

NTP Client – Server – Relay

1 Preface

1.1 About This Document

The present document explains how to configure the NTP (client, server or relay) of an eWON Cosy 131 or an eWON Flexy.

For additional related documentation and file downloads, please visit www.ewon.biz/support.

1.2 Document History

Version	Date	Description
1.0	2018-08-30	First release

1.3 Related Documents

Document	Author	Document ID
config.txt	HMS	KB-0052-00
Flexy	HMS	RG-0008-00

1.4 Trademark Information

eWON® is a registered trademark of HMS Industrial Networks SA. All other trademarks mentioned in this document are the property of their respective holders.

2 Introduction

NTP which stands for Network Time Protocol is a way to synchronize multiple network devices on the same time (in UTC).

This is important for several domains:

- Encryption/Authentication with certificates: to check the validity of start/expiration date.
- Data logging: ensure your data/alarms timestamps are consistent from the origin to the destination.
- ...

As of firmware version 13.1s0, there are 3 aspects of the NTP feature integrated in the eWON:

NTP client	The Ewon retrieves its date & time from a remote NTP server.
NTP server	The Ewon is the one distributing its date & time.
NTP relay	The Ewon retrieves the date & time from a remote NTP server and distributes the date & time to LAN devices. It regroups the NTP client and server such as NTP relay = NTP client + NTP server.

2.1 Network Architecture

If the Ewon device has an access to Internet, the eWON device can connect to a remote NTP server with a better time reference (e.g.: atomic clock) or just a single point to retrieve a precise date & time.

The Ewon device can be an NTP server which means it can provide NTP synchronization on your factory floor without an external source.

The Ewon device can also combine both solutions and become an NTP relay: it will retrieve the date & time from a remote NTP server and transfer this date & time to its LAN devices.

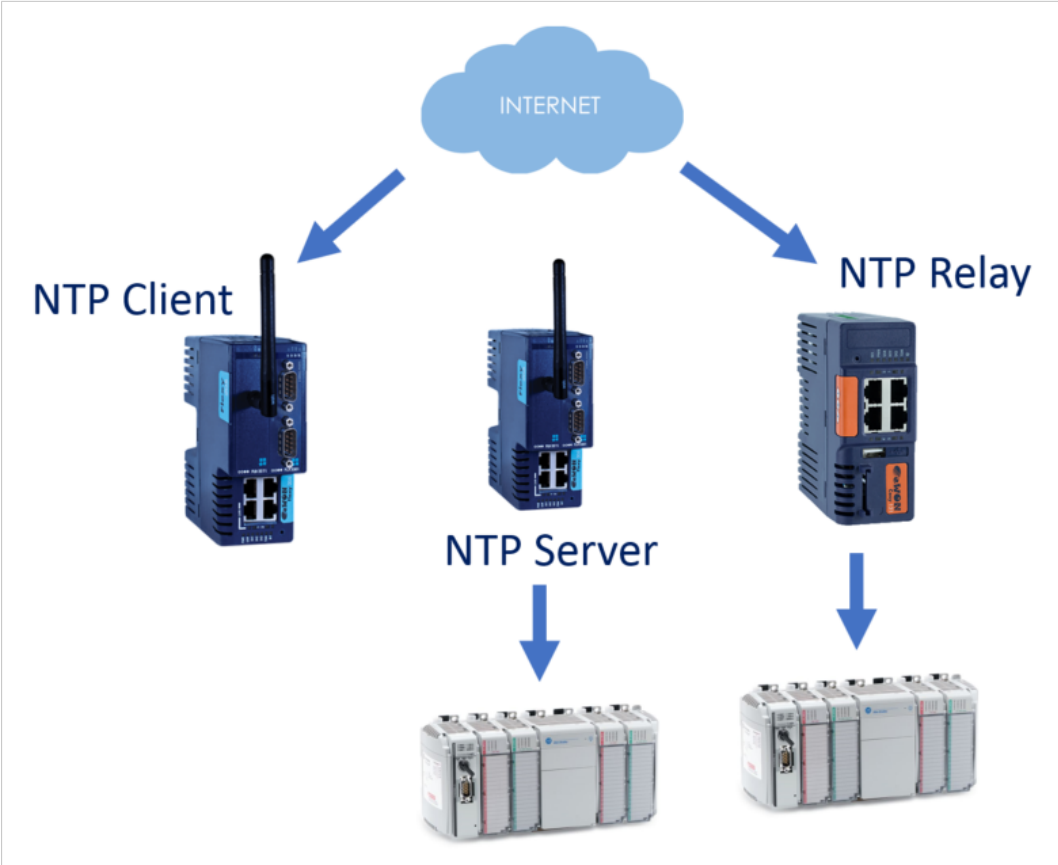


Fig. 1 NTP Solutions

3 Configuration

3.1 System Wizard

The screenshot shows the 'System Wizard' interface with a progress indicator (1, 2, 3) where step 2 is active. The 'Date and time' section is expanded to show 'Clock setup'. The 'Timezone' dropdown is set to 'UTC'. The 'Configure update of clock' section has two radio buttons: 'Manually' (unselected) and 'Update clock via NTP' (selected). Below this, the 'NTP Server address' text box contains 'ntp.talk2m.com'. The 'Update interval' text box contains '1440' with 'Minutes' to its right.

Fig. 2 NTP Settings in the Flexy System Wizard

The system wizard sets by default the Ewon device as an NTP client.

The following settings can be modified:

Timezone	Sets the Ewon device in a specific timezone.
Configure update of clock	The method to set the time of the Ewon device: <ul style="list-style-type: none"> Manually: the time is manually set by the user. Update clock via NTP (default): the time retrieves automatically its time from a remote NTP server.
NTP Server address	The URL of the remote NTP server. By default, "ntp.talk2m.com is set." This field is shown only if "Update clock via NTP" is selected.
Update interval	The time interval used to update the clock. This field is shown only if "Update clock via NTP" is selected.
Datetime	The date and time set manually. This field is shown only if "Manually" is selected

3.2 Advanced Menu

The configuration of the NTP through the advances menu is for Flexy only.

All parameters listed here under are also listed and explained in the "config.txt" file. Check the [Related Documents, p. 2](#) for more info.

3.2.1 NTP Client

The NTP client configuration can be performed by going to: **Setup > System > Main > General > Date & Time.**

The parameters that can be set are the same than the ones in the [System Wizard, p. 5](#)

3.2.2 NTP Server

The NTP server configuration can be performed by going to: **Setup > System > Main > Net services > NTP Server**.

The following parameter can be set:

Enable NTP Server Sets the Ewon device as an NTP server to its LAN devices.



If the NTP client is not enabled (see [NTP Client, p. 5](#) for configuration) then this NTP relay setting enables/disables only the NTP server of the Ewon.

3.2.3 NTP Relay

The Ewon device can retrieve its time from a remote NTP server to set accurately its date & time. The Ewon device can then propose this date & time to its LAN devices.

This concept is called the NTP relay as the Ewon is both an NTP client (retrieving the time from outside) and an NTP server (providing the time to local network).

To activate the NTP relay, both [NTP Client, p. 5](#) and [NTP Server, p. 6](#) must be enabled.

4 NTP Slewing

The NTP client will update the Ewon system clock periodically. This is performed using a remote NTP server.

The time difference between the Ewon device and the remote NTP server, before synchronization, can be huge (some seconds, some minutes) and not monotonic (backward or forward).

The Ewon device can handle that kind of problem because the Ewon is designed to have, internally, a monotonic time.

But some devices cannot handle that properly:

- reboot
- stop
- inconsistent data: timestamps mixed in the past/future

To avoid this kind of problem and as the Ewon is used as an NTP server, the Ewon device ensures to provide a monotonic time by speeding up/down the time to change the time in a smooth and imperceptible way, instead of having a brutal time change.