

## Changes to Daylight Saving Time in 2007

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Daylight Saving Time (DST) in North America will be extended by 4 weeks in 2007, as per the Energy Act of 2005. Hence, DST will begin at 2 a.m. on the second Sunday of March and end at 2 a.m. on the first Sunday of November. Formerly, DST began three weeks later and ended one week earlier.

Cybectec's software is built on Microsoft technology and uses Microsoft Windows® time zone and DST functions. Microsoft has already released a patch to accommodate for the new DST schedule in the Spring of 2007.

<http://support.microsoft.com/kb/928388>

For Windows 2000 users, the update differs and can be found at the following web page:

<http://support.microsoft.com/kb/914387>

Some Cybectec software operating under Windows® will require a patch to display events in local time correctly.

The following document analyzes the impact of the new DST schedule on Cybectec products and the data produced by them.

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## Overview

Some Cybectec software operating under Windows® will require a patch to display events in local time correctly.

Cybectec products use Universal Time Coordinated (UTC), the international time standard, also known as Greenwich Meridian Time (G.M.T.) The data acquired by Cybectec products is usually time stamped by the originating device. When the IED does not time stamp its data, Cybectec products can add their own acquisition time stamp to the data.

Once it is acquired, the SMP sends the data to a remote system located on a PC. The data analysis and display applications on the PC display convert the SMP's UTC time stamps to local time using the PC's configured time zone and DST settings.

Since all time conversions are done on the PC using the operating system's functions, the operation of Cybectec products and reliability of produced data will not be affected by the DST schedule change.

On the PC, Cybectec software displays event and data time stamps in the local time of the event, using the operating system's configured time zone. However, Microsoft's patch for the new DST schedule will display time stamps in the local time *at the time of the display*. This means that events that happened in 2006 would be displayed using the new DST schedule.

To correct this problem, Cybectec software will be updated to take into account both DST schedules, before and after 2007, so that time stamps are displayed *in the local time at which the event occurred*.

Utilities that use DST to display their data will hence have accurate times in their reports, regardless of the time period chosen. Utilities that do not use DST will not be affected by the DST schedule change.

## SMP Gateway

Since all models of the SMP Gateway use UTC time internally, their operation and time stamping of data will not be affected by the DST schedule change.

### Protocols

Cybectec's protocol components were designed without using DST. Although some protocols permit specifying a time zone, they do not use DST. They use UTC time, which is converted to local time at the user's workstation. Hence there is no impact.

Since some IEDs can have their own time stamps and can be configured to use local time, some Cybectec protocol components permit configuring the time zone for specific devices that are connected to the SMP Gateway. When the data is transferred

from the device to the SMP Gateway and ultimately to the PC for analysis, the time stamps from IEDs will be offset with the time zone configured in the protocol.

### SMP Tools

SMP Tools display data in UTC time along with the time offset, which varies according to the DST schedule.

SMP Tools applications are not affected by the DST schedule change. Since they use Windows' time zone functions, a simple Windows Update will suffice.

### IRIG-B

The SMP Gateway can accept an external IRIG-B time source. IRIG-B time receives its time from a GPS clock.

The SMP Gateway can distribute IRIG-B time to its connected devices. When doing this, the SMP Gateway simply retransmits the time from the input, hence there is no adjustment required if the input is correct.

### SMP 16 GPS Clock Option

Cybetec's GPS clock uses UTC time. It is not affected by DST schedule changes.

## Visual Substation

Since Visual Substation uses UTC time internally, its operation and time stamping of data will not be affected by the DST schedule change.

All data is displayed by the Visual Substation client application. Since Visual Substation is Microsoft Windows-based software, it uses the operating system's time zone functions to display dates. However, data is time-stamped in UTC time in Visual Substation's database.

Both the operating system and Visual Substation will need to be updated to display times correctly in the old DST schedule as well as the new DST schedule.

## Cybetec Enterprise Solutions

Since Cybetec Enterprise Solutions and its associated modules are based on Microsoft Windows, they use the operating system's time zone functions.

Both the operating system and Cybetec Enterprise Solutions will need to be updated to display times correctly in the old DST schedule as well as the new DST schedule.

## OPC Servers

Since Cybectec's OPC servers are Microsoft Windows-based software, they use the operating system's time zone functions.

Once the operating system is updated on the computers where Cybectec OPC servers are installed, time stamps seen by the users will reflect the new DST schedule.

Hence, all there is to do is to install Windows Updates related to DST changes.

Here is the detailed list of impacts regarding DST changes:

- Cybectec OPC servers use Windows' local time, hence an operating system update will ensure correct time is displayed:
  - IEC 60870-5-101 Master / Slave
  - IEC 60870-5-104 Master / Slave
- Cybectec OPC servers use UTC time, which is converted at the operating system level for display to the user. They are not affected by the DST schedule change.
  - DNP3 Master / Slave
  - SMP OPC server

## What Happens if Windows Updates Are not Installed

You should update your operating system, Visual Substation and Cybectec Enterprise Solutions to take into account the new DST schedule.

If you choose not to install the Windows and Cybectec updates related to new DST dates:

- Cybectec software will simply display local time and DST according to the 2006 schedule;
- Consequently, there will be a 1-hour offset for the three extra weeks at the beginning of the DST period;
- there will be a 1-hour offset for one extra week at the end of the period.

Once you update your operating system and Cybectec software, Cybectec software will display the correct local time, taking into account the new DST schedule for the data acquired after January 1<sup>st</sup>, 2007, while keeping the old DST schedule for all prior data.