Flexy - UTC timestamp recording from FW 13.1s0 on DRAFT version

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1. Introduction

As of firmware **13.1s0PR**, the eWON Flexy and Cosy131 gives the ability to the user to select a timezone when setting up the eWON time. This way, the user does not have to handle time changes or the daylight saving time himself.

On the other hand, this new feature also implies modifications in the way eWON Flexy stores and export its data (historical logging, alarming, Export bloc descriptors, etc.).
One of the main changes is the data storage that is now based on UTC and no longer on local time as before.

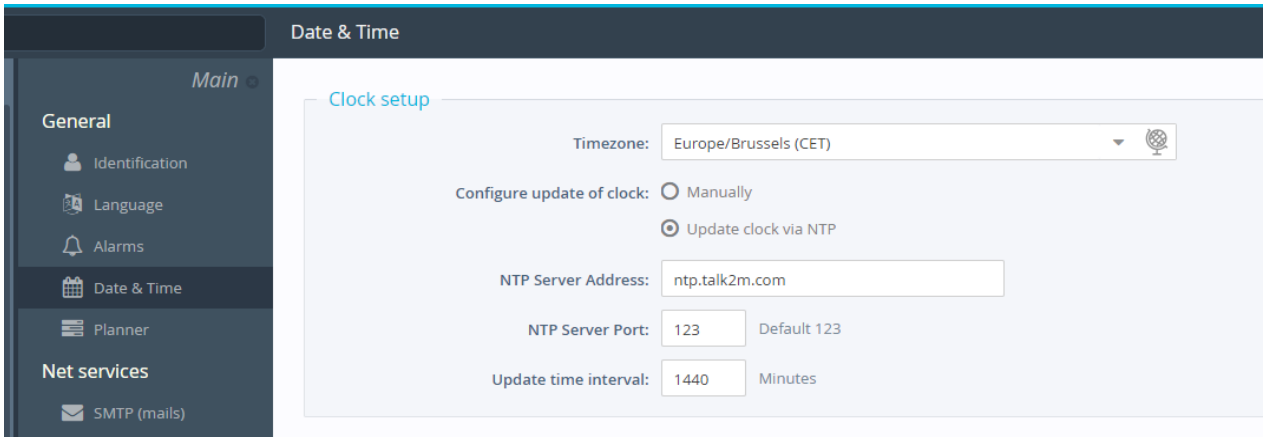
Depending on the way you export the data out of the Flexy this may have an impact on your existing application.

This document covers the following subjects :

- How the data is now exported ?
  chapter 3 - Date and Time export format
- How to perform a clean update when historical/alarm logging is used ?
  chapter 4 - Upgrade procedure for a clean update
- What are the differences in exporting data between FW <13.1s0 and FW >=13.1s0 ?
  chapter 5 - Changes in data export from FW 13.1s0 on

2. Time zone settings

The timezone can be configured on the Flexy using the system wizard or the date and time settings window.



Here you can select the Timezone corresponding to eWON Flexy location.

You can also define if you want to synchronize the eWON time with an NTP server (recommended).

Configured this way, the eWON Flexy displays the local time on its web interface and for alarm notifications (SMS/email). However, the data is stored using UTC timestamps internally.

3. Date and Time format when exporting data

The eWON Flexy can display/export data in many different ways.

The following chapters explain which date/time format is used to export the data.

Data can be exported either in :

- UTC time

  or

- local time (= UTC time + Timezone offset + Daylight Saving Time)

3.1. eWON Flexy web pages

In the eWON web interface, the time will always be displayed in **local time**.
This concerns the following pages/sections :

- Current time (displayed on the status bar on the bottom of the window)
- Alarm summary
- Alarm history
- Event Log
- Realtime Log
- Scheduled actions table

3.2. eWON Flexy data files

3.2.1. Historical data files (irc_TAGNAME.txt)

This file contains 2 time information:

TimeInt: integer format (number of seconds since 01/01/1970 - UNIX Epoch time)

TimeStr: in string format "DD/MM/YYYY HH:MM:SS"

Time format used:

TimeInt: **UTC time**

TimeStr: **local time**

Example:

"TimeInt";"TimeStr";"IsInitValue";"Value";"IQuality"

1537338593;"19/09/2018 08:29:53";0;555;3

3.2.2. Alarm real time file (rt_alm.txt)

This file contains 2 different time information:

AlarmTime: Timestamp of the begin of alarm (in string)

StatusTime: Timestamp of the AlStatus that is currently showed

Time format used:

AlarmTime: **local time**

StatusTime: **local time**

Example:

"TagId";"AlarmTime";"TagName";"AlStatus";"AlType";"StatusTime";"UserAck";"Description";"AlHint"

1;"19/09/2018 08:34:08";"Tag_001";"ALM";"HIHI";"19/09/2018 08:34:08";"";"Tag_001";"Alarm On analog 1"

3.2.3. Alarm historical file (hst_alm.txt)

This file contains 1 time information:

EventDate: Timestamp of the event in string

Time format used:

EventDate: **local time**

Example:

"EventDate";"TagName";"Status";"Type";"UserAck";"Description"
"19/09/2018 08:33:55";"Bool_021";"RTN";"";"";"Bool_021"
"19/09/2018 08:33:57";"Bool_022";"ALM";"LVL";"";"Bool_022"

3.2.4. Event log (events.txt)

This file contains 2 time information:

EventTimeInt: integer format (number of seconds since 01/01/1970 - UNIX Epoch time)

EventTimeStr: Timestamp in string format "DD/MM/YYYY HH:MM:SS"

Time format used:

EventTimeInt: **UTC time**

EventTimeStr: **local time**

Example:

"EventTimeInt";"EventTimeStr";"EventStr";"ThreadStr";"ThreadId";"Event"
1537338489;"19/09/2018 08:28:09";"wanmgt-Close WAN interface";"http";79307;1073772970

3.2.5. Binary historical data file (ircall.bin)

This file contains 1 time information

LogTime(32 bits): Integer format (number of seconds since 01/01/1970 - UNIX Epoch time)

Time format used:

LogTime: UTC time

3.3. Export Block Descriptors

When exporting the data yourself, using the EBD (Export Block Descriptor), you can configure how to export it.

We added a new EBD modificator: $ts

With 3 options:

- **no modificator :**
  - string format "DD/MM/YYYY HH:MM:SS"
  - Example: "19/09/2018 12:48:12"
- **U ($tsU) :** timestamps are formatted in ISO 8601 ZULU (UTC)
  - string format "*YYYY-MM-DD***T***HH:MM:SS***Z**"
  - Example: "2018-09-19T10:47:58Z"
- **L ($tsL) :** timestamps are formatted in ISO 8601 local (local time)
  - string format "*YYYY-MM-DD***T***HH:MM:SS****±000***"
  - Example: "2018-09-19T12:48:12+0200"

3.3.1. Historical Logging ($dtHL)

The result of this EBD contains 2 time information:

TimeInt: integer format (number of seconds since 01/01/1970 - UNIX Epoch time)

TimeStr: timestamp in string format (syntax depending on $ts modificator)

Time format used:

Modificator	TimeInt	TimeStr	Example
No modificator	UTC time	local time	"TimeInt";"TimeStr";"IsInitValue";"Value";"IQuality" 1537354078;"19/09/2018 12:47:58";0;556;3 1537354092;"19/09/2018 12:48:12";0;500;3
$tsU	UTC time	UTC time	"TimeInt";"TimeStr";"IsInitValue";"Value";"IQuality" 1537354078;"2018-09-19T10:47:58Z";0;556;3 1537354092;"2018-09-19T10:48:12Z";0;500;3
$tsL	UTC time	local time	"TimeInt";"TimeStr";"IsInitValue";"Value";"IQuality" 1537354078;"2018-09-19T12:47:58+0200";0;556;3 1537354092;"2018-09-19T12:48:12+0200";0;500;3

3.3.2. Historical Table ($dtHT)

The result of this EBD contains 2 time information:

TimeInt: integer format (number of seconds since 01/01/1970 - UNIX Epoch time)

TimeStr: timestamp in string format (syntax depending on $ts modificator)

Time format used:

Modificator	TimeInt	TimeStr	Example
No modificator	UTC time	local time	"TimeInt";"TimeStr";"Oil_temperature";"Tag_alarm1" 1537354931;"19/09/2018 13:02:11";0;505 1537354948;"19/09/2018 13:02:28";156;505
$tsU	UTC time	UTC time	"TimeInt";"TimeStr";"Oil_temperature";"Tag_alarm1" 1537354931;"2018-09-19T11:02:11Z";0;505 1537354948;"2018-09-19T11:02:28Z";156;505
$tsL	UTC time	local time	"TimeInt";"TimeStr";"Oil_temperature";"Tag_alarm1" 1537354931;"2018-09-19T13:02:11+0200";0;505 1537354948;"2018-09-19T13:02:28+0200";156;505

3.3.3. Real time Logging ($dtRL)

The result of this EBD contains 2 time information:

TimeInt: integer format (number of seconds since 01/01/1970 - UNIX Epoch time)

TimeStr: timestamp in string format (syntax depending on $ts modificator)

Time format used:

Modificator	TimeInt	TimeStr	Example
No modificator	UTC time	local time	"TimeInt";"TimeStr";"Value" 1537355066;"19/09/2018 13:04:26";506 1537355076;"19/09/2018 13:04:36";506
$tsU	UTC time	UTC time	"TimeInt";"TimeStr";"Value" 1537355067;"2018-09-19T11:04:27Z";506 1537355077;"2018-09-19T11:04:37Z";506
$tsL	UTC time	local time	"TimeInt";"TimeStr";"Value" 1537355066;"2018-09-19T13:04:26+0200";506 1537355076;"2018-09-19T13:04:36+0200";506

3.3.4. Alarm History ($dtAH)

The result of this EBD contains 1 time information:

EventDate: Timestamp of the event in string (syntax depending on $ts modificator)

Time format used:

Modificator	EventDate	Example
No modificator	local time	"EventDate";"TagName";"Status";"Type";"UserAck";"Description" "19/09/2018 09:59:11";"Tag_alarm1";"ALM";"LO";"";"" "19/09/2018 10:02:21";"Tag_alarm1";"ALM";"LO";"";""
$tsU	UTC time	"EventDate";"TagName";"Status";"Type";"UserAck";"Description" "2018-09-19T07:59:11Z";"Tag_alarm1";"ALM";"LO";"";"" "2018-09-19T08:02:21Z";"Tag_alarm1";"ALM";"LO";"";""
$tsL	local time	"EventDate";"TagName";"Status";"Type";"UserAck";"Description" "2018-09-19T09:59:11+0200";"Tag_alarm1";"ALM";"LO";"";"" "2018-09-19T10:02:21+0200";"Tag_alarm1";"ALM";"LO";"";""

3.3.5. Alarm Real time ($dtAR)

The result of this EBD contains 2 different time information:

AlarmTime: Timestamp of the begin of alarm (in string format depending on $ts modificator)

StatusTime: Timestamp of the AlStatus that is currently showed (in string format depending on $ts modificator)

Time format used:

Modificator	AlarmTime	StatusTime	Example
No modificator	local time	local time	"TagId";"AlarmTime";"TagName";"AlStatus";"AlType";"StatusTime";"UserAck";"Description";"AlHint" 54;"19/09/2018 13:34:18";"Tag_alarm1";"ALM";"HIHI";"19/09/2018 13:34:18";"";"";""
$tsU	UTC time	UTC time	"TagId";"AlarmTime";"TagName";"AlStatus";"AlType";"StatusTime";"UserAck";"Description";"AlHint" 54;"2018-09-19T11:34:18Z";"Tag_alarm1";"ALM";"HIHI";"2018-09-19T11:34:18Z";"";"";""
$tsL	local time	local time	"TagId";"AlarmTime";"TagName";"AlStatus";"AlType";"StatusTime";"UserAck";"Description";"AlHint" 54;"2018-09-19T13:34:18+0200";"Tag_alarm1";"ALM";"HIHI";"2018-09-19T13:34:18+0200";"";"";""

3.3.6. Event file ($dtEV)

The result of this EBD contains 2 time information:

EventTimeInt: integer format (number of seconds since 01/01/1970 - UNIX Epoch time)

EventTimeStr: Timestamp in string format (syntax depending on $ts modificator)

Time format used:

Modificator	EventTimeInt	EventTimeStr	Example
No modificator	UTC time	local time	"EventTimeInt";"EventTimeStr";"EventStr";"ThreadStr";"ThreadId";"Event" 1537359559;"19/09/2018 14:19:19";"main-Real Time Clock updated";"unact";79301;1073762139
$tsU	UTC time	UTC time	"EventTimeInt";"EventTimeStr";"EventStr";"ThreadStr"

			;"ThreadId";"Event" 1537359559;"2018-09-19T12:19:19Z";"main-Real Time Clock updated";"unact";79301;1073762139
$tsL	UTC time	local time	"EventTimeInt";"EventTimeStr";"EventStr";"ThreadStr";"ThreadId";"Event" 1537359559;"2018-09-19T14:19:19+0200";"main-Real Time Clock updated";"unact";79301;1073762139

3.3.7. Scheduled Status ($dtSS)

The result of this EBD contains 2 time information:

Start time: Timestamp in string format (syntax depending on $ts modificator)
Endt ime: Timestamp in string format (syntax depending on $ts modificator)

Time format used:

Modificator	Start time	End time	Example
No modificator	local time	local time	41;"Send Mail";0;"Success";"19/09/2018 13:25:01";"19/09/2018 13:25:38" 42;"Send Mail";0;"Success";"19/09/2018 13:25:10";"19/09/2018 13:26:17"
$tsU	UTC time	UTC time	41;"Send Mail";0;"Success";"2018-09-19T11:25:01Z";"2018-09-19T11:25:38Z" 42;"Send Mail";0;"Success";"2018-09-19T11:25:10Z";"2018-09-19T11:26:17Z"
$tsL	local time	local time	41;"Send Mail";0;"Success";"2018-09-19T13:25:01+0200";"2018-09-19T13:25:38+0200" 42;"Send Mail";0;"Success";"2018-09-19T13:25:10+0200";"2018-09-19T13:26:17+0200"

3.3.8. Real Time Diagnostic ($dtRE)

The result of this EBD contains 1 time information:

Time Clock: integer format (number of seconds since 01/01/1970 - UNIX Epoch time)

Time format used:

Time Clock: **UTC time**

The modificator $ts is not of any use for this EBD.

Example :

Time Clock	Src Id	Message	
1537344815	41929	5	9 Initialization Sequence Completed

3.4. Data Management: DataMailbox

When eWON Flexy exports data to the DataMailbox, following date format is used.
The DataMailbox timestamps are formatted in ISO 8601 ZULU (UTC) : "2018-09-20T07:26:27Z"

3.4.1. getewons

The result of this call contains 1 time information:

Item	Time format	Time reference
ewons.[#].lastSynchroDate	UTC	Talk2M server time

3.4.2. getewon

The result of this call contains 1 time information:

Item	Time format	Time reference
lastSynchroDate	UTC	Talk2M server time

3.4.3. getdata

The result of this call contains 4 different time information:

Item	Time format	Time reference
ewons.[#].tags.[#].history.[#].date	UTC	eWON time
ewons.[#].tags.[#].alarmState.dateStart	local time	eWON time
ewons.[#].tags.[#].alarmState.dateStatus	local time	eWON time
ewons.[#].lastSynchroDate	UTC	Talk2M server time

3.4.4. syncdata

The result of this call contains 5 different time information:

Item	Time format	Time reference
ewons.[#].tags.[#].history.[#].date	UTC	eWON time
ewons.[#].tags.[#].alarmState.dateStart	local time	eWON time
ewons.[#].tags.[#].alarmState.dateStatus	local time	eWON time
ewons.[#].tags.[#].alarmHistory.[#].date	local time	eWON time
ewons.[#].lastSynchroDate	UTC	Talk2M server time

4. Upgrade procedure for a clean update

We recommend the following procedure for a clean eWON Flexy update:

1. Synchronize your data if needed (cloud, EUM Card, …)
2. Stop the synchronization of data
3. Upgrade the eWON firmware
4. Check the date & time and adapt if required the Timezone settings in the System Wizard (NTP settings)
5. Format the historical recording file system (Setup > System > Storage > Erase & Format > "Format all files" for Historical Recording File System)
6. Reboot the eWON
7. Start the synchronization of data

Note: If you do not format the historical recording (step5), then the data recorded before the firmware upgrade may be exported with changed timestmaps (with a timezone offset) as the time reference has now changed to UTC.

5. Changes in data export from FW 13.1s0 on

Following changes are applied in data export when migrating to firmware FW13.1s0

5.1. eWON Flexy web pages

Identical as before firmware upgrade. All data is dispalyed in local time.

5.2. eWON Flexy data files

The time displayed in string format remains the same. Local time is used before and after the upgrade.

The Integer representation of the date (like TimeInt and EventTimeInt) are exported now in UTC.

Filename	Parameter	before FW 13.1s0	after FW 13.1s0
irc_TAGNAME.txt	TimeInt TimeStr	local time local time	**UTC time** local time
rt_alm.txt	AlarmTime StatusTime	local time local time	local time local time
hst_alm.txt	EventDate	local time	local time
events.txt	EventTimeInt EventTimeStr	local time local time	**UTC time** local time
ircall.bin	LogTime	local time	UTC time

5.3. Export Block Descriptors

The time displayed in string format remains the same. Local time is used before and after the upgrade.

The Integer representation of the date (like TimeInt and EventTimeInt) are exported now in UTC.

Note : modificator $ts can be used to export the time string in an other format

EBD	Parameter	before FW 13.1s0	after FW 13.1s0
$dtHL	TimeInt	local time	**UTC time**

	TimeStr	local time	local time
$dtHT	TimeInt TimeStr	local time local time	**UTC time** local time
$dtRL	TimeInt TimeStr	local time local time	**UTC time** local time
$dtAH	EventDate	local time	local time
$dtAR	AlarmTime StatusTime	local time local time	local time local time
$dtEV	EventTimeInt EventTimeStr	local time local time	**UTC time** local time
$dtSS	Start time End time	local time local time	local time local time
$dtRE	Time Clock	local time	UTC time

5.4. Data Management: DataMailbox

eWON now exports its data in UTC time. Before the UTC format was used inside the DataMailbox, but eWON exported the data in local time.

Function	Parameter	before FW 13.1s0	after FW 13.1s0
getewons	ewons.[#].lastSynchroDate	UTC time	UTC time
getewon	lastSynchroDate	UTC time	UTC time
getdata	ewons.[#].tags.[#].history.[#].date ewons.[#].tags.[#].alarmState.dateStart ewons.[#].tags.[#].alarmState.dateStatus ewons.[#].lastSynchroDate	local time local time local time UTC time	**UTC time** local time local time UTC time
syncdata	ewons.[#].tags.[#].history.[#].date ewons.[#].tags.[#].alarmState.dateStart ewons.[#].tags.[#].alarmState.dateStatus ewons.[#].tags.[#].alarmHistory.[#].date ewons.[#].lastSynchroDate	local time local time local time local time UTC time	**UTC time** local time local time local time UTC time

6. Revision

6.1. Revision History

Revision Level	Date	Description
0.1	18/09/2018	Draft version for internal release

Document build number: 36