Overview of time synchronization in TIA Portal and WinCC V7.

TIA Portal, WinCC V7

https://support.industry.siemens.com/cs/ww/en/view/69864408

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1 Introduction

Why time synchronization is needed

If no time deviations are allowed within a system, clock synchronization is required.

Application examples:

- The UTC is used in the SIMATIC controller to execute correct time alarms or to count operating hours.
- The HMI also requires a unique time stamp without time deviations for alarm functions and messages.
- Message protocols are created on the HMI for events in the SIMATIC controller. The same time base must be used here. This is ensured by regular time synchronization.

Required knowledge

Basic knowledge of the TIA Portal and WinCC V7 is required.

Note

Basics are taught in the SITRAIN course "SIMATIC WinCC, System Course."

- SIMATIC WinCC, Systemkurs (de)
- SIMATIC WinCC, System Course (en)
- SIMATIC WinCC maschinennah im TIA Portal (de)
- SIMATIC WinCC on the machine level in the TIA Portal (en)
- SIMATIC WinCC SCADA im TIA Portal (de)
- SIMATIC WinCC SCADA in the TIA Portal (en)

2 Time types

Introduction

This section deals with

- System time
- Daylight saving time and
- UTC

.

- Local time is calculated based on system time, summer and winter time changeover, and the time zone set.
- The system time of the CPU corresponds to the UTC time.
- Only the system time is used for communication within the system.

Further information on the time types can be found in section 3 of the FAQ "How to synchronize the HMI Basic Panel time with an S7-1200 PLC?":

https://support.industry.siemens.com/cs/ww/en/view/39182145

2.1 System time

The system time is the internal clock of a computer. The operating system installed on the computer passes the system time on to the software, e.g. WinCC Runtime.

For more information on system time (local computer time), see the following FAQs:

Table 2-1

FAQs	Link
How can the local computer time or the coordinated world time be read, displayed or set in WinCC Runtime Professional?	https://support.industry.siemens.com/cs/ww/en/view/59558655
How can the current local time (daylight saving or winter time) be calculated in the S7-300/400 CPU and used as system time on the panel?	https://support.industry.siemens.com/cs/ww/en/view/19324378
How can a time specification (date and time) of the local computer time be converted into the coordinated world time (UTC)?	https://support.industry.siemens.com/cs/ww/en/view/24201113
Which settings do you have to make under Windows 7 in order to change the system time of the PC via WinCC flexible Runtime/WinCC Runtime Advanced?	https://support.industry.siemens.com/cs/ww/en/view/59203176

2.2 Daylight saving time

Daylight saving time is the time presented in the summer months as compared to normal time (also: standard time or zone time). The difference is usually one hour.

Note The use of daylight saving time is not recommended in the automation environment. Daylight saving time should only be displayed on the HMI so that the operator can orient himself.

CAUTION	**Time deviations possible when using daylight saving time**
	If daylight saving time is used on the HMI, it may only be used as a time slave during time synchronization. Otherwise, time deviations will occur in the entire system.

Further information on daylight saving time can be found in the FAQ "How do you implement an automatic switchover between daylight saving and winter time with SIMATIC HMI Comfort Panels and TIA Portal?"

https://support.industry.siemens.com/cs/ww/en/view/109482675

2.3 UTC

Universal Coordinated Time, UTC for short, is also known as world time. The UTC corresponds to GMT (Greenwich Mean Time) without daylight saving time change.

Note There are two GMTs:

- GMT with daylight saving (Dublin, Edinburgh, Lisbon, London)
- GMT without daylight saving time changeover (Casablanca, Monrovia), corresponds to UTC

Reasons for the UTC

The UTC is used in the SIMATIC control, as there are no time deviations permitted as with the time changeover. In case of time deviations, depending on the project planning, e.g. the time alarms could no longer be executed correctly or the operating hours counter could no longer count correctly.

In WinCC Runtime, messages and archive values can be displayed in local time or in UTC time, depending on the configuration in CS. In order to have a unique time stamp for alarm functions and messages, a time deviation must also be avoided in the HMI. Therefore the UTC is used.

Note During time synchronization, a time telegram is sent by the master, e.g. WinCC server or SICLOCK. This time telegram consists of the UTC time and a correction factor in half hours (e.g. 10:00 + 4*1/2 for 12:00 summer time in Germany and 10:00 UTC).

UTC

CAUTION	**Time deviations also possible when using UTC** To avoid time deviations, you must deactivate the summer time setting in the UTC parameters.

Further information on world time can be found in the FAQ "How can a time specification (date and time) of the local computer time be converted into the coordinated world time (UTC)?"

https://support.industry.siemens.com/cs/ww/en/view/24201113

3 Functions in the toolbar

3.1 Time functions

Reading the time (without system function)

Via the display of a CPU S7-1500. To do this, navigate to "Settings > Date & Time > General" on the CPU display.

Set time (without system function)

Via the TIA Portal. To do this, connect online to the SIMATIC controller. Then navigate via the project navigation to the entry "Online & Diagnosis" of the CPU and open the register "Functions > Set time".

Example:

- At the CPU clock, the coordinated world time (UTC) is set for the module time.
- The Central European Time Zone (local time) is set in the TIA Portal. The TIA portal obtains the time from the operating system.

Result:

- According to the example, one hour is added to the time to be set in the TIA Portal, in the entry "Online & Diagnosis".
- Another hour is added because the settings in the TIA portal are based on daylight saving time.
- The calculated local time of the module is displayed in 12 hours.

3.2 Data types

For the system functions registration explained in section 3.3 the following data types are used:

Data type "DT" (DATE_AND_TIME, only S7-300, S7-400)

The data type DT (DATE_AND_TIME) has a length of 8 bytes and stores date and time information in BCD format.

Table 3-1

Length (Byte)	Format	Value range	Example of value input
8	Date and time (Year-Month-Day-Hour:Minute:Second:Millisecond [3])	Min.: DT#1990-01-01-00:00:00.000 Max.: DT#2089-12-31-23:59:59.999	DT#2008-10-25-08:12:34.567, DATE_AND_TIME#2008-10-25-08:12:34.567

Table 3-2

Byte	Contents	Value range
0	Year	0 to 99 (Years 1990 to 2089) BCD#90 = 1990 ... BCD#0 = 2000 ... BCD#89 = 2089
1	Month	BCD#1 to BCD#12
2	Tag	BCD#1 to BCD#31
3	Hour	BCD#0 to BCD#23
4	Minute	BCD#0 to BCD#59
5	Second	BCD#0 to BCD#59
6	The two most significant digits of MSEC	BCD#0 to BCD#999
7 (4MSB) [1]	The least significant digit of MSEC	BCD#0 to BCD#9
7 (4LSB) [2]	Day of the week	BCD#1 to BCD#7 BCD#1 = Sunday ... BCD#7 = Saturday
[1] MSB: Most Significant Bit [2] LSB: Least significant bit [3] Fixed-point number		

Data type "DTL" (only S7-1200, S7-1500)

An operand of data type DTL has a length of 12 bytes and stores date and time information in a predefined structure.

Table 3-3

Length (Byte)	Format	Value range	Example of value input
12	Date and time (year-month-day-hour:minute:second.nanosecond)	Min.: DTL#1970-01-01-00:00:00.0 Max.: DTL#2262-04-11-23:47:16.854775807	DTL#2008-12-16-20:30:20.250

Note The structure of the data type DTL consists of several components, each of which can have a different data type and value range.

The data type of a specified value must match the data type of the respective component.

Table 3-4

Byte	Components	Data type	Value range
0	Year	UINT	1970 to 2262
1			
2	Month	USINT	1 to 12
3	Tag	USINT	1 to 31
4	Day of the week	USINT	1 (Sunday) to 7 (Saturday) The day of the week is not taken into account when entering values.
5	Hour	USINT	0 to 23
6	Minute	USINT	0 to 59
7	Second	USINT	0 to 59
8	Nanosecond	UDINT	0 to 999999999
9			
10			
11			

Data type "LDT" (DATE_AND_LTIME, only S7-1500)

The data type LDT (DATE_AND_LTIME) has a length of 8 bytes and stores date and time in nanoseconds since 01.01.1970 0:0.

Table 3-5

Length (Byte)	Format	Value range	Example of value input
8	Date and time (year-month-day-hour:minute:second.nanosecond)	Min.: LDT#1970-01-01-00:00:00.000000000 Max.: LDT#2262-04-11-23:47:16.854775807	LDT#2008-10-25-08:12:34.567
	Hexadecimal numbers	16#0 to 16#7FFF_FFFF_FFFF_FFFF	16#7FFF

For more information on the "DT" and "DTL" data types, see the FAQ "How to enter, read, and process the date and time for the CPU Units in STEP 7 (TIA Portal)?":

https://support.industry.siemens.com/cs/ww/en/view/43566349

3.3 System functions

The functions for processing data types DT and DTL are different in STEP 7 V5.x and in the TIA Portal.

- In STEP 7 (TIA Portal), you can find these instructions in the "Extended instructions" palette and in the "Date and time" folder.
- For STEP 7 V5.x you need the IEC standard functions which are contained in the "Standard Library" of STEP 7.

Set time: "WR_SYS_T"

With the instruction "WR_SYS_T" you set the date and time of the CPU clock. You specify the date and time in the input parameter IN. The value must be within the following range:

- DT: Min. DT#1990-01-01-0:0:0, max. DT#2089-12-31-23:59:59.999
- LDT: Min. LDT#1970-01-01-0:0:0.000000000, max. LDT#2200-12-31 23:59.999
- DTL: Min. DTL#1970-01-01-00:00:00.0, max. DTL#2200-12-31 23:59.999

You can use the output parameter RET_VAL to query whether errors occurred during the execution of the statement.

Note

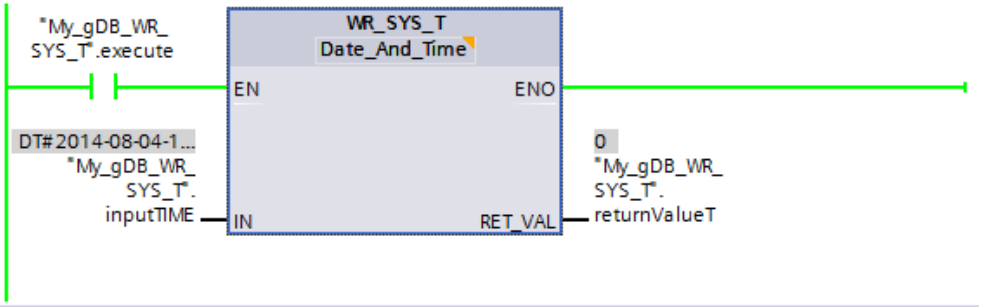
Only data type DTL is available for the S7-1200.

Information on the local time zone or summer time cannot be transmitted with the instruction "WR_SYS_T".

Example:

- If the normally open contact ("execute") delivers the signal state "TRUE", the instruction "WR_SYS_T" is executed.

Figure 3-1



Result:

- The module time of the CPU clock is overwritten with the time to be set ("inputTIME").
- The output parameter RET_VAL ("returnValueT") indicates that the processing ran without errors.

Further information on the system function "WR_SYS_T" can be found in the FAQ "How can you enter, read and process the date and time for the CPU Units in STEP 7 (TIA Portal)":

https://support.industry.siemens.com/cs/ww/en/view/43566349

Reading the time: "RD_SYS_T"

With the instruction "RD_SYS_T" you read out the current date and time of the CPU clock. The read out data are output at the output parameter "OUT" of the instruction "RD_SYS_T" in the format DT, LDT or DTL.

At output RET_VAL, you can query whether errors occurred during execution of the statement.

Note

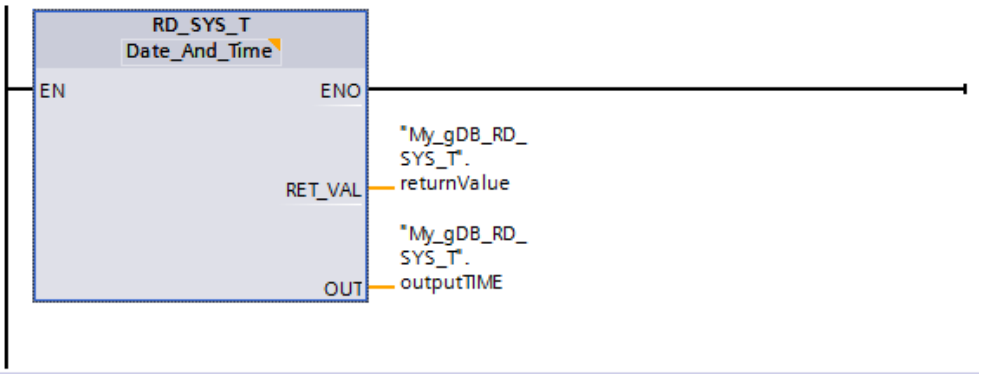
Only data type DTL is available for the S7-1200.

Information on the local time zone or summer time cannot be transmitted with the instruction "RD_SYS_T".

Example:

You read out the assembly time of the CPU clock as follows.

Figure 3-2



Result:

- The assembly time of the CPU clock is read out and displayed at the output parameter OUT ("outputTIME").
- The output parameter RET_VAL ("returnValue") indicates that the processing ran without errors.

Further information on the "RD_SYS_T" function can be found in the "Documentation" (section 5.2 and section 5.3) of the FAQ "Time synchronization between an HMI operator interface and a SIMATIC PLC":

https://support.industry.siemens.com/cs/ww/en/view/69864408

Further information on the function "RD_SYS_T" can also be found in the FAQ "How can you enter, read and process the date and time for the CPU modules in STEP 7 (TIA Portal)?":

https://support.industry.siemens.com/cs/ww/en/view/43566349

Read local time: "RD_LOC_T"

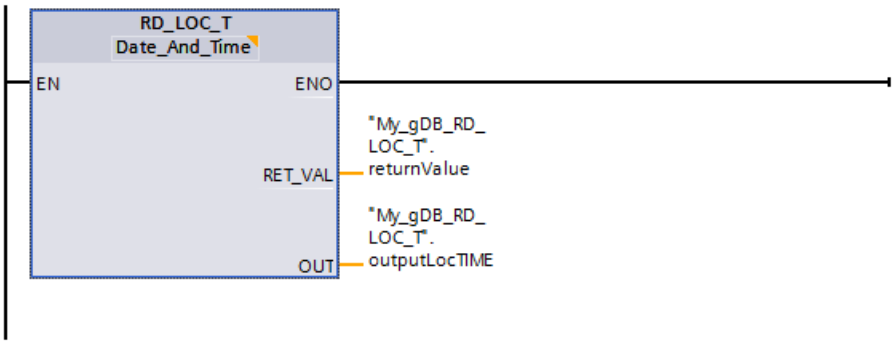
With the instruction you read out the current local time from the CPU clock and output it at output OUT. For the output of the local time the information about the time zone as well as the beginning of the daylight saving and winter time, which you have set during the configuration of the CPU clock, are used.

At output RET_VAL, you can query whether errors occurred during execution of the statement.

Example:

You read out the local time of the CPU clock as follows.

Figure 3-3



Result:

- The local time of the CPU clock is read and displayed at the output parameter OUT ("outputLocTIME").
- The output parameter RET_VAL ("returnValue") indicates that the processing ran without errors.

Further information on the "RD_LOC_T" function can be found in the FAQ "How do you implement an automatic switchover between daylight saving and winter time with SIMATIC HMI Comfort Panels and TIA Portal?"

https://support.industry.siemens.com/cs/ww/en/view/109482675

Write local time: "WR_LOC_T"

With the instruction "WR_LOC_T" you set date and time of the CPU clock. You enter the date and time as local time in the input parameter LOCTIME.

The value must be within the following range:

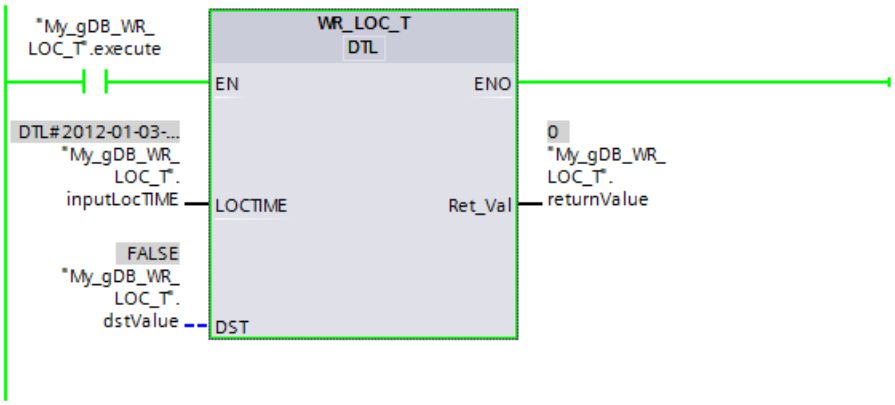
- DT: Min. DT#1990-01-01-00:00:00, max. DT#2089-12-31-23:59:59.999
- LDT: Min. LDT#1970-01-01-0:0:0.000000000, max. LDT##2200-12-31 23:59.999
- DTL: Min. DTL#1970-01-01-00:00:00.0, max. DTL#2200-12-31 23:59.999

You can use the output parameter RET_VAL to query whether errors occurred during the execution of the statement.

Example:

You set the local time of the CPU clock as follows.

Figure 3-4



Result:

- The new local time ("inputLocTIME") is taken over by the CPU.
- The output parameter RET_VAL ("returnValueT") indicates that the processing ran without errors.

Setting a time zone: "SET_TIMEZONE"

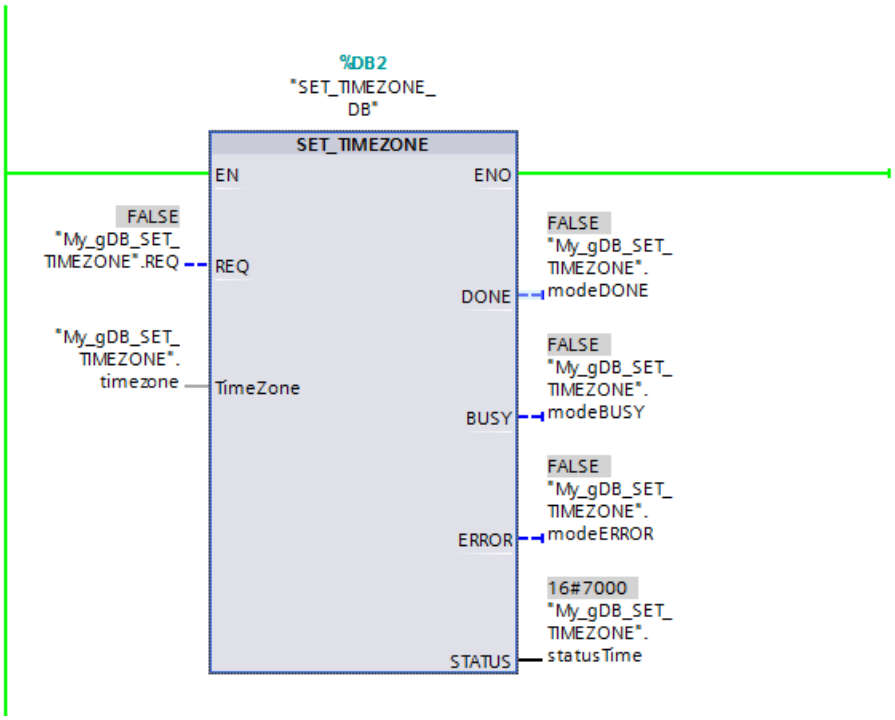
Use the "SET_TIMEZONE" instruction to set the parameters for the local time zone and the daylight saving and winter time changeover.

The settings that you make with the instruction "SET_TIMEZONE" correspond to the settings for the time in the properties of the CPU. To execute the "SET_TIMEZONE" instruction, store the corresponding parameters in the "TimeTransformationRule" system data type.

Example:

You set the time zone of the CPU clock as follows.

Figure 3-5



Result:

- The time zone of the CPU clock is overwritten with the time zone to be set ("TimeZone").
- The output parameter STATUS ("statusTime") indicates that the processing ran without errors.

4 Functions in HMI

4.1 Area pointer

Further information on the subject of range pointers can be found in the "Documentation" (section 3.2) of the FAQ "Time synchronization between an HMI operator interface and a SIMATIC PLC":

https://support.industry.siemens.com/cs/ww/en/view/69864408

Area pointer: "Date/time"

Table 4-1

Data word	Most significant byte								Least significant byte								
	7							0	7							0	
n+0	Reserved								Hour (0 to 23)								Time
n+1	Minute (0 to 59)								Second (0 to 59)								
n+2	Reserved								Reserved								
n+3	Reserved								Weekday (1-7, 1=Sunday)								Date
n+4	Day (1 to 31)								Month (1 to 12)								
n+5	Year (80 to 99/0 to 29)								Reserved								

This area pointer is used to transfer the date and time from the operating device to the controller.

- The controller writes the control task "41" or "40" to the task tray.
- When the control job is evaluated, the operator interface writes the current date and time into the data area that is configured in the area pointer.
- All entries are coded in BCD format.
- If several connections are configured in a project, the area pointer must be activated for each configured connection.

Note If you have configured the range pointer "Date/Time", you cannot use the range pointer "Date/Time PLC".

Area pointer "Date/Time PLC"

Table 4-2

Data word	Most significant byte								Least significant byte							
	7							0	7							0
n+0	Year (80 to 99/0 to 29)								Month (1 to 12)							
n+1	Day (1 to 31)								Hour (0 to 23)							
n+2	Minute (0 to 59)								Second (0 to 59)							
n+3	Reserved								Reserved						Weekday (1-7, 1=Sunday)	
n+4	Reserved								Reserved							
n+5	Reserved								Reserved							

This area pointer is used to transfer the date and time from the controller to the operating device. You use this area pointer when the controller is master for the time.

The following applies here:

- The controller loads the data area of the area pointer.
- The operator interface reads the data cyclically over the projected acquisition cycle and synchronizes itself.
- All entries are coded in BCD format.
- "Date/Time PLC" is a global area pointer and can only be configured once in a project.

Note

- If you have configured the area pointer "Date/Time PLC", you cannot use the area pointer "Date/Time".
- "Date/Time PLC" is a global area pointer and can only be configured once in a project.

4.2 Script functions

4.2.1 C functions

WinCC V7 and WinCC Professional provide you with C functions with which you can operate the time.

SetSystemTime

Use the C function "SetSystemTime" to set the Greenwich time.

SetLocalTime

Use the C function "SetLocalTime" to set the local computer time.

Example - Set time using Word variables:

```
#pragma code("kernel32.dll")
VOID SetLocalTime(SYSTEMTIME *lpst);
#pragma code();
SYSTEMTIME MyTime;
MyTime.wYear=GetTagWord("varname");
MyTime.wMonth=GetTagWord("varname");
MyTime.wDayOfWeek=GetTagWord("varname");
MyTime.wDay=GetTagWord("varname");
MyTime.wHour=GetTagWord("varname");
MyTime.wMinute=GetTagWord("varname");
MyTime.wSecond=GetTagWord("varname");
MyTime.wMilliseconds=GetTagWord("varname");
SetLocalTime(&MyTime);
```

GetSystemTime

With the C function "GetSystemTime" you can read the Greenwich time.

GetLocalTime

With the C function "GetLocalTime" you can read the local computer time.

Example - Read time and file in Word variables:

```
#pragma code("kernel32.dll")
VOID GetLocalTime(SYSTEMTIME *lpst);
#pragma code();
SYSTEMTIME MyTime;
GetLocalTime(&MyTime);
SetTagWord("varname",MyTime.wYear);
SetTagWord("varname",MyTime.wMonth);
SetTagWord("varname",MyTime.wDayOfWeek);
SetTagWord("varname",MyTime.wDay);
SetTagWord("varname",MyTime.wHour);
SetTagWord("varname",MyTime.wMinute);
SetTagWord("varname",MyTime.wSecond);
```

```
SetTagWord("varname",MyTime.wMilliseconds);
```

For more information about C functions, please refer to the FAQ "How to access the system time with WinCC Global Script":

https://support.industry.siemens.com/cs/ww/en/view/24019500

4.2.2 VB functions

WinCC V7, WinCC Professional, WinCC Advanced and Comfort provide VB functions with which you can operate the time.

Time

The Time function returns the local computer time (without date):

```
Dim MyTime
MyTime = Time ' MyTime contains the current system time.
```

Date

The date function returns the local date:

```
Dim MyDate
MyDate = Date ' MyDate contains the current system date.
```

Now

The Now function returns the local computer time (date and time):

```
Dim MyVar
MyVar = Now ' MyVar contains the current date and time.
```

Windows Management Instrumentation (WMI)

The Windows Management Instrumentation (WMI) provides access to all system parameters. The WMI obtains information and manages system parameters. With VBS you can read out or set the local computer time, or the coordinated world time (UTC), or the time zone of the computer.

For more information on WMI functionality, please refer to the FAQ "How to convert a time (date and time) of the local computer time into Coordinated World Time (UTC)?":

https://support.industry.siemens.com/cs/ww/en/view/24201113

5 Synchronization types

Introduction

Time synchronization is of great importance in industrial plants.

For example, these tasks can only be performed meaningfully with a reliable and identical date and time stamp for all components involved:

- Data recording and data storage
- Alarms
- Shift protocols
- Energy data management

Setting the time

Time setting is the conventional way of reducing time differences between the operator station and the control system to a minimum. When setting the time, however, telegram run times and processing times of scripts and functions cause a delay which causes the times in the HMI and PLC to differ.

The advantage of time setting is its universal usability, e.g. for devices, assemblies and bus topologies that do not support synchronization methods.

Time synchronization

The advantage of time synchronization is its accuracy, which also takes into account delays during transmission.

In addition, the implementation is less time-consuming than setting the time, since no further scripts and functions are required.

However, all participants
(e.g. control unit and controller) must support the method used for time synchronization.

This section introduces the following synchronization methods:

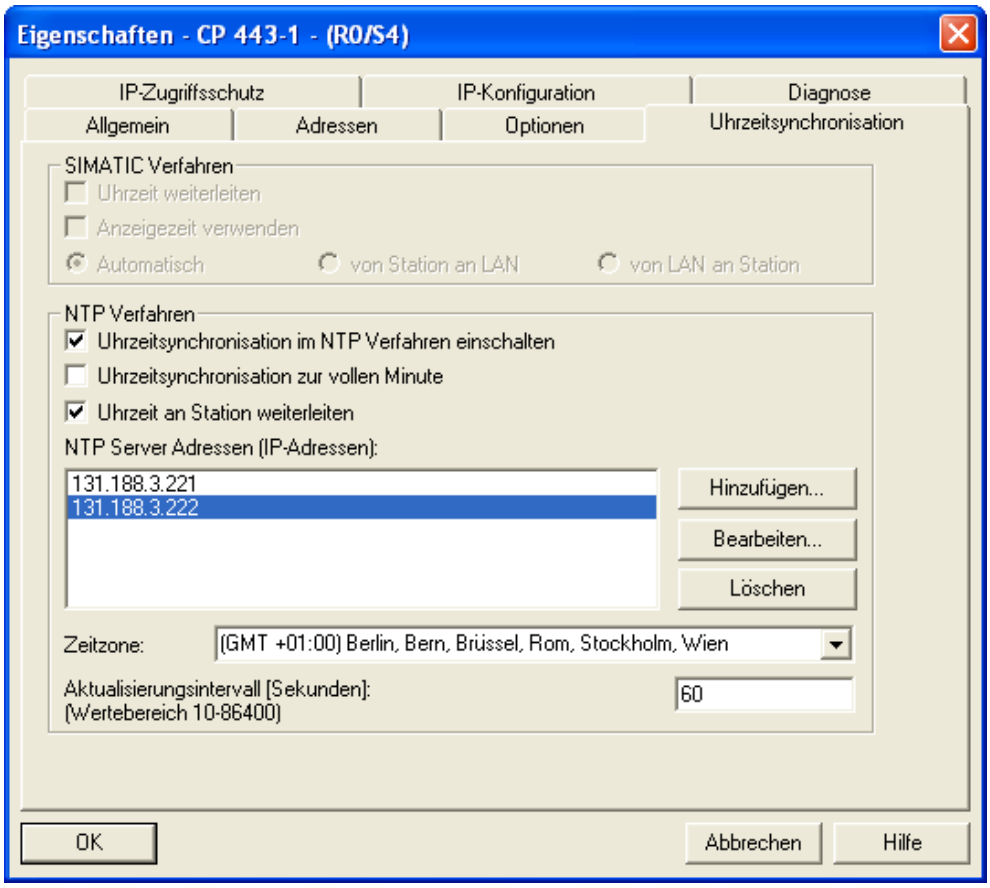
- NTP
- SIMATIC procedure
- TIA procedure

5.1 NTP

The Network Time Protocol (NTP) is a standard for synchronizing clocks in computer systems over packet-based communication networks. NTP uses the connectionless transport protocol UDP.

It is designed to provide reliable timing over variable packet networks.

Figure 5-1



More information about NTP time synchronization can be found in the following FAQs:

Table 5-1

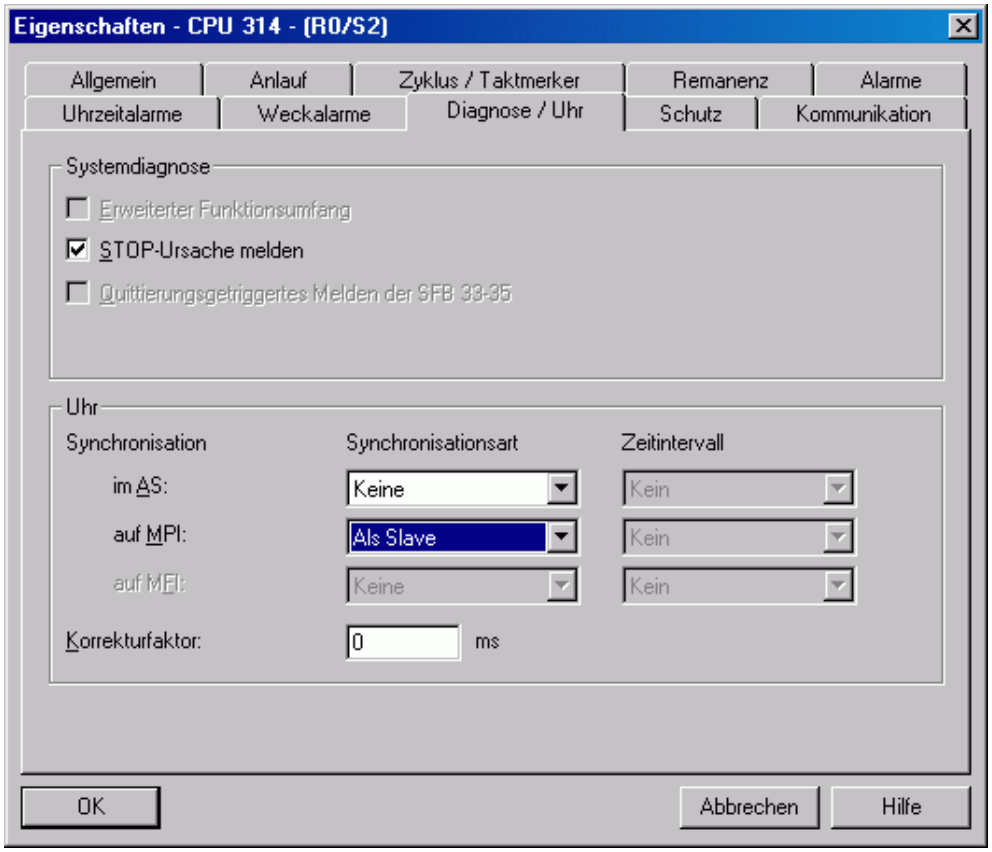
FAQs	Link
Time synchronization (date and time) between WinCC Runtime Professional and an S7 controller (documentation, section 6)	https://support.industry.siemens.com/cs/ww/en/view/67518641
Which SIMATIC S7-300/S7-400 components support the NTP time telegram for synchronizing the system time and how do I activate this type of time synchronization?	https://support.industry.siemens.com/cs/ww/en/view/17990844
How do I configure my PC as NTP server?	https://support.industry.siemens.com/cs/ww/en/view/22144502

5.2 SIMATIC procedure

This procedure is mostly used in process automation together with ISO transport services. The SIMATIC procedure achieves an accuracy of +/- 10ms between the communication processor (CP) and the synchronized CPU at a resolution of +/- 1ms.

Since the SIMATIC procedure is based on SNAP services (i.e. ISO Layer 2 service) and works with MAC addresses, it can only be used with local Ethernet networks. This procedure does not work with IP networks via IP routers, i.e. with configured IP subnets.

Figure 5-2



Further information about SIMATIC time synchronization can be found in the FAQ "How is the SIMATIC S7-300 configured as time master or time slave for time synchronization via Industrial Ethernet with the SIMATIC procedure?":

https://support.industry.siemens.com/cs/ww/en/view/44049612

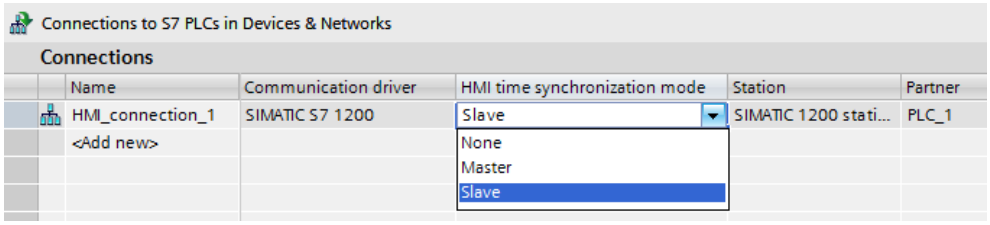
5.3 TIA procedure

If an S7-1200 or S7-1500 controller is selected as communication partner in the WinCC Engineering System, one of the following options can be selected under the connection settings under "HMI time synchronization mode".

- None: Time synchronization is not used.
- Master: The operating device sets the time. If several operator interfaces are used, one operator interface is configured as "master" and all other operator interfaces as "slave".
- Slave: The SPS sets the time.

No further project planning steps are required for this type of time synchronization.

Figure 5-3



Further information on the subject of HMI time synchronization can be found in the "Documentation" (section 3.1 and section 5.1) of the FAQ "Time synchronization between an HMI operator interface and a SIMATIC PLC":

https://support.industry.siemens.com/cs/ww/en/view/69864408

6 Further information and program examples

The following table gives you a selection guide to find your relevant contributions with consideration of the HMI system and the controller.

Table 2

	Basic Panels	Comfort Panels	RT Advanced	RT Professional	WinCC
S7-300:	69864408	69864408 19324378	69864408	67518641	7802886
S7-400	69864408	69864408 19324378	69864408	67518641	7802886
S7-1200	69864408 39182145	69864408 109482675	69864408	67518641	-
S7-1500	69864408	69864408 109482675	69864408	67518641	-
PC	-	-	59203176	59558655	24201113 24019500 24202491

7 Further links on time synchronization

The links mentioned in this white paper are sufficient to deal with the topic of time synchronization in the environment of WinCC and TIA Portal.

Further, special cases are highlighted in the following FAQs:

Table 7-1

FAQs	Link
Time synchronization - time synchronization in the automation environment	https://support.industry.siemens.com/cs/ww/en/view/86535497
How can the time of an S7 controller be set from WinCC?	https://support.industry.siemens.com/cs/ww/en/view/7802886
How can the local computer time or the coordinated world time be read, displayed or set at WinCC runtime?	https://support.industry.siemens.com/cs/ww/en/view/24202491

8 Appendix

8.1 Service and Support

Industry Online Support

Do you have any questions or need assistance?

Siemens Industry Online Support offers round the clock access to our entire service and support know-how and portfolio.

The Industry Online Support is the central address for information about our products, solutions and services.

Product information, manuals, downloads, FAQs, application examples and videos – all information is accessible with just a few mouse clicks:
support.industry.siemens.com

Technical Support

The Technical Support of Siemens Industry provides you fast and competent support regarding all technical queries with numerous tailor-made offers – ranging from basic support to individual support contracts. Please send queries to Technical Support via Web form:
www.siemens.com/industry/supportrequest

SITRAIN – Training for Industry

We support you with our globally available training courses for industry with practical experience, innovative learning methods and a concept that's tailored to the customer's specific needs.

For more information on our offered trainings and courses, as well as their locations and dates, refer to our web page:
www.siemens.com/sitrain

Note

Basics are taught in the following SITRAIN courses.

- SIMATIC WinCC, Systemkurs (de)
- SIMATIC WinCC, System Course (en)
- SIMATIC WinCC maschinennah im TIA Portal (de)
- SIMATIC WinCC on the machine level in the TIA Portal (en)
- SIMATIC WinCC SCADA im TIA Portal (de)
- SIMATIC WinCC SCADA in the TIA Portal (en)

Topics for troubleshooting and diagnostics are taught, among many other topics, in the course "SIMATIC WinCC, Advanced Course."

- SIMATIC WinCC, advanced course (de)
- SIMATIC WinCC, advanced course (en)

Service offer

Our range of services includes the following:

- Plant data services
- Spare parts services
- Repair services
- On-site and maintenance services
- Retrofitting and modernization services
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You can find detailed information on our range of services in the service catalog web page:
support.industry.siemens.com/cs/sc

Industry Online Support app

You will receive optimum support wherever you are with the "Siemens Industry Online Support" app. The app is available for Apple iOS, Android and Windows Phone:
support.industry.siemens.com/cs/ww/en/sc/2067

8.2 Links and Literature

Table 8-1

No.	Topic
\1\	Siemens Industry Online Support https://support.industry.siemens.com
\2\	Link to the article page of the application example https://support.industry.siemens.com/cs/ww/en/view/69864408
\3\	

8.3 Change documentation

Table 8-2

Version	Date	Change
V1.0	03/2019	First version