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

WinCC Runtime Professional

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# Table of contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal information</td>
<td>2</td>
</tr>
<tr>
<td><strong>1 Introduction</strong></td>
<td>4</td>
</tr>
<tr>
<td>1.1 Overview</td>
<td>4</td>
</tr>
<tr>
<td>1.2 Mode of operation</td>
<td>5</td>
</tr>
<tr>
<td>1.3 Components used</td>
<td>7</td>
</tr>
<tr>
<td><strong>2 Additional information</strong></td>
<td>8</td>
</tr>
<tr>
<td>2.1 Background</td>
<td>8</td>
</tr>
<tr>
<td>2.2 Setting the time of day</td>
<td>9</td>
</tr>
<tr>
<td>2.3 Time-of-day synchronization</td>
<td>9</td>
</tr>
<tr>
<td><strong>3 Setting the Time of Day</strong></td>
<td>10</td>
</tr>
<tr>
<td>3.1 From WinCC Runtime Professional to S7-300/S7-400</td>
<td>10</td>
</tr>
<tr>
<td>3.2 From WinCC Runtime Professional to S7-1200/S7-1500</td>
<td>15</td>
</tr>
<tr>
<td><strong>4 Synchronizing the Time of Day</strong></td>
<td>20</td>
</tr>
<tr>
<td>4.1 Settings on the PC</td>
<td>20</td>
</tr>
<tr>
<td>4.1.1 Customizing Windows Time</td>
<td>20</td>
</tr>
<tr>
<td>4.1.2 Settings for the firewall</td>
<td>23</td>
</tr>
<tr>
<td>4.1.3 Configuring the NTP server</td>
<td>26</td>
</tr>
<tr>
<td>4.2 Settings for S7-300/S7-400</td>
<td>31</td>
</tr>
<tr>
<td>4.3 Settings for S7-1200/S7-1500</td>
<td>33</td>
</tr>
<tr>
<td><strong>5 Appendix</strong></td>
<td>35</td>
</tr>
<tr>
<td>5.1 Service and support</td>
<td>35</td>
</tr>
<tr>
<td>5.2 Links and literature</td>
<td>36</td>
</tr>
<tr>
<td>5.3 Change documentation</td>
<td>36</td>
</tr>
</tbody>
</table>
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 Introduction

1.2 Mode of operation

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

Figure 1-2

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.
1 Introduction

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.
1 Introduction

Time-of-day synchronization via NTP

NTP (Network Time Protocol) 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

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

This application example consists of the following components:

Table 1-2

<table>
<thead>
<tr>
<th>Component</th>
<th>File name</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation</td>
<td>69864408_WinCC_Pro_TimeSyn_DOC_v11_en.pdf</td>
<td>This Document.</td>
</tr>
<tr>
<td>Code</td>
<td>69864408_WinCC_Pro_TimeSyn_CODE_v11.zip</td>
<td>Four code templates in text format.</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>STEP 7 (TIA Portal)</th>
<th>STEP 7 V5</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S7-300/S7-400</td>
<td>S7-1200</td>
<td>S7-300/S7-400</td>
</tr>
<tr>
<td>WR_SYS_T</td>
<td>WR_SYS_T</td>
<td>SFC 0 “SET_CLK”</td>
</tr>
<tr>
<td>RD_SYS_T</td>
<td>RD_SYS_T</td>
<td>SFC 1 “READ_CLK”</td>
</tr>
<tr>
<td>T_CONV</td>
<td>T_CONV</td>
<td>FC 6 DT_DATE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FC 7 DT_DAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FC 8 DT_TOD</td>
</tr>
<tr>
<td>T_COMBINE</td>
<td>T_COMBINE</td>
<td>FC3 D_TOD_DT</td>
</tr>
<tr>
<td>T_COMP</td>
<td>-</td>
<td>FC 9 “EQ_DT”</td>
</tr>
<tr>
<td>T_ADD</td>
<td>T_ADD</td>
<td>FC 1 “AD_DT_TM”</td>
</tr>
<tr>
<td>T_SUB</td>
<td>T_SUB</td>
<td>FC 34 “SB_DT_DT”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FC 35 “SB_DT_TM”</td>
</tr>
<tr>
<td>T_DIFF</td>
<td>T_DIFF</td>
<td>-</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Create a new FB1 with the name “SetDateTime” and the “STL” language.</td>
</tr>
<tr>
<td></td>
<td>In the static part of the declaration section, define three tags:</td>
</tr>
<tr>
<td></td>
<td>- “DateTime” (Date_And_Time)</td>
</tr>
<tr>
<td></td>
<td>- “RET_VAL” (Int)</td>
</tr>
<tr>
<td></td>
<td>- “Trigger” (Bool)</td>
</tr>
<tr>
<td></td>
<td>Make sure that the “Visible in HMI” option is checked for all tags.</td>
</tr>
<tr>
<td></td>
<td>Insert the STL code of the “SetDateTime_AWL.txt” text file into FB1.</td>
</tr>
</tbody>
</table>

![FB1 setup diagram](image)
2. Call FB1 “SetDateTime” in OB1 “Main”. As the instance data block, select DB1 and assign “SetDateTime_DB” as the name.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 2.   | - Call FB1 “SetDateTime” in OB1 “Main”.  
      | - As the instance data block, select DB1 and assign “SetDateTime_DB” as the name. |
3 Setting the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 3.   | • 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.  

**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.
### 3 Setting the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 4.   | Change the coding of the tags with the “Byte” data type to “BCD”.  

**Note**  
When the coding is changed, the HMI data type will be automatically set to “USInt”.

5.  
- Create a new VB script named “WriteDateTime”.  
- Copy the VBS code of the “WriteDateTime_300_400_VBS.txt” text file to the script.

```vbnet
Sub WriteDateTime()
    SmartTags("YEAR") = Right(DatePart("yyyy", Now), 2)
    SmartTags("MONTH") = DatePart("m", Now)
    SmartTags("DAY") = DatePart("d", Now)
    SmartTags("HOUR") = DatePart("h", Now)
    SmartTags("MINUTE") = DatePart("n", Now)
    SmartTags("SECOND") = DatePart("s", Now)
    SmartTags("Trigger") = True
End Sub
```
3 Setting the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 6.   | • 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. |

![Scheduled tasks](image1)

![Task 1 Properties](image2)

7.   | • 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. 

![Set time of day](image3)
### 3.2 From WinCC Runtime Professional to S7-1200/S7-1500

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1.   | Create a new FB1 with the name “SetDateTime” and the “SCL” language.  
  | In the static part of the declaration section, define three tags:  
  |  - “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. |

![Image showing FB1 creation and code insertion](image)

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### 3 Setting the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 2.   | • Call FB1 “SetDateTime” in OB1 “Main”.  
• As the instance data block, select DB1 and assign “SetDateTime_DB” as the name. |

![Image of program blocks showing FB1 and DB1 connections]

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### 3 Setting the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 3.   | Copy the tags of the DB1 instance data block to the clipboard.  
**Note**  
When copying, press “Ctrl” to select multiple tags at a time. |

![Image of PLC block showing DateTime entry](image1)

**PLC_1 [...] Program blocks -> SetDateTime_DB [DB1]**  
**SetDateTime_DB**  
<table>
<thead>
<tr>
<th>Name</th>
<th>Data type</th>
<th>Start value</th>
<th>Retain</th>
<th>Access</th>
<th>Write</th>
<th>Visible in</th>
<th>Setpoint</th>
<th>Superv</th>
<th>Co.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>InOut</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Static</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>DateTime</td>
<td>DTL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>RET_VAL</td>
<td>Int</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Trigger</td>
<td>Bool</td>
<td>false</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Image of tag management](image2)

**4.** Paste the copied tags into the WinCC Runtime Professional tag management.  
**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.
### 3 Setting the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 5.   | • Create a new VB script named “WriteDateTime”.  
      • Copy the VBS code of the “WriteDateTime_1200_1500_VBS.txt” text file to the script. |

![VB script code]

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 6.   | • 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. |

![Scheduled tasks]

---

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3 Setting the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 7.   | • 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. |

![Module Time Synchronization Screenshot](image_url)
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>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1.   | • 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.   | In the command prompt, enter the following command line:  
“sc triggerinfo w32time start/networkon stop/networkoff”  

**Note**  
The “sc qtriggerinfo w32time” command line allows you to query the current triggers of Windows Time. |
| 3.   | Use the “exit” command to close the command prompt. |
4 Synchronizing the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 4.   | • 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.   | Right-click to open the Properties window of the “Windows Time” service. |
### 4 Synchronizing the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 6.   | • Set Startup type to “Automatic”.  
      | • Select the “OK” button to confirm the change. |

![Windows Time Properties (Local Computer)](image)

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

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Select “Start &gt; Control Panel &gt; Windows Firewall” to open the firewall of the PC.</td>
</tr>
<tr>
<td>2.</td>
<td>In the navigation pane, select “Advanced Settings”.</td>
</tr>
<tr>
<td>3.</td>
<td>In the navigation pane of Advanced Settings, select “Inbound Rules” and in Actions, select “New Rule…”.</td>
</tr>
<tr>
<td>4.</td>
<td>As the rule type, select “Port”.</td>
</tr>
</tbody>
</table>
### Synchronizing the Time of Day

#### Step 5
- In “Does this rule apply to TCP or UDP?”, select “UDP”.
- As the port number, enter “123”.

#### Step 6
As the action, select “Allow the connection”.

---

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>In “Does this rule apply to TCP or UDP?”, select “UDP”.</td>
</tr>
<tr>
<td></td>
<td>As the port number, enter “123”.</td>
</tr>
<tr>
<td>6.</td>
<td>As the action, select “Allow the connection”.</td>
</tr>
</tbody>
</table>
### Synchronizing the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>According to the policies in your network, select when the rule applies.</td>
</tr>
</tbody>
</table>

#### New Inbound Rule Wizard

**Profile**

Specify the profiles for which this rule applies.

**Steps:**

- Rule Type
- Protocol and Ports
- Action
- Profile
- Name

#### New Inbound Rule Wizard

**Name**

Specify the name and description of this rule.

**Steps:**

- Rule Type
- Protocol and Ports
- Action
- Profile
- Name

- **Name:** Time-Synchronization
- **Description (optional):**

8.  
- 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:


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

Table 4-3

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Log in with a user with administrative rights.</td>
</tr>
</tbody>
</table>
| 2.   | • 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

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>- In the tree view, select “Local Computer Policy &gt; Computer Configuration &gt; Administrative Templates &gt; System &gt; Windows Time Service”.&lt;br&gt;- In the details window, double-click on the “Global Configuration Settings” object.</td>
</tr>
</tbody>
</table>

![Image showing the Local Group Policy Editor and Windows Time Service settings](image)
4 Synchronizing the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 4.   | • Check the “Enabled” option.  
      • Make the settings as shown in the screen shot.  
      • Select “OK” to confirm your entries. |
### 4 Synchronizing the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 5.   | • 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. |

![Diagram showing Local Group Policy Editor with selected policy settings for Windows Time Service.](image)

6. In the details window, double-click on the “Enable Windows NTP Server” object.

![Diagram showing Local Group Policy Editor with the Enable Windows NTP Server option selected.](image)
### 4 Synchronizing the Time of Day

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 7.   | - Check the “Enabled” option.  
     | - Select “OK” to confirm your entries. |

![Image of Enable Windows NTP Server dialog box](image)

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4 Synchronizing the Time of Day

4.2 Settings for S7-300/S7-400

Table 4-4

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1.   | • Open the CPU device configuration.  
      • In the graphical representation of the CPU, select the Ethernet port (marked in green in the figure). |
| 2.   | • 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

3. • 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.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
|      | • 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. | 

![Set time of day](image)

![Module time](image)
### 4.3 Settings for S7-1200/S7-1500

#### Table 4-5

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1.   | • Open the CPU device configuration.  
       • In the graphical representation of the CPU, select the Ethernet port (marked in green in the figure). |
| 2.   | • 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

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 3.   | • 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. |

![Image of the WinCC interface](image-url)

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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

<table>
<thead>
<tr>
<th>No.</th>
<th>Topic</th>
</tr>
</thead>
</table>
| 1   | Siemens Industry Online Support  
https://support.industry.siemens.com |
| 2   | Link to this entry page of this application example  
| 3   | Local time/system time in WinCC Runtime Professional  
| 4   | CPUs that support NTP  
https://support.industry.siemens.com/cs/ww/de/view/17990844 |

5.3 Change documentation

Table 5-2

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Modifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1.0</td>
<td>02/2013</td>
<td>First version</td>
</tr>
<tr>
<td>V1.1</td>
<td>03/2019</td>
<td>New Entry-ID and form, revised chapter &quot;Setting the Time of Day&quot;</td>
</tr>
</tbody>
</table>