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Time-of-Day Synchronization between WinCC Runtime Professional and S7 Controllers

WinCC Runtime Professional

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

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1 Introduction

1.1 Overview

Introduction

In industrial plants, time-of-day synchronization is of great importance.

For example, ...

- data recording and data storage
- alarms
- shift logs
- energy data management

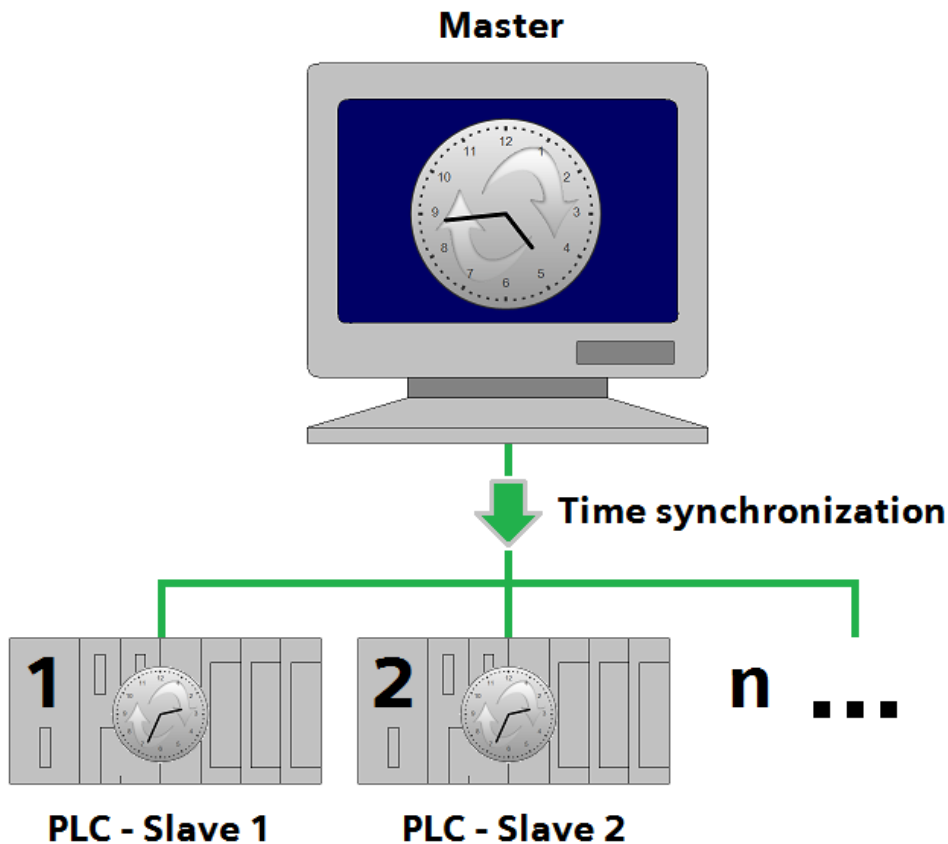
... only make sense with a reliable, identical date and time stamp of all components involved.

Description of the automation task

The time of day of a higher-level industrial PC has to be transmitted to all connected nodes, e.g. programmable controller, and synchronized at regular intervals.

Depending on the hardware used, the time of day is to be synchronized via both, interface tags and [NTP](#).

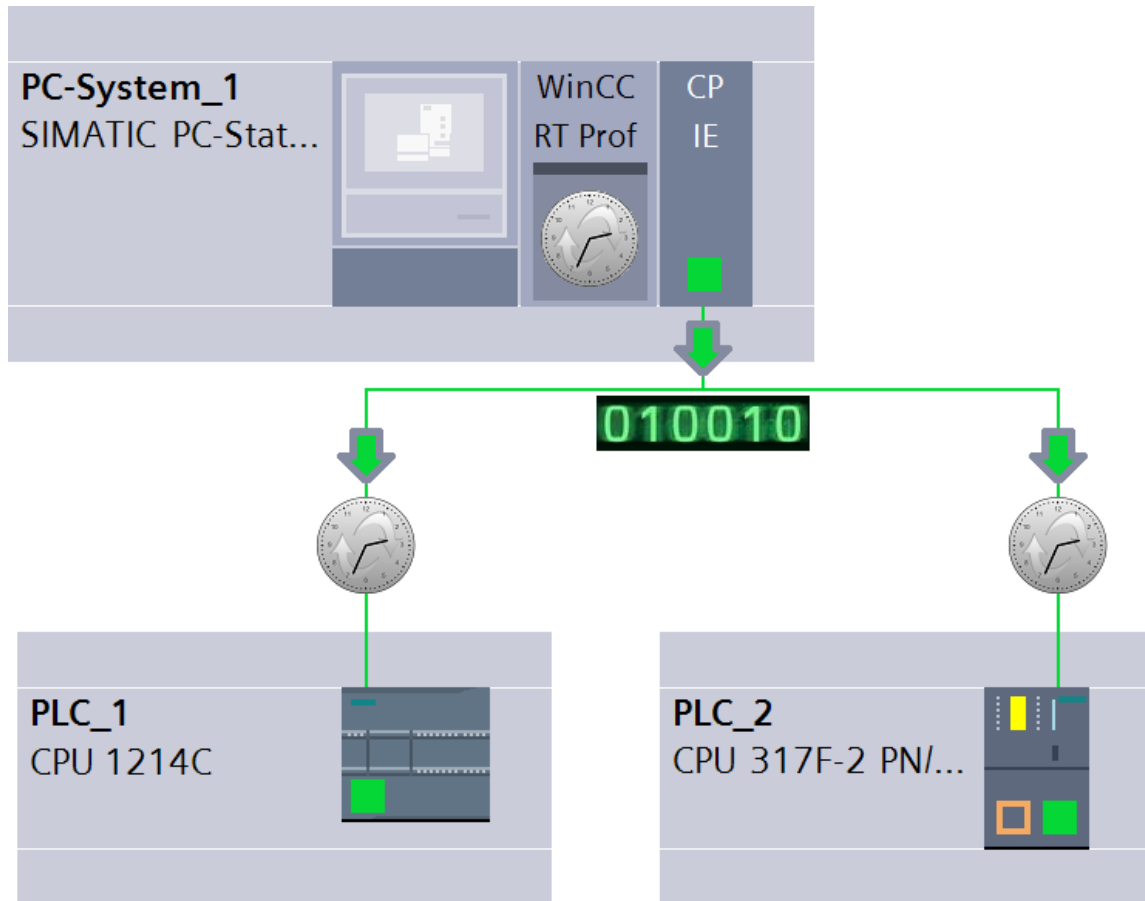
Figure 1-1



1.2 Mode of operation

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

Figure 1-2



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Configuration

- All nodes are connected to one another via a network.
- WinCC Runtime Professional or the industrial PC ("PC-System_1") on which the visualization runs acts as the time-of-day master.
- The controllers shown in the figure ("PLC_1" and "PLC_2") are the time-of-day slaves.
- Both S7-300/S7-400 and S7-1200/S7-1500 are supported.

Advantages

This application offers you the following advantages:

- Identical time-of-day information plant-wide
- Comparability of recorded data and measured values
- Meaningful shift and alarm logs
- Setting the time of day independently of devices, modules and bus topologies
- Time-of-day synchronization for Industrial Ethernet and appropriate hardware
- Can be (simultaneously) used for both S7-300/S7-400 and S7-1200/S7-1500

Scope

This application does not include a description of

- the installation of the SIMATIC TIA Portal software
- the installation and configuration of the hardware used.

Basic knowledge of these topics is required.

Required knowledge

Basic knowledge of the WinCC Professional and STEP 7 Professional software products is required.

Description of the core functionality

This application example offers you two basic functions:

- [Setting the time of day](#)
- [Synchronizing the time of day](#)

| | |
|---------------|---|
| NOTICE | Both functions can be used alternatively or in combination with one another. However, only one of the two methods may be used per time-of-day slave. |
|---------------|---|

| | |
|-------------|---|
| Note | If all components involved support NTP, it is preferable to use only time-of-day synchronization. |
|-------------|---|

Setting the time of day via interface tags

Setting the time of day is the conventional way of reducing time differences between operator station and controller to a minimum. However, when setting the time of day, transmission delay times and the processing time of scripts and functions cause a delay that results in the times in the HMI and PLC deviating from one another.

The advantage of setting the time of day is its universal applicability, e.g. for devices, modules and bus topologies that do not support NTP.

| | |
|-------------|---|
| Note | The supplied sample files are used for setting the time of day. |
|-------------|---|

Time-of-day synchronization via NTP

NTP (**N**etwork **T**ime **P**rotocol) is a standardized protocol for synchronizing clocks in computer systems and uses the connectionless UDP transport protocol.

- In NTP mode, the controller sends timing requests (in client mode) to the NTP server at regular intervals.
- From the request, the NTP server determines the transmission delay time and considers it for the synchronization with the controller.

The advantage of time-of-day synchronization is its accuracy, which also considers delays during transmission.

Furthermore, implementation is less complicated than for setting the time of day as no further scripts and functions are necessary.

Note

The supplied sample files are not required for time-of-day synchronization.
However, all devices involved must support NTP.

1.3 Components used

This application example has been created with the following hardware and software components:

Table 1-1

| Component | Number | Article number | Note |
|---------------------|--------|--------------------|---|
| CPU 1214C | 1 | 6ES7214-1HE30-0XB0 | Alternatively, any other controller of the S7-1200/S7-1500 series can also be used. |
| CPU 317F-2PN/DP | 1 | 6ES7317-2FK13-0AB0 | Alternatively, any other controller of the S7-300/S7-400 series can also be used. |
| SIMATIC IPC847C | 1 | 6AG4114-1....-.... | Alternatively, any other industrial PC can also be used. |
| STEP 7 Professional | 1 | | |
| WinCC Professional | 1 | | |

This application example consists of the following components:

Table 1-2

| Component | File name | Note |
|---------------|---|-------------------------------------|
| Documentation | 69864408_WinCC_Pro_TimeSyn_DOC_v11_en.pdf | This Document. |
| Code | 69864408_WinCC_Pro_TimeSyn_CODE_v11.zip | Four code templates in text format. |

2 Additional information

2.1 Background

Time functions in STEP 7

To extract and edit the values for year, month, day and time from the "DATE_AND_TIME" data type, you need different instructions or functions in STEP 7 (TIA Portal) and in STEP 7 V5.

- In STEP 7 (TIA Portal), you will find these instructions in the "Extended Instructions" palette and in the "Date and time-of-day" folder.
- For STEP 7 V5, you need the IEC standard functions included in the STEP 7 "Standard Library".

Use

Table 2-1

| STEP 7 (TIA Portal) | | STEP 7 V5 | Description |
|---------------------|-----------|------------------|-------------------------|
| S7-300/S7-400 | S7-1200 | S7-300/S7-400 | |
| WR_SYS_T | WR_SYS_T | SFC 0 "SET_CLK" | Set time of day |
| RD_SYS_T | RD_SYS_T | SFC 1 "READ_CLK" | Read time of day |
| T_CONV | T_CONV | FC 6 DT_DATE | Convert / extract times |
| | | FC 7 DT_DAY | Convert / extract times |
| | | FC 8 DT_TOD | Convert / extract times |
| T_COMBINE | T_COMBINE | FC3 D_TOD_DT | Combine times |
| T_COMP | - | FC 9 "EQ_DT" | Compare time tags |
| T_ADD | T_ADD | FC 1 "AD_DT_TM" | Add times |
| T_SUB | T_SUB | FC 34 "SB_DT_DT" | Subtract times |
| | | FC35 "SB_DT_TM" | Subtract times |
| T_DIFF | T_DIFF | - | Time difference |

DATE_AND_TIME data type (S7-300/S7-400)

- The "DT" data type is used for the S7-300/S7-400.
- The data for date and time of day is stored in BCD format.
- The "DT" data type has a length of 8 bytes.
- The structure elements of this data type can only be accessed via absolute addresses.

DTL data type (S7-1200/S7-1500)

- The "DTL" data type is used for the S7-1200/S7-1500.
- The "DTL" data type has a length of 12 bytes.
- The structure elements of this data type can't be accessed.

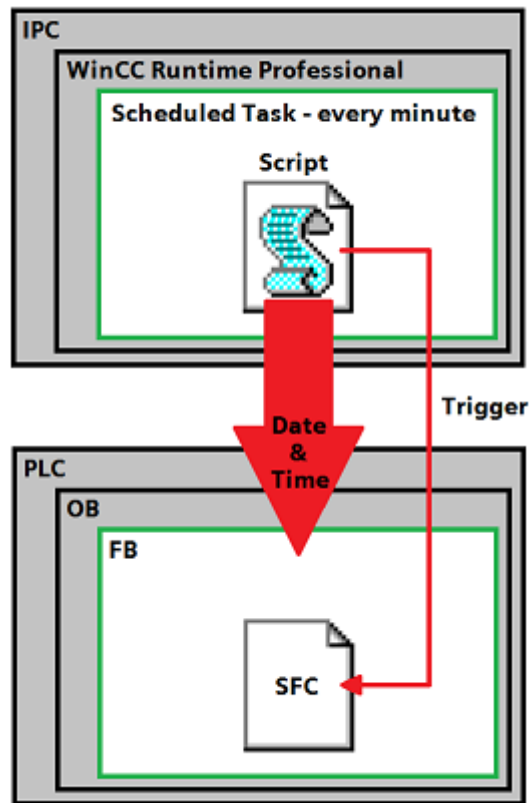
Note

This application uses the time functions of STEP 7 (TIA Portal) only for setting the time of day.

The time functions of STEP 7 are not required for time-of-day synchronization.

2.2 Setting the time of day

Figure 2-1



1. The "WriteDateTime_..._VBS" script (depending on the controller) is called cyclically every minute by the scheduler.
2. Via interface tags, the script writes the date, time of day and trigger to the instance data block of the FB.
3. The FB with the "SetDateTime_..." code (depending on the controller) is called cyclically by the OB.
4. If the trigger is set, the "WR_SYS_T" system function will be called with the date and time of day data of the instance data block and the time of day will be set.
5. After calling the system function, the trigger will be reset by the FB.

2.3 Time-of-day synchronization

The supplied files are not used for time-of-day synchronization. Instead, [NTP](#) is used here, which has to be parameterized only once for all devices involved.

The services used for this purpose run in the background and must be provided by the devices involved.

3 Setting the Time of Day

3.1 From WinCC Runtime Professional to S7-300/S7-400

Table 3-1

| Step | Action |
|------|---|
| 1. | <ul style="list-style-type: none"> • Create a new FB1 with the name “SetDateTime” and the “STL” language. • In the static part of the declaration section, define three tags: <ul style="list-style-type: none"> - “DateTime” (Date_And_Time) - “RET_VAL” (Int) - “Trigger” (Bool) • Make sure that the “Visible in HMI” option is checked for all tags. • Insert the STL code of the “SetDateTime_AWL.txt” text file into FB1. |

PLC_1 [...] ▶ Program blocks ▶ SetDateTime [FB1]

Interface

| | Name | Data type | Offset | Default value | Visible in HMI |
|----|-----------|---------------|--------|---------------------|-------------------------------------|
| 1 | Input | | | | |
| 2 | <Add new> | | | | <input type="checkbox"/> |
| 3 | Output | | | | |
| 4 | <Add new> | | | | <input type="checkbox"/> |
| 5 | InOut | | | | |
| 6 | <Add new> | | | | <input type="checkbox"/> |
| 7 | Static | | | | |
| 8 | DateTime | Date_And_Time | 0.0 | DT#1990-1-1-0:0:0.0 | <input checked="" type="checkbox"/> |
| 9 | RET_VAL | Int | 8.0 | 0 | <input checked="" type="checkbox"/> |
| 10 | Trigger | Bool | 10.0 | false | <input checked="" type="checkbox"/> |
| 11 | Temp | | | | |

Block title:

Comment

Network 1:

Comment

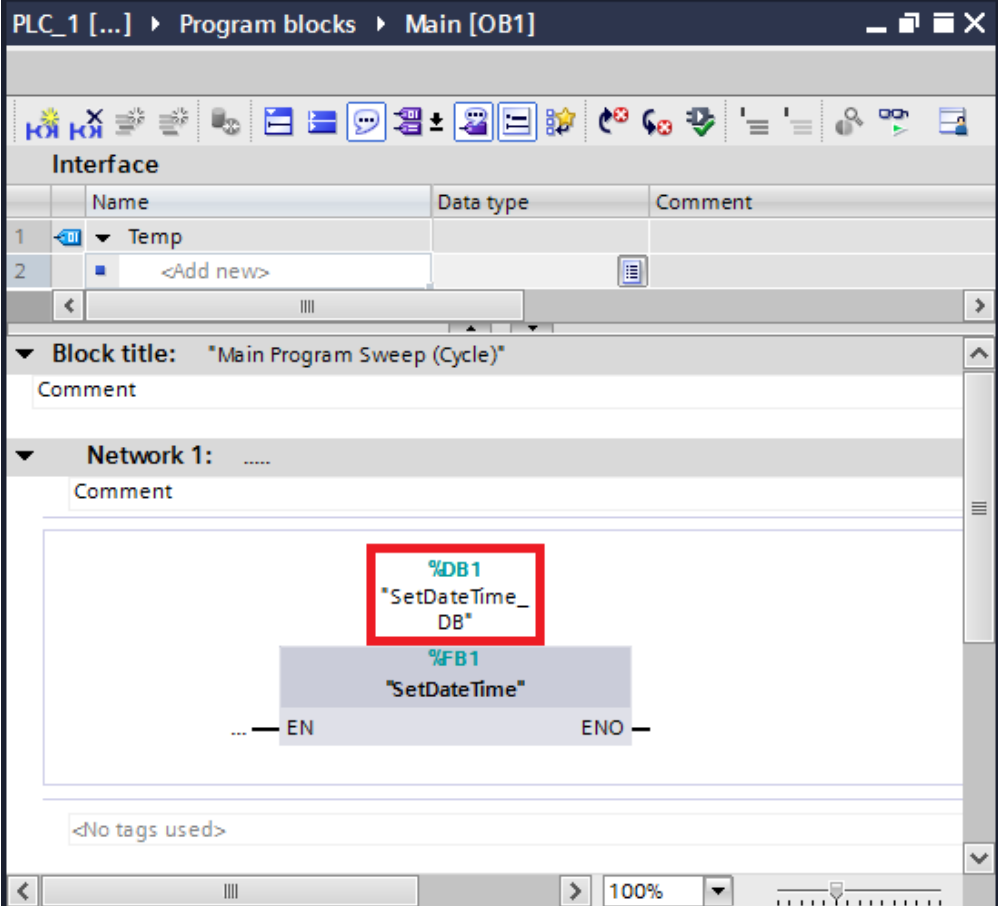
```

1      A   #Trigger
2      JCN end
3      CALL WR_SYS_T
4      Date_And_Time
5      IN   :=#DateTime
6      RET_VAL :=#RET_VAL
7      R   #Trigger
8  end: NOP 0
9

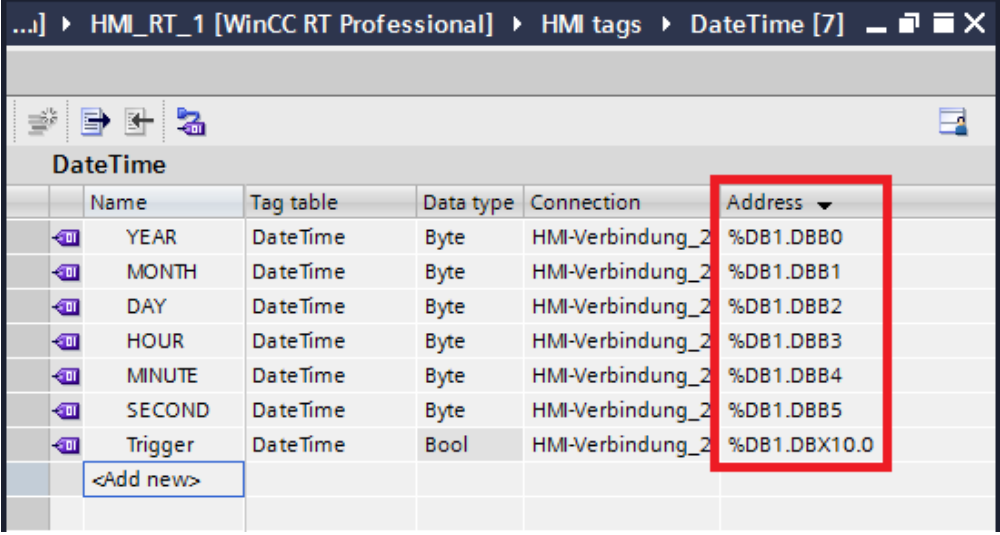
```

100%

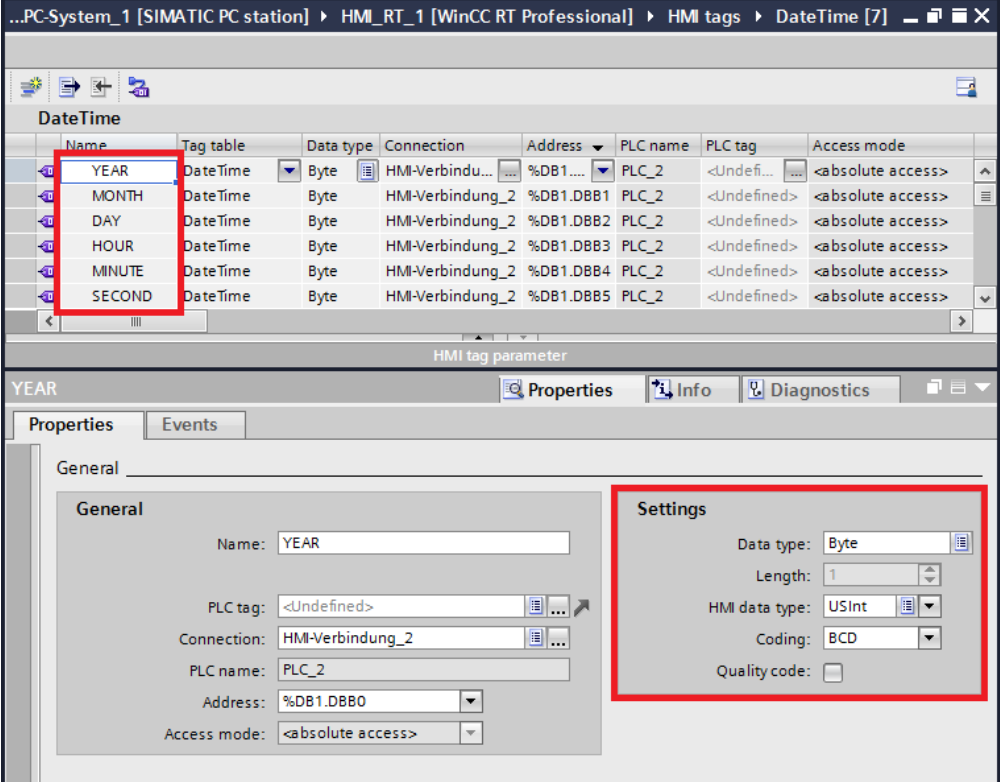
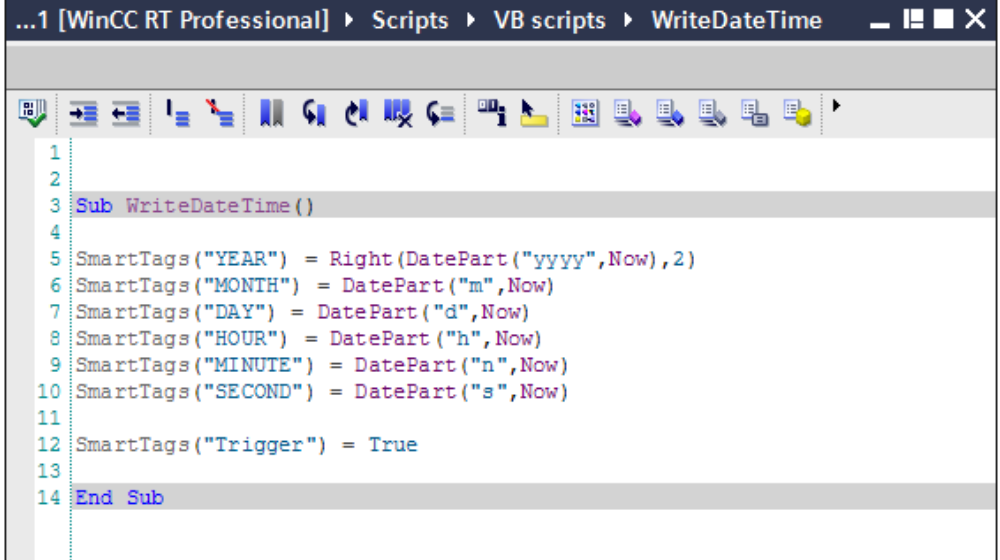
3 Setting the Time of Day

| Step | Action |
|------|---|
| 2. | <ul style="list-style-type: none"> • Call FB1 "SetDateTime" in OB1 "Main". • As the instance data block, select DB1 and assign "SetDateTime_DB" as the name.  <p>The screenshot displays the SIMATIC Manager interface for a PLC program. The title bar indicates the project is 'PLC_1 [...] Program blocks Main [OB1]'. Below the title bar is a toolbar with various icons. The main workspace shows a ladder logic network titled 'Main Program Sweep (Cycle)'. In this network, a function block call for 'SetDateTime' (FB1) is shown. The instance data block is labeled '%DB1 "SetDateTime_DB"', which is highlighted with a red rectangular box. The function block call is labeled '%FB1 "SetDateTime"' and has 'EN' and 'ENO' terminals. Below the network, it states '<No tags used>'. At the top of the workspace, there is an 'Interface' table with columns 'Name', 'Data type', and 'Comment'. The table contains two rows: the first row has 'Temp' under 'Name', and the second row has '<Add new>' under 'Name'. The status bar at the bottom shows a zoom level of 100%.</p> |

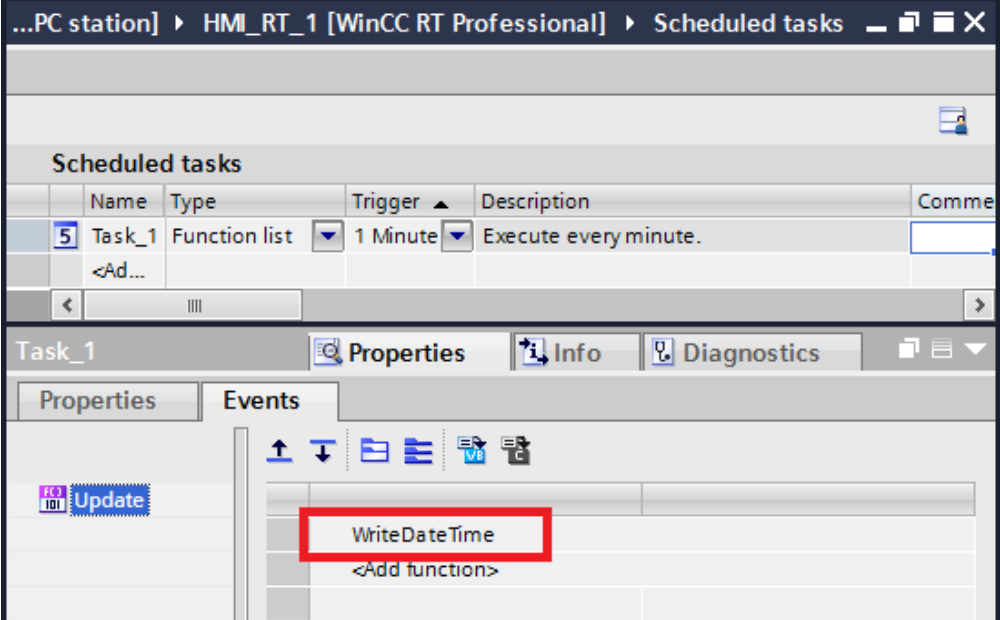
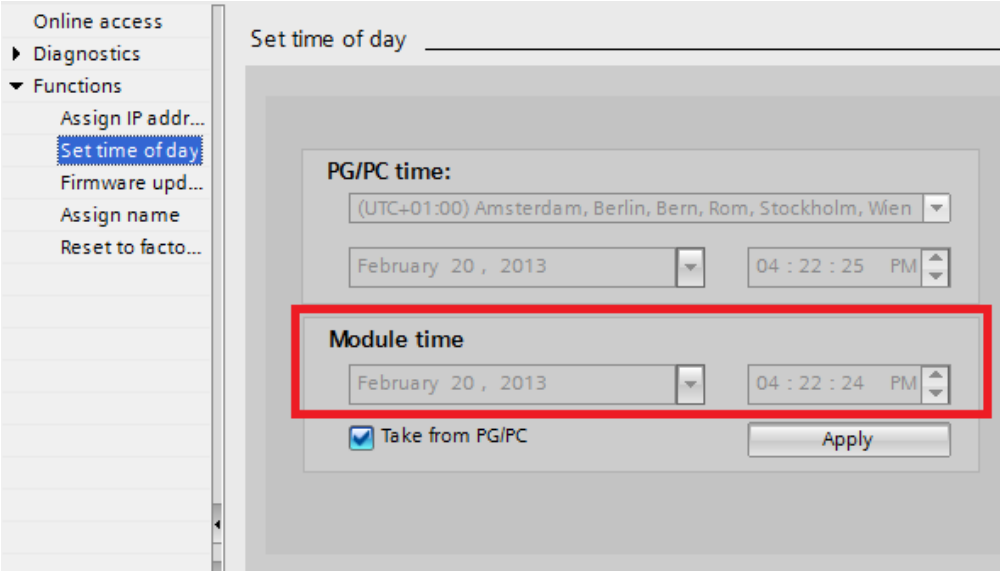
3 Setting the Time of Day

| Step | Action | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|--|-----------|------------------|--------------|------------|---------|------|----------|------|------------------|-----------|-------|----------|------|------------------|-----------|-----|----------|------|------------------|-----------|------|----------|------|------------------|-----------|--------|----------|------|------------------|-----------|--------|----------|------|------------------|-----------|---------|----------|------|------------------|--------------|
| 3. | <ul style="list-style-type: none"> • Create the tags in the WinCC Runtime Professional tag management as shown in the figure. • Make sure that the “Trigger” tag has the “Bool” data type. • When assigning the addresses, make sure that the absolute addresses are addressed correctly. <p>Note If an HMI connection between the PC station and the controller has not yet been established in your project, you can also copy the “Trigger” tag from the DB1 instance data block to the WinCC Runtime Professional tag management. This automatically creates the HMI connection. The prerequisite for this is an existing network between the PC station and the PLC.</p>  <p>The screenshot shows the 'DateTIme' tag management window. It contains a table with the following data:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Tag table</th> <th>Data type</th> <th>Connection</th> <th>Address</th> </tr> </thead> <tbody> <tr> <td>YEAR</td> <td>DateTIme</td> <td>Byte</td> <td>HMI-Verbindung_2</td> <td>%DB1.DBB0</td> </tr> <tr> <td>MONTH</td> <td>DateTIme</td> <td>Byte</td> <td>HMI-Verbindung_2</td> <td>%DB1.DBB1</td> </tr> <tr> <td>DAY</td> <td>DateTIme</td> <td>Byte</td> <td>HMI-Verbindung_2</td> <td>%DB1.DBB2</td> </tr> <tr> <td>HOUR</td> <td>DateTIme</td> <td>Byte</td> <td>HMI-Verbindung_2</td> <td>%DB1.DBB3</td> </tr> <tr> <td>MINUTE</td> <td>DateTIme</td> <td>Byte</td> <td>HMI-Verbindung_2</td> <td>%DB1.DBB4</td> </tr> <tr> <td>SECOND</td> <td>DateTIme</td> <td>Byte</td> <td>HMI-Verbindung_2</td> <td>%DB1.DBB5</td> </tr> <tr> <td>Trigger</td> <td>DateTIme</td> <td>Bool</td> <td>HMI-Verbindung_2</td> <td>%DB1.DBX10.0</td> </tr> </tbody> </table> | Name | Tag table | Data type | Connection | Address | YEAR | DateTIme | Byte | HMI-Verbindung_2 | %DB1.DBB0 | MONTH | DateTIme | Byte | HMI-Verbindung_2 | %DB1.DBB1 | DAY | DateTIme | Byte | HMI-Verbindung_2 | %DB1.DBB2 | HOUR | DateTIme | Byte | HMI-Verbindung_2 | %DB1.DBB3 | MINUTE | DateTIme | Byte | HMI-Verbindung_2 | %DB1.DBB4 | SECOND | DateTIme | Byte | HMI-Verbindung_2 | %DB1.DBB5 | Trigger | DateTIme | Bool | HMI-Verbindung_2 | %DB1.DBX10.0 |
| Name | Tag table | Data type | Connection | Address | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| YEAR | DateTIme | Byte | HMI-Verbindung_2 | %DB1.DBB0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MONTH | DateTIme | Byte | HMI-Verbindung_2 | %DB1.DBB1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DAY | DateTIme | Byte | HMI-Verbindung_2 | %DB1.DBB2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HOUR | DateTIme | Byte | HMI-Verbindung_2 | %DB1.DBB3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MINUTE | DateTIme | Byte | HMI-Verbindung_2 | %DB1.DBB4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SECOND | DateTIme | Byte | HMI-Verbindung_2 | %DB1.DBB5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Trigger | DateTIme | Bool | HMI-Verbindung_2 | %DB1.DBX10.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

3 Setting the Time of Day

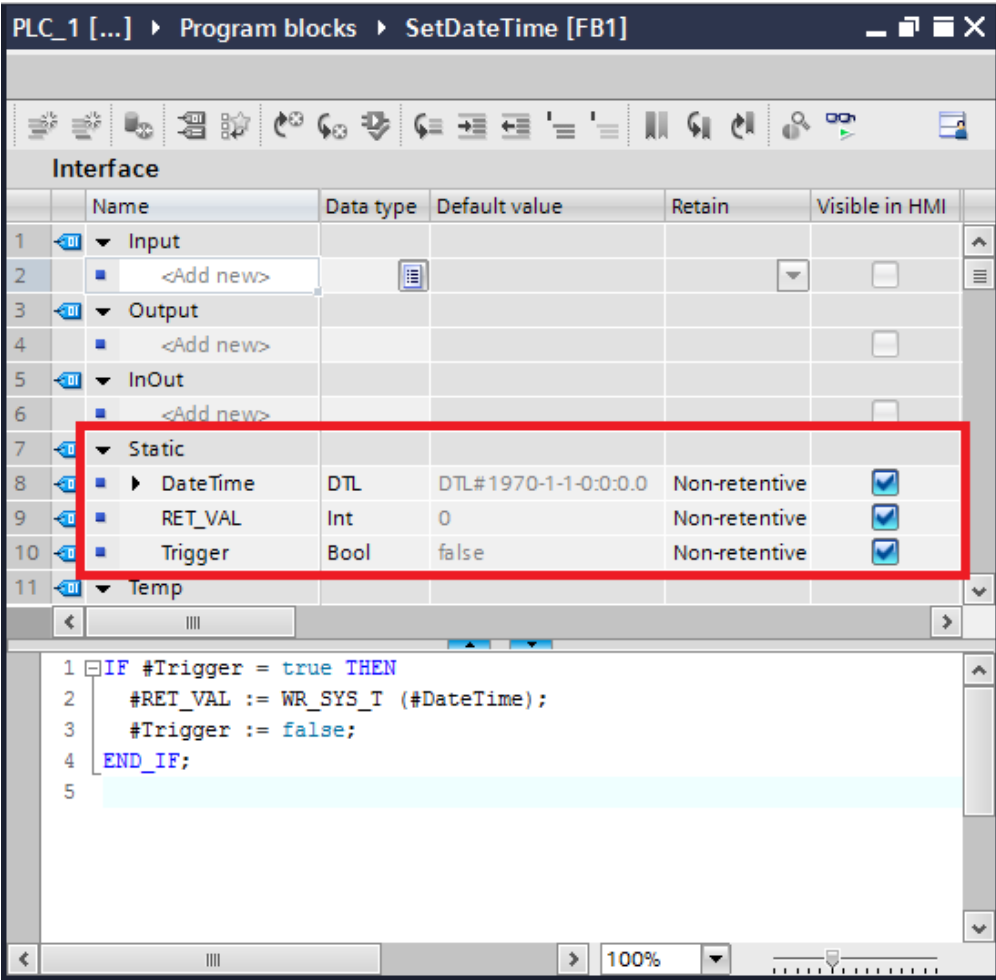
| Step | Action | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----------|------------------|-----------|------------|-------------|-------------------|---------|-------------|------|----------|------|-----------------|---------|-------|------------|-------------------|-------|----------|------|------------------|-----------|-------|-------------|-------------------|-----|----------|------|------------------|-----------|-------|-------------|-------------------|-------|----------|------|------------------|-----------|-------|-------------|-------------------|--------|----------|------|------------------|-----------|-------|-------------|-------------------|--------|----------|------|------------------|-----------|-------|-------------|-------------------|
| <p>4.</p> <p>Note When the coding is changed, the HMI data type will be automatically set to "USInt".</p> |  <p>The screenshot shows the 'DateTime' tag table with the following data:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Tag table</th> <th>Data type</th> <th>Connection</th> <th>Address</th> <th>PLC name</th> <th>PLC tag</th> <th>Access mode</th> </tr> </thead> <tbody> <tr> <td>YEAR</td> <td>DateTime</td> <td>Byte</td> <td>HMI-Verbindu...</td> <td>%DB1...</td> <td>PLC_2</td> <td><Undefi...</td> <td><absolute access></td> </tr> <tr> <td>MONTH</td> <td>DateTime</td> <td>Byte</td> <td>HMI-Verbindung_2</td> <td>%DB1.DBB1</td> <td>PLC_2</td> <td><Undefined></td> <td><absolute access></td> </tr> <tr> <td>DAY</td> <td>DateTime</td> <td>Byte</td> <td>HMI-Verbindung_2</td> <td>%DB1.DBB2</td> <td>PLC_2</td> <td><Undefined></td> <td><absolute access></td> </tr> <tr> <td>HOURL</td> <td>DateTime</td> <td>Byte</td> <td>HMI-Verbindung_2</td> <td>%DB1.DBB3</td> <td>PLC_2</td> <td><Undefined></td> <td><absolute access></td> </tr> <tr> <td>MINUTE</td> <td>DateTime</td> <td>Byte</td> <td>HMI-Verbindung_2</td> <td>%DB1.DBB4</td> <td>PLC_2</td> <td><Undefined></td> <td><absolute access></td> </tr> <tr> <td>SECOND</td> <td>DateTime</td> <td>Byte</td> <td>HMI-Verbindung_2</td> <td>%DB1.DBB5</td> <td>PLC_2</td> <td><Undefined></td> <td><absolute access></td> </tr> </tbody> </table> <p>The 'Properties' dialog for the 'YEAR' tag shows the following settings:</p> <ul style="list-style-type: none"> Name: YEAR PLC tag: <Undefined> Connection: HMI-Verbindung_2 PLC name: PLC_2 Address: %DB1.DBB0 Access mode: <absolute access> Settings: <ul style="list-style-type: none"> Data type: Byte Length: 1 HMI data type: USInt Coding: BCD Quality code: <input type="checkbox"/> | Name | Tag table | Data type | Connection | Address | PLC name | PLC tag | Access mode | YEAR | DateTime | Byte | HMI-Verbindu... | %DB1... | PLC_2 | <Undefi... | <absolute access> | MONTH | DateTime | Byte | HMI-Verbindung_2 | %DB1.DBB1 | PLC_2 | <Undefined> | <absolute access> | DAY | DateTime | Byte | HMI-Verbindung_2 | %DB1.DBB2 | PLC_2 | <Undefined> | <absolute access> | HOURL | DateTime | Byte | HMI-Verbindung_2 | %DB1.DBB3 | PLC_2 | <Undefined> | <absolute access> | MINUTE | DateTime | Byte | HMI-Verbindung_2 | %DB1.DBB4 | PLC_2 | <Undefined> | <absolute access> | SECOND | DateTime | Byte | HMI-Verbindung_2 | %DB1.DBB5 | PLC_2 | <Undefined> | <absolute access> |
| Name | Tag table | Data type | Connection | Address | PLC name | PLC tag | Access mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| YEAR | DateTime | Byte | HMI-Verbindu... | %DB1... | PLC_2 | <Undefi... | <absolute access> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MONTH | DateTime | Byte | HMI-Verbindung_2 | %DB1.DBB1 | PLC_2 | <Undefined> | <absolute access> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DAY | DateTime | Byte | HMI-Verbindung_2 | %DB1.DBB2 | PLC_2 | <Undefined> | <absolute access> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HOURL | DateTime | Byte | HMI-Verbindung_2 | %DB1.DBB3 | PLC_2 | <Undefined> | <absolute access> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MINUTE | DateTime | Byte | HMI-Verbindung_2 | %DB1.DBB4 | PLC_2 | <Undefined> | <absolute access> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SECOND | DateTime | Byte | HMI-Verbindung_2 | %DB1.DBB5 | PLC_2 | <Undefined> | <absolute access> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>5.</p> | <ul style="list-style-type: none"> • Create a new VB script named "WriteDateTime". • Copy the VBS code of the "WriteDateTime_300_400_VBS.txt" text file to the script.  <pre> 1 2 3 Sub WriteDateTime () 4 5 SmartTags("YEAR") = Right(DatePart("yyyy",Now),2) 6 SmartTags("MONTH") = DatePart("m",Now) 7 SmartTags("DAY") = DatePart("d",Now) 8 SmartTags("HOUR") = DatePart("h",Now) 9 SmartTags("MINUTE") = DatePart("n",Now) 10 SmartTags("SECOND") = DatePart("s",Now) 11 12 SmartTags("Trigger") = True 13 14 End Sub </pre> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

3 Setting the Time of Day

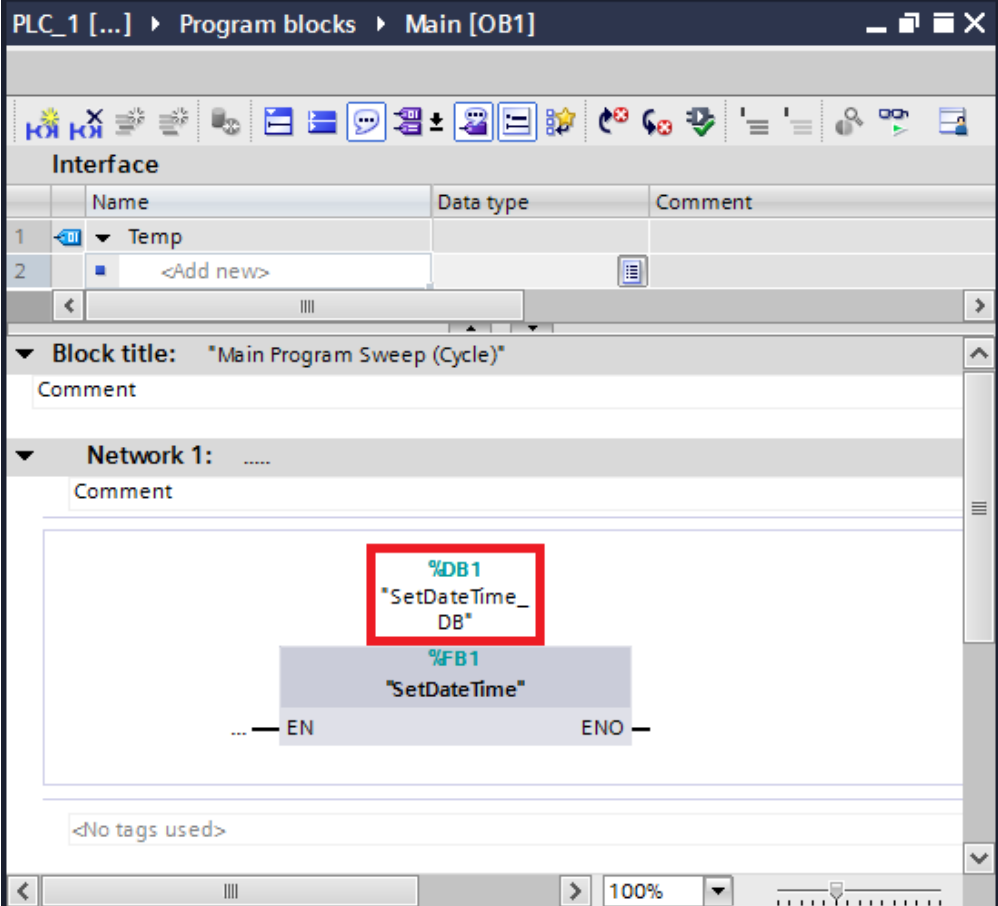
| Step | Action |
|------|--|
| 6. | <ul style="list-style-type: none"> Open the scheduler. Create a new task and assign it a unique name (in the example: "Task_1"). Set the trigger to "1 Minute". In Events, integrate the "WriteDateTime" script.  <p>The screenshot shows the 'Scheduled tasks' window in WinCC RT Professional. A table lists a task named 'Task_1' with a 'Function list' type and a '1 Minute' trigger. Below the table, the 'Events' tab for 'Task_1' is open, showing a list of events with 'WriteDateTime' highlighted by a red box.</p> |
| 7. | <ul style="list-style-type: none"> In the Project tree, select the "Online & Diagnostics" area of your CPU. In "Online access", select the appropriate parameters of your connection. Select "Go online" to connect to your CPU. Select "Functions > Set time of day" to check the module time of your CPU.  <p>The screenshot shows the 'Set time of day' dialog box. On the left, the 'Functions' menu is expanded to 'Set time of day'. The main dialog area has two sections: 'PG/PC time' and 'Module time'. The 'Module time' section is highlighted with a red box, showing a date of 'February 20, 2013' and a time of '04:22:24 PM'. There is also a checkbox for 'Take from PG/PC' and an 'Apply' button.</p> |

3.2 From WinCC Runtime Professional to S7-1200/S7-1500

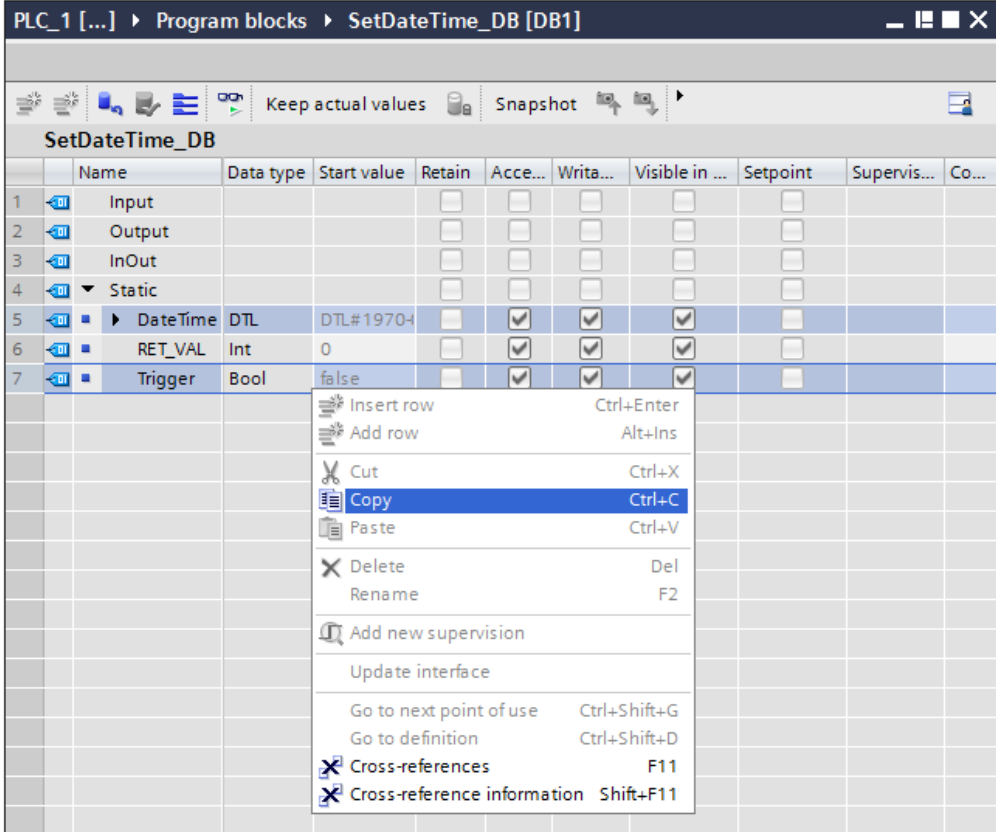
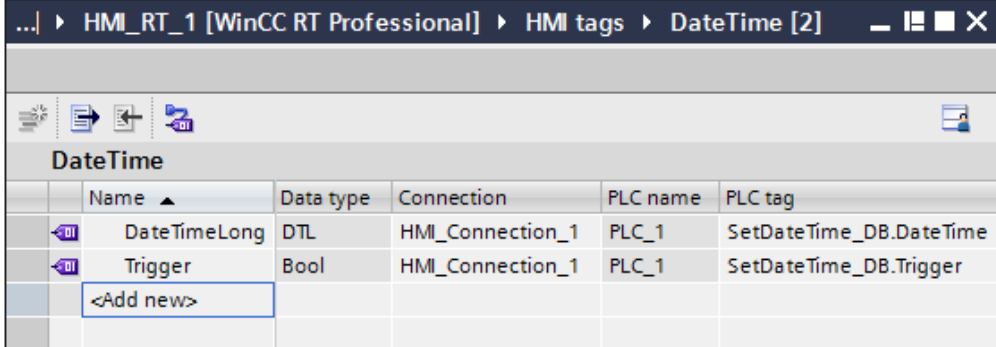
Table 3-2

| Step | Action |
|------|---|
| 1. | <ul style="list-style-type: none"> • Create a new FB1 with the name “SetDateTime” and the “SCL” language. • In the static part of the declaration section, define three tags: <ul style="list-style-type: none"> - “DateTime” (DTL) - “RET_VAL” (Int) - “Trigger” (Bool) • Make sure that the “Visible in HMI” option is checked for all tags. • Insert the SCL code of the “SetDateTime_SCL.txt” text file into FB1.  |

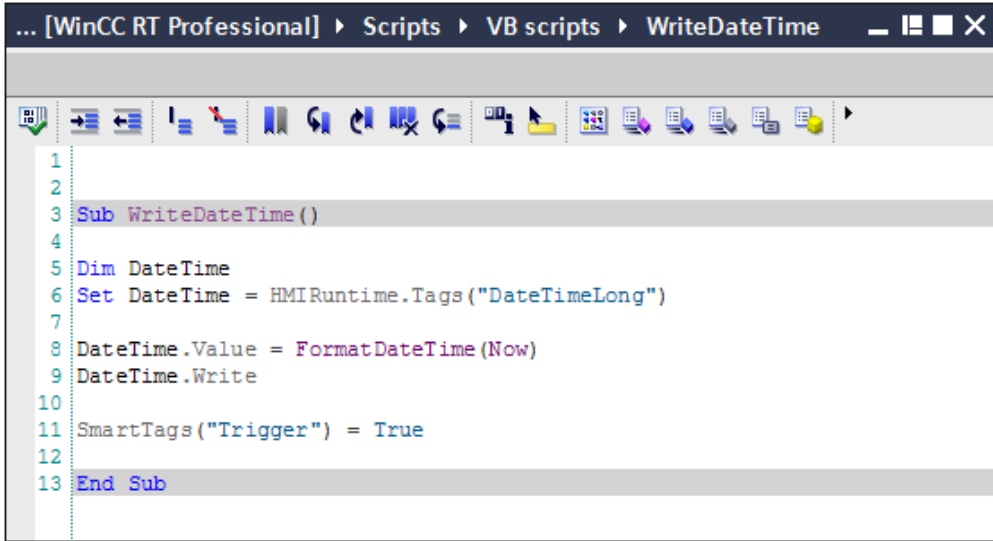
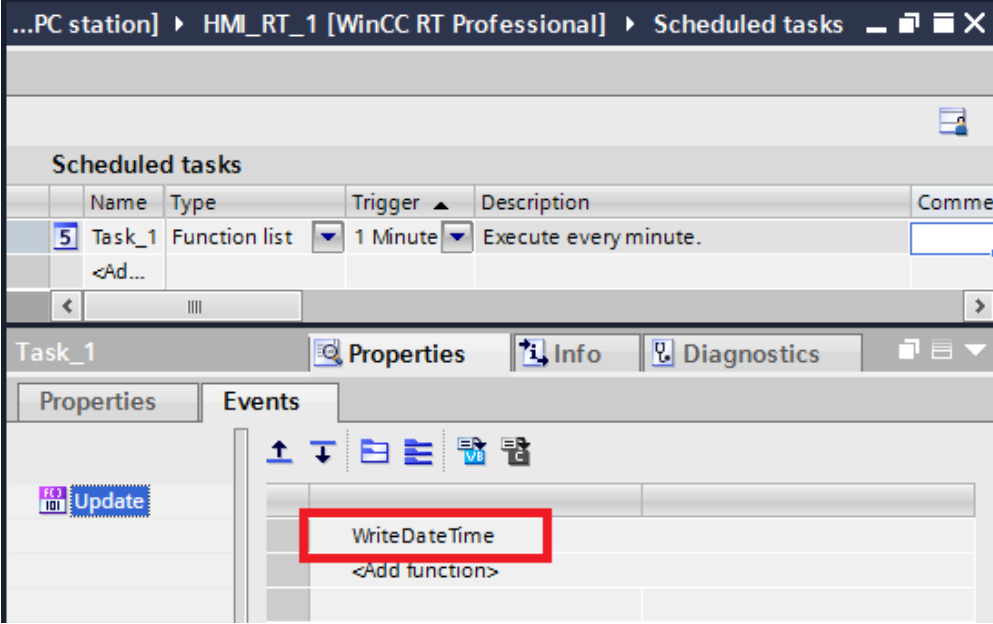
3 Setting the Time of Day

| Step | Action |
|------|---|
| 2. | <ul style="list-style-type: none"> • Call FB1 "SetDateTime" in OB1 "Main". • As the instance data block, select DB1 and assign "SetDateTime_DB" as the name.  <p>The screenshot displays the SIMATIC Manager interface for a PLC program. The title bar indicates 'PLC_1 [...] > Program blocks > Main [OB1]'. Below the title bar is a toolbar with various icons. The main workspace shows an 'Interface' table with columns for Name, Data type, and Comment. The table contains two rows: 'Temp' and '<Add new>'. Below the interface table, the 'Block title' is 'Main Program Sweep (Cycle)'. Underneath, 'Network 1' is shown with a comment field. The network diagram features a function block call for 'SetDateTime' (FB1). The instance data block is labeled '%DB1' and 'SetDateTime_DB', which is highlighted with a red rectangular box. The network also shows 'EN' and 'ENO' terminals. At the bottom of the workspace, it states '<No tags used>'. The status bar at the very bottom shows a zoom level of 100%.</p> |

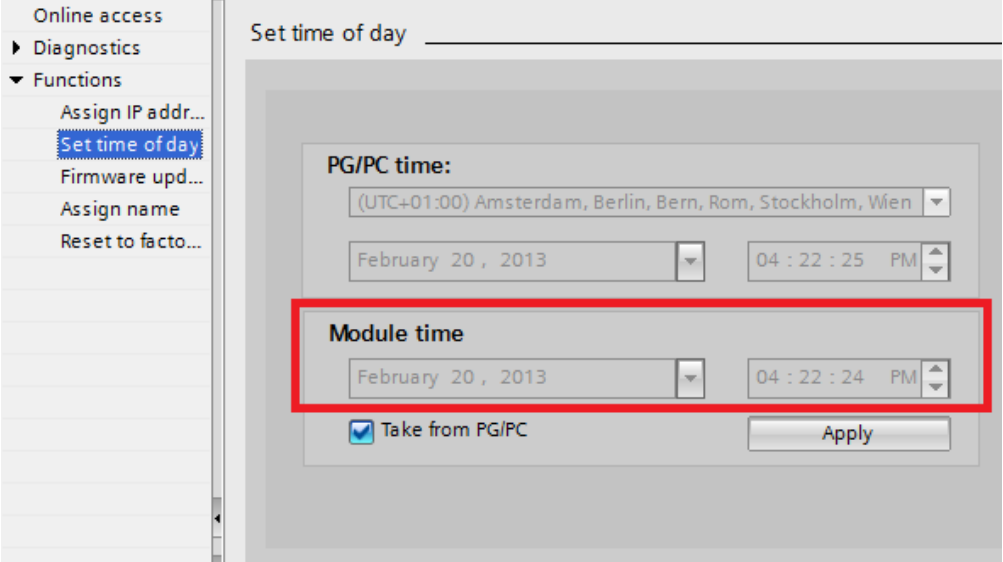
3 Setting the Time of Day

| Step | Action | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|----------------|------------------|-------------|-------------------------|---------|-------|------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|--|---|--------|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|--|---|-------|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|--|---|--------|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|--|---|----------|-----------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--|--|---|---------|-----|---|--------------------------|-------------------------------------|-------------------------------------|--------------------------|--|--|---|---------|------|-------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|--|--|
| <p>3.</p> <p>Note When copying, press “Ctrl” to select multiple tags at a time.</p> |  <p>The screenshot shows the 'SetDateTime_DB' data block in the WinCC Graphics Designer. The table below represents the data block's structure:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Data type</th> <th>Start value</th> <th>Retain</th> <th>Acce...</th> <th>Writa...</th> <th>Visible in ...</th> <th>Setpoint</th> <th>Supervis...</th> <th>Co...</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Input</td> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Output</td> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>InOut</td> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>Static</td> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>DateTime</td> <td>DTL#1970+</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>RET_VAL</td> <td>Int</td> <td>0</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>7</td> <td>Trigger</td> <td>Bool</td> <td>false</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> </tbody> </table> <p>The context menu is open over the 'DateTime' tag, with 'Copy' selected. Other options include 'Insert row', 'Add row', 'Cut', 'Paste', 'Delete', 'Rename', 'Add new supervision', 'Update interface', 'Go to next point of use', 'Go to definition', 'Cross-references', and 'Cross-reference information'.</p> | Name | Data type | Start value | Retain | Acce... | Writa... | Visible in ... | Setpoint | Supervis... | Co... | 1 | Input | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | 2 | Output | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | 3 | InOut | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | 4 | Static | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | 5 | DateTime | DTL#1970+ | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | | 6 | RET_VAL | Int | 0 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | | 7 | Trigger | Bool | false | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | |
| Name | Data type | Start value | Retain | Acce... | Writa... | Visible in ... | Setpoint | Supervis... | Co... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Input | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Output | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | InOut | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Static | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | DateTime | DTL#1970+ | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | RET_VAL | Int | 0 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Trigger | Bool | false | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>4.</p> <p>Note It is recommended to create a new tag table (in the example: “DateTime”) for the tags. If an HMI connection between the PC station and the controller has not yet been established in your project, it will be automatically created when copying. The prerequisite for this is an existing network between the PC station and the PLC.</p> |  <p>The screenshot shows the 'HMI tags' table for the 'DateTime' tag table in WinCC Runtime Professional. The table below represents the data:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Data type</th> <th>Connection</th> <th>PLC name</th> <th>PLC tag</th> </tr> </thead> <tbody> <tr> <td>DateTimeLong</td> <td>DTL</td> <td>HMI_Connection_1</td> <td>PLC_1</td> <td>SetDateTime_DB.DateTime</td> </tr> <tr> <td>Trigger</td> <td>Bool</td> <td>HMI_Connection_1</td> <td>PLC_1</td> <td>SetDateTime_DB.Trigger</td> </tr> <tr> <td colspan="5" style="text-align: center;"><Add new></td> </tr> </tbody> </table> | Name | Data type | Connection | PLC name | PLC tag | DateTimeLong | DTL | HMI_Connection_1 | PLC_1 | SetDateTime_DB.DateTime | Trigger | Bool | HMI_Connection_1 | PLC_1 | SetDateTime_DB.Trigger | <Add new> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name | Data type | Connection | PLC name | PLC tag | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DateTimeLong | DTL | HMI_Connection_1 | PLC_1 | SetDateTime_DB.DateTime | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Trigger | Bool | HMI_Connection_1 | PLC_1 | SetDateTime_DB.Trigger | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <Add new> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

3 Setting the Time of Day

| Step | Action |
|------|---|
| 5. | <ul style="list-style-type: none"> • Create a new VB script named "WriteDateTime". • Copy the VBS code of the "WriteDateTime_1200_1500_VBS.txt" text file to the script.  |
| 6. | <ul style="list-style-type: none"> • Open the scheduler. • Create a new task and assign it a unique name (in the example: "Task_1"). • Set the trigger to "1 Minute". • In Events, integrate the "WriteDateTime" script.  |

3 Setting the Time of Day

| Step | Action |
|------|---|
| 7. | <ul style="list-style-type: none"> • In the Project tree, select the “Online & Diagnostics” area of your CPU. • In “Online access”, select the appropriate parameters of your connection. • Select “Go online” to connect to your CPU. • Select “Functions > Set time of day” to check the module time of your CPU.  <p>The screenshot shows the 'Set time of day' dialog box. On the left, a tree view shows 'Online access' expanded to 'Functions', where 'Set time of day' is selected. The main window has a title bar 'Set time of day'. It contains two sections: 'PG/PC time' and 'Module time'. The 'Module time' section is highlighted with a red box. It includes a date dropdown set to 'February 20, 2013' and a time spinner set to '04 : 22 : 24 PM'. Below this is a checked checkbox labeled 'Take from PG/PC' and an 'Apply' button.</p> |

4 Synchronizing the Time of Day

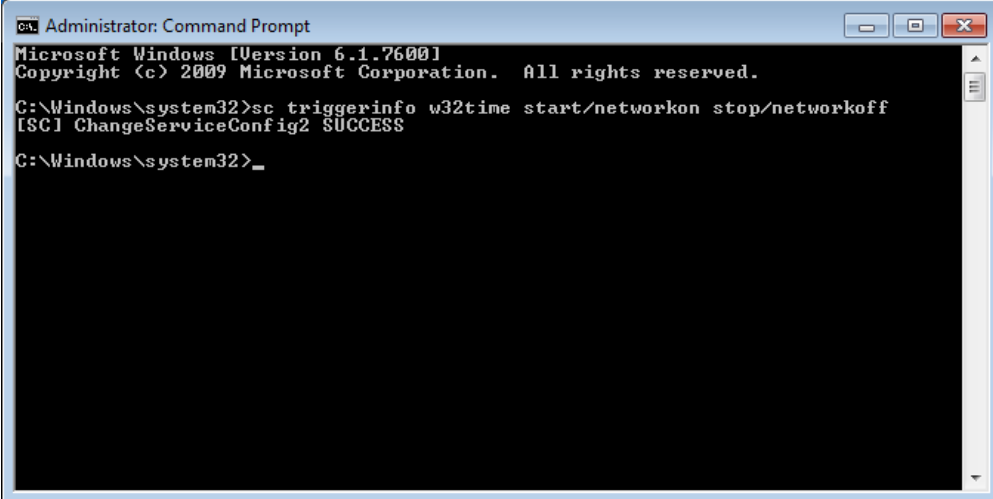
4.1 Settings on the PC

4.1.1 Customizing Windows Time

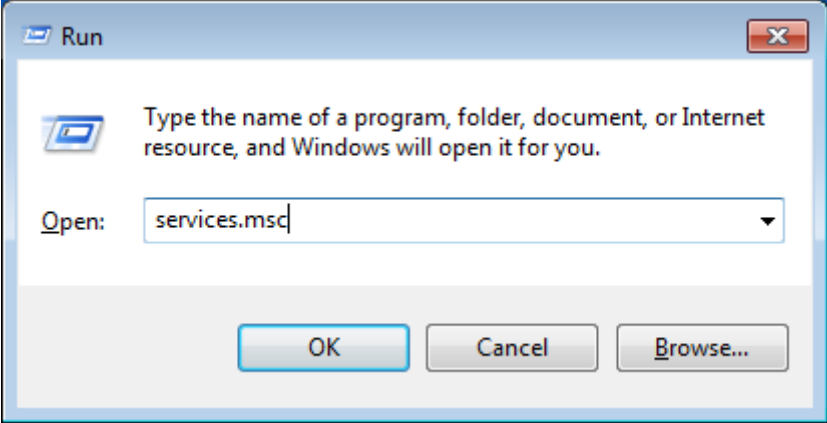
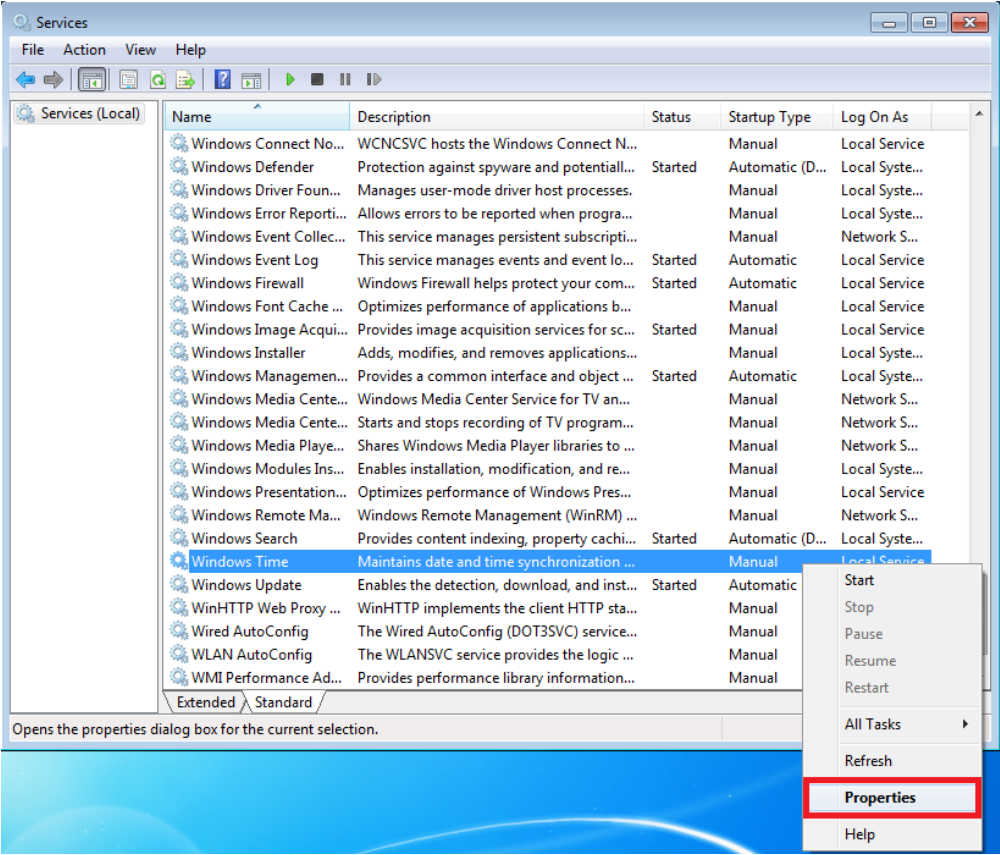
Generally, Windows Time for synchronizing the time of day is not preconfigured for individual networks, it starts only when joining a domain.

If your network does not have a domain controller, the “W32time” service must be customized as described in this chapter.

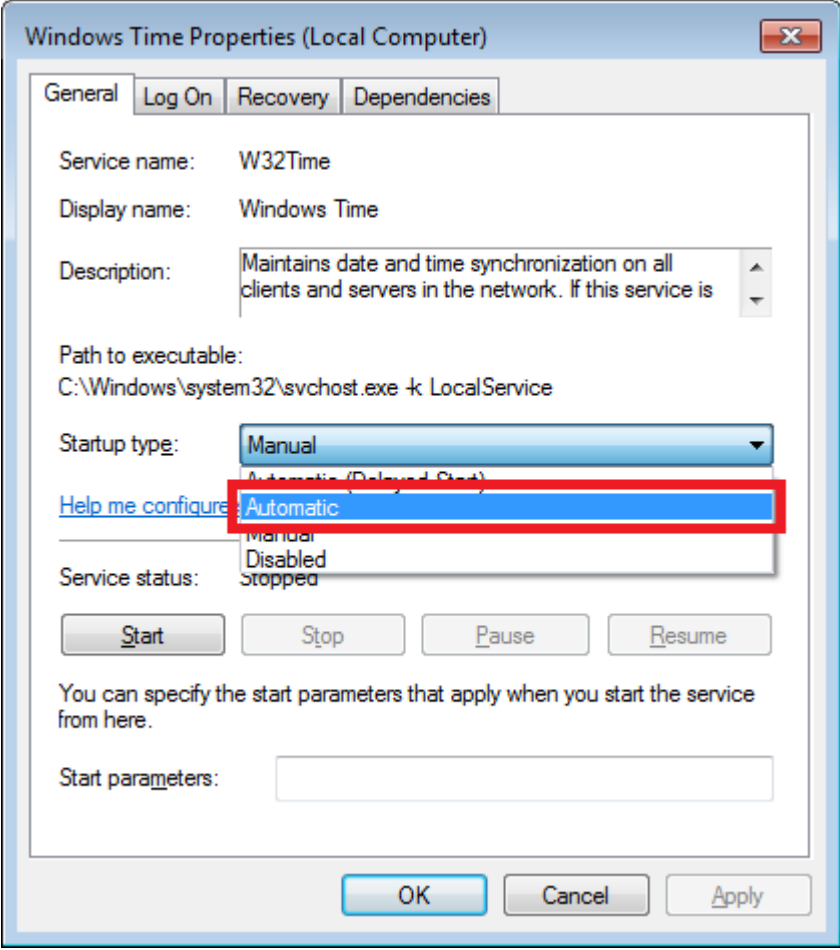
Table 4-1

| Step | Action |
|------|--|
| 1. | <ul style="list-style-type: none"> Select “Start > All Programs > Accessories > Command Prompt” and right-click to open the context menu of the console. Select the “Run as administrator” option. |
| 2. | <p>In the command prompt, enter the following command line: <i>“sc triggerinfo w32time start/networkon stop/networkoff”</i></p> <p>Note The <i>“sc qtriggerinfo w32time”</i> command line allows you to query the current triggers of Windows Time.</p>  <pre> Administrator: Command Prompt Microsoft Windows [Version 6.1.7600] Copyright (c) 2009 Microsoft Corporation. All rights reserved. C:\Windows\system32>sc triggerinfo w32time start/networkon stop/networkoff SC! ChangeServiceConfig2 SUCCESS C:\Windows\system32>_ </pre> |
| 3. | Use the “exit” command to close the command prompt. |

4 Synchronizing the Time of Day

| Step | Action |
|------|--|
| 4. | <ul style="list-style-type: none"> • Use the “Windows” + “R” shortcut to open the window for running programs. • In the drop-down list, enter “services.msc” to open the management console for the services. • Select “OK” to confirm your input.  |
| 5. | <p>Right-click to open the Properties window of the “Windows Time” service.</p>  |

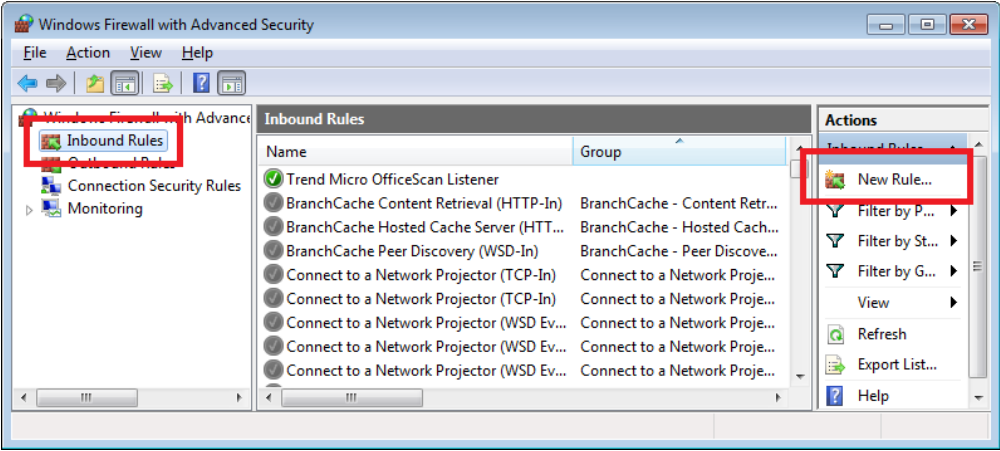
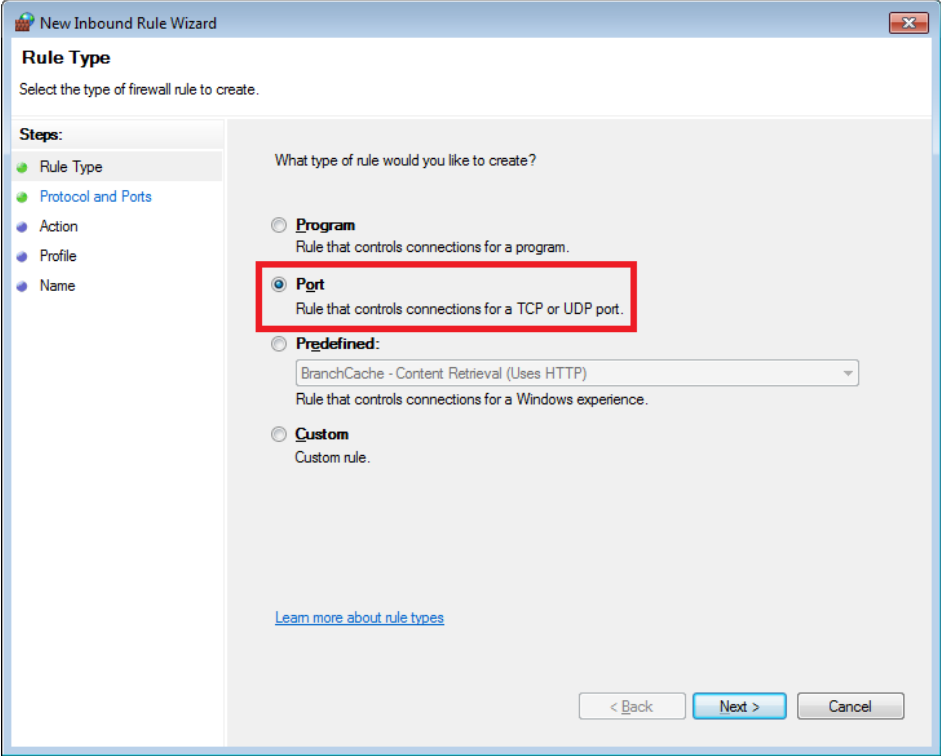
4 Synchronizing the Time of Day

| Step | Action |
|------|---|
| 6. | <ul style="list-style-type: none"> Set Startup type to "Automatic". Select the "OK" button to confirm the change.  <p>The screenshot shows the 'Windows Time Properties (Local Computer)' dialog box. The 'General' tab is active. The 'Startup type' dropdown menu is open, showing options: 'Manual', 'Automatic (Delayed Start)', and 'Automatic'. The 'Automatic' option is highlighted with a blue selection bar and a red rectangular box. Other visible fields include 'Service name: W32Time', 'Display name: Windows Time', 'Description: Maintains date and time synchronization on all clients and servers in the network. If this service is', 'Path to executable: C:\Windows\system32\svchost.exe -k LocalService', and 'Service status: Stopped'. Buttons for 'Start', 'Stop', 'Pause', 'Resume', 'OK', 'Cancel', and 'Apply' are also visible.</p> |
| 7. | Restart the computer. |

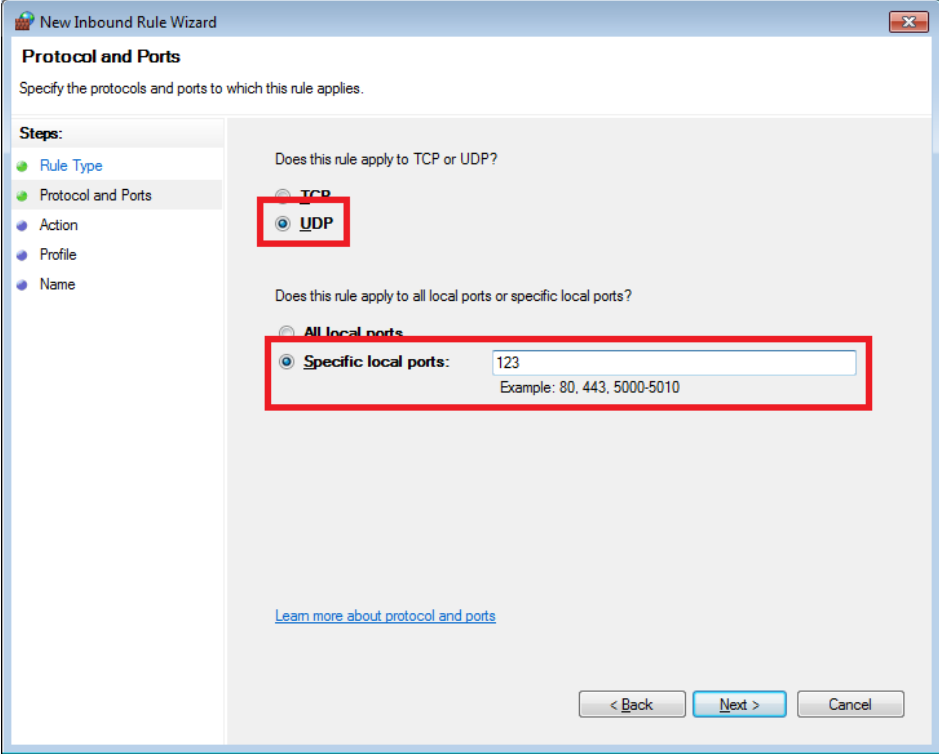
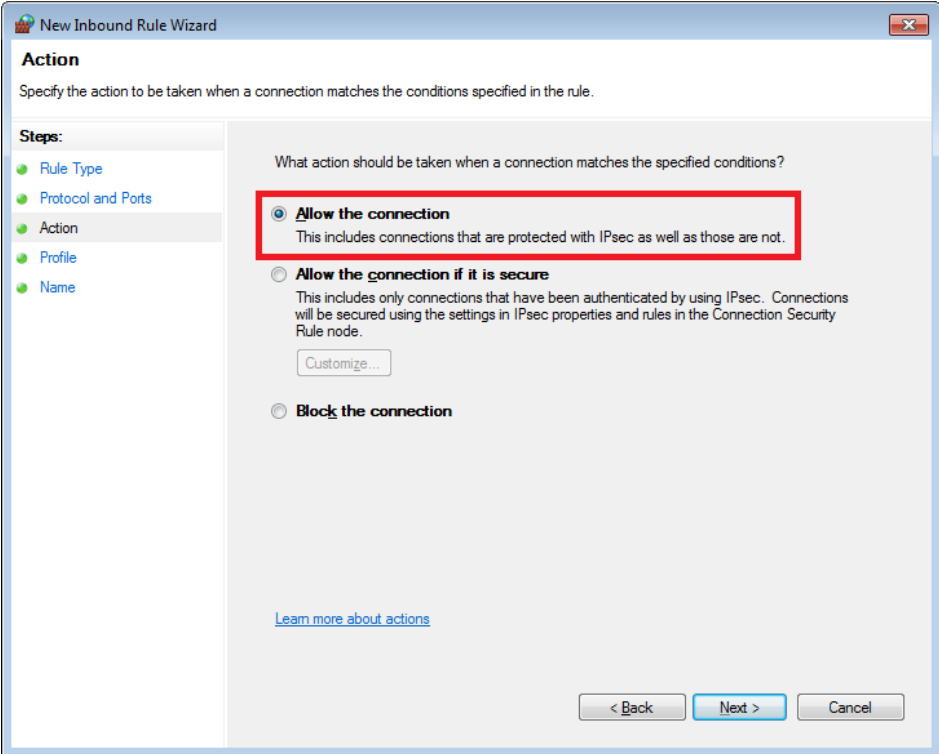
4.1.2 Settings for the firewall

In order to receive time synchronization requests of network nodes on the PC of the time-of-day master, appropriate settings have to be made in the firewall.

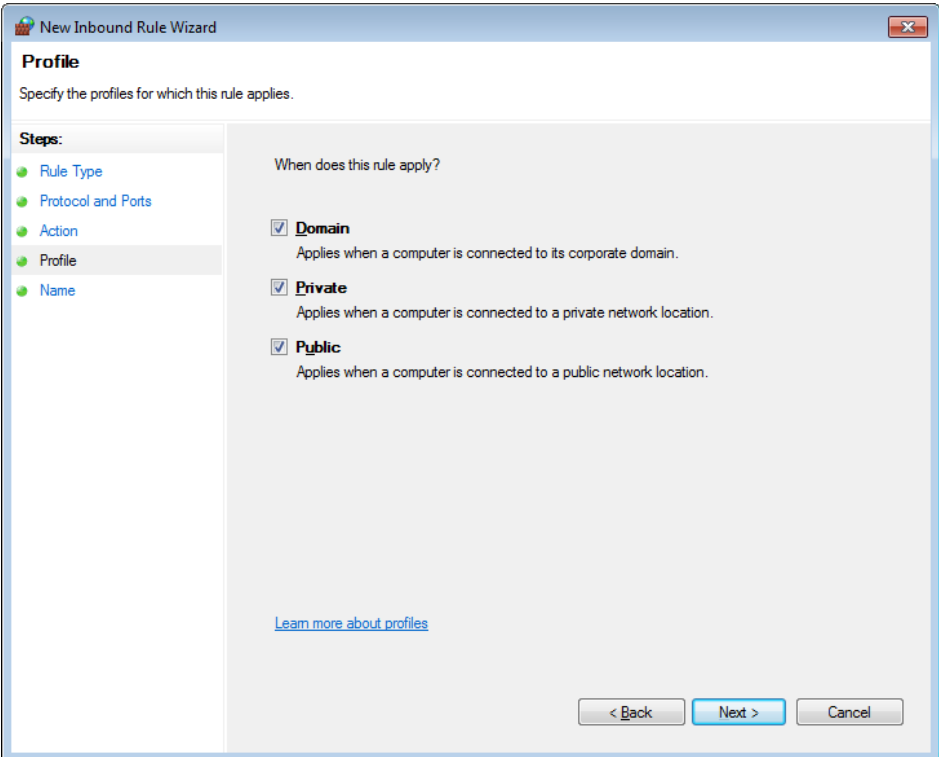
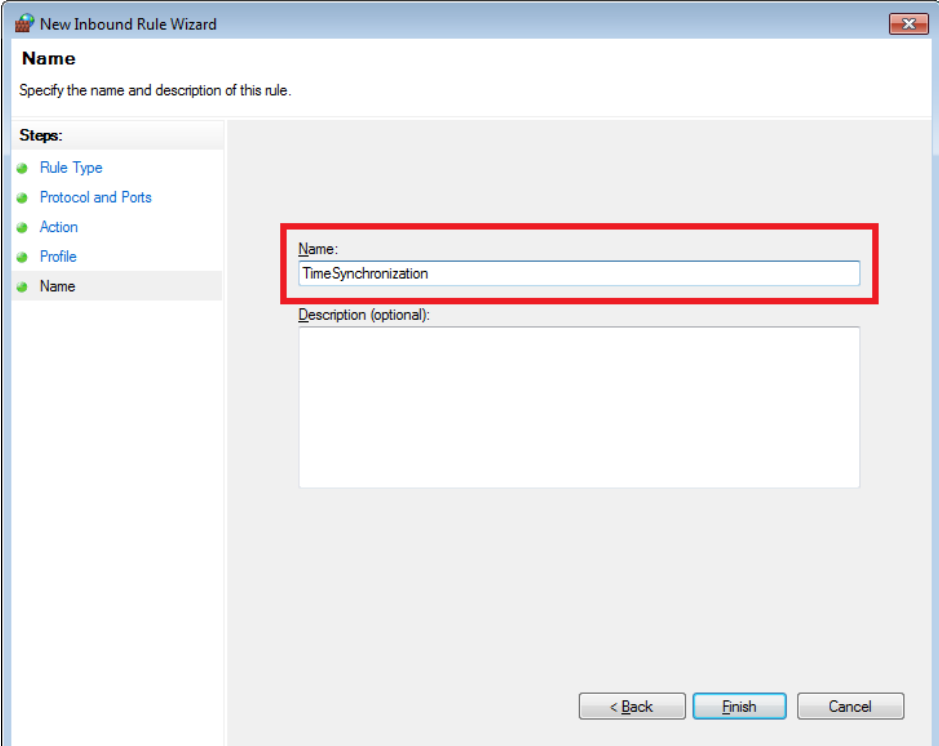
Table 4-2

| Step | Action |
|------|---|
| 1. | Select "Start > Control Panel > Windows Firewall" to open the firewall of the PC. |
| 2. | In the navigation pane, select "Advanced Settings". |
| 3. | <p>In the navigation pane of Advanced Settings, select "Inbound Rules" and in Actions, select "New Rule...".</p>  <p>The screenshot shows the 'Windows Firewall with Advanced Security' window. In the left-hand navigation pane, 'Inbound Rules' is highlighted with a red box. In the right-hand 'Actions' pane, 'New Rule...' is also highlighted with a red box. The main area shows a list of existing inbound rules.</p> |
| 4. | <p>As the rule type, select "Port".</p>  <p>The screenshot shows the 'New Inbound Rule Wizard' dialog box. Under the 'Rule Type' section, the 'Port' radio button is selected and highlighted with a red box. The 'Predefined' dropdown menu is set to 'BranchCache - Content Retrieval (Uses HTTP)'. The 'Steps' pane on the left shows 'Rule Type' as the current step.</p> |

4 Synchronizing the Time of Day

| Step | Action |
|------|---|
| 5. | <ul style="list-style-type: none"> In “Does this rule apply to TCP or UDP?”, select “UDP”. As the port number, enter “123”.  |
| 6. | <p>As the action, select “Allow the connection”.</p>  |

4 Synchronizing the Time of Day

| Step | Action |
|------|---|
| 7. | <p>According to the policies in your network, select when the rule applies.</p>  |
| 8. | <ul style="list-style-type: none">• Assign a meaningful name to the rule.• Select “Finish” to close the dialog box.  |

4.1.3 Configuring the NTP server

In NTP mode, the network components cyclically and actively retrieve the time from an NTP server – in this case from the PC on which WinCC Professional RT runs.

Most S7 CPUs can be synchronized using NTP mode. This requires a connection via Industrial Ethernet.

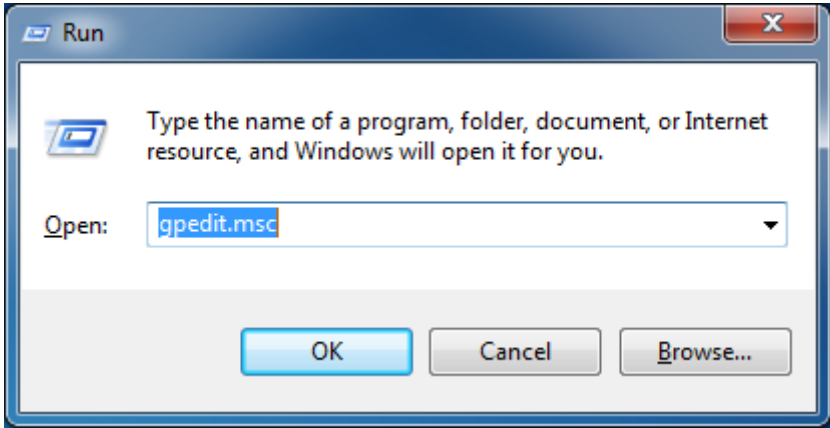
Note

This FAQ lists all S7-300/S7-400 modules that support NTP mode:

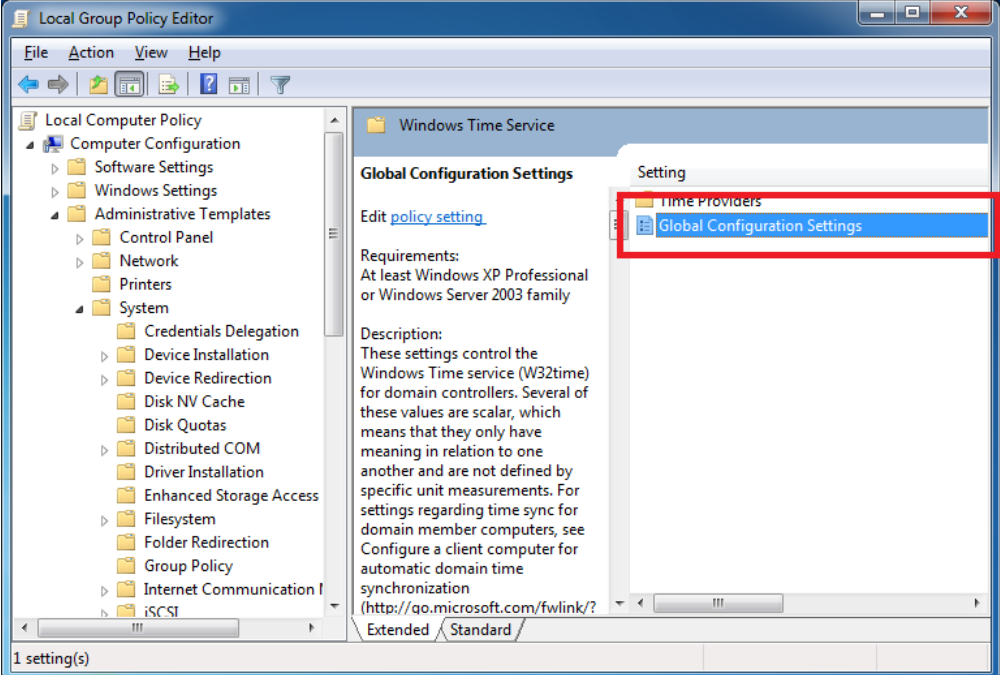
<https://support.industry.siemens.com/cs/ww/en/view/28383201>

All S7-1200/S7-1500 modules support NTP mode.

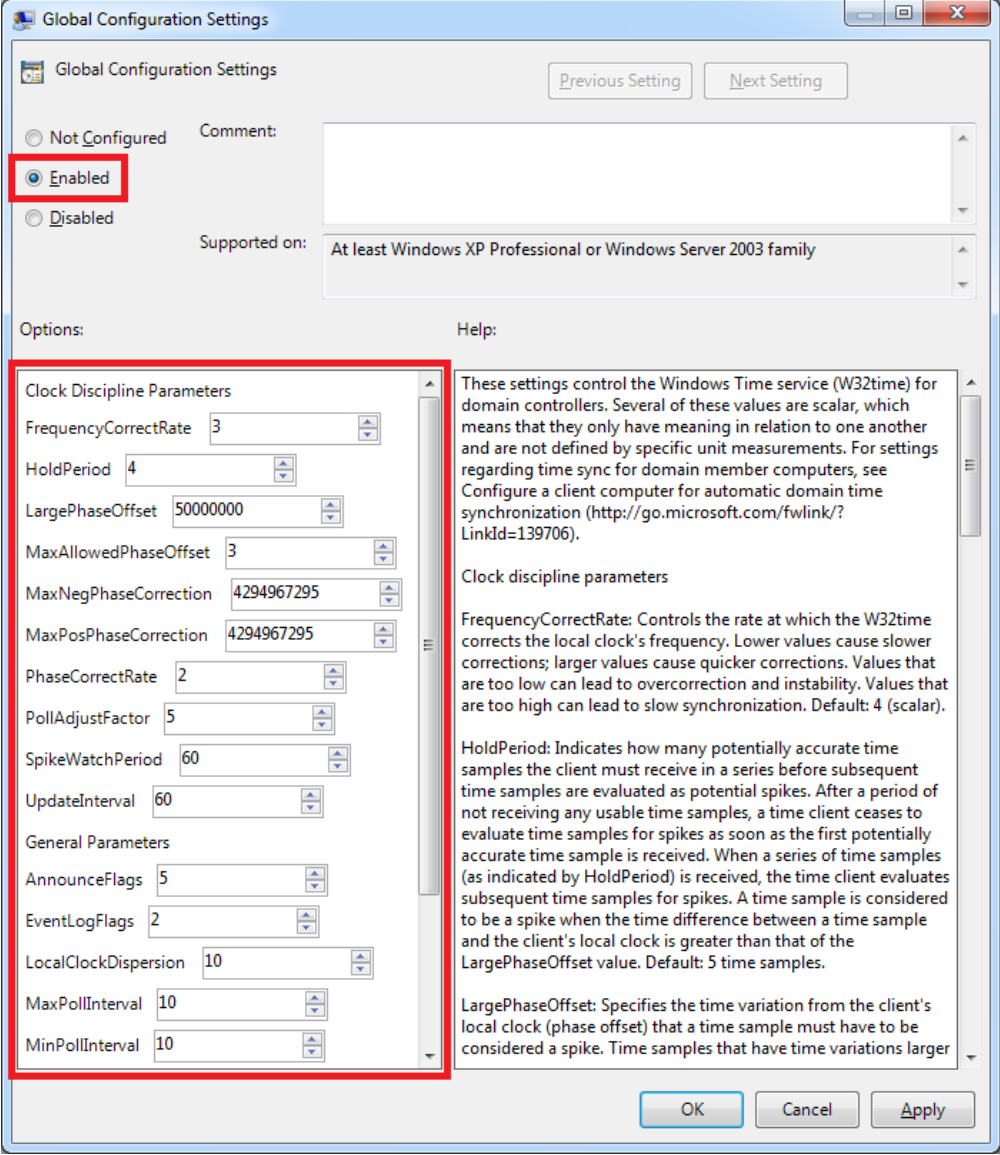
Table 4-3

| Step | Action |
|------|--|
| 1. | Log in with a user with administrative rights. |
| 2. | <ul style="list-style-type: none"> • Use the “Windows” + “R” shortcut to open the window for running programs. • In the drop-down list, enter “gpedit.msc” to open the Local Group Policy Editor. • Select “OK” to confirm your input.  |

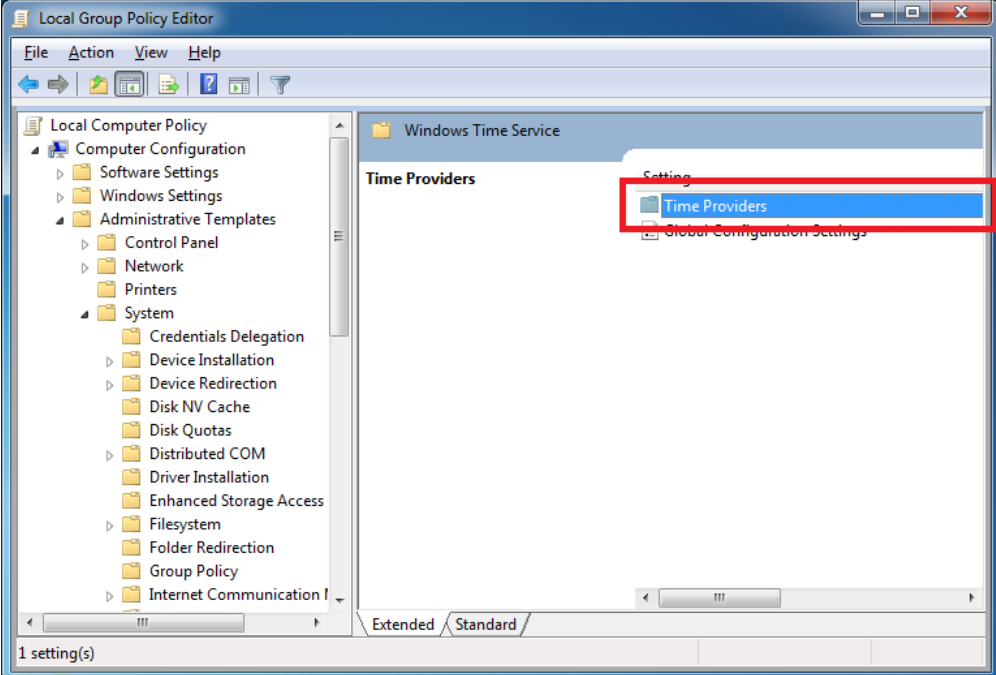
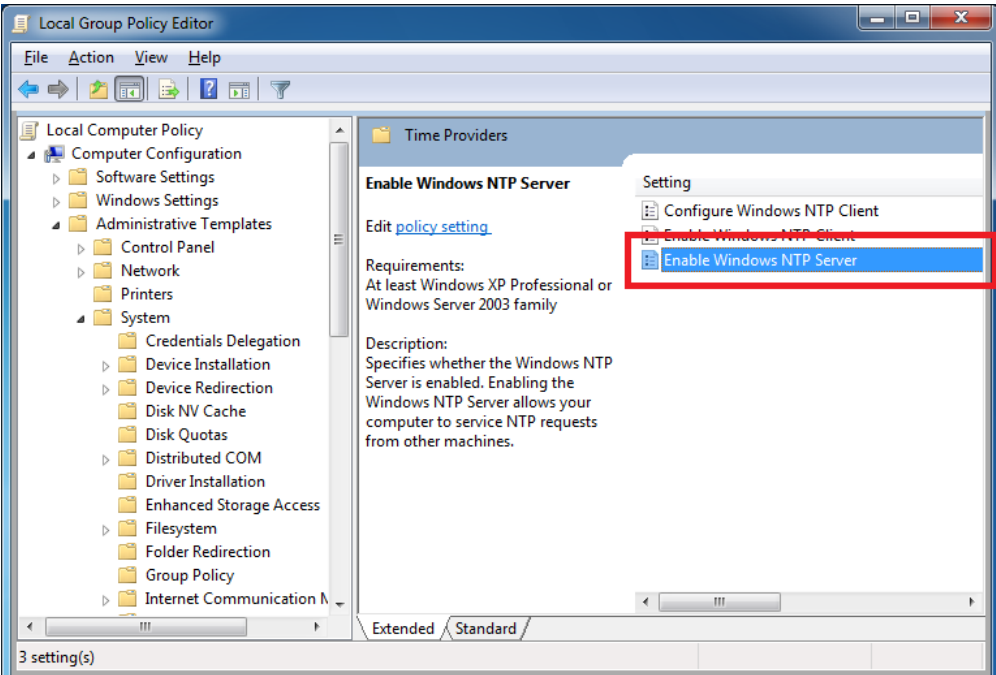
4 Synchronizing the Time of Day

| Step | Action |
|------|--|
| 3. | <ul style="list-style-type: none">• In the tree view, select “Local Computer Policy > Computer Configuration > Administrative Templates > System > Windows Time Service”.• In the details window, double-click on the “Global Configuration Settings” object.  <p>The screenshot shows the Local Group Policy Editor window. The left-hand tree view is expanded to 'Local Computer Policy > Computer Configuration > Administrative Templates > System > Windows Time Service'. The right-hand pane shows the 'Global Configuration Settings' object selected, with a red box highlighting it. Below the tree view, the 'Requirements' and 'Description' for the selected policy are visible. The 'Requirements' section states: 'At least Windows XP Professional or Windows Server 2003 family'. The 'Description' section states: 'These settings control the Windows Time service (W32time) for domain controllers. Several of these values are scalar, which means that they only have meaning in relation to one another and are not defined by specific unit measurements. For settings regarding time sync for domain member computers, see Configure a client computer for automatic domain time synchronization (http://go.microsoft.com/fwlink/?...)'.</p> |

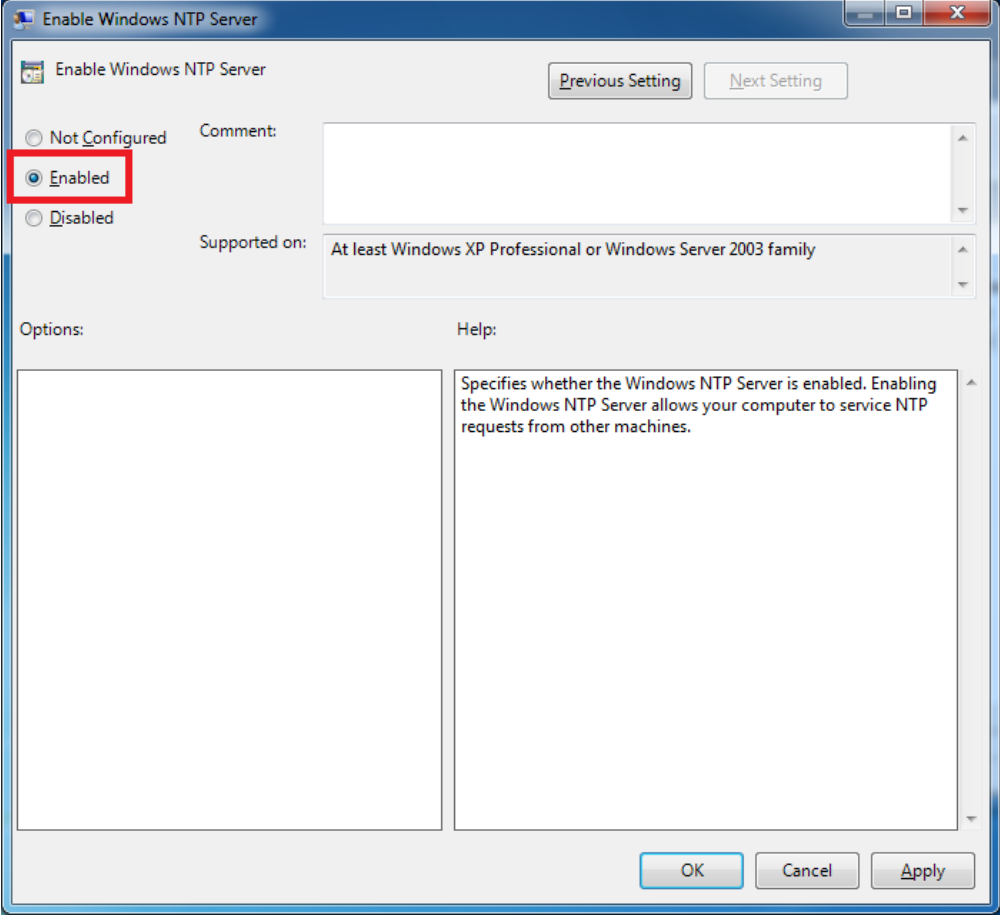
4 Synchronizing the Time of Day

| Step | Action |
|------|--|
| 4. | <ul style="list-style-type: none"> • Check the “Enabled” option. • Make the settings as shown in the screen shot. • Select “OK” to confirm your entries.  <p>The screenshot shows the 'Global Configuration Settings' dialog box. The 'Enabled' radio button is selected and highlighted with a red box. The 'Clock Discipline Parameters' section is also highlighted with a red box, showing values: FrequencyCorrectRate: 3, HoldPeriod: 4, LargePhaseOffset: 50000000, MaxAllowedPhaseOffset: 3, MaxNegPhaseCorrection: 4294967295, MaxPosPhaseCorrection: 4294967295, PhaseCorrectRate: 2, PollAdjustFactor: 5, SpikeWatchPeriod: 60, UpdateInterval: 60, AnnounceFlags: 5, EventLogFlags: 2, LocalClockDispersion: 10, MaxPollInterval: 10, MinPollInterval: 10. The 'Help' section contains text explaining these parameters.</p> |

4 Synchronizing the Time of Day

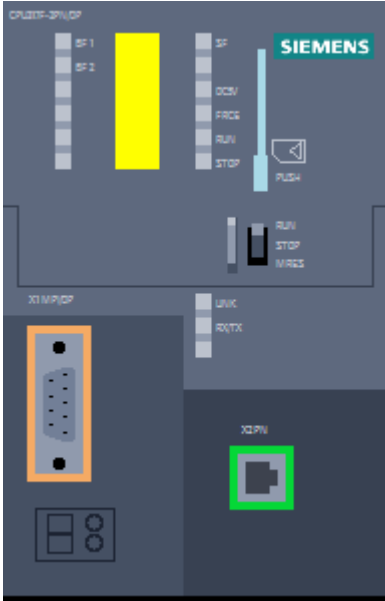
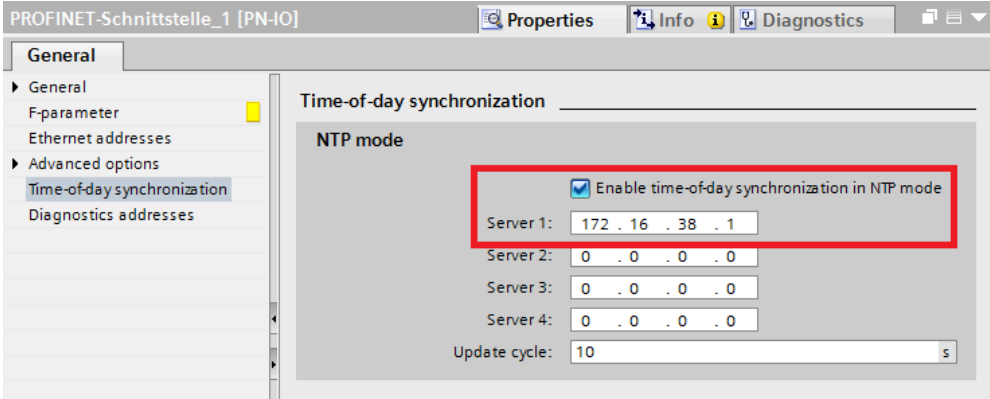
| Step | Action |
|------|---|
| 5. | <ul style="list-style-type: none"> In the tree view, select “Local Computer Policy > Computer Configuration > Administrative Templates > System > Windows Time Service”. In the details window, double-click on the “Time Providers” object.  <p>The screenshot shows the Local Group Policy Editor window. The left-hand tree view is expanded to 'Local Computer Policy > Computer Configuration > Administrative Templates > System > Windows Time Service'. The right-hand pane shows the 'Time Providers' setting, which is highlighted with a red rectangular box. Below the main pane, it indicates '1 setting(s)'.</p> |
| 6. | <p>In the details window, double-click on the “Enable Windows NTP Server” object.</p>  <p>The screenshot shows the Local Group Policy Editor window with the 'Time Providers' folder selected in the tree view. The main pane displays the 'Enable Windows NTP Server' policy setting, which is highlighted with a red rectangular box. The description of the policy is visible: 'Specifies whether the Windows NTP Server is enabled. Enabling the Windows NTP Server allows your computer to service NTP requests from other machines.'</p> |

4 Synchronizing the Time of Day

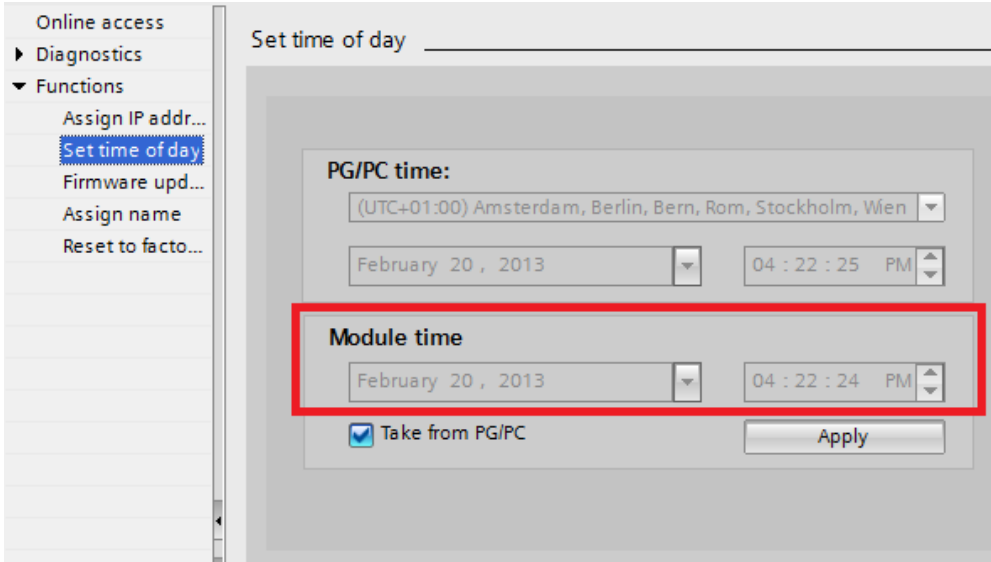
| Step | Action |
|------|--|
| 7. | <ul style="list-style-type: none">• Check the “Enabled” option.• Select “OK” to confirm your entries.  <p>The screenshot shows a dialog box titled "Enable Windows NTP Server". It has a title bar with standard window controls. Below the title bar, there are two buttons: "Previous Setting" and "Next Setting". The main area contains three radio buttons: "Not Configured", "Enabled" (which is selected and highlighted with a red box), and "Disabled". To the right of these buttons is a "Comment:" text box. Below the radio buttons is a "Supported on:" dropdown menu showing "At least Windows XP Professional or Windows Server 2003 family". At the bottom of the dialog, there are two empty text boxes labeled "Options:" and "Help:". The "Help:" box contains the text: "Specifies whether the Windows NTP Server is enabled. Enabling the Windows NTP Server allows your computer to service NTP requests from other machines." At the very bottom of the dialog are three buttons: "OK", "Cancel", and "Apply".</p> |

4.2 Settings for S7-300/S7-400

Table 4-4

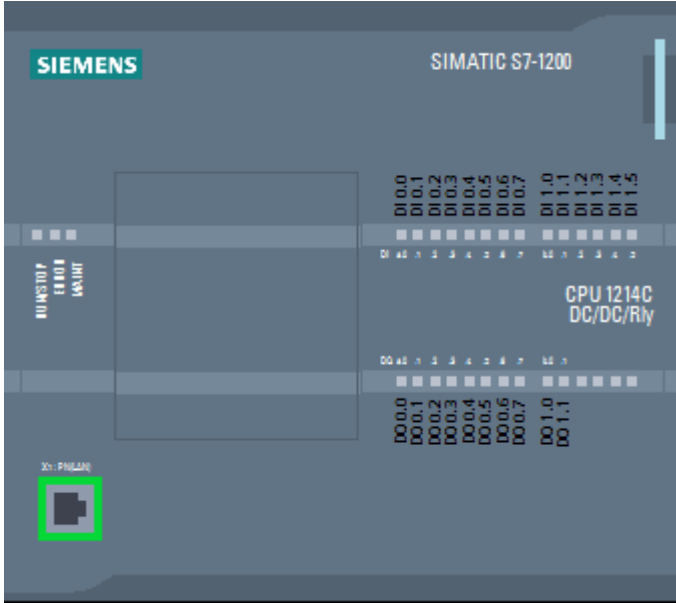
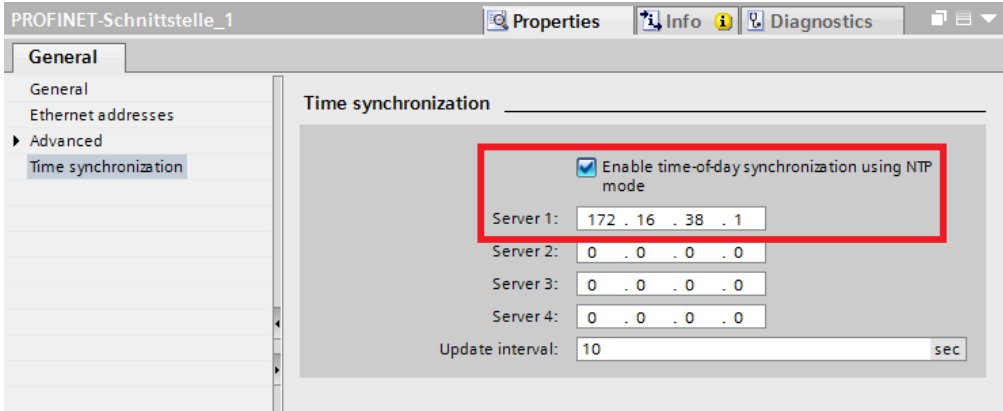
| Step | Action |
|-----------|--|
| <p>1.</p> | <ul style="list-style-type: none"> Open the CPU device configuration. In the graphical representation of the CPU, select the Ethernet port (marked in green in the figure).  |
| <p>2.</p> | <ul style="list-style-type: none"> In “Properties > General > Time-of-day synchronization”, select the “Enable time-of-day synchronization in NTP mode” option. Enter the IP address of the NTP server.  |

4 Synchronizing the Time of Day

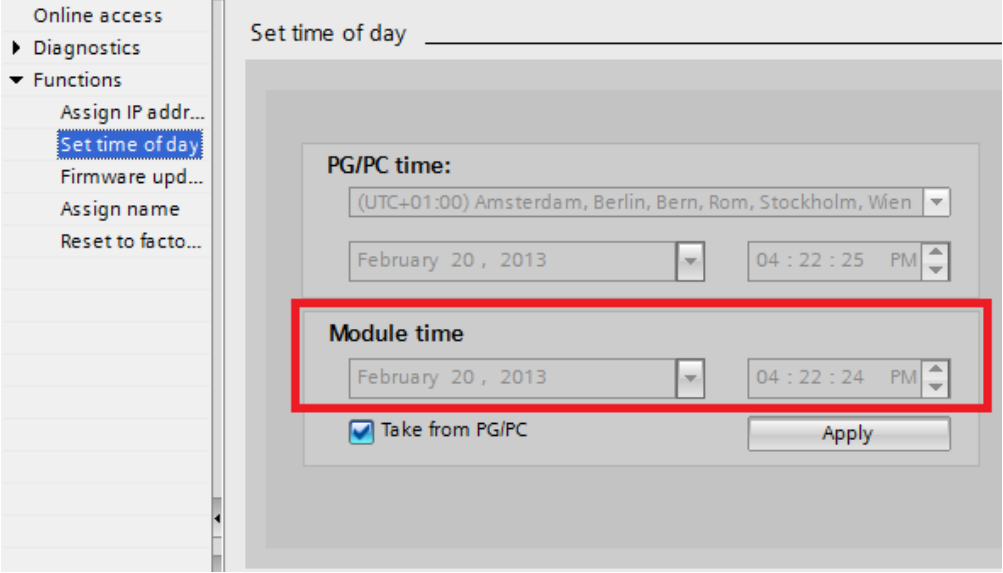
| Step | Action |
|------|--|
| 3. | <ul style="list-style-type: none"> • In the Project tree, select the “Online & Diagnostics” area of your CPU. • In “Online access”, select the appropriate parameters of your connection. • Select “Go online” to connect to your CPU. • Select “Functions > Set time of day” to check the module time of your CPU.  <p>The screenshot shows the 'Set time of day' dialog box. On the left, a tree view shows 'Online access' expanded to 'Functions', with 'Set time of day' selected. The main area contains two time settings: 'PG/PC time' and 'Module time'. The 'Module time' section is highlighted with a red box. Below it, the 'Take from PG/PC' checkbox is checked, and an 'Apply' button is visible.</p> |

4.3 Settings for S7-1200/S7-1500

Table 4-5

| Step | Action |
|------|--|
| 1. | <ul style="list-style-type: none"> Open the CPU device configuration. In the graphical representation of the CPU, select the Ethernet port (marked in green in the figure).  |
| 2. | <ul style="list-style-type: none"> In “Properties > General > Time-of-day synchronization”, select the “Enable time-of-day synchronization in NTP mode” option. Enter the IP address of the NTP server.  |

4 Synchronizing the Time of Day

| Step | Action |
|------|--|
| 3. | <ul style="list-style-type: none"> In the Project tree, select the “Online & Diagnostics” area of your CPU. In “Online access”, select the appropriate parameters of your connection. Select “Go online” to connect to your CPU. Select “Functions > Set time of day” to check the module time of your CPU.  |

5 Appendix

5.1 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

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
- Service programs and contracts

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

5.2 Links and literature

Table 5-1

| No. | Topic |
|-----|---|
| \1\ | Siemens Industry Online Support https://support.industry.siemens.com |
| \2\ | Link to this entry page of this application example https://support.industry.siemens.com/cs/ww/en/view/69864408 |
| \3\ | Local time/system time in WinCC Runtime Professional https://support.industry.siemens.com/cs/ww/en/view/59558655 |
| \4\ | CPUs that support NTP https://support.industry.siemens.com/cs/ww/de/view/17990844 |

5.3 Change documentation

Table 5-2

| Version | Date | Modifications |
|---------|---------|--|
| V1.0 | 02/2013 | First version |
| V1.1 | 03/2019 | New Entry-ID and form, revised chapter "Setting the Time of Day" |