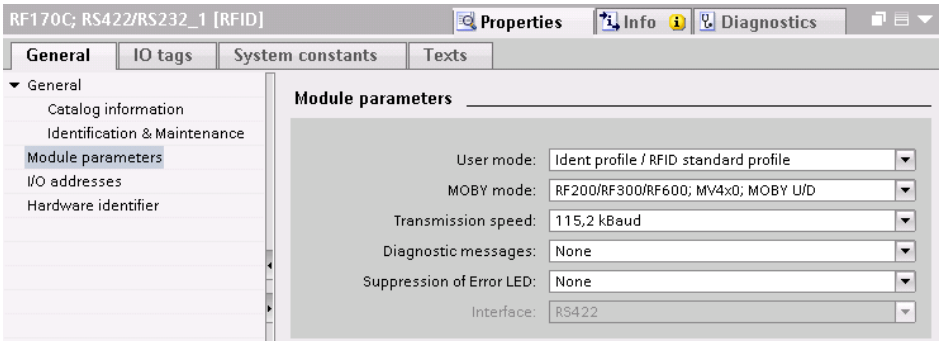
7. Select the configured ET 200pro.
8. In the “Hardware Catalog”, navigate to “RFID” > “RF170C”. Use “drag and drop” to move the RF170C (“6GT2 002-0HD01”) from the hardware catalog to an empty slot of the ET 200pro.

Figure 4-4



9. Double-click the RF170C and in the Inspector window, navigate to the communication module properties.
10. Select “Module parameters”. Set the parameters in “Module parameters” as follows:
    - User mode: Ident profile/RFID standard profile
    - MOBY mode: RF200/300/600, MV4x0, Moby U/D
    - Transmission speed: 115.2 kBaud
    - Diagnostic messages: None
    - Suppression of Error LED: None

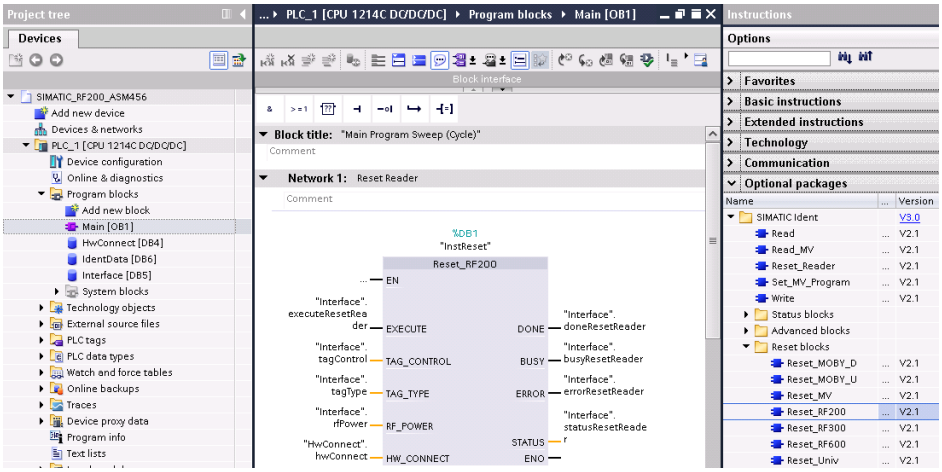
Figure 4-5



11. Open an FC, FB or OB in which you want to call the Ident blocks.
12. In TIA Portal, navigate to “Instructions” > “Optional packages” > “SIMATIC Ident”. Drag the Ident blocks you require to the block you have just opened:

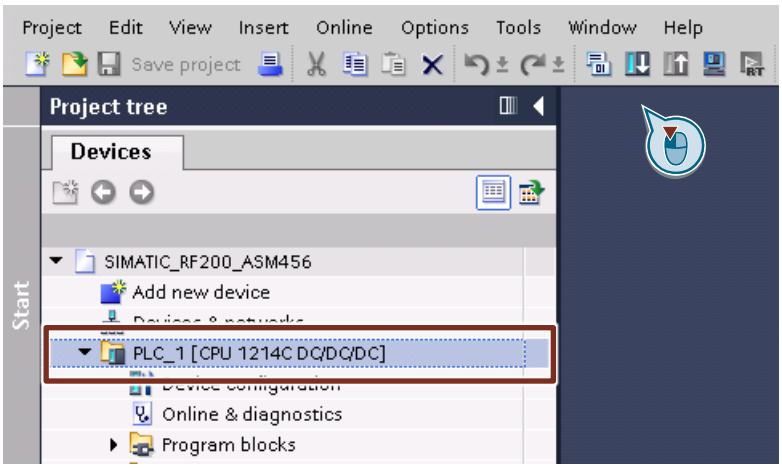
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Figure 4-6



13. Assign the required values/tags to the parameter interfaces of the Ident blocks.
14. Download the user program and the hardware configuration to your S7 CPU. To do this, select the S7 CPU in your project tree and then click “Download to device”.

Figure 4-7



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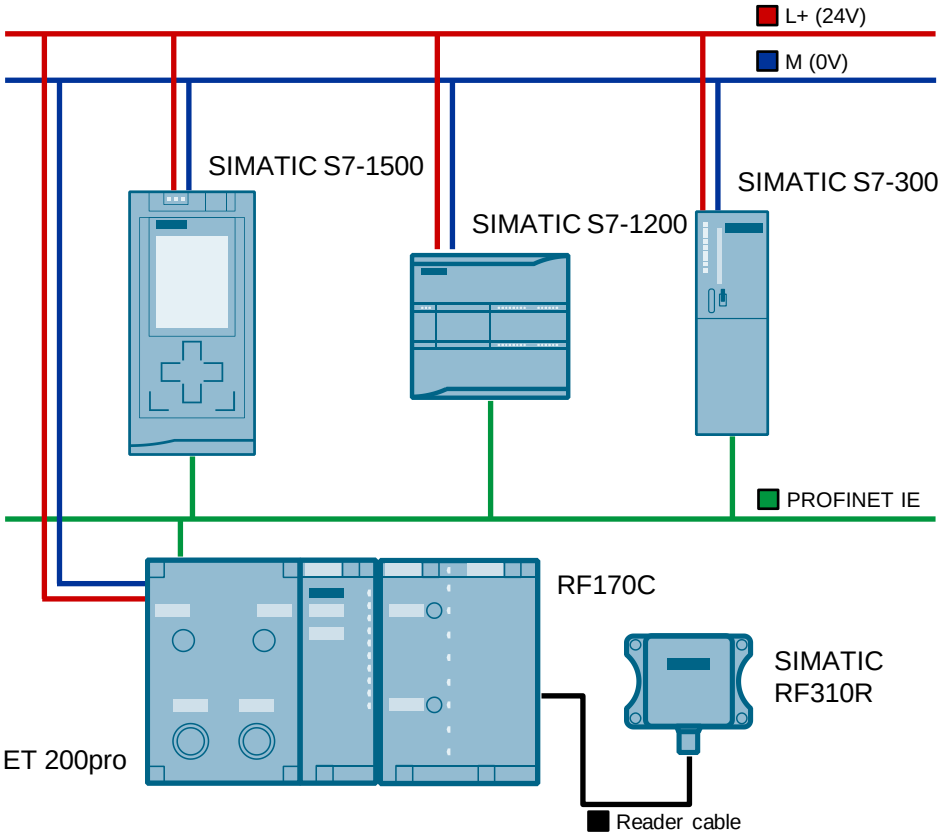
5 Installation and Startup

This chapter shows the steps necessary to install and start up the example using the code from the download and the components from the hardware list.

5.1 Installing the hardware

The figure below shows the hardware configuration of the application.

Figure 5-1



NOTE This description applies for operating an ET 200pro with PROFINET interface.

Note Always follow the installation guidelines for SIMATIC S7-1500 (\6\), SIMATIC S7-1200 (\7\), SIMATIC S7-300 (\8\), SIMATIC RF170C (\5\), SIMATIC RF300 (\4\) and SIMATIC ET 200pro (\11\).

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5.2 Installing the software (download)

This chapter describes the steps for installing the sample code.

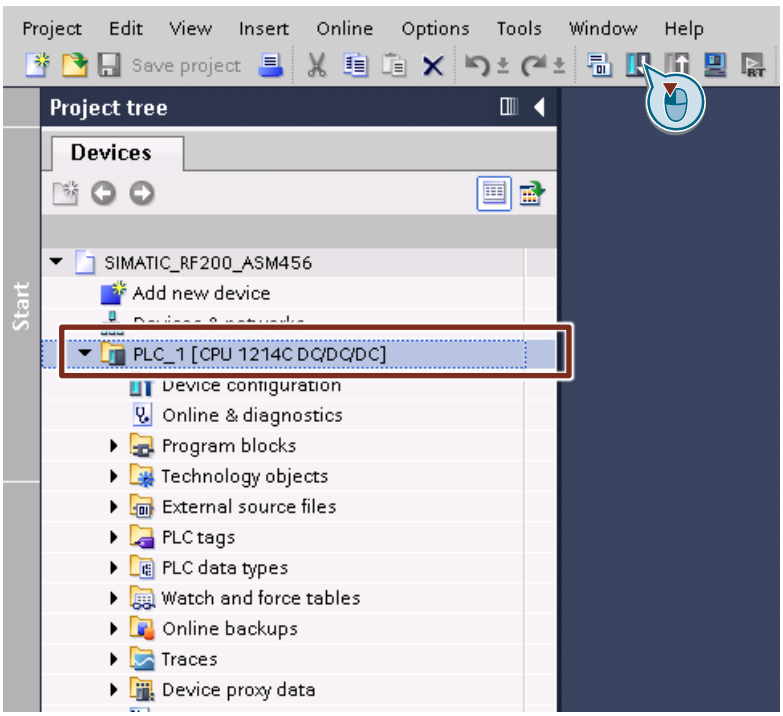
1. Install TIA Portal V13 SP1 or higher.
2. The Step 7 V13 SP1 project is available on the HTML page from which you downloaded this document (\2\). Save the "109483370_SIMATIC_RF300_RF170C_S7-xxx.zip" project (depending on the CPU) to your hard drive.
3. Unzip the file.
4. In TIA Portal, open the project you have just unzipped: "Project" > "Open" > "Browse".
5. The project is now available to you.

5.3 Startup

This chapter describes the steps for starting up the sample code.

1. Wire your hardware.
2. Open the application example in TIA Portal.
3. If you are using alternative hardware, perform the configurations described in chapter "4 Configuration and Project Engineering".
4. Assign an IP address from the IP range of the configured S7 CPU of the application example to your programmer or customize the IP address of the CPU to your preferences.
5. Download the user program to your S7 CPU. To do this, select the S7 CPU in your project tree and then click "Download to device".

Figure 5-2



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6 Operation of the Application Example

The application example is controlled using a watch table.
This chapter describes how to use the application example.

6.1 Description of the watch table

The following figure shows the watch table for using the application example:

Figure 6-1

	Name	...	Display format
1	// Reset Reader		
2	"Interface".executeResetReader		Bool
3	"Interface".tagControl		Hex
4	"Interface".tagType		Hex
5	"Interface".rfPower		Hex
6	"Interface".doneResetReader		Bool
7	"Interface".busyResetReader		Bool
8	"Interface".errorResetReader		Bool
9	"Interface".statusResetReader		Hex
10	// Read TAG		
11	"Interface".executeRead		Bool
12	"Interface".addrTagRead		Hex
13	"Interface".lenDataRead		Hex
14	"Interface".doneRead		Bool
15	"Interface".busyRead		Bool
16	"Interface".errorRead		Bool
17	"Interface".statusRead		Hex
18	// Write TAG		
19	"Interface".executeWrite		Bool
20	"Interface".addrTagWrite		Hex
21	"Interface".lenDateWrite		Hex
22	"Interface".doneWrite		Bool
23	"Interface".busyWrite		Bool
24	"Interface".errorWrite		Bool
25	"Interface".statusWrite		Hex
26	// Set Ant		
27	"Interface".executeAnt		Bool
28	"Interface".antennaAnt		Bool
29	"Interface".doneAnt		Bool
30	"Interface".busyAnt		Bool
31	"Interface".errorAnt		Bool
32	"Interface".statusAnt		Hex

The watch table is divided into four sections: Each section belongs to one of the Ident blocks called in OB 1:

- Reset Reader: “Reset_RF300”
- Read Tag: “Read”
- Write Tag: “Write”
- Set Ant: “Set_Ant_RF300”

The sections contain the tags – from the “Interface” data block – to be modified and monitored. These tags are directly linked to the Ident blocks.

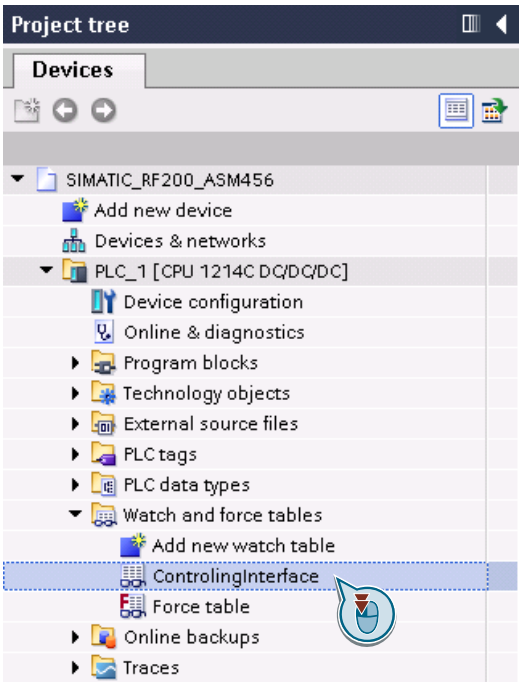
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6.2 Using the watch table

This chapter describes the steps for using the sample code.

1. Open the “IdentData” data block and fill the “writeData” tag as needed. This data will later be written to the transponders. Download the data block to the S7 CPU.
2. Double-click to open the “ControllingInterface” watch table from the project tree.

Figure 6-2



3. In the watch table, click “Monitor all”.

Figure 6-3



6.2.1 Executing a reset command

1. Enter your desired reset parameters in the tags from the “Reset Reader” section in the fields of the “Modify Value” column.

Figure 6-4

	Name	...	Display format	Monitor value	Modify value	
1	// Reset Reader					
2	"Interface".executeResetReader		Bool	FALSE		
3	"Interface".tagControl		Hex	16#00	16#01	
4	"Interface".tagType		Hex	16#00	16#01	
5	"Interface".rfPower		Hex	16#00	16#00	
6	"Interface".doneResetReader		Bool	FALSE		
7	"Interface".errorResetReader		Bool	FALSE		
8	"Interface".statusResetReader		Hex	16#0000_0000		

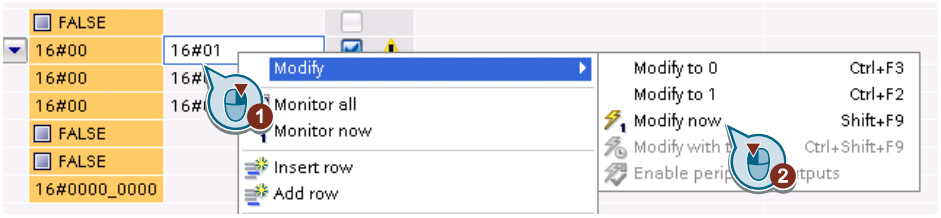
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In this example, the values are defined as follows:

- tagControl: 16#01 (presence control on)
- tagType: 16#01 (ISO transponder)
- rfPower: 16#00 (for RF290R reader only)

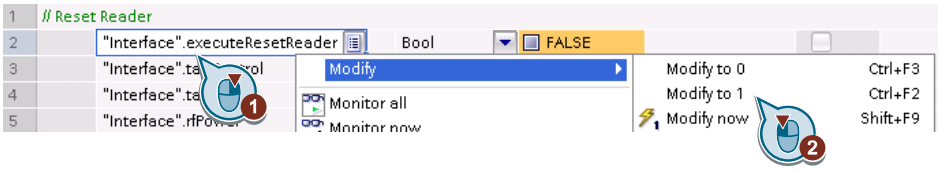
2. Right-click any row of the watch table. Go to “Modify” and then left-click “Modify now”. This transfers the values entered in 1 directly to the data block of the S7 CPU.

Figure 6-5



3. Execute a reset. To do this, right-click the row of the “executeResetReader” tag, select “Modify” and left-click “Modify to 1”.

Figure 6-6



4. The “doneResetReader”, “errorResetReader” and “statusResetReader” tags allow you to check whether or not the job has successfully completed.

Figure 6-7

1	// Reset Reader			
2	"Interface".executeResetReader	Bool	TRUE	TRUE
3	"Interface".tagControl	Hex	16#01	16#01
4	"Interface".tagType	Hex	16#01	16#01
5	"Interface".rfPower	Hex	16#00	16#00
6	"Interface".doneResetReader	Bool	TRUE	
7	"Interface".errorResetReader	Bool	FALSE	
8	"Interface".statusResetReader	Hex	16#0000_0000	

An erroneous job has occurred only if the “errorResetReader” tag is set. In this case, a hex error code is automatically written to the “statusResetReader” tag. This error code allows you to diagnose the cause of the error.

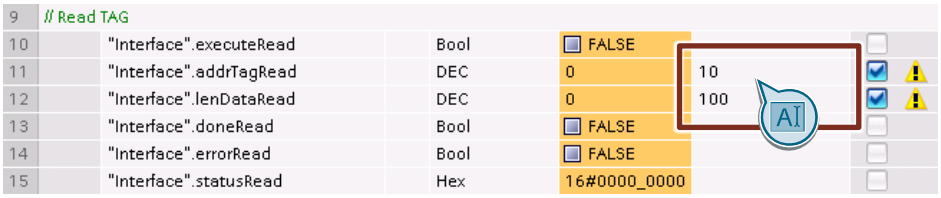
A successful job is indicated by the permanently lit green status LED on the reader.

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6.2.2 Executing a read command

1. Enter your desired read parameters in the tags from the “Read TAG” section in the fields of the “Modify Value” column.

   Figure 6-8

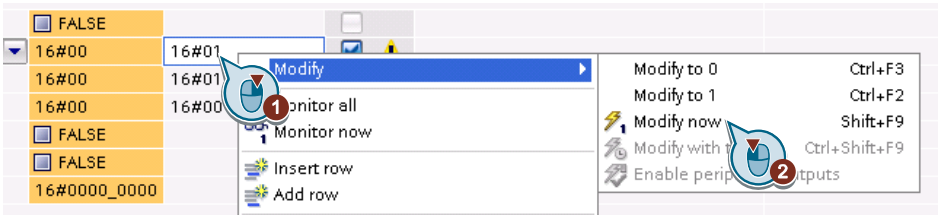


   In this example, the values are defined as follows:

   - addrTagRead: 10 (start address for read from transponder)
   - lenDataRead: 100 (length of the data to be read)

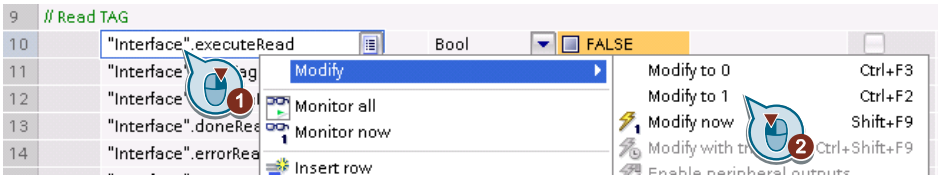
2. Right-click any row of the watch table. Go to “Modify” and then left-click “Modify now”. This transfers the values entered in 1 directly to the data block of the S7 CPU.

   Figure 6-9



3. Execute a read. To do this, right-click the row of the “executeRead” tag, select “Modify” and left-click “Modify to 1”.

   Figure 6-10

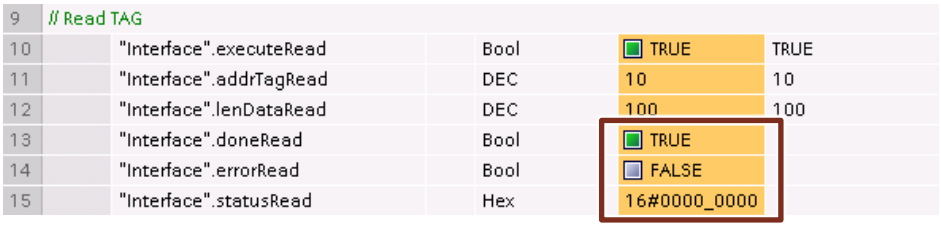


Note When you have executed a read job, the command will be buffered in the reader until a transponder passes through the RF field. The DONE, ERROR and STATUS output parameters will not be set before this has happened.

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4. The “doneRead”, “errorRead” and “statusRead” tags allow you to check whether or not the job has successfully completed.

Figure 6-11



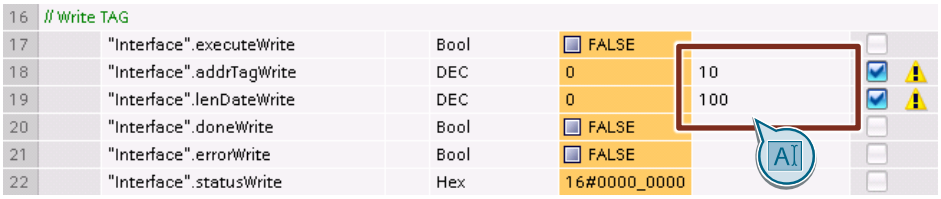
An erroneous job has occurred only if the “errorRead” tag is set. In this case, a hex error code is automatically written to the “statusRead” tag. This error code allows you to diagnose the cause of the error.

After a successful job, you will find the read transponder data in the “IdentData” data block in the “readData” tag.

6.2.3 Executing a write command

1. Enter your desired write parameters in the tags from the “Write TAG” section in the fields of the “Modify Value” column.

Figure 6-12

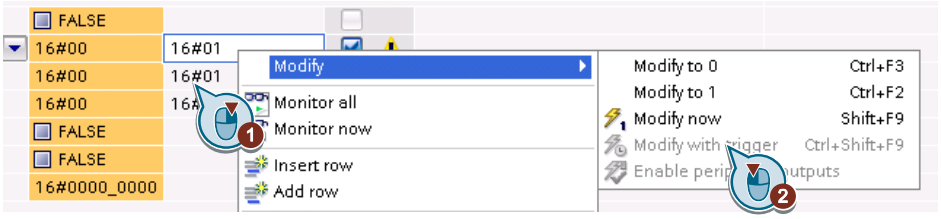


In this example, the values are defined as follows:

- addrTagWrite: 10 (start address for write to transponder)
- lenDataWrite: 100 (length of the data to be written)

2. Right-click any row of the watch table. Go to “Modify” and then left-click “Modify now”. This transfers the values entered in 1 directly to the data block of the S7 CPU.

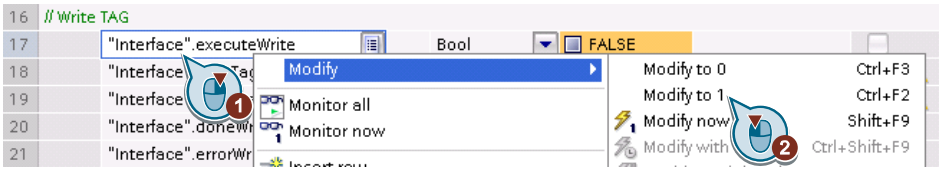
Figure 6-13



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3. Execute a write. To do this, right-click the row of the “executeWrite” tag, select “Modify” and left-click “Modify to 1”.

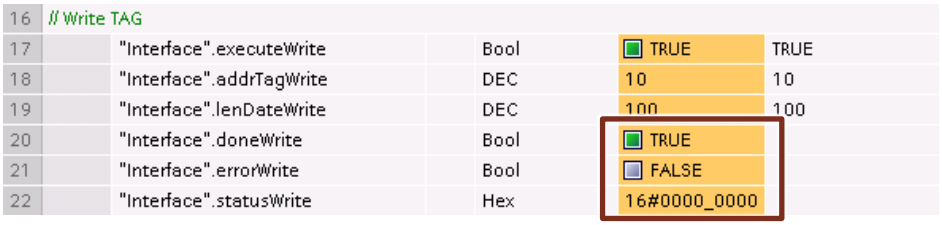
Figure 6-14



Note When you have executed a write job, the command will be buffered in the reader until a transponder passes through the RF field. The DONE, ERROR and STATUS output parameters will not be set before this has happened.

4. The “doneWrite”, “errorWrite” and “statusWrite” tags allow you to check whether or not the job has successfully completed.

Figure 6-15



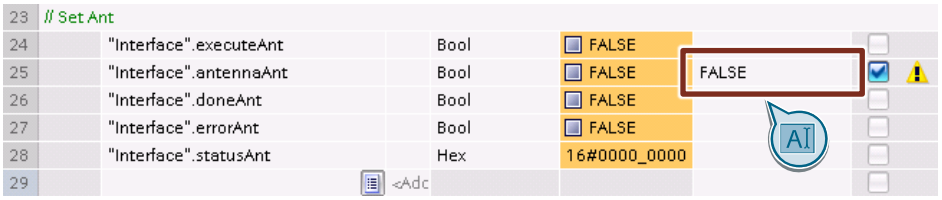
An erroneous job has occurred only if the “errorWrite” tag is set. In this case, a hex error code is automatically written to the “statusWrite” tag. This error code allows you to diagnose the cause of the error.

After a successful job, the “Read” command allows you to read the written transponder data from the transponder for verification.

6.2.4 Executing an antenna command

1. Enter your desired antenna parameter in the tag from the “Set Ant” section in the fields of the “Modify Value” column.

Figure 6-16



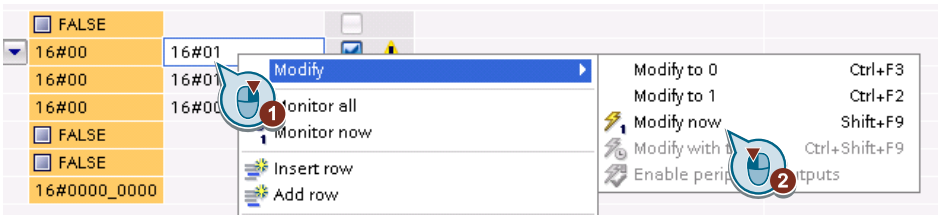
In this example, the value for antennaAnt is set to FALSE (0) to turn off the reader’s antenna.

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Note After a reset, the antennas of the SIMATIC RFID readers are turned on by default. If, after a reset, you execute an antenna command with the value TRUE (1) at the ANTENNA parameter, you will receive an error message as you cannot reactivate an antenna that has already been active.

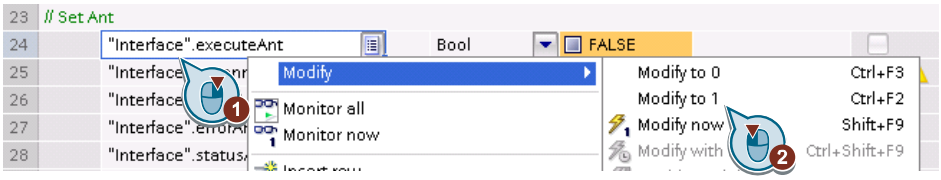
2. Right-click any row of the watch table. Go to “Modify” and then left-click “Modify now”. This transfers the values entered in 1 directly to the data block of the S7 CPU.

Figure 6-17



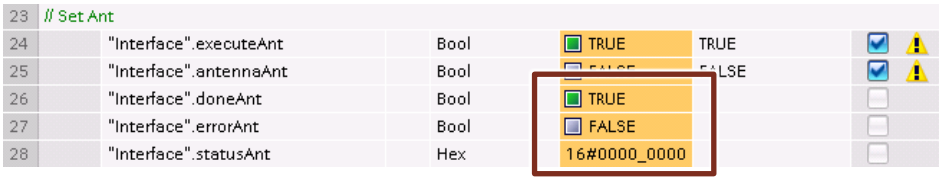
3. Execute an antenna command. To do this, right-click the row of the “executeAnt” tag, select “Modify” and left-click “Modify to 1”.

Figure 6-18



4. The “doneAnt”, “errorAnt” and “statusAnt” tags allow you to check whether or not the job has successfully completed.

Figure 6-19



An erroneous job has occurred only if the “errorAnt” tag is set. In this case, a hex error code is automatically written to the “statusAnt” tag. This error code allows you to diagnose the cause of the error.

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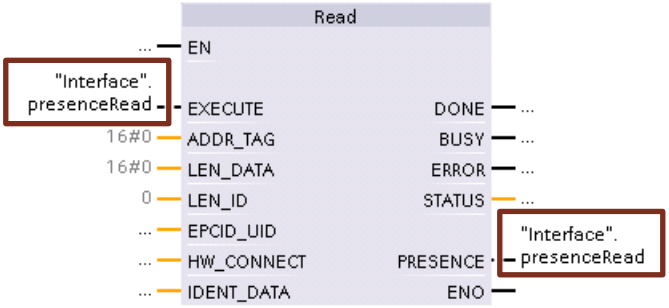
7 Tips and Tricks

This chapter additionally provides a number of tips and tricks to optimize your SIMATIC RFID applications.

Automatic read from/write to transponder when transponder present

Use the “PRESENCE” output parameters of the Ident blocks to automatically control the “EXECUTE” input parameters when a transponder is present. To do this, assign the same tag to “PRESENCE” and “EXECUTE”:

Figure 7-1



If you interconnect the Ident blocks as shown above, a transponder operation will be automatically started when a transponder passes through the RF field of the readers.

Note

This method is possible only if a reset command has been performed first with the “TAG_CONTROL” parameter = true.

When using this method, a CPU cycle elapses before the transponder operation is started when a transponder has passed through the RF field.

Optimizing the transponder processing time

Use the command buffer of the SIMATIC RFID readers to minimize the effective processing time for transponder operations. This is particularly helpful when implementing applications with fast transponder sequences.

To do this, start a transponder operation (e.g., “read” and “write”) via the “EXECUTE” input parameter as soon as the “DONE” output parameter of the previous transponder operation is set.

Executing chained commands

The “Ident_Profile” and “AdvancedCMD” blocks allow you to send chained commands to the readers. By sending multiple command frames in one call, you can reduce the communication load on the fieldbus, which additionally reduces the processing time.

Visit our SIMATIC Ident guide

The “Industrial Identification with SIMATIC Ident in the Siemens Industry Online Support” guide (\9\) provides you with a large number of SIMATIC Ident-related application examples and more information on the topic.

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8 Links & Literature

Table 8-1

	Topic
\1\	Siemens Industry Online Support https://support.industry.siemens.com
\2\	Download page of the entry https://support.industry.siemens.com/cs/ww/en/view/109483370
\3\	SIMATIC Ident RFID systems Ident profile and Ident blocks, standard function for Ident systems https://support.industry.siemens.com/cs/ww/en/view/106368029
\4\	SIMATIC Ident RFID systems SIMATIC RF300 https://support.industry.siemens.com/cs/ww/en/view/21738946
\5\	SIMATIC Ident RFID systems ASM 456 interface module - Operating Instructions https://support.industry.siemens.com/cs/ww/en/view/21230460
\6\	SIMATIC S7-1500, ET 200MP Automation System https://support.industry.siemens.com/cs/ww/en/view/59191792
\7\	SIMATIC S7 S7-1200 Programmable Controller https://support.industry.siemens.com/cs/ww/en/view/109478121
\8\	SIMATIC S7-300, CPU 31xC and CPU 31x: Installation https://support.industry.siemens.com/cs/ww/en/view/13008499
\9\	Industrial Identification with SIMATIC Ident in the Siemens Industry Online Support https://support.industry.siemens.com/cs/ww/en/view/109477926
\10\	PROFIBUS User Organization home page http://www.profibus.com/

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9 History

Table 9-1

Version	Date	Modifications
V1.0	05/2016	First version