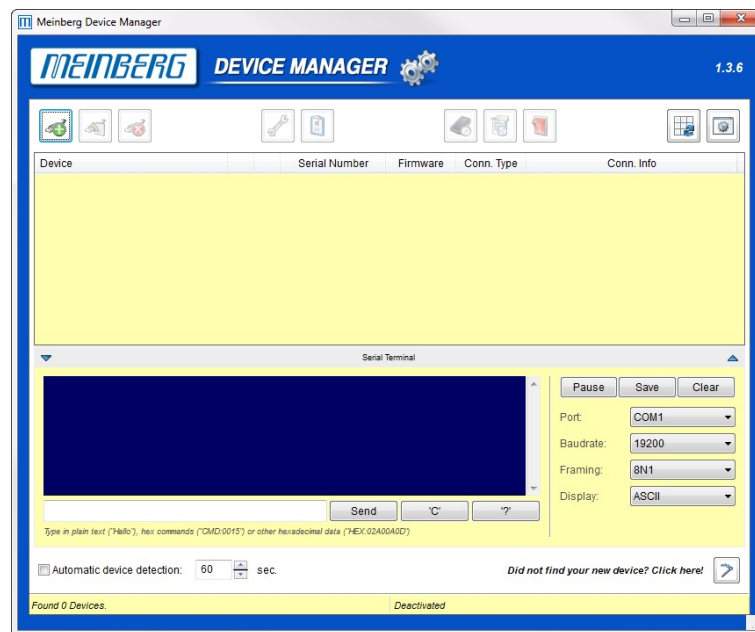




MANUAL

Meinberg Device Manager

mbgdevman

4th August 2017

Meinberg Radio Clocks GmbH & Co. KG

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1 Imprint

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Date: 2016-09-30

2 Introduction

The Meinberg driver software package mbgdevman (Meinberg Device Manager for Windows) can be used under Windows 7 and all newer versions. The software doesn't work under the operating systems Windows 95, Windows 98, Windows ME, Windows 2000, Windows XP and Windows Vista.

The Meinberg Device Manager is able to communicate with all standalone devices manufactured by Meinberg, which are equipped with a serial or an network adapter. These includes, among others, devices for DIN rail mounting such as the GPS180XHS or DCF600HS modules, but also smaller systems such as the Syncbox N2X. In addition to that, input and output modules from the IMS series, which have been installed in a MDU (Modular Distribution Unit), can be configured via the management interface of the MDU.

Apart from the configuration, the software may also be used to monitor the synchronization status of devices and modules, output signals (e.g. check of an outgoing time string), or to restart a supported device from a remote computer.

3 Install

3.1 Installing The Configuration Software

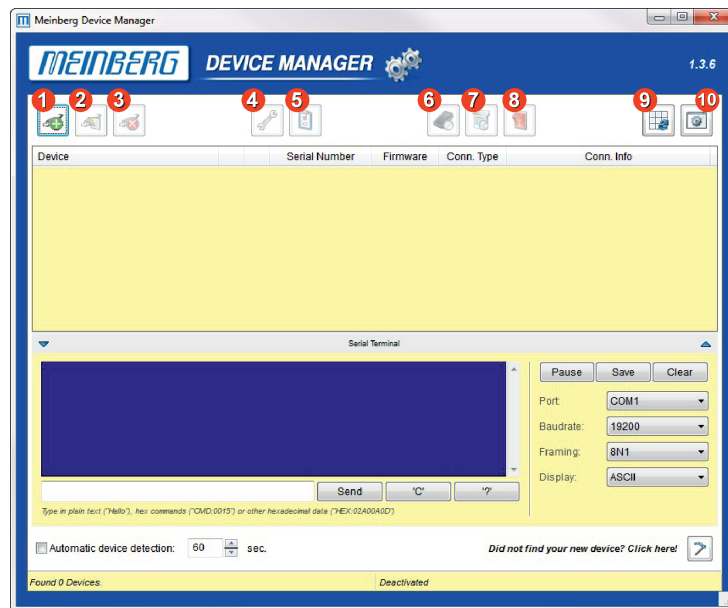
Download Meinberg Device Manager free of charge from our homepage:

- Download Meinberg Device Manager for Windows Systems
https://www.meinberg.de/download/utills/windows/mbgdevman_setup.exe
- Download Meinberg Device Manager for Linux Systems
<https://www.meinberg.de/download/utills/linux/mbgdevman.tar.gz>

On Windows operating systems, an installer setup, with graphical user interface, will done the installation routine of the mbgdevman. To update an already installed version of Meinberg Device Manager, you can simply download and run a new version of the installation program. The existing version will be override by the new setup procedure then.

On Linux operation systems, unzip the TAR.GZ archive to the desired directory and run the program - e.g. with a terminal console command.

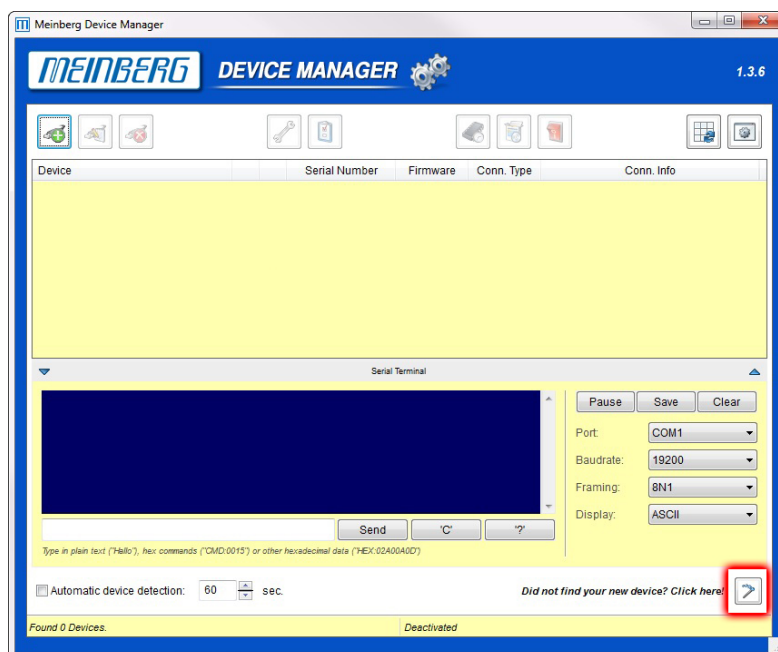
4 Basics



After starting the Meinberg Device Manager the main window appears (see above graphic). The graphic shows the menu bar with the corresponding menu buttons (marked by #1 – #9). The main element of the window is the tree structure listing of the found Meinberg components.

In the following chapters, the individual menu buttons as well as the configuration options are explained.

4.1 Network Configuration Wizard

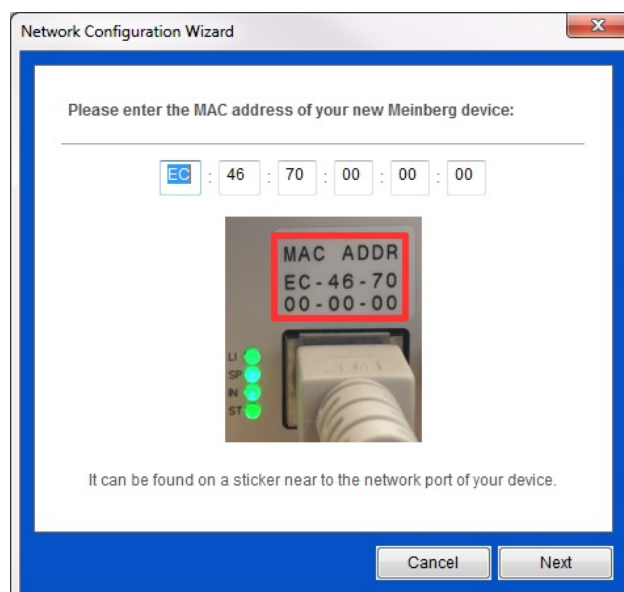


To allow an easy configuration of the components you can perform a "Step by Step" configuration by using the Network Configuration Wizard. After the system has been connected to the network, open the Network Configuration Wizard by clicking on the wizard button.

MAC Address

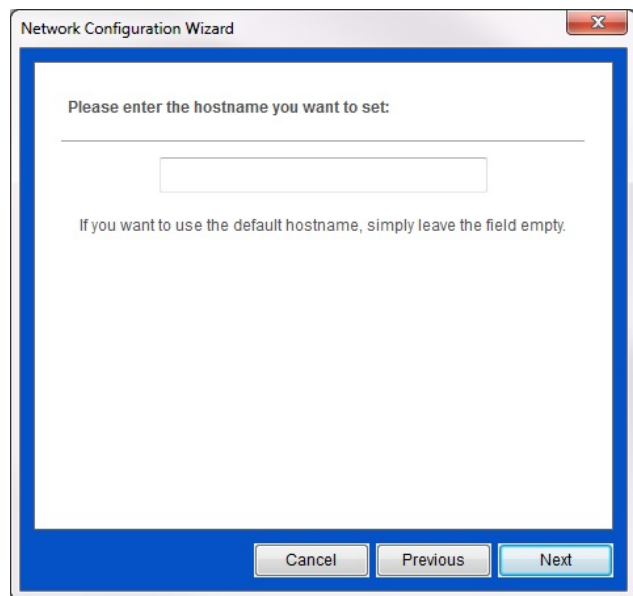
This done, the first configuration window opens automatically. The MAC address of the component must be entered, which can be found on the device.

Confirm your configuration with the "Next" button. This will take you to the following configuration window (Hostname).



Hostname

In this window, you can select a hostname for your system. Leave the input field blank to set no hostname. Confirm your entry with the "Next" button to go to the next configuration window.

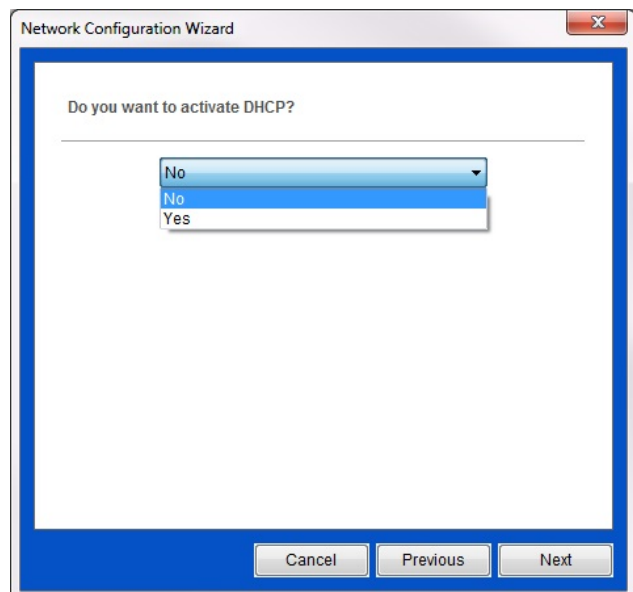


The screenshot shows a window titled "Network Configuration Wizard" with a blue border. Inside, the text "Please enter the hostname you want to set:" is followed by a single-line text input field. Below the field, a note states: "If you want to use the default hostname, simply leave the field empty." At the bottom right, there are three buttons: "Cancel", "Previous", and "Next".

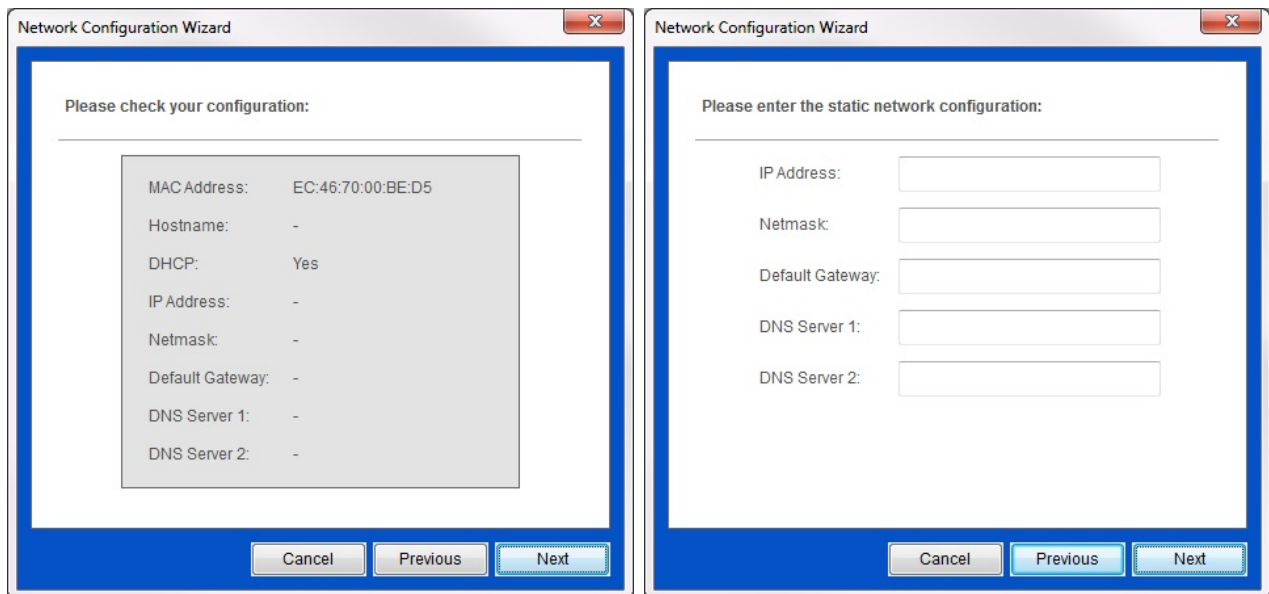
DHCP

In the "DHCP" menu you can decide whether a static IP address should be assigned or activate DHCP. Just select "No" or "Yes" at first.

If you select "Yes", the DHCP client will be activated automatically after clicking on the "Next" button. If you select "No", a new window opens. Now you can configure the static IP address, netmask, gateway and, if necessary, DNS server. Confirm your entries with the "Next" button to enter the next configuration menu.



The screenshot shows a window titled "Network Configuration Wizard" with a blue border. Inside, the text "Do you want to activate DHCP?" is followed by a dropdown menu. The dropdown is open, showing three options: "No" (highlighted in blue), "No", and "Yes". At the bottom right, there are three buttons: "Cancel", "Previous", and "Next".

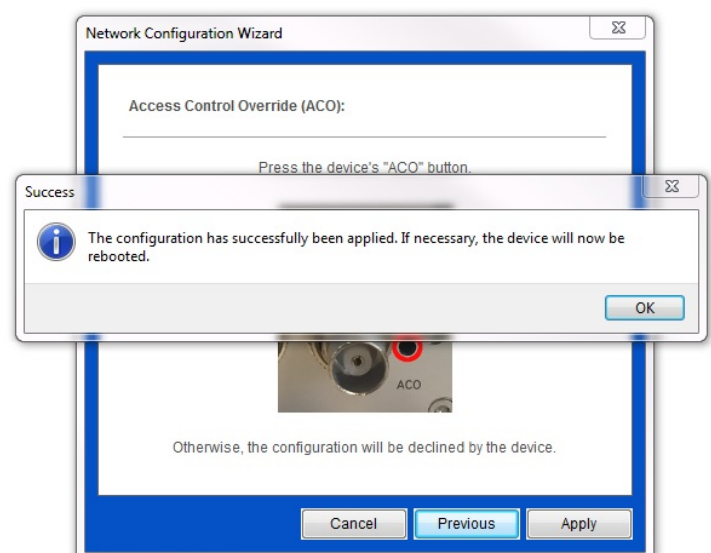
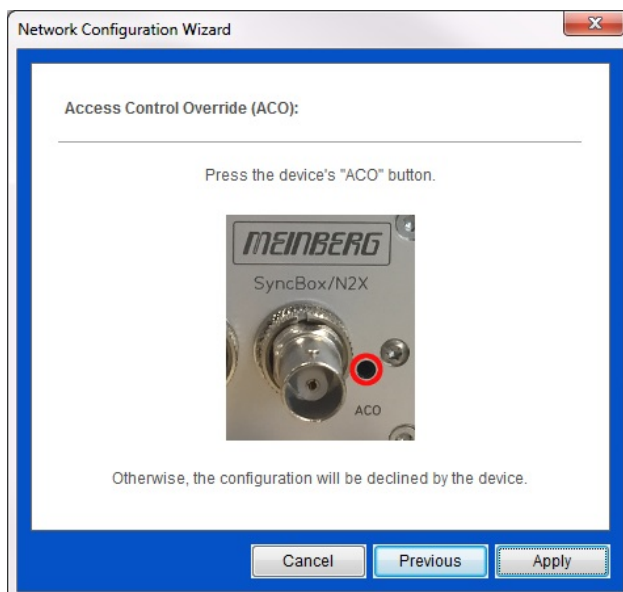


Please note: When assigning an IP address via the wizard, the PC and the corresponding device must be connected physically in the same network. An IP configuration via a gateway / router is not possible. Usually the forwarding of broadcast packets in the network is blocked or not allowed.

Access Control Override (ACO)

The pushbutton labeled "ACO" next to the network port must be used to confirm the previous configuration. Press the ACO button and select the "Apply" button in the Device Manager window.

A successful configuration is confirmed by showing the "Success" window.

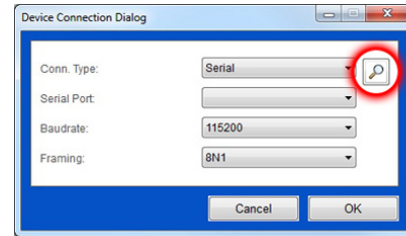


4.2 Adding a Device

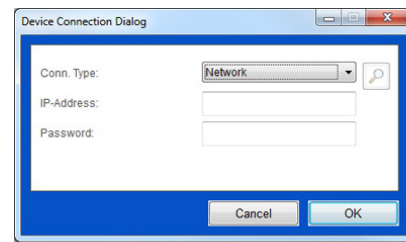


The **Add Device** button can be used to manually connect to a Meinberg component via a serial port or a network address. This is only necessary if the used component is not automatically found by the software, due to for example an unknown baud rate or a changed password for network access.

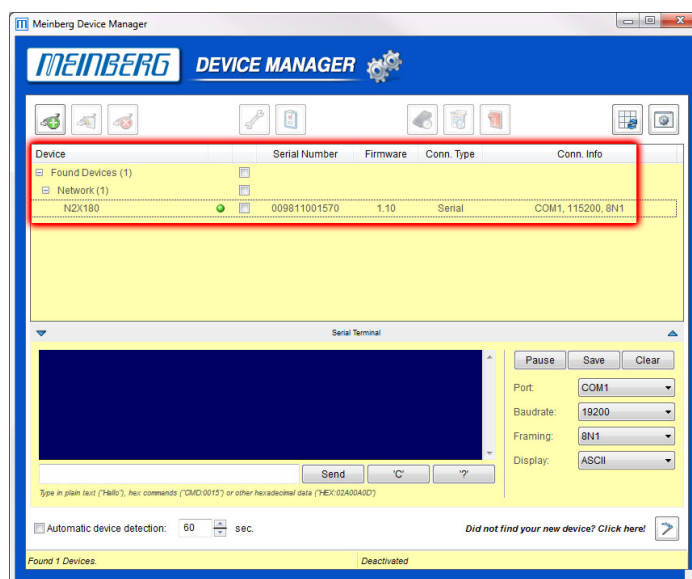
To establish a serial connection the used port, baud rate and framing must be entered. Alternatively, the baud rate and framing which is to be used can automatically be detected by using the function "Detect serial parameters" (marked in red). All available combinations will be displayed and the first configuration, which could successfully establish a connection, is used.



For network connection, the corresponding IP address of the Meinberg component, as well as the password for network access need to be entered. Upon delivery, the default password of most components is "mbg". Some devices are also delivered with the password "Meinberg" or "meinberg".



After having successfully connected by one of the two connection variants, the corresponding component (Found Devices (1)) should be displayed in the main window.



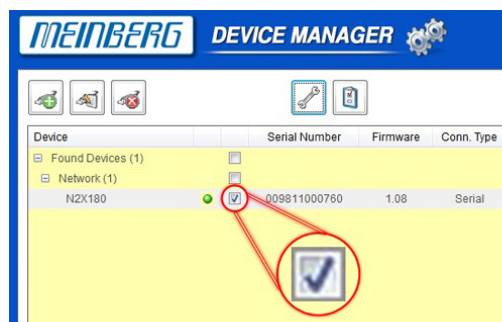
4.3 Edit Connection Settings



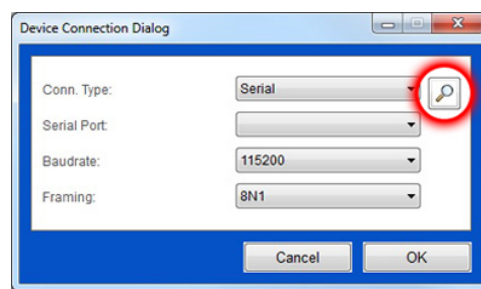
Using the Edit Connection Settings button, connection parameters, such as baud rate or framing, or the password which is to be used for network access by selected components can be changed.

Please note: Each component, which is displayed in the main window, can only be configured after selecting the check box (see graphic).

By selecting a component (check mark), the inactive, grayed-out "Edit Connection Settings" button becomes active.



Using the function "Detect serial parameters", baud rate and framing to the serial connection can be recognized automatically.



4.4 Removing a Device



The button Remove Device removes selected components (check marked) from the device list. The deleted component can then be added back to the device list by the automatic device search or the "Add Device" function.

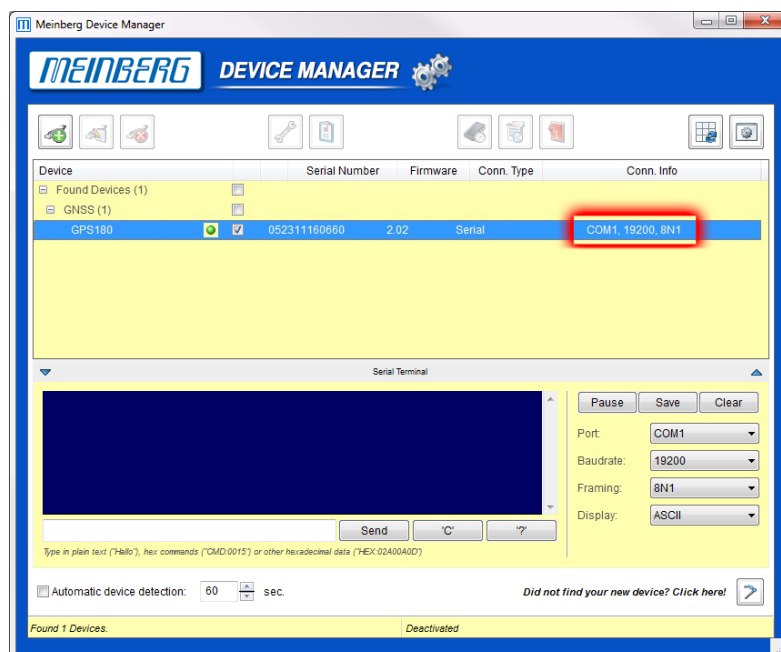
4.5 Device Configuration



The Configure Device button is used to configure single or multiple selected components. In the following chapters, examples of various configuration variants are shown:

- Configuration of a single, serial component
- Configuration of a single component with network connection
- Parallel configuration of a serial and a component with a network connection

4.5.1 GPS180 - Device Configuration



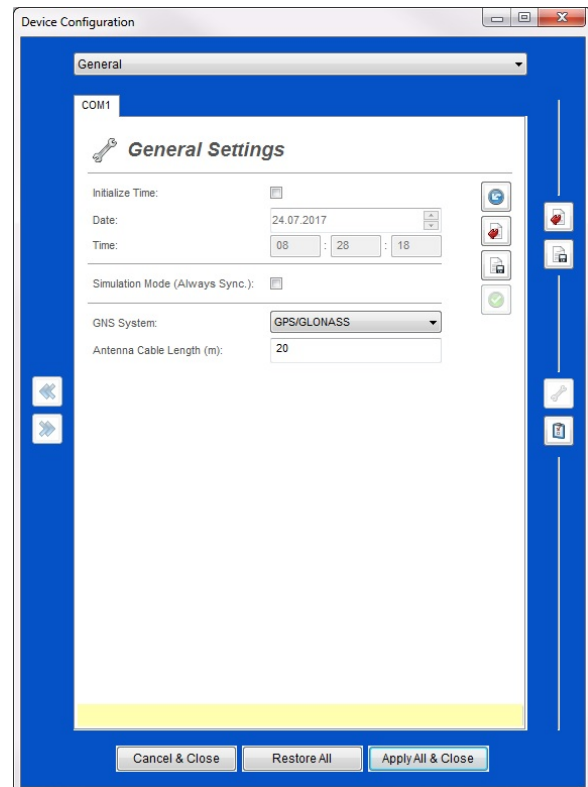
After the button "Add Device" or "Search Device" (Section 4.9) has been clicked and a serial connected component has been found, the module can then be configured. Pay attention to the correct connection (port, baud rate, framing).

Once the corresponding component (GPS180) is activated (check marked), as shown above, the GPS180 can be configured with the ConfigureDevice button. Depending on availability, the corresponding configuration options are displayed in the upper selection box of the configuration window (receiver, serial ports, outputs, etc.).

General

In the "General Settings" area, settings to the receiver can be made. These include e.g. the time and date, but also the length of the antenna cable from the antenna to the receiver. For GNSS receivers (e.g., GNS180PEX) the system which is to be used, or the systems which are to be used (GPS, GLONASS, BeiDou, Galileo) can be selected.

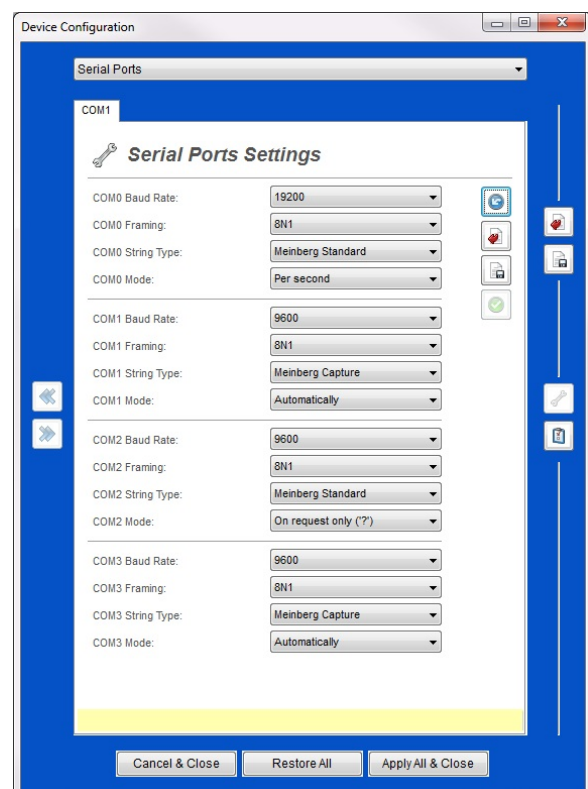
Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to reset all changes back to the current device configuration.



Serial Ports

The available serial ports (GPS180: COM0 / COM1) can be configured in the "Serial Ports" area. The baud rate and framing as well as the desired time telegram can be selected, which depending on the configuration can be emitted on the hour, minute or even on request via the interface.

Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to reset all changes back to the current device configuration.



Outputs

In the "Outputs" area, the available output interfaces can be configured. If IRIG outputs are present, the IRIG code which is to be used and the time scale can be selected. In addition, if available, the frequency and phase can be adjusted for a synthesizer. The outputs can be enabled for each output type (serial Telegrams, pulse outputs, frequency outputs, synthesizers) either only in synchronous mode ("If Sync") or always ("Always").

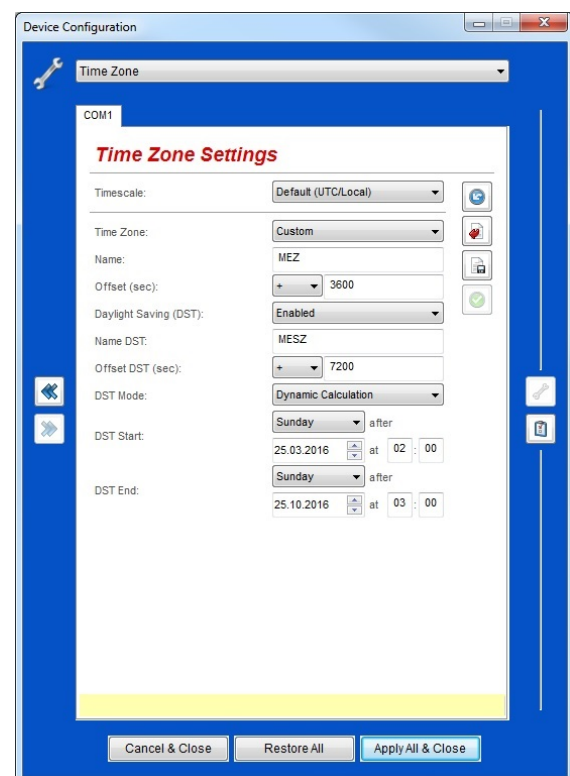
Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to re-set all changes back to the current device configuration.



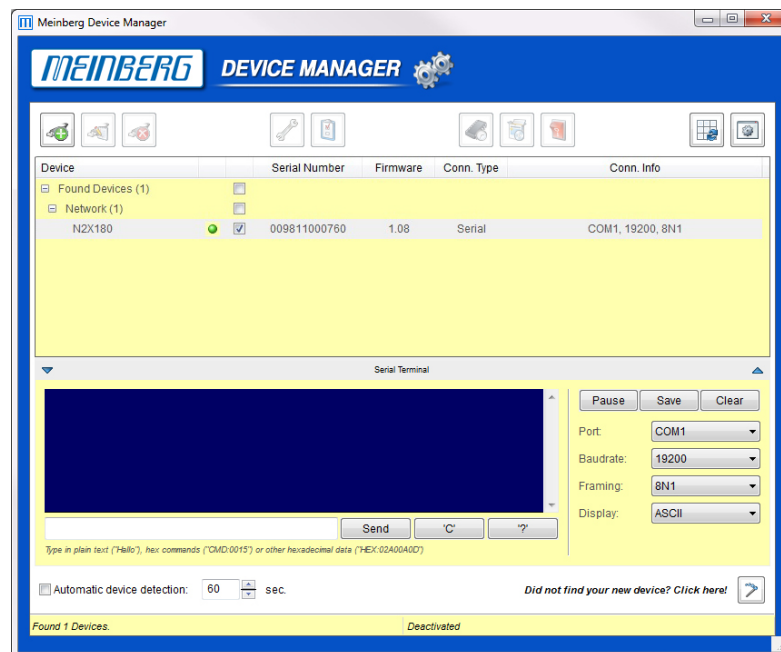
Time Zone

In the "Time Zone" area, settings can be made for the time zone which is to be used. If a different time zone other than the preset time UTC, CET / CEST or EET / EEST has to be set, a summer / winter time changeover and associated offsets and changeover data can be configured.

Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to re-set all changes back to the current device configuration.



4.5.2 SyncBox N2X - Device Configuration



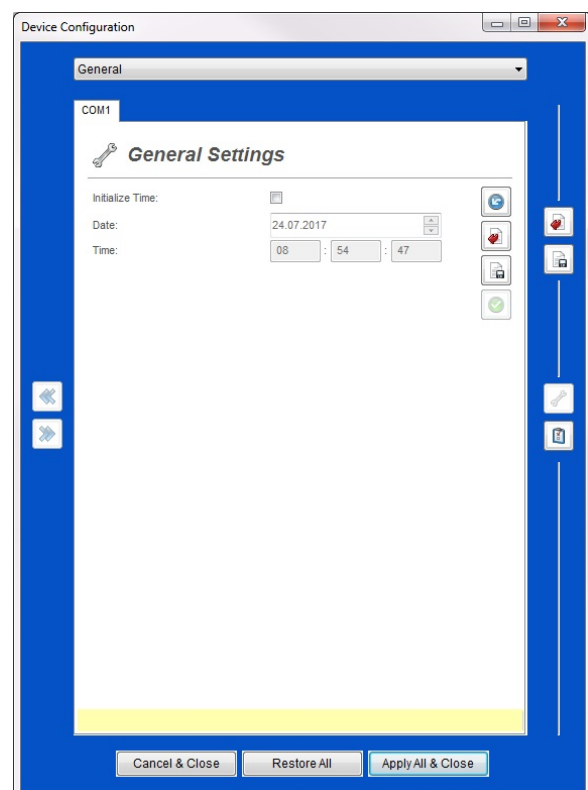
After the button "Add Device" or "Search Device" (Section 4.9) has been clicked and a serial connected component has been found, the module can then be configured. Pay attention to the correct connection (port, baud rate, framing).

Once the corresponding component (N2X180) is activated (check marked), as shown above, the N2X180 can be configured with the ConfigureDevice button. Depending on availability, the corresponding configuration options are displayed in the upper selection box of the configuration window (receiver, serial ports, outputs, etc.).

General

In the "General Settings" area, settings to the receiver can be done. These include e.g. the time and date, but also the length of the antenna cable from the antenna to the receiver. For GNSS receivers (e.g., GNS180PEX) the system which is to be used, or the systems which are to be used (GPS, GLONASS, BeiDou, Galileo) can be selected.

Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to reset all changes back to the current device configuration. Existing device configurations can be saved and loaded at any time.



Ref. Sources

In the "Ref. Sources" the reference source of the system which is to be used can be selected and, if supported, a prioritization of available sources can be made. For the N2X180 the sources NTP (Network Time Protocol) and PTP (Precision Time Protocol) can be selected. For other devices, further sources, such as GPS, PPS, 10 MHz, and so on, may appear.

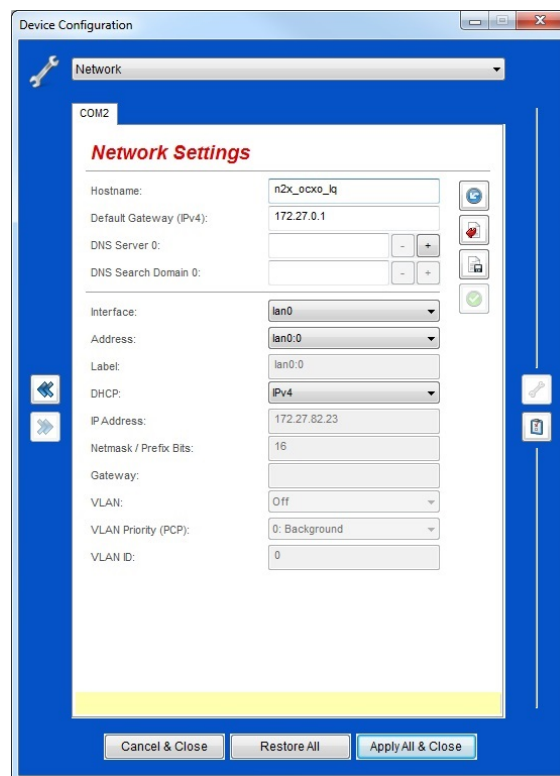
Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to re-set all changes back to the current device configuration.



Network

In the "Network" section, configurations for the network interface can be made, for example the hostname or the default gateway which is to be used, as well as the IP address, netmask or VLAN. Some components require a reboot after applying the settings. In this case, the program automatically indicates the reboot and attempts to reconnect after reboot, if desired. By clicking on "Change Password (s)" the connection password can be changed. Please note that devices of which the the default password is not "mbg", can not be recognized automatically by the program in the future.

Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to re-set all changes back to the current device configuration.



PTP

In the "PTP" area, configurations for the Precision Time Protocol can be made.

For example, the transmission mechanism (multicast / unicast), the network protocol (L2 IEEE802.3, UDP / IPv4, UDP / IPv6) or the delay mechanism (E2E / P2P) can be selected. In addition, intervals for the PTP packets announce message, sync message and delay request message can be set. For Unicast slaves, the addresses of the Unicast masters which are to be used can also be configured.

Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to reset all changes back to the current device configuration.

The screenshot shows the "Device Configuration" window with the "PTP" tab selected. The "COM2" sub-tab is active, displaying the "PTP Settings" section. The settings are as follows:

Setting	Value
Role	Multicast Slave
Profile	Custom
Network Protocol	IPv4
Domain Number	0
Announce Interval	-5 (32/s)
Sync Interval	-5 (32/s)
Delay Request Interval	-5 (32/s)
Delay Mechanism	E2E
Hybrid Mode	Off

At the bottom of the window, there are three buttons: "Cancel & Close", "Restore All", and "Apply All & Close".

NTP

In the "NTP" area, configurations for the Network Time Protocol can be made. For an NTP client several NTP servers can be configured with different request intervals. Also, for each server, various NTP features such as e.g. "IBurst" (faster initial synchronization by sending package bundles), "Prefer" (Preference of an NTP server as time source) or "True" (time of a server is always classified as correct, even if a deviation to others Servers has been detected) can be activated or deactivated.

Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to reset all changes back to the current device configuration.

The screenshot shows the "Device Configuration" window with the "NTP" tab selected. The "COM2" sub-tab is active, displaying the "NTP Settings" section. The settings are as follows:

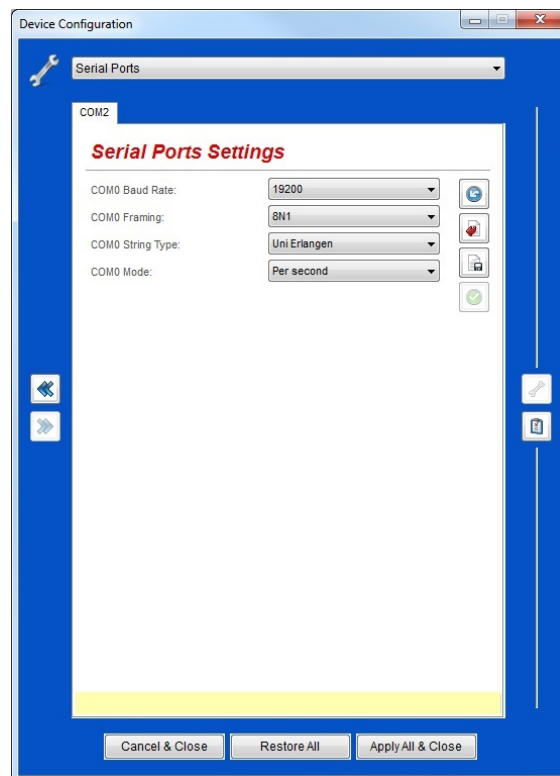
Setting	Value
Role	Client
Server	#0: not configured
Hostname / Address:	
Min. Polling Interval	3 (8 sec.)
Max. Polling Interval	3 (8 sec.)
Burst	Off
Initial Burst (burst):	Off
No Select	Off
Prefer	Off
True	Off

A yellow status bar at the bottom of the settings area displays the message "Configuration changed." At the bottom of the window, there are three buttons: "Cancel & Close", "Restore All", and "Apply All & Close".

Serial Ports

The available serial ports (N2X180: COM0) can be configured in the "Serial Ports" area. The baud rate and framing as well as the desired time telegram can be selected, which depending on the configuration can be emitted on the hour, minute or even on request via the interface.

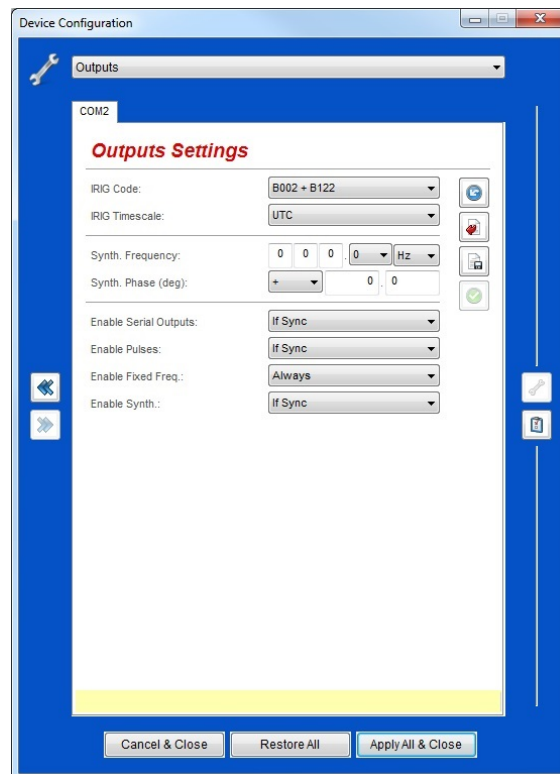
Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to reset all changes back to the current device configuration.



Outputs

In the "Outputs" area, the available output interfaces can be configured. If IRIG outputs are present, the IRIG code which is to be used and the time scale can be selected. In addition, if available, the frequency and phase can be adjusted for a synthesizer. The outputs can be enabled for each output type (serial Telegrams, pulse outputs, frequency outputs, synthesizers) either only in synchronous mode ("If Sync") or always ("Always").

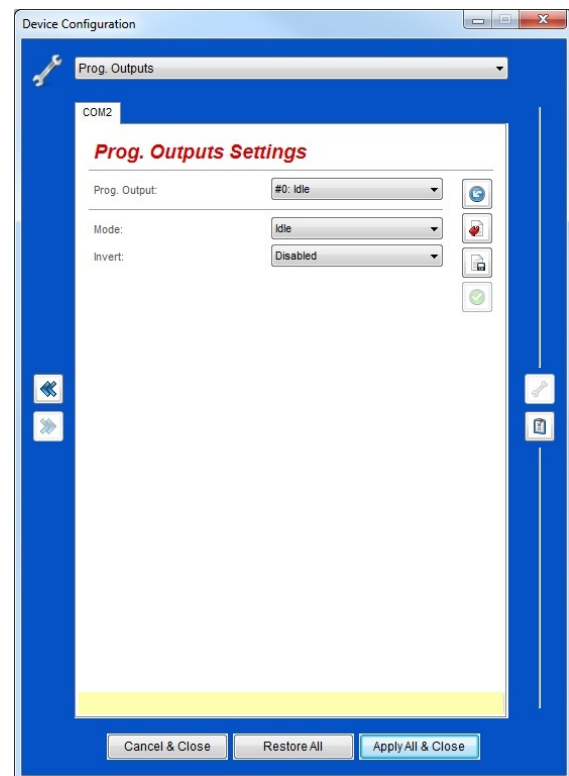
Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to reset all changes back to the current device configuration.



Prog. Outputs

In the "Prog. Outputs", all settings for programmable output interfaces can be made. After selecting an output in the upper selection box ("Prog. Output"), one of the available modes (e.g., Pulse Per Second, DCLS Timecode, Synthesizer Frequency, etc.) can be selected for the corresponding output. Depending on the selected mode, further settings such as, for example, pulse length or signal inversion can be made.

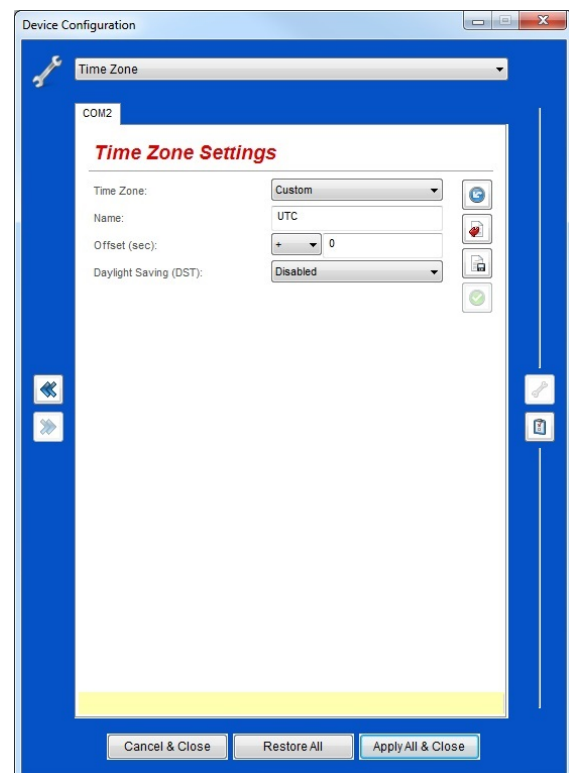
Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to reset all changes back to the current device configuration.



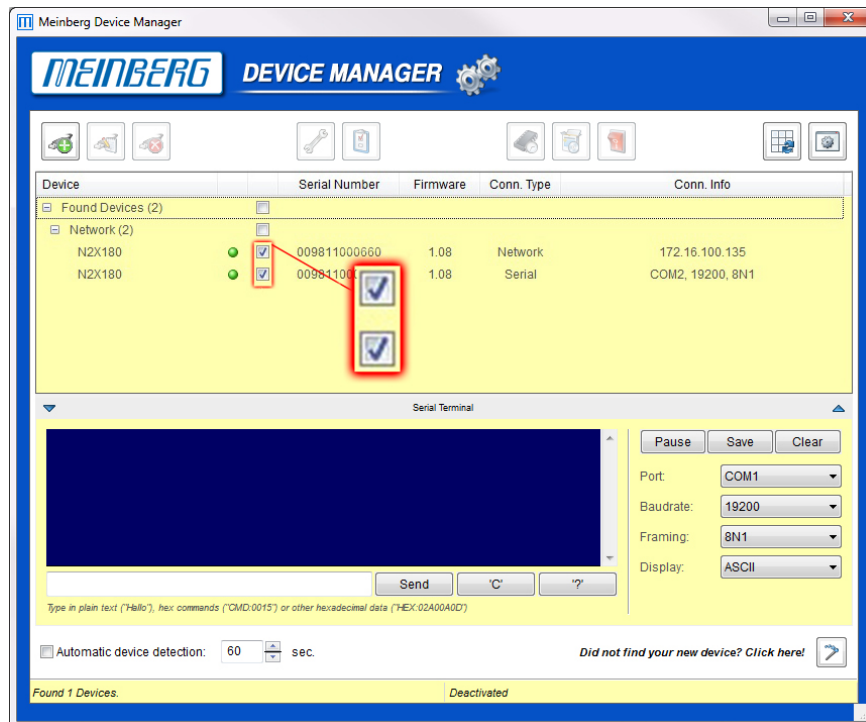
Time Zone

In the "Time Zone" area, settings can be made for the time zone which is to be used. If a different time zone other than the preset time UTC, CET / CEST or EET / EEST has to be set, a summer / winter time changeover and associated offsets and changeover data can be configured.

Please note that changes made in the settings can only be applied by clicking the "Apply Configuration" button. Use the "Restore Configuration" button to reset all changes back to the current device configuration.

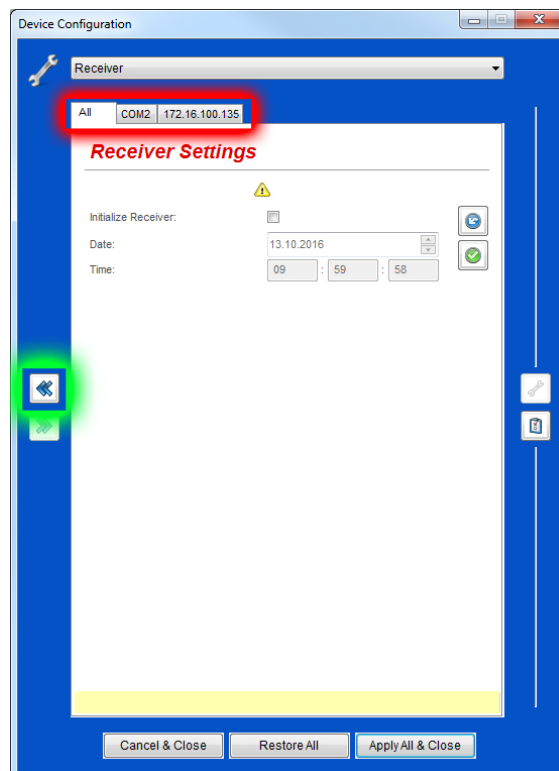


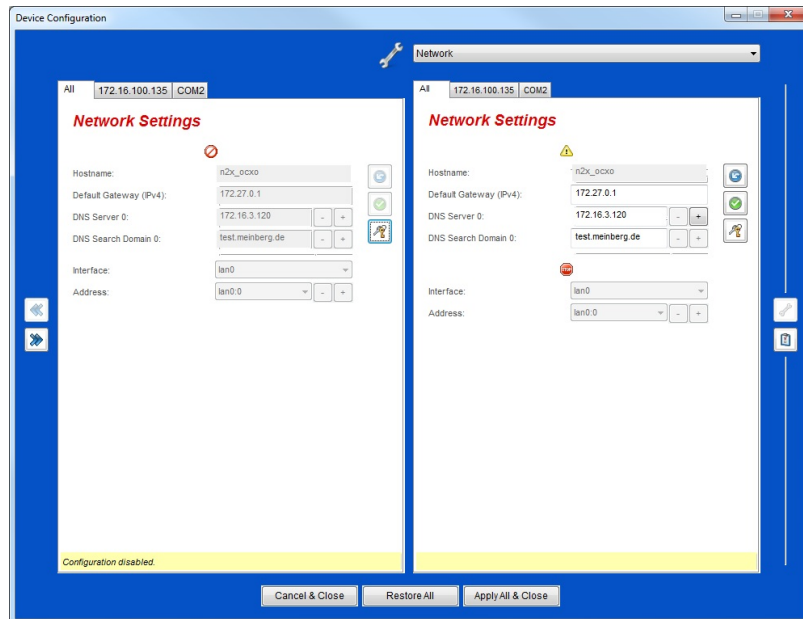
4.5.3 Configuration of Several Modules



By selecting several modules in the device list (several check marks, see graphic), several tabs will be displayed in the configuration window (highlighted in red). Devices with the same or similar features can be configured in parallel (via the "All" tab), which in some cases can save configuration effort, for example if several devices are to be synchronized to the same PTP Unicast Master or NTP servers.

Click the Add Configuration Panel button (Green arrow) and another configuration panel is displayed. However, no settings can be made on this panel. It merely serves to compare the configuration parameters of two devices.



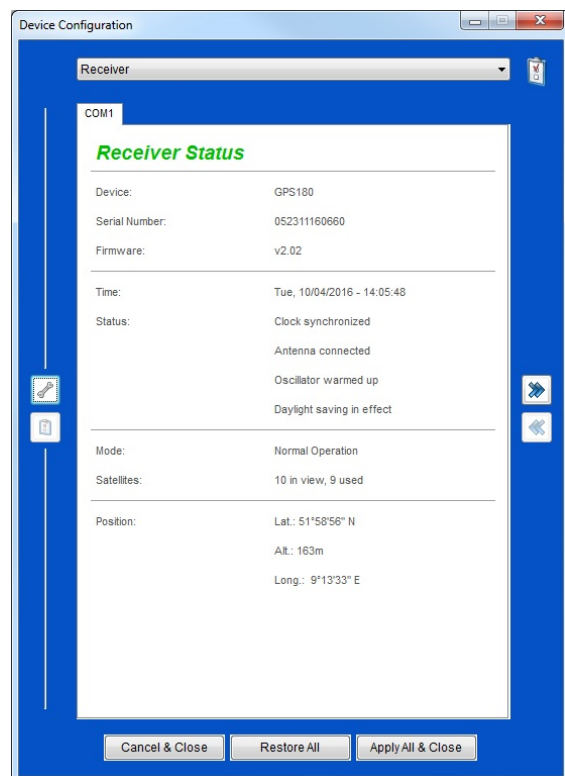


View after pressing the Add Configuration Panel button

4.6 Show Device Status

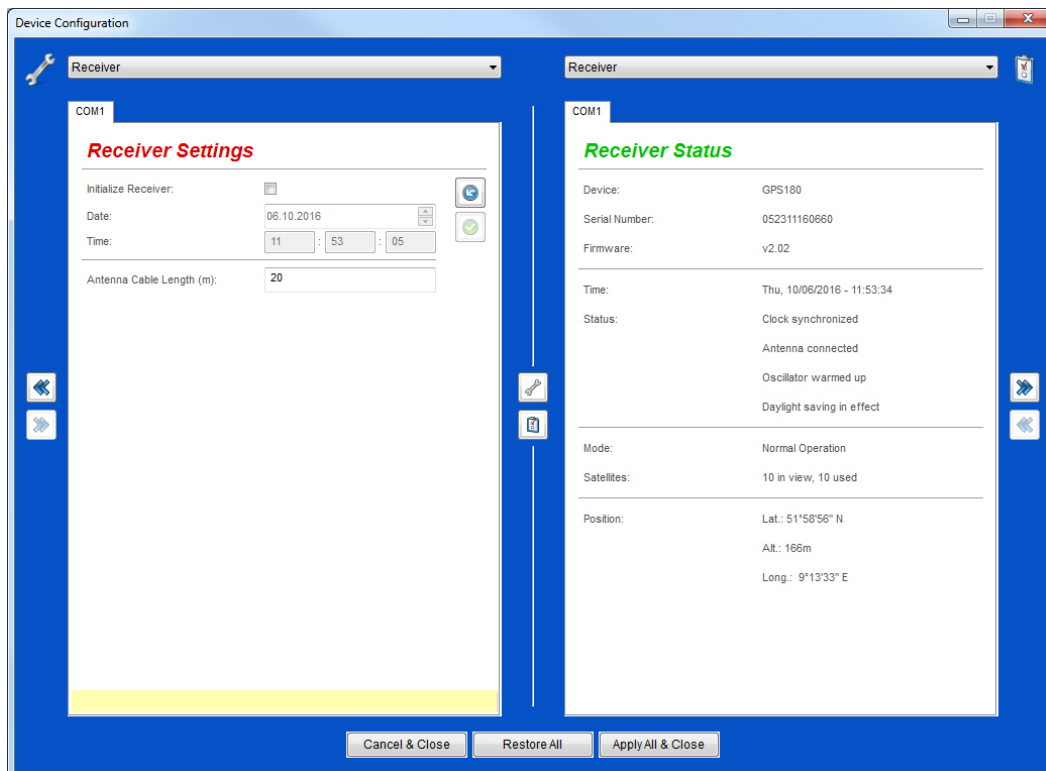
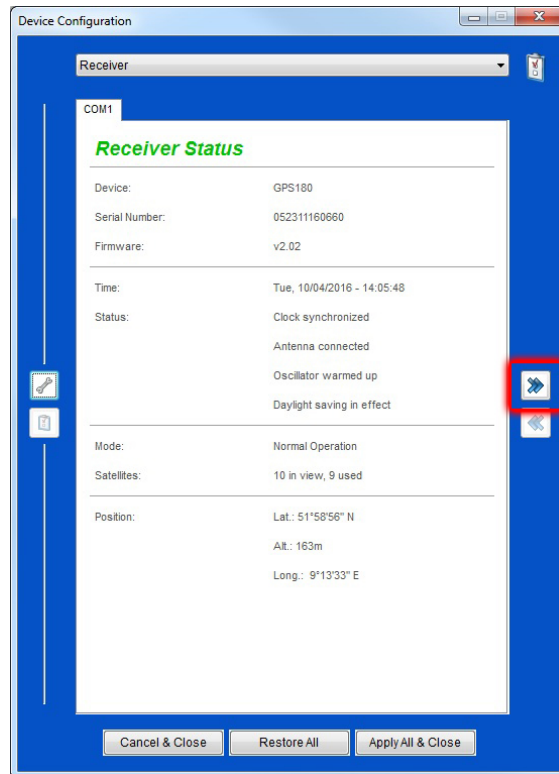


After activating (check mark) single or several modules, a status window can be opened by clicking on the **ShowDevice(s)** button, which can be used to monitor the selected module(s). Similar to the configuration window, the feature which has to be monitored can be selected via a selection box at the top of the window.



By clicking on the button "Add Status Panel" (red arrow), a further status panel is displayed, just like in the configuration mode.

This function is only available if several components have been selected, because its function is to compare status variables of several devices.

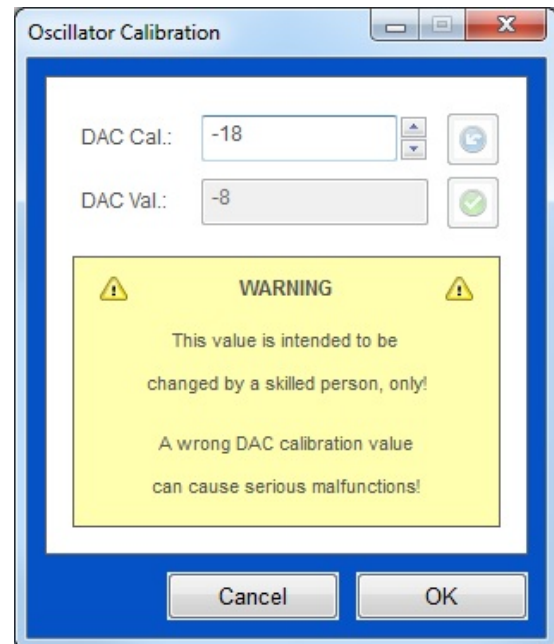


By clicking on the "Show / Hide Configuration" button (wrench), the status window is extended by the configuration mode of the selected component(s). This allows configuration and status to be changed and monitored at the same time, as well as the impact of any configuration changes made directly after the application in the status window.

4.7 Calibrate Oscillator



By clicking on the button Calibrate Oscillator, the so-called DAC value of the oscillator of a component can be changed. It is used to calibrate the oscillator frequency and should only be changed under instructions of a Meinberg employee. A wrong DAC value can cause your Meinberg Component to no longer work properly.



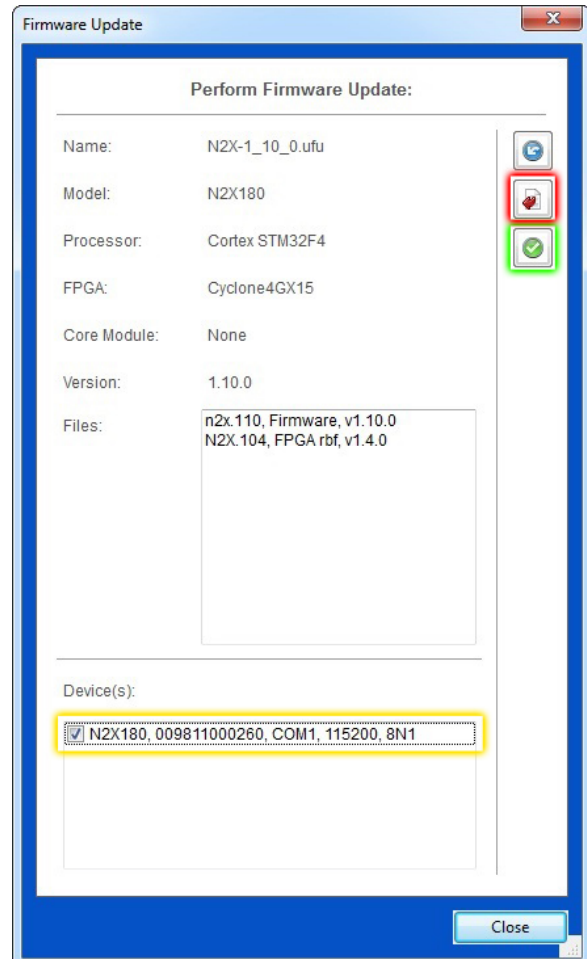
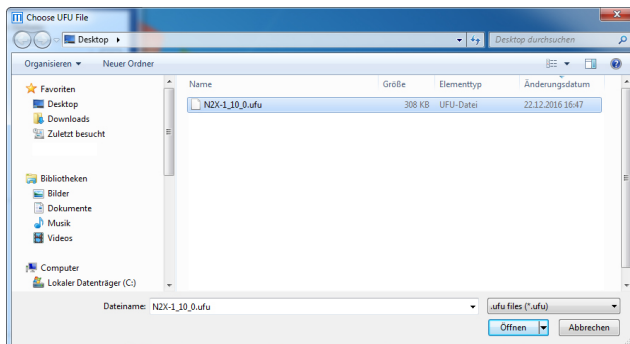
4.8 Firmware Update



By clicking on the button „Firmware Update“ the user can update the software of **individually** selected components via a serial connection. To perform an update, you must first select the **red** marked button "Load File", to load a specified update file. This done, the specified update file will be displayed in the new window "Files".

In the bottom section „Device(s)“ of the update window, which is highlighted in **yellow**, you are able to select or deselect (check mark set /or not set) several components for a software update. This feature allows you to update several systems at the same time.

After having selected a suitable update file and systems, you have to confirm the flash procedure with the **green** marked button „Perform Update“. After a successful update, the notification "Update successfully installed on X device(s)" will appear. Subsequently, a reboot is initialized. At the same time, the program will try to automatically reestablish a connection.



4.9 Reboot Device

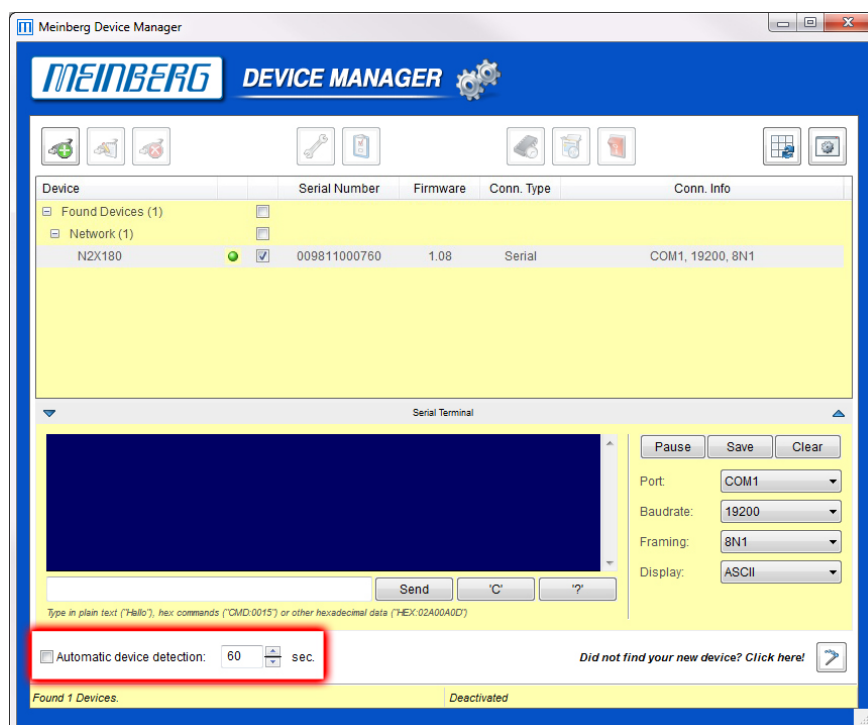


By clicking on the button Reboot Device, individually selected components can be restarted. After restarting, the program tries to restore the connection automatically.

4.10 Search Device



By clicking the button Search Devices, all serial interfaces as well as the network will be scanned for available Meinberg components. Found components are displayed in the device list and can then be configured or monitored.

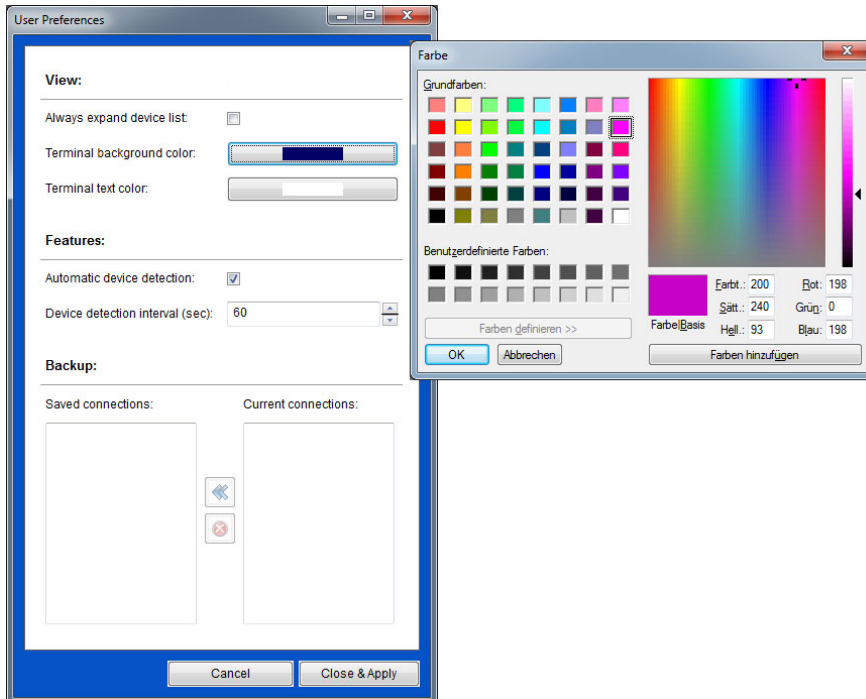


In the lower area of the main window, the user can also enable / disable a self-repetitive search function. When the program is started, it is activated and repeated every 60 seconds. If this feature is disabled, no newly connected devices will be detected automatically, and the status of devices that are no longer connected will not be updated any more.

4.11 User Preferences



The User Preferences menu allows user-specific settings for the mbgdevman software. These settings are retained even after closing the program. Once the settings are made, they cannot be overwritten by a software update.



The following settings can be made in the window "User Preferences":

View:

Always expand device list:	If this field is selected, the list of detected devices is always fully displayed.
Terminal background color:	The background color of the terminal window
Terminal text color:	The text color of the terminal window

Features:

Automatic device detection:	If active, the mbgdevman automatically searches for devices (depending on the entered interval)
Device detection interval:	The interval (seconds) can be set here

Backup:

From the "Current connections" field, all recognized connections can be transferred into the "Saved connections" field. These connections are saved and displayed immediately at the next program start. The access passwords for these devices are stored encrypted. This ensures that all stored connections are available immediately at the next program start. If other devices should not be detected, the automatic device detection can be deactivated.