USER GUIDE MANUAL

MOBA-NMS

Network management system
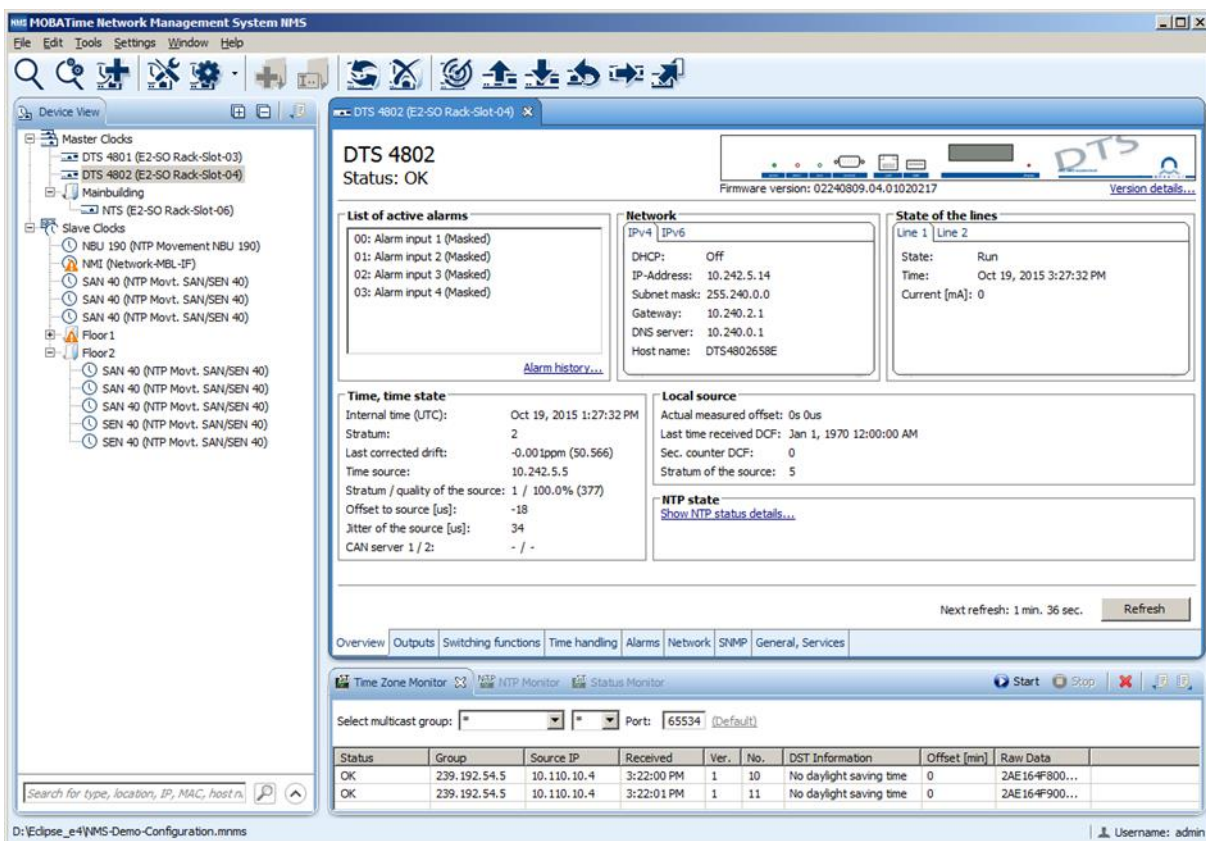
Table of contents

1   What is MOBA-NMS?

MOBA-NMS is a **N**etwork **M**anagement **S**ystem used to administer and manage MOBATIME network devices. It is designed to handle multiple devices (more than 1000 per network / configuration) of different types at the same time.

 Some key functions are:

- Automatic device detection
- Logical device groups
- Device status / alarm display
- Sending of device commands
- Multicast, broadcast and unicast communication
- Network monitoring
- Integrated user management
- etc.

With this application you have the full control over all MOBATIME devices in your network!

2   Editions

Since there are different types of network configurations of MOBATIME devices, not each customer needs the same set of functionality in his MOBA-NMS installation. Therefore there are these editions of NMS:

2.1   NMS Basic Edition

The **Basic Edition** of MOBA-NMS supports the following features:

- Find single devices with the integrated auto search
- Configure a single device at the same time
- Send commands to a device
- Switch Editor Basic
- Edit the timezone table of devices
- Update the firmware of a device

2.2   NMS Pro Edition

The **Pro Edition** of MOBA-NMS supports, additionally to the features of the Basic Edition, the following features:

- Manage and configure multiple devices at the same time
- Monitor timezones, firmware updates and network time packages
- Send commands to multiple devices
- Create multiple user profiles for users with different permissions
- See the alarm state for multiple devices at a glance
- Order devices in folder groups

2.3   NMS Expert Edition

The **Expert Edition** of MOBA-NMS supports, additionally to the features of the Pro Edition, the following features:

- Monitor the status (e.g. alarms, warnings) of devices with the MOBA-Device Supervision Service (DSS)

3 License management

3.1 Activate a License

To use MOBA-NMS, you need to activate your installation with a valid license key. You will get your license key by email or in the MOBA-NMS Webportal.

3.1.1 First start

At the first start, MOBA-NMS asks to open the license manager because there is no valid license. Click "Yes" to open the license manager in order to activate your license. When you don't open the license manager MOBA-NMS will close itself since you cannot use it without a valid license.

After you opened the license manager, continue with the section "Entering the license".

3.1.2 Open the license manager

In order to open the license manager when a valid license is already imported select *Settings* from the menu bar at the top of the program and then click *License Manager*.

3.1.3 Entering the license

To enter your license key, please click on *Activate NMS*. This will open a dialog similar to this one:
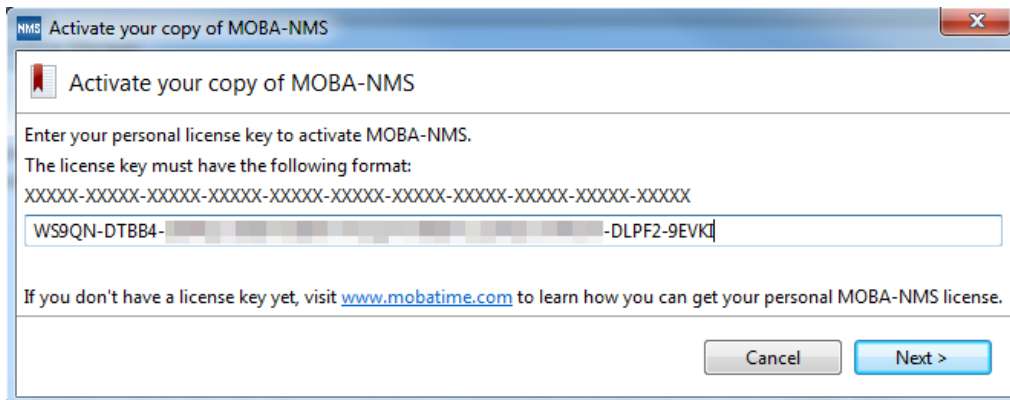
Copy your license key from the email or the MOBA-NMS Webportal, paste it into the input field and continue by clicking *Next*. You may have to wait a couple of seconds while the license is being checked before the *Next* button gets clickable.

3.1.4 Activating the license

As you click *Next* in the previous dialog, another dialog will open up. Please choose if you would like to activate your installation online over the internet or offline with the MOBA-NMS Webportal.
To activate MOBA-NMS automatically, select *Activate offline* and click *Next* Then click *Activate* in the next dialog to complete the activation of your license.

You can find more information about the offline activation in the section "Manage licenses when offline".

A license key can only be used on one system simultaneously. If you need to activate more computers, please contact your reseller to aquire additional license keys. If you would like to move an activated license to another computer, please refer to the section "Move a license to another system".

3.1.5 System Binding

As you activate MOBA-NMS with your license, it will bind the license to your computer. If you move the application or change your hardware, the binding may get lost. In this case, you should try to

activate the license again, and if this fails, contact support. If the current binding is invalid a corresponding message is displayed when opening the application.

3.2 Move a license to another system

Since a license is only usable on one system simultaneously, you may want to deactivate the license on your system and move it to another system.
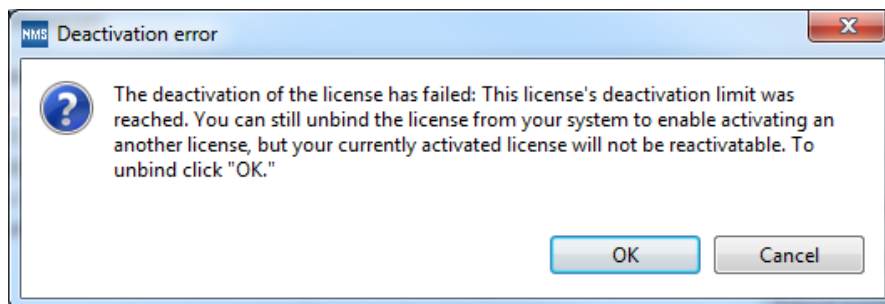
3.2.1 Deactivate license

Important: We recommend to write down your license id before deactivating your license so you can find the license key easier afterwards. The license id is displayed in your license manager main window.

As a first step to move your license to another system, you'll need to deactivate your license. In order to do that, open the license manager and click *Deactivate MOBA-NMS*. You can now select if you would like to deactivate your license online or offline. Please refer to the section "Activate a License" to get more information about online and offline actions since activation and deactivation works in a similar way.

A license can only be deactivated three times, this means that license deactivation is deactivated afterwards. If you try to deactivate a license more then three times, you are going to be asked if you just want to remove the license from your system since it is not deactivatable anymore. If you do so, the license is removed (but not deactivated) from your system and you can activate another license on this system.

3.2.2 Activate license on another system

Follow the instructions in the "Activate a License" chapter of this manual to activate the now deactivated license on another system. If you don't know your license key anymore, log in to your MOBA-NMS Webportal account and search for your previously written down license id, which will lead you to your license key.

3.3 Manage licenses when offline

Sometimes, when your computer does not have an internet connection, you will need to activate your license with the offline activation in the MOBA-NMS Webportal.

3.3.1 Activate license offline

Proceed according to the "Activate a License" chapter until you see the dialog where you can select between *Activate online* and *Activate offline*. Select *Activate offline* and click on *Next*. You will now see two input fields, one of them filled with an activation code:
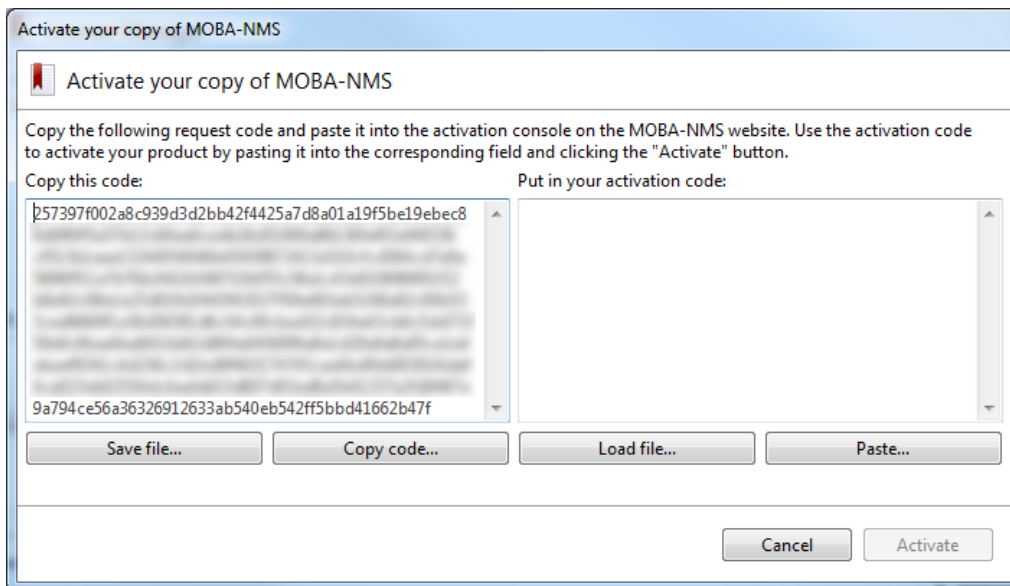
Save this code to a file by clicking on *Save file...* and transfer it to a computer with internet access (e.g. with an USB stick). Then log in to your MOBA-NMS Webportal account and navigate to *Offline action–>Offline activation*. You can now upload your previously created activation code file, which will download another file to your computer. Transfer this downloaded file back to your computer with no internet access (the computer you want to activate MOBA-NMS on). Load the downloaded file into the second input field by clicking the *Load file...* button. Afterwards, press *Activate* to activate the license.

> ⚠️ The activation code which is generated by MOBA-NMS is unique for each computer. This means that you must create the activation code on the same system which you want to activate MOBA-NMS afterwards (i.e. you cannot use the same activation code to activate two different installations of MOBA-NMS).

3.3.2 Deactivate license offline

Deactivating your software when offline works almost the same way as activating it offline.

First, proceed according to the "Deactivate license" section in the "Move to another system" chapter until you see the dialog where you can select between *Deactivate online* and *Deactivate offline*. Select *Deactivate offline*, click *Deactivate* and confirm the deactivation of your software.

You can now see a deactivation code, similar to the activation code above. Save this code to a file by clicking the *Save file...* and transfer it to a computer with internet connection. Log in to your MOBA-NMS Webportal account and navigate to *Offline action–>Offline activation*.

Then, just load your deactivation code from the tranferred file and upload it.
Your license is now deactivated.

4 Views

4.1 NMS Basic Main Window

The application main window of the basic edition consists of three parts:

1. Menu / Toolbar
2. Properties / Configuration View
3. Additional Views
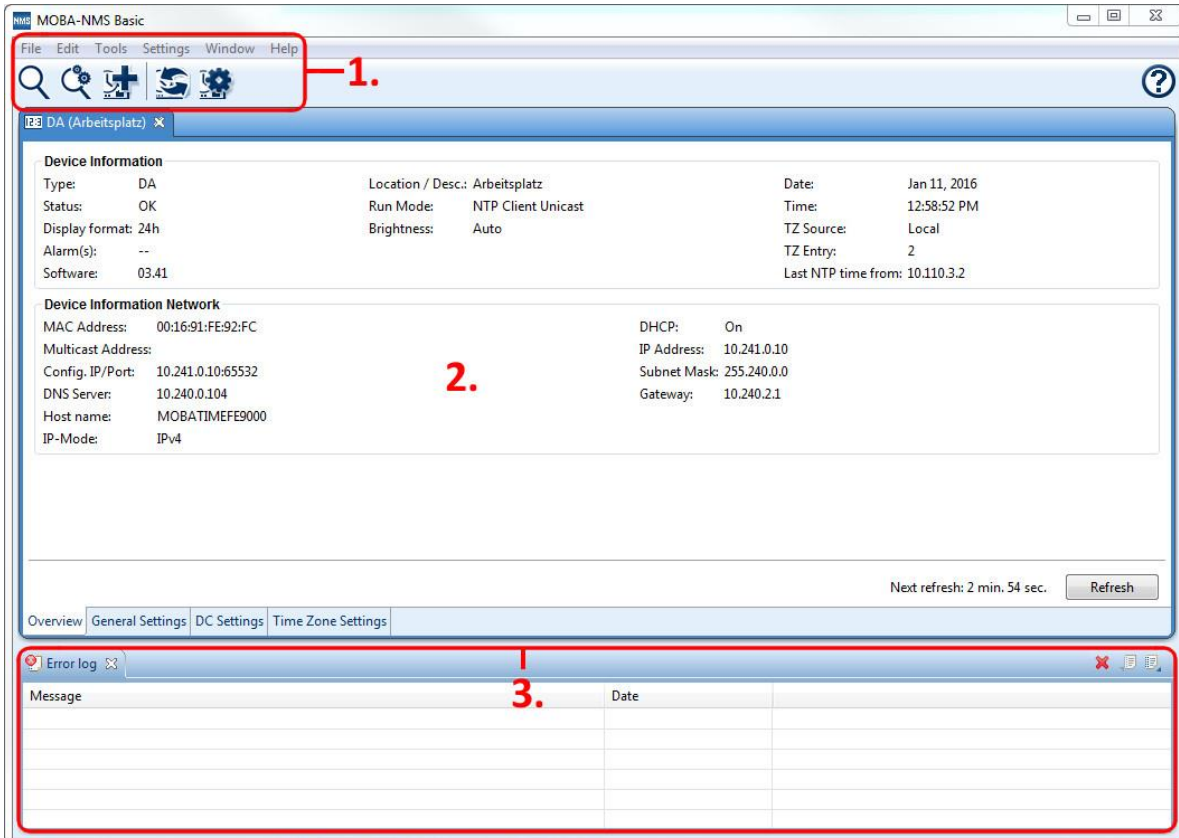
4.1.1 Menu / Toolbar (1)

All functionalities provided by MOBA-NMS Basic are accessible over the menu or toolbar. Some functions are not available as long there is no device opened.

4.1.2 Properties / Configuration View (2)

The properties view is described in the help topic *4.2.3 Properties / Configuration View (3)*.

4.1.3 Additional Views (3)

This part of the application can contain additional features like error monitors this are monitoring and error log views at the moment.

4.2 NMS Pro Main Window

The application main window consists of four parts:

1. **Menu / Toolbar**
2. **Device View**
3. **Properties / Configuration View**
4. **Additional Views**

4.2.1 Menu / Toolbar (1)

All functionalities provided by MOBA-NMS are accessible over the menu or toolbar. Based on the current selection in the device view, some functions are disabled. For example, if no device is selected the menu entry *Edit -> Open device Configuration* is not available.

4.2.2 Device View (2)

The Device View is the main part for managing MOBATIME network devices. Here you have the possibility to add supported network devices, group them to logical units, save the created configuration to file, load existing files, open device configuration or send device commands.
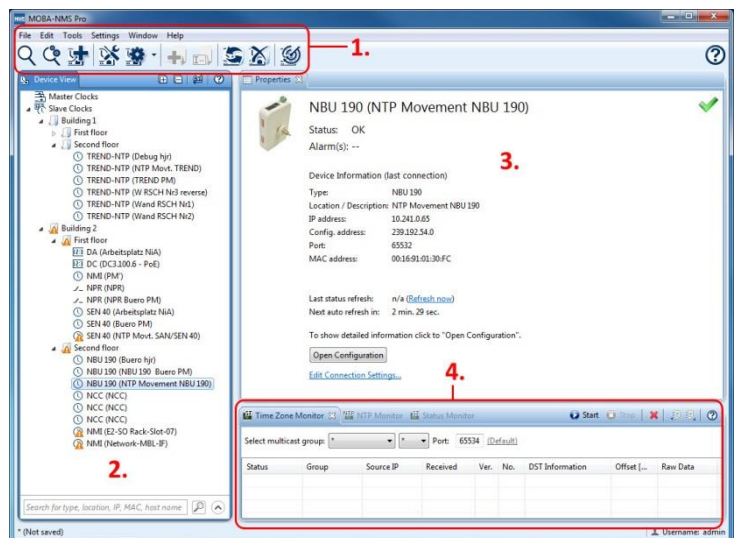

In this view, the key functions are also available over the right click context menu. (The same functions those are available over the menu or toolbar.)
By selecting one device, the property view shows an overview page with the device configuration and status.

4.2.2.1 Device Groups

Device groups are used to arrange the devices to logical units, so that the configuration represents the real infrastructure.

4.2.2.2 Group settings

Each group can hold default settings that are used for all contained devices and child groups. Currently there can be set the default device username / password and the domain name. These settings are used for all devices that don't have own values defined.
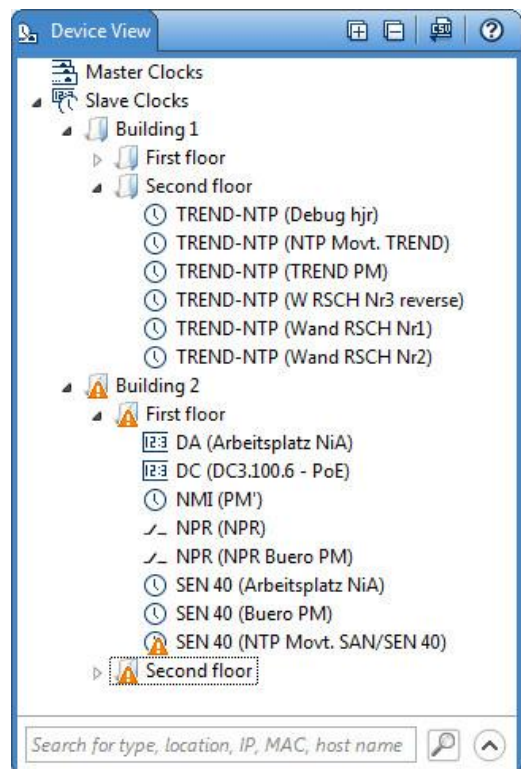
Example: If a device requires the username and password, but there is no authentication information saved in the password manager, the default values defined by the group settings will be used.

To open the settings dialog, select the menu entry *Edit -> Group Settings...*
Groups with changed settings are marked with the following icon:

Device username and password are stored in the password manager and not in the configuration file (*.mnms)!

4.2.2.3 Error and Alarm icons

Devices and groups with errors and/or alarms automatically have a corresponding icon:

🚫 Device (here movement) with error(s)
⚠ Device (here movement) with alarm(s)

🚫 Group containing device(s) with error(s)
⚠ Group containing device(s) with alarm(s)
⚠🚫 Group containing device(s) with error(s) and alarm(s)

4.2.3 Properties / Configuration View (3)

This view shows the information about the current selected entry in the device view. If a device is selected, an overview page with configuration and status information is shown. If a group is selected, the page shows an overview over all contained devices.

By clicking on the **Open Configuration** button, the Properties View gets replaced with the Configuration View that shows detailed device information and provides controls to change the configuration. (**Note:** Not all devices have the same configuration values. For this reason, the configuration view can have different content based on the device type and version.)

4.2.4 Additional Views (4)

This part of the application contains multiple views with additional functionalities. These are monitoring and error log views at the moment.

5 Frequently used functions

5.1 Scan for devices

To configure MOBATIME devices you will need to perform a network search for these devices. To do so, you can either use the device auto scan (recommended), the scan device wizard or the manual device configuration.

5.1.1 Device auto scan

The easiest way to find MOBATIME network devices is to use the device auto scan. The device auto scan is the recommended way to search devices. If you have to configure further settings of the search, refer to the next section of this help page.

1. To start the wizard click the **Auto Scan For Devices** (🔍) button or the menu entry *Edit -> Auto Scan For Devices.* You should now see the device auto scan window.

2. Start the search for devices by clicking the "Start scan" button on the left side of the window. It will take some time until the search has finished.

3. If you are using the **pro edition**, you can now add these devices to the device view. Refer to "Add device(s) to Device View" to learn more.

   If you are using the **basic edition**, you can select one of those devices to open its configuration screen.

5.1.2 Scan device wizard

The scan device wizard basically works like the device auto scanner, but allows more configuration: Before you search for devices, you can set the mode of communication and which type of devices should be found.

- **Multicast:** Supported by most MOBATIME end devices (clocks) but not by the servers. Important: Multicast communication has to be enabled in your network! For more information contact your network administrator.
- **Multicast IPv6:** See **Multicast**, but IPv6 instead of IPv4 is used for communication. Important: A valid IPv6 configuration is required. For more information contact your network administrator.
- **Broadcast:** Supported only by newer devices for initial network configuration. For IPv6 networks, a link-local search can be performed via the address ff02::1. To do that, select the corresponding check box and configure the local IPv6 interface in the application preferences.
- **Unicast:** Supported only by newer devices running in Unicast mode.
- **Unicast IPv6:** See **Unicast**, but IPv6 instead of IPv4 is used for communication. Important: A valid IPv6 configuration is required. For more information contact your network administrator.
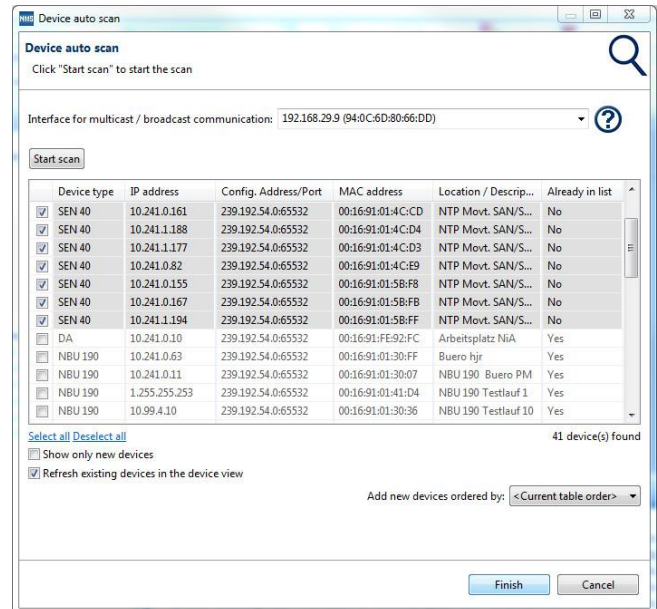
5.1.3 Add device manually

If you have only one device and know all needed information like MAC or IP address, there is also a wizard which helps you to find it manually.

1. To start the wizard click the **Add device** ( ) button or the menu entry *Edit -> Add Device.*
2. Choose the device type you have.
3. On the next page you can either select multicast or unicast communication.
    o **Multicast communication:** Select the multicast group and enter the device MAC address. Important: Multicast communication has to be enabled in your network! For more information contact your network administrator.
    o **Unicast communication:** Enter the device IP address.

Not all devices supports all communication modes. Unsupported modes are disabled!

5.2 Add Device(s) to Device View

If you are using the Pro edition of MOBA-NMS, you can use the device view. This is a list of managed devices which is used to give the user an easy access to his devices.

You can scan for devices by following the steps of the "Scan for devices" chapter.

By default, all new devices shown in the table are marked to be added to the device view. Unmark those ones you want to be ignored.

Already known devices are grayed out. However, you can mark them and activate the check box **Refresh existing devices in the device view** to refresh / update the devices connection information.

Select how the new devices should be sorted in the device view and click the **Finish** button to close the wizard. All selected devices are now available in the corresponding predefined root group. (Based on the device type. For example **Movements** or **Master Clocks**.)

5.3 Change Device Configuration

To open the device configuration view which allows you to edit the device settings, either click to the **Open Device Configuration** ( ) button, select the menu entry *Edit -> Open Device Configuration,* double-click to the device in the device view or click to the **Open Configuration** button in the properties view.

Example of the NBU 190 movement
General Settings *tab*

The configuration view usually consists of multiple tabs. The **Overview** tab shows the key configuration values and is read only. Further tabs like **General Settings** depends on the device type and allow you to change device specific settings.

After changing the configuration click to the **Save** button to send the new values to the device. After a short wait for the device restart a message box will appear to inform you if the configuration was sent successfully or not.
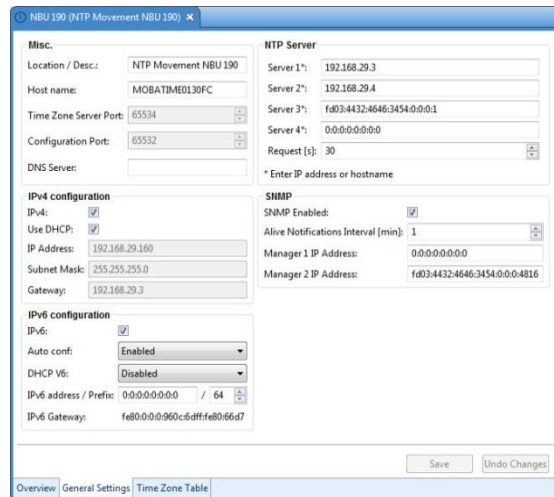
> If you change the device network settings like IP address, subnet mask, etc. to an address that is not reachable by MOBA-NMS, the connection to the device will be lost!

5.4   Send Device Commands

Most of MOBATIME devices support device commands like the **12:00 Position** command for network movements. To send such commands, use either the right click context menu in the device view, click to the **Device Commands** (⚙) button or select the menu entry *Edit -> Commands*. In each case, a new sub-menu with all available commands (for the current selection) will appear. Click to the desired entry and wait for the status dialog to see if the command was send successfully to the device.

Note: Not all devices have the same commands! The sub-menu shows only commands supported by all selected device types.

5.4.1   Group commands

You also have the possibility to send commands to a group of devices. This is done the same way as sending only one command but with multiple devices or device groups selected. Note that the sub-menu will only show commands supported by all selected device types. (If you have different device types in one group only commands supported by all devices will be available.)
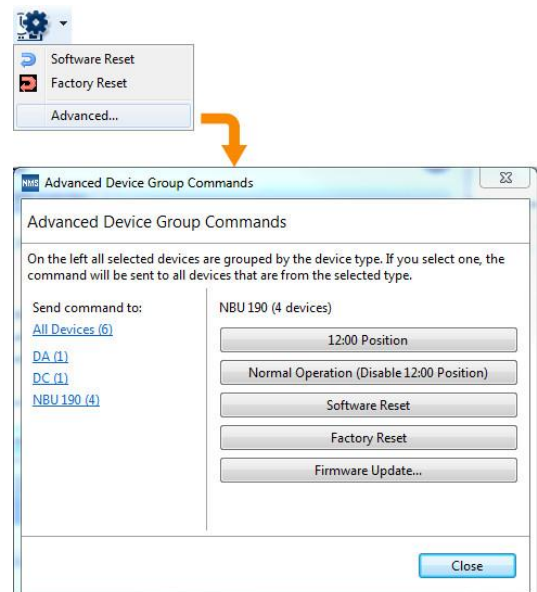
5.4.2   Advanced group commands

If you want to send a specific command (that is supported by only one device type) to a group containing different types, the command will not be available in the sub-menu. In this case, the **Advanced Device Group Commands** dialog can be used. In this dialog you have the possibility to send group commands to all devices that are from the same type. To open the dialog, click to the **Advanced...** command sub-menu entry that is shown if multiple devices or a device group is selected.

The dialog shows all device types at the left. Select the type you want and all available type specific commands will be shown at the right.

5.5   Manage Devices

Devices shown in the device view can be sorted and grouped to logical groups for easier management.

5.5.1   Create device group

Click on the **Create new group** (🔘) button or select the menu entry *Edit -> New Group* and enter the name to create a new logical device group.

Note: New groups can only be created if an already existing group is selected. If no group was created before, select a predefined root group. (For example **Movements** or **Master Clocks**.)

5.5.2   Move and sort devices / groups

Devices and groups can be moved and sorted by Drag and Drop. To do this, select one or more devices or groups and drag them to the destination group at the desired position. Please note that entries can only be moved within the same predefined root group. (For example, it's not possible to move a movement device or group into a group of master clocks, or vice versa.)
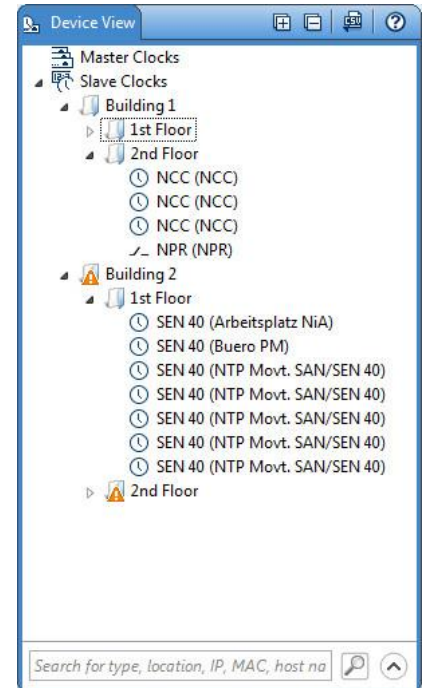
5.6   Save / Load Configuration

The content of the device view can be saved to a configuration file and loaded again later. For this, the menu entries *File -> Save Configuration* and *File -> Load Configuration* are available.

5.6.1   Status refresh after load

After loading a configuration from file, MOBA-NMS can update the status / alarm information of all loaded devices automatically. It's recommended to run the update after each load to keep the device view synchronized with the devices.
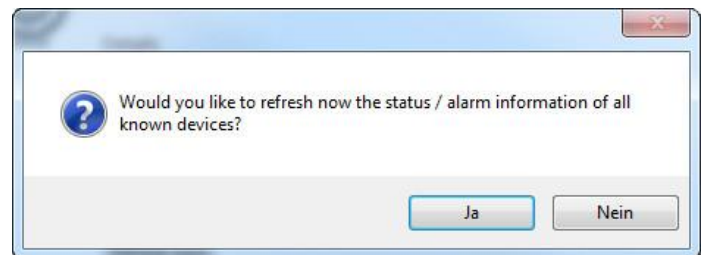
By default, a dialog (see image) will appear that let you decide if the update should be run or not. If the *Don't show again* checkbox is set, your answer will be saved for future loads. (This behavior can be changed in the application preferences.)

5.7   Status / Alarm Refresh

The device view is a static list / tree that hold only some basic information (like status, alarms, MAC, IP address, etc.) for each device. If the configuration was loaded from a file or not refreshed for a longer time the status / alarm information don't represent the real device state.

To refresh the information select one or more devices (or device groups) and click to the **Refresh** (🔘) button or select the menu entry *Edit -> Refresh Device Status / Alarm*. If you select a group that contains subgroups, the devices of all sub groups will be updated as well (Recursive).

Note: The status / alarm information is updated automatically if you open the device configuration by double-click to the device or click to the **Open Configuration** button in the properties view.

5.8   Update Device Firmware

To update the firmware of one or more devices (with the same type) click to the **Firmware Update...** command that is shown in the command sub-menu.

In the **Device Update** dialog, select the new firmware file and click to the **OK** button. The update will start immediately.

MOBA-NMS starts an internal TFTP-Server (with default port 69) from which the device(s) can download the new firmware. Make sure that no firewall blocks the used port!

Don't close MOBA-NMS while a firmware update is running!
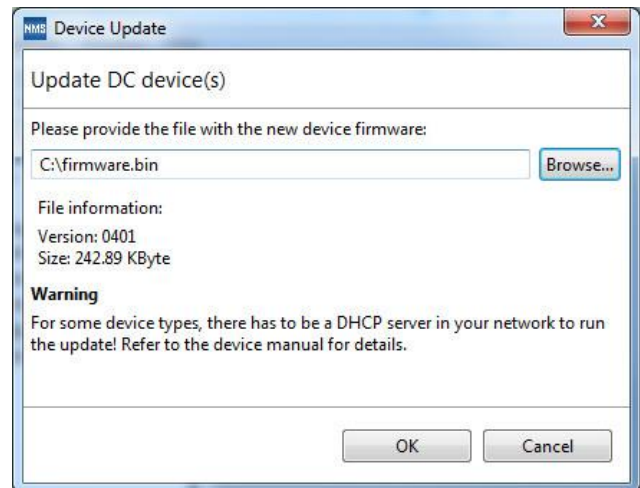
5.9   Edit Connection Settings

If the network configuration of a device, that is loaded in the device view, is changed outside MOBA-NMS (e.g. by DHCP server, telnet, DIP-Switches, etc.), the connection to the device gets lost. In this case, you can either delete the device from the device view and add it again or change the connection settings manually.

To change the settings manually, open the connection settings dialog by selecting the menu entry *Edit -> Edit Connection Settings...* or clicking to the corresponding entry in the right click context menu ( ).

The connection settings dialog is the same as used to add a device manually to the device view.
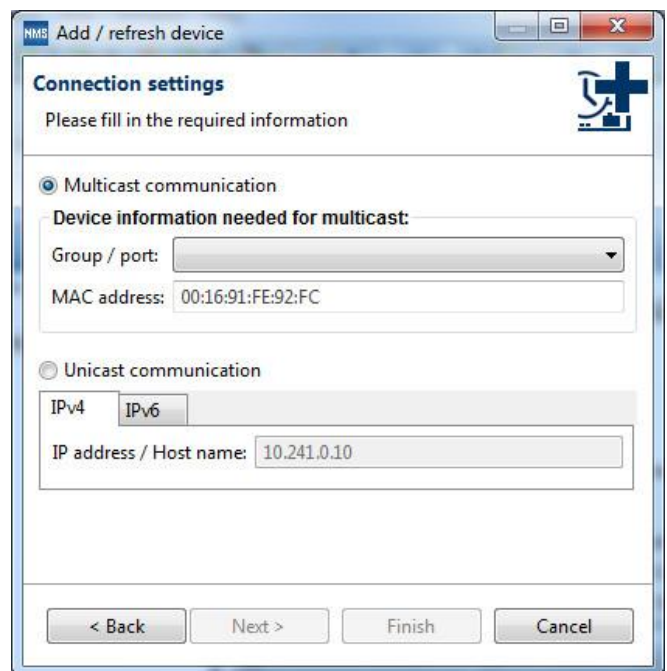
6 Monitoring

6.1 NTP Monitor

The NTP monitor records all NTP packets received on one or more multicast groups. (Packets sent out by a master clock like the MOBATIME DTS.)

⚠ Make sure that no other application is listening to the default NTP port 123!

Status	Group	Source IP	Received (PC time)	Transmitted (Server UTC)	Ver.	Strat...	Ref.	Raw Data
OK	239.192.54.14	10.0.0.22	Dec 10, 2015 15:03:35.238	Dec 10, 2015 14:03:35.388	4	2	af001fe	250203EC...
OK	239.192.54.14	10.241.0.8	Dec 10, 2015 15:03:35.634	Dec 10, 2015 14:03:35.784	4	2	af10005	250200EC...
OK	239.192.54.3	172.16.31.111	Dec 10, 2015 15:03:35.876	Dec 10, 2015 14:03:35.175	4	0	⃞⃞⃞ ᴸ	250003EC...
OK	239.192.54.3	10.241.0.75	Dec 10, 2015 15:03:36.138	Dec 10, 2015 14:03:36.288	4	1	DTS	250101EC...
OK	239.192.54.6	10.110.10.3	Dec 10, 2015 15:03:36.496	Dec 10, 2015 14:03:36.890	4	1	GPS	250102F0...
OK	239.192.54.8	10.110.3.1	Dec 10, 2015 15:03:37.245	Dec 10, 2015 14:03:37.396	4	1	DTS	250102EC...
OK	239.192.54.1	10.110.10.11	Dec 10, 2015 15:03:38.261	Dec 10, 2015 14:03:38.411	4	2	a6e0a...	250204F1...
OK	239.192.54.14	10.241.0.8	Dec 10, 2015 15:03:38.634	Dec 10, 2015 14:03:38.784	4	2	af10005	250200EC...
OK	239.192.54.15	10.240.10.84	Dec 10, 2015 15:03:38.742	Dec 10, 2015 14:03:38.884	3	4	76.79....	1D040600...
OK	239.192.54.14	10.241.0.8	Dec 10, 2015 15:03:39.634	Dec 10, 2015 14:03:39.784	4	2	af10005	250200EC...
OK	239.192.54.3	10.242.3.6	Dec 10, 2015 15:03:39.904	Dec 10, 2015 14:03:40.54	4	2	a6e03...	250203EC...
OK	239.192.54.3	10.241.0.75	Dec 10, 2015 15:03:40.138	Dec 10, 2015 14:03:40.288	4	1	DTS	250101EC...
OK	239.192.54.8	10.110.3.1	Dec 10, 2015 15:03:40.246	Dec 10, 2015 14:03:40.396	4	1	DTS	250102EC...

Select multicast group: [*] [*] Port: [123] (Default) Monitoring 30 groups (port 123)...

For each recorded packet the following information is available:

Status:	OK if the packet was read correct, otherwise error description.
Group:	The multicast group
Source IP:	IP of the NTP server
Received (PC time):	The receive time of the packet (PC clock)
Transmitted (Server time):	The server transmit time (read-out from the packet)
Ver.:	NTP packet version
Stratum:	The stratum level
Ref.:	Server reference clock (e.g. GPC, DCF77, ...)
Raw Data:	The received raw data

6.2 Time Zone Monitor

The time zone monitor records all MOBATIME Time Zone Packets received on one or more multicast groups. (Packets sent out by a master clock like the MOBATIME DTS.) One time zone packet contains information like the local offset, daylight saving time, etc.

Status	Group	Source IP	Received	Ver.	No.	DST Information	Offset [...	Raw Data
OK	239.192.54.14	10.241.0.8	3:14:00 PM	10	1	No daylight saving time	0	2B25FF29000...
OK	239.192.54.8	10.110.3.1	3:14:01 PM	7	4	No daylight saving time	330	2B25FF26000...
OK	239.192.54.14	10.0.0.22	3:14:01 PM	256	4	No daylight saving time	0	2B25FF26000...
OK	239.192.54.14	10.241.0.8	3:14:02 PM	10	2	Estimated date	60	2B25FF29000...
OK	239.192.54.14	10.0.0.22	3:14:02 PM	256	5	No daylight saving time	0	2B25FF26000...
OK	239.192.54.14	10.0.0.22	3:14:03 PM	256	6	No daylight saving time	0	2B25FF26000...
OK	239.192.54.14	10.0.0.22	3:14:04 PM	256	7	No daylight saving time	0	2B25FF26000...
OK	239.192.54.14	10.0.0.22	3:14:05 PM	256	8	No daylight saving time	0	2B25FF26000...
OK	239.192.54.14	10.0.0.22	3:14:06 PM	256	9	No daylight saving time	0	2B25FF26000...
OK	239.192.54.14	10.0.0.22	3:14:07 PM	256	10	No daylight saving time	0	2B25FF26000...
OK	239.192.54.14	10.0.0.22	3:14:08 PM	256	11	No daylight saving time	0	2B25FF26000...
OK	239.192.54.14	10.0.0.22	3:14:09 PM	256	12	No daylight saving time	0	2B25FF26000...
OK	239.192.54.14	10.0.0.22	3:14:10 PM	256	13	No daylight saving time	0	2B25FF26000...

For each recorded packet the following information is available:

Status: OK if the packet was read correct, otherwise error description.

Group: The multicast group

Source IP: IP of the server

Received: The receive time of the packet (PC clock)

Ver.: Time zone table version

No.: Number of the time zone entry

DST Information: Short description of the daylight saving time configuration

Offset [min]: Local offset in minutes

Raw Data: The received raw data

6.3 Status Monitor

With the status monitor you have the possibility to update the device status and alarm information in a user-defined interval. For each update run the monitor will log detailed status and alarm information.

6.3.1 Start monitoring

1. First select the device group(s) you want to monitor. To open a dialog for the group(s) selection click to the **Select...** button.
2. Select the update interval.
3. Click to the **Start** button.

⚠ All device view operations will be disabled while this monitor is running!

For each update run the following information is available:

Overview	Overview with date / time, count of devices without errors or alarms, count of devices with error(s) and count of devices with alarm(s)
Error:	Shown only if an error occurred and the update was not done
Status:	The device status at the moment the update was done
Alarm(s):	Device alarm(s) at the moment the update was done

Note: Detailed information is shown only for devices that are in alarm or error state. If you want to display all devices set the "Show all devices" checkbox.

- Right click to a device in the log and click to "Show status update history" to display the update history for only one device.
- Right click to a device in the log and click to "Select device in device view" to select the device in the device view.

6.4 Firmware Monitor

The firmware monitor gives you the possibility to restart a recently failed firmware update procedure (e.g if the network connection was interrupted during update).

⚠ The monitor only detects devices which are in the same network during the origin update command was sent.
MOBA-NMS must also be available under the origin ip address.

IP address	Firmware File	Raw Data	
192.168.29.186	nmi.bin	000 16E6D692E62696E006F6374657400	
192.168.29.186	nmi.bin	000 16E6D692E62696E006F6374657400	
192.168.29.186	nmi.bin	000 16E6D692E62696E006F6374657400	
192.168.29.186	nmi.bin	000 16E6D692E62696E006F6374657400	
192.168.29.186	nmi.bin	000 16E6D692E62696E006F6374657400	

For each recorded packet the following information is available:

Source IP: IP of the device
Firmware File: Requested Firmware
Raw Data: The received raw data

6.4.1 Start the update

- Right click on an entry in the list.
- Chose firmware update. The firmware choose dialog will be shown.

6.5 Additional functions

The list of recorded packets can be exported, imported or deleted.

7 Tools

7.1 Switch Editor Basic

7.1.1 What is Switch Editor Basic?

With the **basic** version of **Switch Editor**, switching programs for MOBATIME devices such as DTS 4801, DTS 4802, DTS 4132 or ETC for example can be defined with simple and familiar tools. For this purpose up to four switching channels with different week programs can be allocated.

An overview of some important functions:

- Up to four switching channels definable
- Switching commands with fixed start and end times or signals (1 – 90 sec) are supported
- Calendar view for definition of the switching commands
- Easy to edit the switching commands with Drag & Drop
- Copy & Paste function
- Definition of exception days
- Table view / printout
- etc.

The Switch Editor Basic software is available as an independent application or integrated in MOBA-NMS.
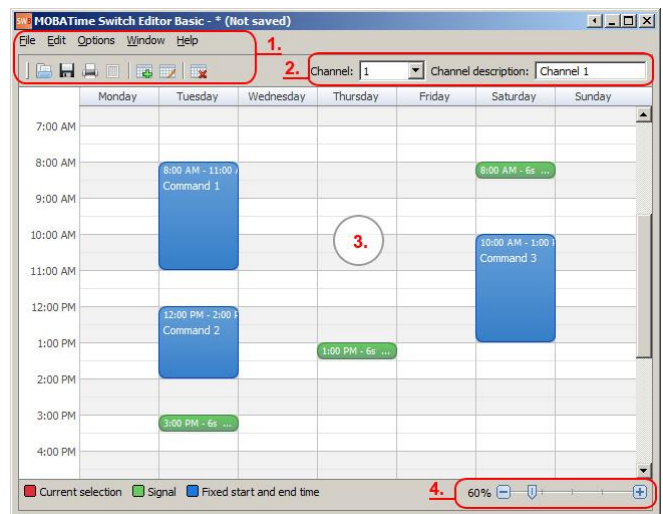
7.1.2 Main Window

The main window of the application consists of four parts:

1. **Menu / toolbar**
2. **Channel selection and description**
3. **Calendar view for display of switching commands / signals**
4. **Zoom for calendar view**

7.1.2.1 Menu / toolbar (1)

All Switch Editor Basic functions are accessible via the menu. Frequently used commands are also directly available in the toolbar.

NB:
Some commands are dependent on the current selection in the calendar view, therefore for example the menu item *Edit -> Edit entry...* is only available if an entry is also selected in the calendar view.

7.1.2.2 Channel selection + description (2)

Selecting channels 1 to 4 determines for which channel the switching commands are displayed in the calendar view. When the current *selection* is changed, the calendar view display is automatically updated. A user-defined designation can also be set for each channel under *Channel description*.

7.1.2.3 Calendar view for display of switching commands / signals (3)

Display of all switching commands / signals for the currently selected channel. Thus the calendar always includes all weekdays (Mon – Sun) irrespective of the date. (As for each channel a week program is defined that is always repeated.)

7.1.2.4 Zoom for calendar view (4)

Adjustment of the zoom setting for the calendar view.

7.1.3 General Information

A switching program is used to control the switching statuses of the separate channels on MOBATIME devices with MOBA*Line* and switching function support. Channels 1 to 4 are defined in this way with Switch Editor Basic.

For each channel a program known as a week program is created. This determines on which days of the week and at what time the channel is switched on or off. These switching commands can have either a fixed start and end time or be defined as signals with a power-on period of 1 to 90 seconds.

Week programs are repeated indefinitely for each channel, except for when exceptions are defined for separate days.

7.1.3.1 Presentation in Switch Editor Basic

In Switch Editor Basic week programs and switching commands are shown as follows:
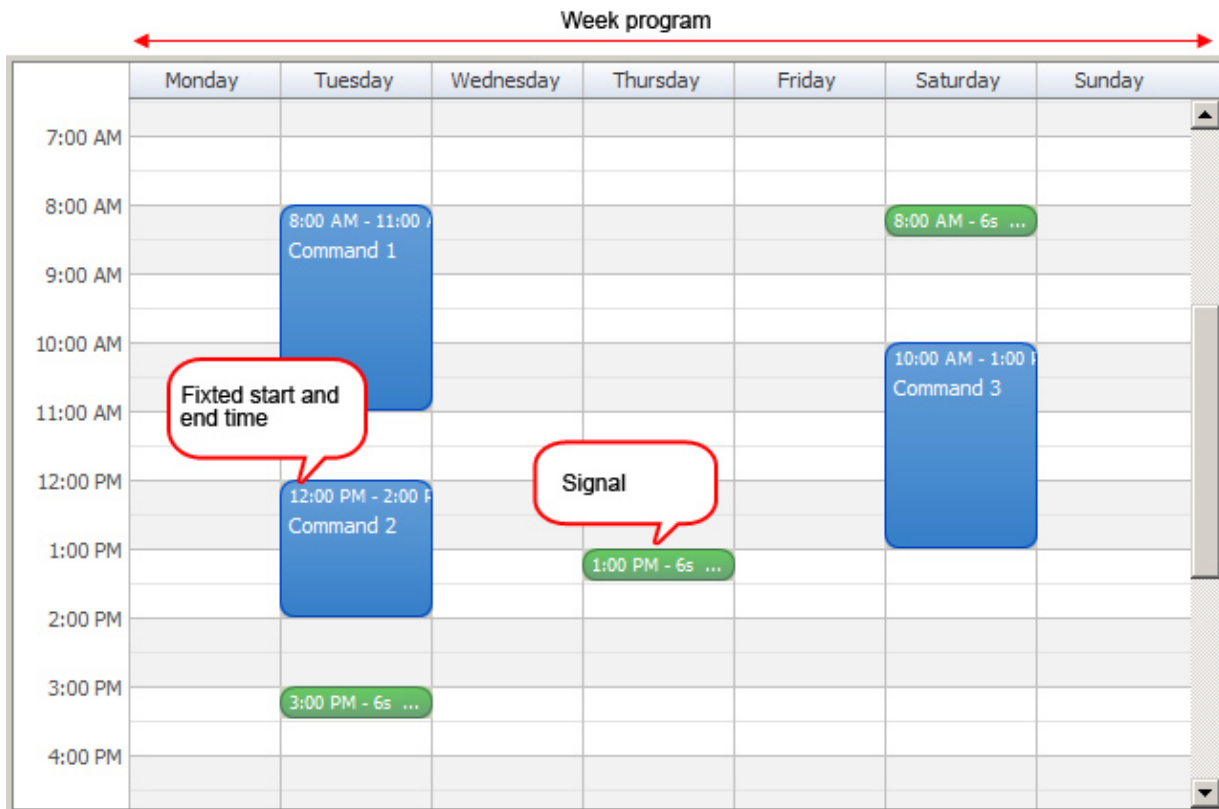
The image shows that the switching commands are arranged like appointments in a calendar.

7.1.3.2 Data management

Switching programs can be stored in *.swprog* files and loaded again. Thus all information such as for example channel designations, comments on the switching entries etc. is stored.

For the devices themselves the switching program is used in the form of a *.prg* file. In this file format only the effective switching commands for each channel are stored; all other information such as designations etc. is not included.

> ⚠ Never delete *.swprog* files, because only these files contain all information about a switching program! (New *.prg* files can also be created from them.)
>
> *.prg* files can only be used for the devices and can no longer be directly altered!
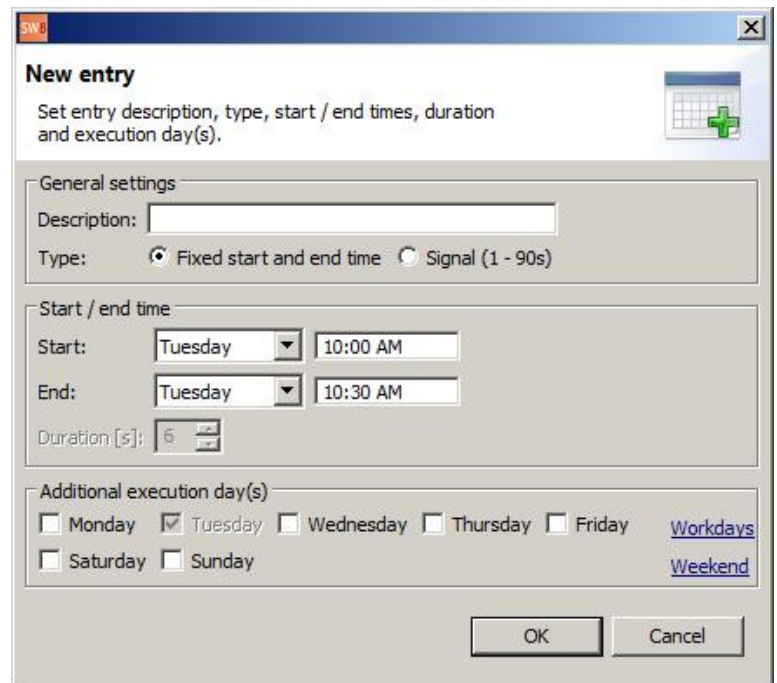
7.1.4 Creating, Editing or Deleting Entries

Essentially the switching entries can be viewed like appointments in a calendar. As is usual for example with other programs with calendar views, the separate entries can be moved using Drag & Drop, their duration can be altered or they can be copied and added using Copy & Paste.

7.1.4.1 *Creating a new entry*

To create a new entry there are several options:

- Select the menu item *Edit -> New entry...*
- Click on the toolbar button:
- Right click in the calendar field (on the desired day and the start time) and select the context menu entry *New entry...*
- Double click in the calendar field (on the desired day and the start time)

A dialog is then displayed (see image) in which the settings of the new entry are defined. All setting options are divided into three groups:

General settings

Here a user-defined description can be entered and the type ("Fixed start and end time" or "Signal") can be selected.

Start / end time

- Start: definition of day of week and time when the channel is switched on.
- End: definition of day of week and time when the channel is switched off. (Only available if the type "Fixed start and end time" is selected.)
- Duration [s]: Signal duration in seconds (Only available if the "Signal" type is selected.)

Switching entries with fixed start and end times can also be executed over several days. However they have some restrictions which are described under „Execution Over Several Days".

Additional execution day(s)

Switching commands can also be run on several weekdays at the same time. Here the individual days are selected. The day of week defined as the start day is pre-selected and cannot be altered.

Tip: By clicking on the *Workdays* or *Weekend* button all working days and weekend days respectively are automatically selected.

The additional execution days are tagged as appropriate in the calendar view.
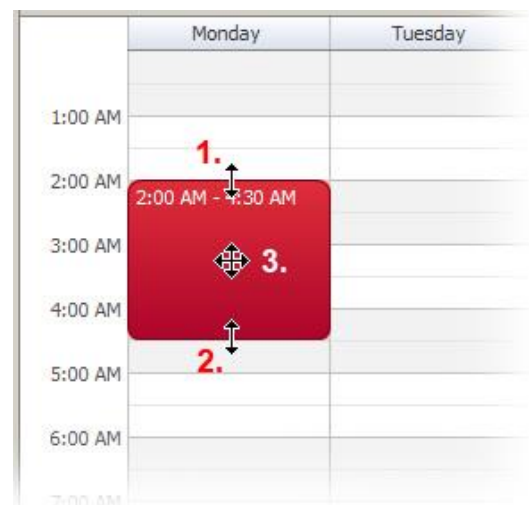
7.1.4.2 Editing an entry

To edit an existing entry the same dialog is used as for its creation. To open this, the same options are also available as for its creation: menu, toolbar, right click context menu or double click. Please note that the appropriate entry must also be selected.

If only the start time, duration or day of the week is altered, the entry can be moved using Drag & Drop. To do this select the entry at the appropriate location and drag it to the new position (see image).

1. Drag the upper edge to alter the start time only.
2. Drag the lower edge to alter the period (end time) only.
3. Drag the whole entry to alter the start time or the day.

NB:
With signals, the duration cannot be altered using Drag & Drop!

7.1.4.3 Deleting an entry

To delete an entry, the same options are available as for editing: menu, toolbar or right click context menu. The [DEL] (Delete) button can also be used. Please note that the appropriate entry must also be selected.

7.1.5 Additional Execution Days

Switching entries with fixed start and end times or signals may also be executed on several weekdays at the same time (and for the same duration). These entries are marked in the calendar view with an icon (⇄) and indicated accordingly on the defined days. When moving an entry using Drag & Drop, all matching entries are also taken into consideration.

The image shows an entry that sets the channel to "*on*" on Monday from 02:00 to 04:00. This is also executed on Tuesday and Wednesday at the same time.

7.1.6 Execution Over Several Days

The start and end time of an entry does not necessarily have to be on the same day, and so a channel can be switched on over several days.

The following image shows an example, in which the channel is switched on from Monday at 09:00 to Thursday at 15:00.

Entries that stretch over several days cannot be moved using Drag & Drop. It is only possible to alter the start and end time. Likewise no additional run dates can be defined.
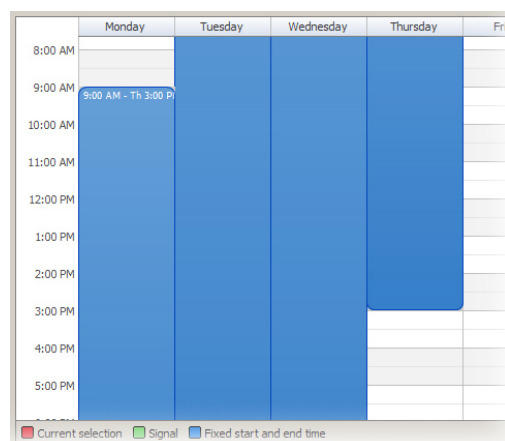
7.1.7 Conflicts

Within a week program the entries must not overlap. If an overlapping is discovered when creating or editing, there is a conflict and the procedure cannot be continued. In this case the start or end time must be adjusted accordingly.

When moving entries using Drag & Drop, conflicts are indicated when the moved entry is shown in grey and with an "X" (see image). In this case the entry cannot be placed and returns automatically to the original position.
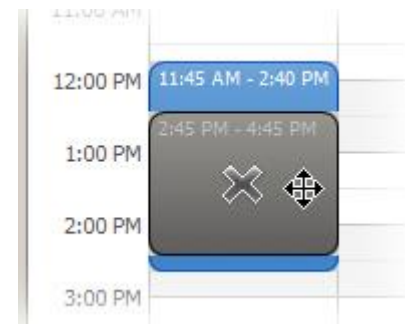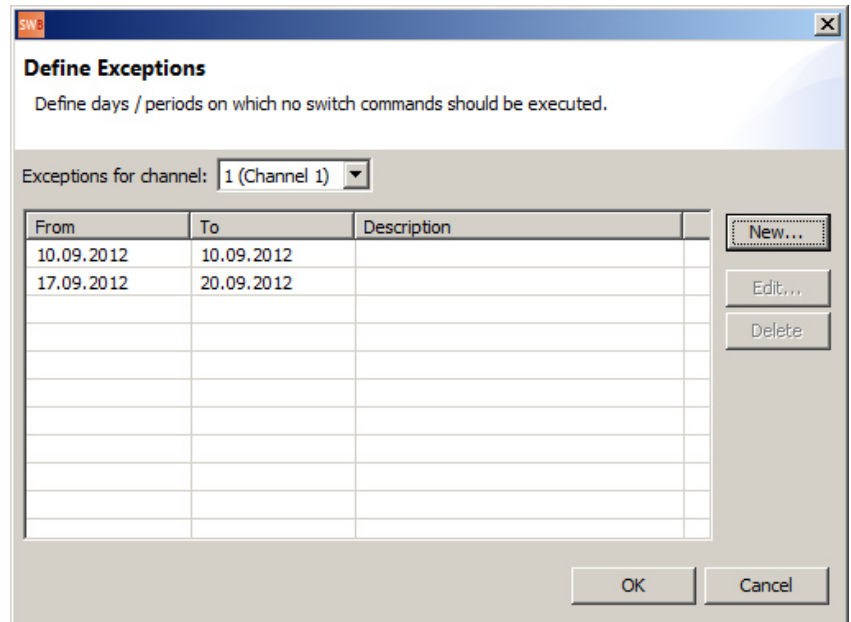
7.1.8 Exceptions

If on a particular day or over a longer period of time no switching commands are executed, exceptions can be defined for each channel. These exceptions always have a fixed date (or a date range) with the effect that on these days on the relevant channel no switching commands are executed and the channel always remains switched off. Likewise longer switching commands which extend for example over several days are interrupted by exceptions.

The dialog for the definition of exceptions is opened with the menu item *Options -> Define exceptions...* (see image).

Here new entries can be defined for each channel or already existing ones can be edited or deleted. Every entry therefore has a fixed from and to date and optionally a user-defined description. If an exception is defined for a single day, the from and to dates must be defined on the same day.

In this example two exceptions are defined:

- 10.09.2012
- 17.09. - 20.09.2012

7.1.9 PRG File Generation

Switching programs are downloaded to the devices in the form of *.prg* files. In order to generate these, the switching program must simply be saved in Switch Editor Basic (menu item *File -> Save (and create PRG file.)*). During the storage procedure a *.prg* file is automatically generated in the same folder and under the same name alongside the *.swprog* file.

7.1.10 Table / Printview

All switching commands can be presented in a table and also printed in the same form.

7.1.10.1 Table view

The table view is opened with the menu item *Options -> Table view...* or directly using the toolbar button . The exceptions for each channel are also listed beside the switching commands.

7.1.10.2 Print view / print preview

The print view is opened either from the table view (*Print...* button), the menu item *File -> Print...* or using the toolbar button 🖶. As in the table view, the defined exceptions are also listed in the print view. In addition only individual channels can be selected for printing. (Channels for which there are no entries are shown in grey and cannot be selected).

7.1.11 Application preferences

7.1.11.1 General

- **Application language**
  Select the preferred application language. By default, the language will be switched automatically based on your operating system language. (Only if the language is available, otherwise English will be used.)

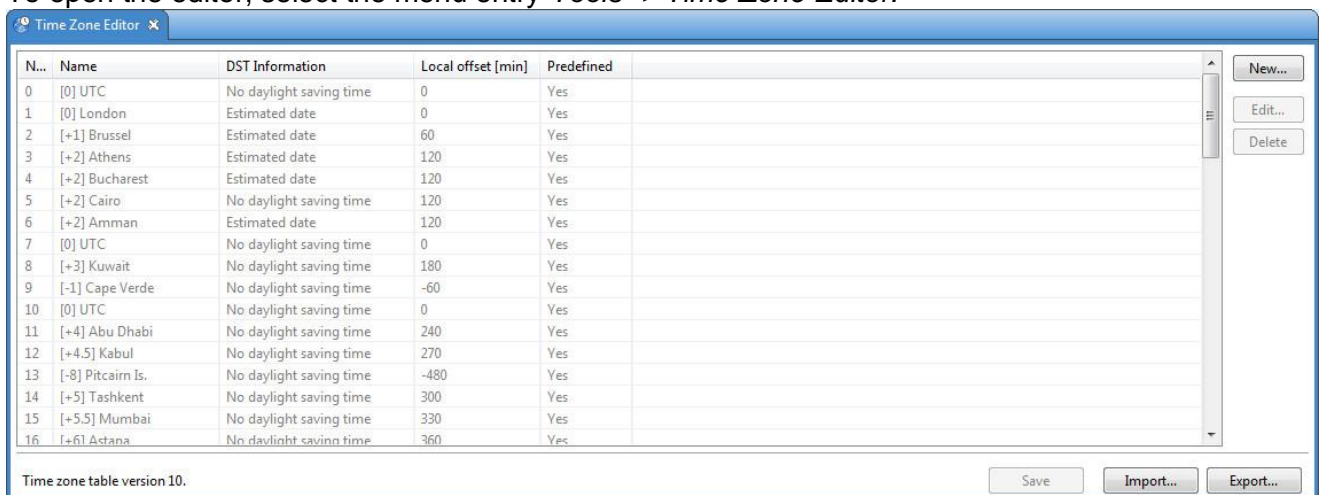### 7.1.11.2 Editing Behavior

- **General settings**
  - *Default signal length for new entries [s]:*
    The signal length determined here is used as default value when creating new entries.
  - *Don't show delete confirm dialog box:*
    If this option is selected, no confirmation dialog is displayed when entries are deleted. (Entry is directly deleted without request.)

7.2 Time Zone Editor

MOBA-NMS contains an integrated time zone editor that lets you create and edit user defined time zone definitions. This is usually only necessary if the time zone you need is not already listed in the default time zone definitions provided by MOBATIME.

MOBATIME provides 65 default time zone definitions (no. 0 - 64). These definitions cannot be changed / deleted and are updated together with MOBA-NMS automatically. The definitions 80 to 99 are free configurable.

To open the editor, select the menu entry *Tools -> Time Zone Editor.*

N...	Name	DST Information	Local offset [min]	Predefined	
0	[0] UTC	No daylight saving time	0	Yes	
1	[0] London	Estimated date	0	Yes	
2	[+1] Brussel	Estimated date	60	Yes	
3	[+2] Athens	Estimated date	120	Yes	
4	[+2] Bucharest	Estimated date	120	Yes	
5	[+2] Cairo	No daylight saving time	120	Yes	
6	[+2] Amman	Estimated date	120	Yes	
7	[0] UTC	No daylight saving time	0	Yes	
8	[+3] Kuwait	No daylight saving time	180	Yes	
9	[-1] Cape Verde	No daylight saving time	-60	Yes	
10	[0] UTC	No daylight saving time	0	Yes	
11	[+4] Abu Dhabi	No daylight saving time	240	Yes	
12	[+4.5] Kabul	No daylight saving time	270	Yes	
13	[-8] Pitcairn Is.	No daylight saving time	-480	Yes	
14	[+5] Tashkent	No daylight saving time	300	Yes	
15	[+5.5] Mumbai	No daylight saving time	330	Yes	
16	[+6] Astana	No daylight saving time	360	Yes	

New...
Edit...
Delete

Time zone table version 10.   Save   Import...   Export...

7.2.1 Where are time zone definitions used?

In MOBA-NMS created time zone definitions can be used for all MOBATIME devices with time zone table support. Example: Set user defined time zone(s) to NBU 190, SEN / SAN 40 movements or any DTS masterclock / timeserver.

7.2.2 Where are the time zone definitions stored?

MOBA-NMS stores user defined time zone definitions in the application workspace folder. (*<install_dir>*/workspace/usersn.tbl) The file **usersn.tbl** is a " MOBATIME Time Zone Table File" (also called Season Table File) that can also be used for other devices like ETC, CTC, etc. You can use the export function (see *Import / Export*) to export the file to a user defined location.

> ⚠ Some devices (like DTS timeservers / masterclocks) have integrated time zone definitions. (With own **usersn.tbl** file.) If you open the time zone editor out from a device configuration view (see *Change Device Configuration*), the editor loads the definitions directly from the device and don't use the MOBA-NMS internal files.

7.2.3 Time Zone Definition

One time zone definition consists of the *following* items:

Item	Description
Number	Definition number (80 - 99 for user definitions). **Important:** Keep numbers continuous and replace not used entries with the UTC definition!
Name	Display name (max. 30 characters, e.g. "Central Time")
Local offset	Local time offset in minutes (offset *UTC <-> winter time*)
DST switch mode	Mode of the Daylight Saving Time (see chapter Daylight saving time (DST) below)
Season offset	Time offset during daylight saving time in minutes (offset *winter time <-> summer time*)

7.2.4 Daylight saving time (DST)
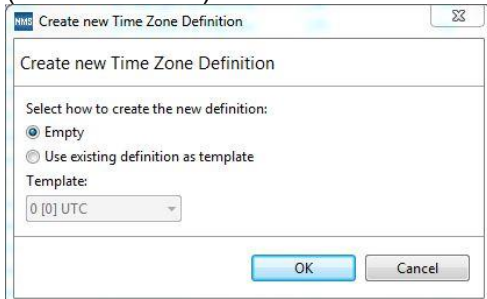
There are three possibilities / modes to configure the Daylight Saving Time (DST) switch for your time zone:

- **No Daylight Saving Time**
  No DST switch configuration. Local offset is used only.
- **Exact date / time**
  The DST is switched only once at the exact user defined date / time.
  Important: The date / time must be adjusted every year!
- **Estimated / Calculated date**
  The DST is switched every year at the configured weekday, month and exact time.
  There are different possibilities for the weekday calculation:
  - First specified day of the month
  - Last specified day of the month
  - Second specified day of the month
  - Last but one specified day of the month
  - Third specified day of the month
  - Last but two specified day of the month

7.2.5 Create new Definition

Follow the steps below to create a new user defined time zone definition:

1. Open the Time Zone Editor
2. Click to the *New...* button
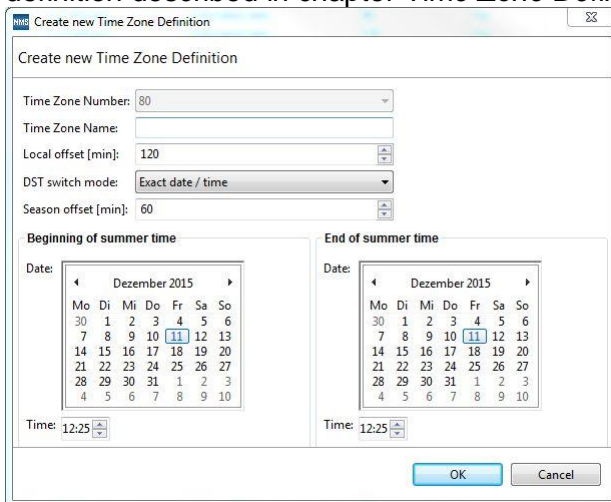3. Select either the radio box "*Empty*" to create an empty time zone definition or "*Use existing definition as template*" to create a new definition based on an already existing one (recommended).

4. Set the time zone name, local offset and daylight saving time configuration according to the definition described in chapter *Time Zone Definition*.

5. Close the dialog by clicking to the *OK* button
6. Click to the *Save* button to save the new created definition to the MOBA-NMS internal file

7.2.6 Edit Definition

To change an already existing user definition, select it in the table and click to the *Edit...* button. Set the configuration according to the definition described in chapter *Time Zone Definition*.

⚠ Default time zone definitions provided by MOBATIME (no. 0 - 64) cannot be changed!

7.2.7 Import / Export

User defined time zone definitions can be imported or exported. The import function can be helpful if you have already a time zone table file (also called season table file) created by other software like CTCW and want to use it in MOBA-NMS. The export function is used to create a backup or save the definitions to a *.tbl file that can be used also for other MOBATIME products like ETC, CTC, etc.

7.2.7.1 Import

Click to the *Import...* button and select the *.tbl file to load.

⚠️ All existing definitions will be overwritten!

7.2.7.2 Export

Click to the *Export...* button and set the target *.tbl file for the export.

7.3 Password Manager

Some devices (like DTS masterclocks / timeservers) need a username and password for the communication / configuration. MOBA-NMS will ask you for the device password with an appropriate dialog (see image) each time you try to open the configuration.

In this dialog, you have the possibility to save the username and password by activating the check box **Save username and password in the password manager**. In this case, your entered data will be saved in the MOBA-NMS internal password manager for future use.
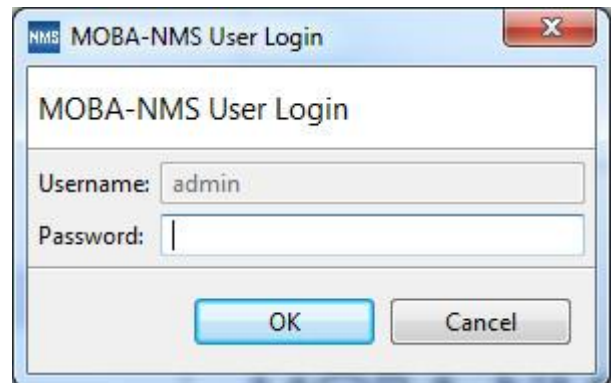
7.3.1 Manage Saved Entries

To show and edit the saved username / password entries, open the Password Manager by selecting the menu *Window > Password Manager...*. In the Password Manager dialog you have all information about saved usernames / passwords and can edit or delete several entries.

Explanation of the table content:

- Category: Password category. "Master Clocks" or "Slave Clocks".
- Password type: Type of the password entry. e.g. SNMPv3, Telnet, SSH, etc.
- Device / Identifier: Name and identification (usually MAC address) of the corresponding device. (Note: If the device is no longer in the device view, only the identifier is shown.)
- Username: The device username.
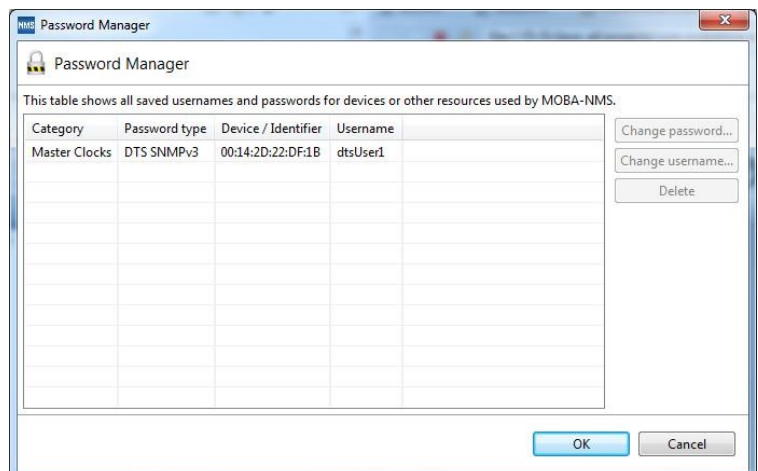
8 User Management

MOBA-*NMS* provides an integrated user management. To administrate the users and access rights select the menu entry *Window -> User Management*.

8.1 Create new User

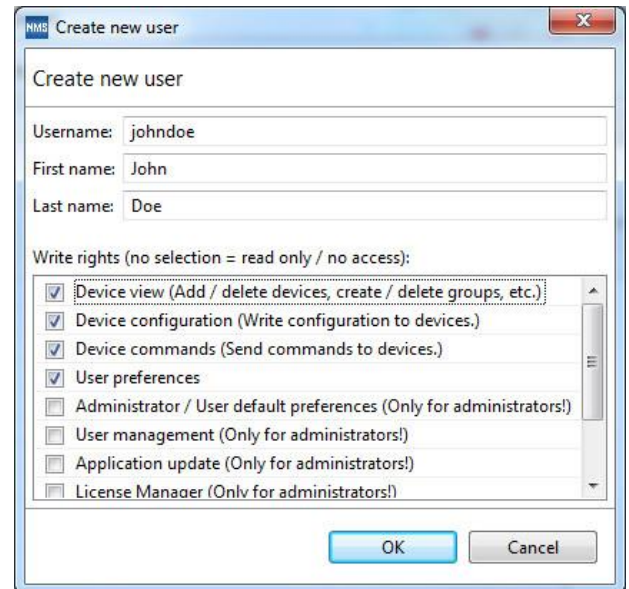To create a new user, open the user management dialog by selecting the menu entry *Window -> User Management...* and click to the **New...** button. Enter the username, first name and last name and select all write rights the new user should have. Click to **OK** and then to the **Change password...** button to set the initial password.

Note: By default, all users have read right to all parts of the application. In some cases, that means that a dialog or view can be opened read only (like the device configuration) and other cases that a specific function is not available (like the device commands).

8.1.1 User rights

Name	Allows to…
Device view (Add / delete devices, create / delete groups, etc.)	… create and remove device and device groups.
Device configuration (write configuration to devices)	… write configurations to devices.
Device commands (Send commands to devices)	… send commands to devices.
User preferences	… access the user preferences for this user.
Administrator/User default preferences (Only for administrators)	… access the administrator/default user preferences.
User management (Only for administrators)	… access the user management panel.
Application update (Only for administrators)	… check for and carry out application updates.
License manager (Only for administrators)	… manage the application license.
Time Zone Editor	…. use the Time Zone Handler.
Switch Editor Basic	… use the Switch Editor Basic.

8.2 Change Password

The password of the current user can be changed by selecting the menu entry *Window -> Change Password...*

9 Application Preferences

The MOBA-NMS application preferences are defined in two layers. The first layer contains the administrator and user default preferences. These apply to all users and are stored in the application directory. In the second layer, each user can define individual settings (with the corresponding access right). In this case, the presettings of the administrator will be overwritten.

The administrator and user default preferences are located under the menu entry *Settings -> Administrator / User Default Preferences.* **Important:** Edit these settings only as system administrator with local administrator rights!

The user preferences are located under the menu entry *Settings -> User Preferences*. Please note that not all administrator settings can be overwritten by the user.

9.1 General

Description of the **General** preference page values.

Application language
Select the preferred application language. By default, the language will be switched automatically based on your operating system language. (Only if the language is available, otherwise English will be used.)

Application startup
Select the actions that should be performed at the application startup.

Refresh device status / alarm information after load from configuration file
Set whether the status / alarm information should be refreshed automatically after a configuration was loaded from file.

Device configuration view
An open properties or configuration view updates the device information in a predefined time interval. You can set this interval in minutes or disable it by setting the value to 0.

Show information message after configuration was successfully sent to device
Defines whether a message is shown after a configuration is sent to the device.

Lock configuration files to prevent multi-user conflicts
Defines if the configuration files should be locked after loading them to prevent conflicts when multiple users open the same configuration file.

9.2 Network

Description of the **Network** preference page values.

9.2.1 Communication Mode

Select the preferred mode you want to use for the device communication. The default value is **Multicast and unicast** (recommended). In this case, multicast is used for the auto scan and for devices that have no unicast support. For devices with unicast support the mode will be switched automatically to unicast.

Not all devices support unicast communication! Change this value to **Unicast** only if you have no multicast devices to manage.

9.2.2 Multicast / Broadcast settings

9.2.2.1 Interface for multicast / broadcast communication

The multicast / broadcast communication is possible on one network interface only. By default, MOBA-NMS uses the interface selected by the operating system. (Option **System priority / System default**.) You can change this setting if the default selection is wrong or you want to bind the communication to one specific interface.

Important: For IPv6 link-local scans there has to be the link-local address of the computer selected.

9.2.3 Communication settings

9.2.3.1 Default timeout

Set the default response timeout that should be used for the communication. Increase this value if you have trouble to connect to devices because of slow network connection.

9.2.3.2 Resolve host names (DNS)

If this option is enabled, MOBA-NMS tries to resolve host names by DNS to get the device IP addresses. If the host name cannot be resolved, the stored IP addresses will be used. (Same behavior as if this option is disabled.)

9.2.3.3 Default domain

Some devices have a host name but no domain name saved. For this reason, a default domain name can be configured. This is used to resolve the IP address if the option "Resolve host names (DNS)" is enabled.

9.2.4 FTP transfer mode

Select the preferred FTP data transfer mode you want to use. The default value is *Passive* (recommended).

⚠️ Please make sure that the port 21 is not blocked by a firewall! The *Active* mode requires additionally the port 20 to be open.

10 Usage of the DSS

If you are using the Expert edition of MOBA-NMS, you can use the MOBA device supervision service. This help page provides information on how to define the devices which should be supervised by the DSS. For further information about installing and managing the service itself, please read the manual which is provided along the DSS.

10.1 Add/remove devices from supervision

To define which devices should be supervised, open the MOBA-DSS configuration page within MOBA-NMS and select the "Supervision" tab on the bottom of the page.

You can now see the a list of available devices which consists of devices which are already supervised by the DSS and devices which are in the device list of your MOBA-NMS.

To supervise or unsupervise a device, select a device from the "Available

devices" list and click the "Supervise" or "Un-supervise" button which are located to the right of the list.

If you want to supervise a device which is not yet in the "Available devices" list, add the device to the MOBA-NMS device list and click the "Reload table" button. **Important: Devices supervised by DSS must send SNMP traps to the DSS, otherwise an alarm like "Maximum alive trap time expired" is going to be shown.**

10.2 Defining the severity of alert types

Alerts can have different levels of severities:

- **Alert** Handle an alert as a normal, high-level alert.
- **Warning** Sets the alert as a lower-level, less important warning.
- **Ignore** Ignore and do not handle the alert when it occurs.

The severity of an alert can be defined per device. To set the severity of an alert for a device, select a device with the corresponding device from the "Available devices" list and click the "Severity table" button, which opens a new

window. In this window, you see a list of all alert types for this device. To change the severity of an alert type, select the corresponding entry from the list on the left hand side, then choose the new severity level with the select box in the "Controls/actions" area.

10.3 Managing individual parameters

For each device, you can define additional SNMP parameters which are supervised and written into the database each time the service is updating the status of the device. Each additional parameter consists of an OID (identifying number, can be found in the .MIB file) and a name/description.
You can see a list of all parameters configured for a device by selecting the respective entry for the device from the "Available devices" list. The parameters will be listed in the "Parameters of the selected device(s)" section.

To add a parameter, select the device you would like to add the parameter to, and click the "Add" button in the "Parameters of the selected device(s)" section.

Afterwards, fill in the required information in the dialog which has opened. To edit a parameter, click the "Edit" button instead.

To map existing parameters to other devices, select all the devices you want to map the parameters to from the "Available devices" list (select multiple entries by clicking while holding the Ctrl key on your keyboard), then select the parameters you want to map from the parameter list. Finally, click the "Map selected" button.

11 Application Error Log

Sometimes it can be necessary to have a look into the application error log to be able to troubleshoot specific problems. To do this, select the menu entry *Window -> Show View -> Error Log*. The log will be loaded in the additional views part at the bottom.

12 Technical Information

This chapter contains some technical information about MOBA-NMS that can be helpful to troubleshoot different problems.

12.1 System Requirements

Operating system:	Windows 8.1 64 bit, Windows 10 64 bit
Hardware:	1 GHz processor, 1024MB RAM, 1024x768 (or higher) resolution, network (LAN) connection

12.2 Used network ports

Port	Service	Protocol	Mode	Open on...	Usage
20 / 21	FTP	TCP	Unicast	device	DTS devices file transfer (if SFTP is not supported by device)
22	SSH	TCP	Unicast	device	DTS devices SSH communication + SFTP file transfer
69	TFTP	UDP	Unicast, Multicast	MOBA-NMS	Network slave clocks firmware update
80	HTTP	TCP	Unicast	remote server	MOBA-NMS software update
123	NTP	UDP	Unicast, Multicast	device / MOBA-NMS	DTS devices time requests / NTP monitor
161	SNMP	UDP	Unicast	device	DTS devices communication
65532	MOBACOMM	UDP	Unicast, Multicast, Broadcast	device	Network slave clocks communication. Broadcast device auto-scan.
65534	TIMEZONE	UDP	Multicast	MOBA-NMS	Time zone monitor

HEADQUARTERS / PRODUCTION

MOSER-BAER AG
Spitalstrasse 7, CH-3454 Sumiswald
Tel. +41 34 432 46 46 / Fax +41 34 432 46 99
moserbaer@mobatime.com / www.mobatime.com

SALES SWITZERLAND

MOBATIME AG
Stettbachstrasse 5, CH-8600 Dübendorf
Tel. +41 44 802 75 75 / Fax +41 44 802 75 65
info-d@mobatime.ch / www.mobatime.ch

SALES GERMANY, AUSTRIA

BÜRK MOBATIME GmbH
Postfach 3760, D-78026 VS-Schwenningen
Steinkirchring 46, D-78056 VS-Schwenningen
Tel. +49 7720 8535 0 / Fax +49 7720 8535 11
buerk@buerk-mobatime.de / www.buerk-mobatime.de

SALES WORLDWIDE

MOSER-BAER SA EXPORT DIVISION
19 ch. du Champ-des-Filles, CH-1228 Plan-les-Ouates
Tel. +41 22 884 96 11 / Fax + 41 22 884 96 90
export@mobatime.com / www.mobatime.com

MOBATIME SA
En Budron H 20, CH-1052 Le Mont-sur-Lausanne
Tél. +41 21 654 33 50 / Fax +41 21 654 33 69
info-f@mobatime.ch / www.mobatime.ch