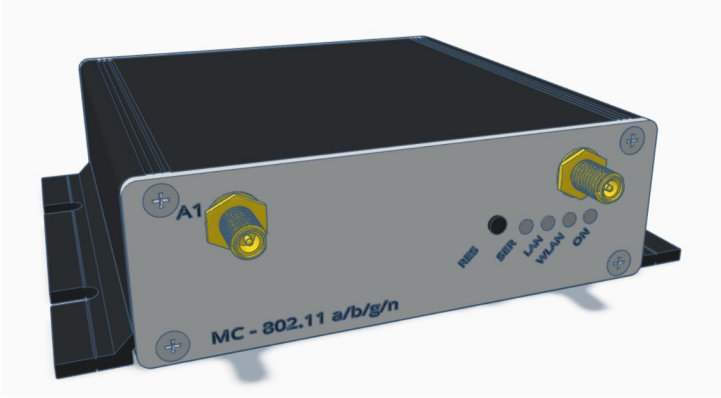
MCConfig

Program for configuration and status monitoring of MC-WLAN clients

Manual



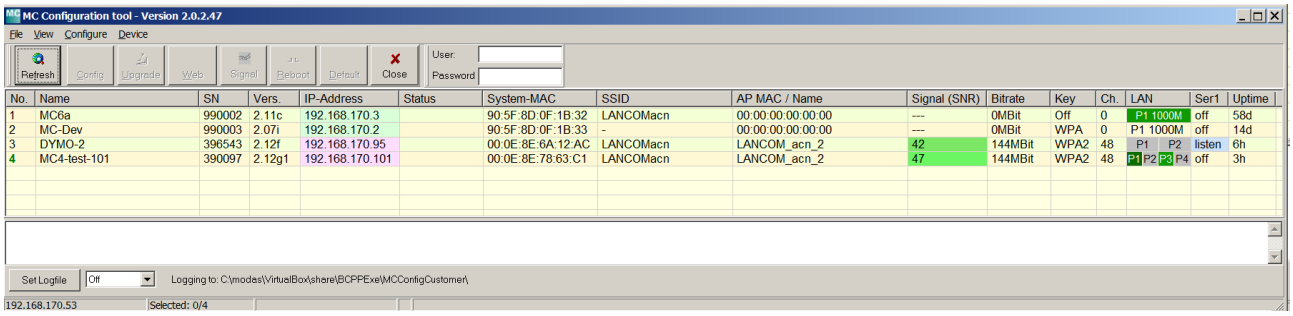


Table of content

Table of figures

1 Functional description

With the MCConfig program the following functions can be executed in connection with one or more MC - WLAN clients:

- Locating the WLAN clients in the network (via LAN or WLAN)
- Configuration of WLAN client parameters incl. saving and loading of configurations via files
- Transfer of firmware files to WLAN clients
- Restart WLAN clients (reboot)
- Resetting the WLAN client parameters to the default settings (factory default)
- Display of the current connection parameters of the WLAN clients in the network
- Retrieve system messages from WLAN clients

1.1 Note on the MCConfig program Version 2.0.2.51 or higher

The MCConfig program from version 2.0.2.51 expects that in the directory in which the MCConfig_xxx.exe file is saved, also the DLL's contained in the ZIP file
libeay32.dll and **ssleay32.dll** are stored.

If these are not present, there will be an error message after the start.

1.2 IP protocols and ports used

The MCConfig program uses the UDP port 17784 to request status messages from the WLAN clients Firmware upgrades are also transmitted via UDP if the WLAN client can only be reached via broadcast. If there is a unicast connection to a WLAN client, firmware files are transferred via the TCP port 17784. Log files and (W)LAN recordings are downloaded via TCP port 17785.

1.3 Encrypted transmission

The MCConfig program encrypts the transfer of config files, the upload during firmware upgrade and the download of debug logs if the WLAN clients support this. This encryption is possible for Mcx devices with firmware 2.12k and higher.

2 Initial start-up

For initial operation, the WLAN clients can only communicate via the LAN port, because there is usually no wireless network with a matching SSID.

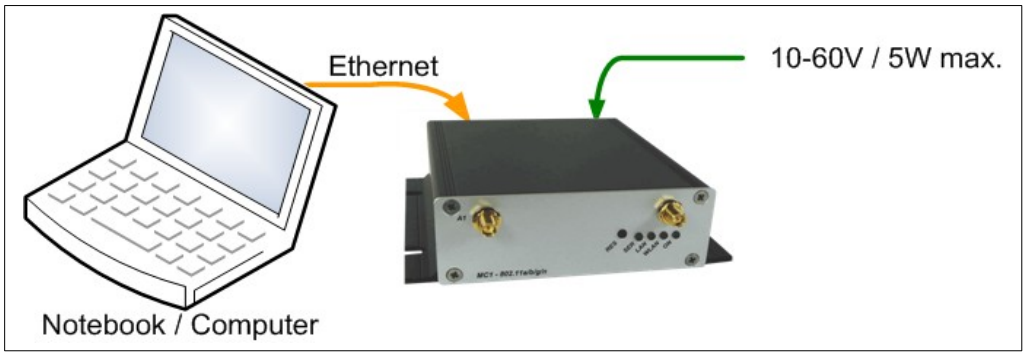


Figure 1: Setup for the initial operation of a WLAN-client

The WLAN client is connected to a PC with Ethernet interface.
The MCConfig program is started on the PC.

What to be aware of:

- The connected PC (notebook) should have a fixed IP address on the LAN interface (no DHCP).
- The LAN interface on the PC must be recognized as "connected" by the operating system. Check the LAN interface by entering the "ipconfig" command in an input window.
- An active firewall on the PC could possibly prevent communication with the WLAN client.

3 Function and operation of the MCConfig program

After starting, the MCConfig program first determines all network interfaces that are currently active on the computer. These interfaces are then used to broadcast UDP/IP requests to which the WLAN clients respond. The responding devices are registered and displayed in a list.

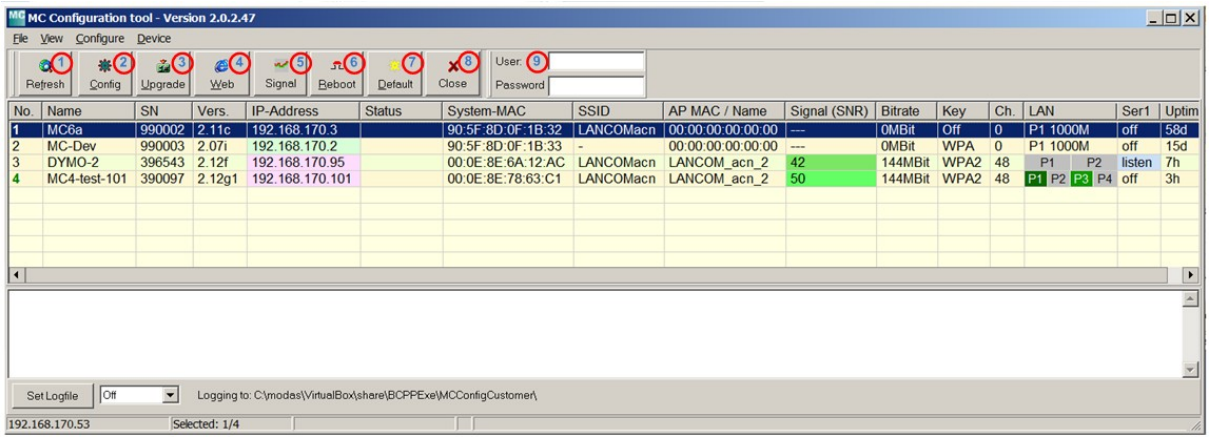


Figure 2: Function and operation of the MCConfig program

Below the list is an area for messages from the MCConfig program. This area also displays debug messages from WLAN clients, provided this function was previously activated for the WLAN client. A double-click on this field opens the messages stored until then in a text editor.

3.1 Functions of the control buttons

Nummer	Name	Function
1	Refresh	Restart scan for existing WLAN clients. The scan area is defined in the section Configure -> IP ranges.
2	Config	This opens the configuration dialog for the selected WLAN client. First the configuration file is called up from the WLAN client. When the configuration has been received completely, a window opens in which the configurable parameters of the WLAN client are displayed. These parameters are completely defined from the configuration file received by the WLAN client. If a specific WLAN client firmware defines additional parameters, the MCConfig program can process these parameters without any changes.
3	Upgrade	This allows a firmware file to be transferred to the WLAN client.
4	Web	This function opens the website of the selected WLAN client in a browser window.
5	Signal	This function opens a window in which statistical data of the WLAN connection of all clients can be displayed.
6	Reboot	This function restarts the selected WLAN client.
7	Default	This function resets the configuration of the selected WLAN client to the factory settings. A restart is then performed.
8	Close	This closes the application.

9	User / Password	Enter the user name and password for the device to be configured or reset. If this information is missing or incorrect, the following message appears in the column “Status”: Credentials failed

3.1.1 Information on list items

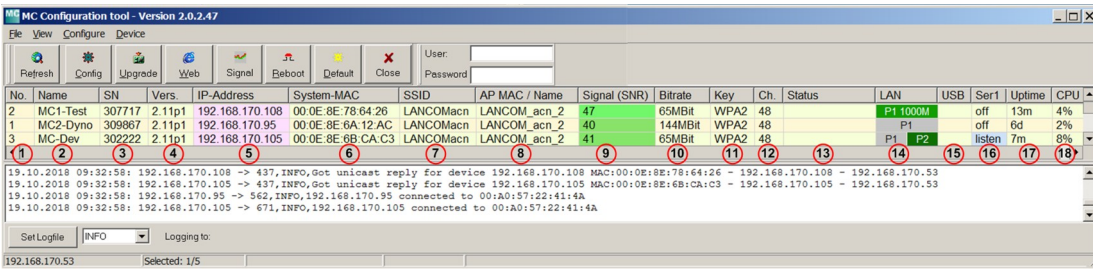
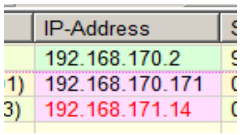
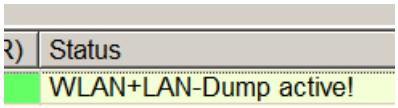
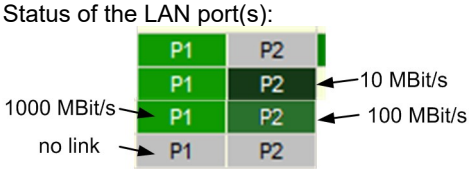
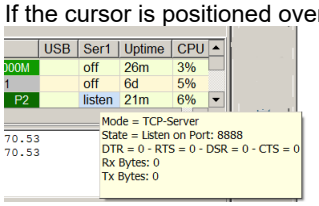


Figure 3: Information on list items

Column	Name	Function
1	No.	These number is assigned consecutively in the order of registration of the WLAN-clients by the MCConfig program.
2	Name	Shows the device name as given in the configuration of the WLAN-client.
3	SN	Serial number of the WLAN-client
4	Vers.	Firmware version of the WLAN-client
5	IP-Address	IP address of the WLAN client. Depending on the bridge mode set, the WLAN client can have different IP addresses on the LAN and on the WLAN side. Text color and background color of this field provide information about the connection type between the MCConfig program and the WLAN client.  Green background — Connection via the LAN interface of the WLAN client Pink background — Connection via the WLAN interface of the WLAN client black font — 192.168.170.2, 192.168.170.171 — Unicast connection (direct IP connection, connection to the web page is possible) red font — 192.168.171.14 — Broadcast connection (connection to the web page is *not* possible) A unicast connection is also required to download the debug and WLAN trace files (see below).
6	System-MAC	The MAC address of the WLAN client. The LAN interface sends data with a different MAC address than the WLAN interface. If the cursor is positioned over this column, additional information is displayed. MAC-Information: Bridge Mode: NAT used MAC on LAN side: 90:5F:8D:05:F3:D1 used MAC on WLAN side: 00:0E:8E:78:63:C1

7	SSID	The WLAN name (Service Set Identifier) to which the WLAN client has connected is listed here. If there is no connection, the SSID of the WLAN profile that is active and has the highest priority is displayed here.
8	AP-MAC / Name	If the wireless client is connected to a wireless LAN, the MAC address of the connected access point (AP) is displayed here. If the AP sends a device name, this name is displayed here instead of the MAC address.
9	Signal (SNR)	Signal strength received from the access point (AP). The value is the signal-to-noise ratio in dBm. Signal >= 40 very good connection Signal >= 30 good connection Signal >= 20 connection still sufficient, the WLAN client starts to search for a better AP Signal < 20 Connection restricted, bit rates are reduced to transfer data.
10	Bitrate	Bit rate at which data is received from the AP. The data rate is specified in MBit/second and is in the range between 1 - 300 MBit/s.
11	Key	If the WLAN client is connected to an AP, the encryption type with which the connection was established is shown here.
12	Ch.	Channel number with which the WLAN client is connected to the AP. The channel number is determined by the AP. Channels 1 - 14 are in the 2.4 GHz band. Channels 36 - 165 are in the 5 GHz band
13	Status	Information on the status of the WLAN client. This also includes the status of the logging function for recording the LAN and (or) WLAN data traffic. 
14	LAN	Status of the LAN port(s): 
15	USB	If a USB stick is plugged in, the remaining free capacity (in %) is displayed here. If the USB stick is a config stick, it is also displayed here.
16	Ser1	Status of the serial interface. If the cursor is positioned over this column, additional information is displayed. 
17	Uptime	Runtime of the WLAN client since switching on or the last reset.
18	CPU	CPU workload of the WLAN-Client in %.

3.1.2 Arrangement of columns

The user can design the position of the columns according to his own requirements. To do this, position the cursor on the column to be moved (in the data area, not at the header). By holding down the CTRL key + the left mouse button, you can move the column to the desired position.

3.1.3 Settings for recording MCConfig messages

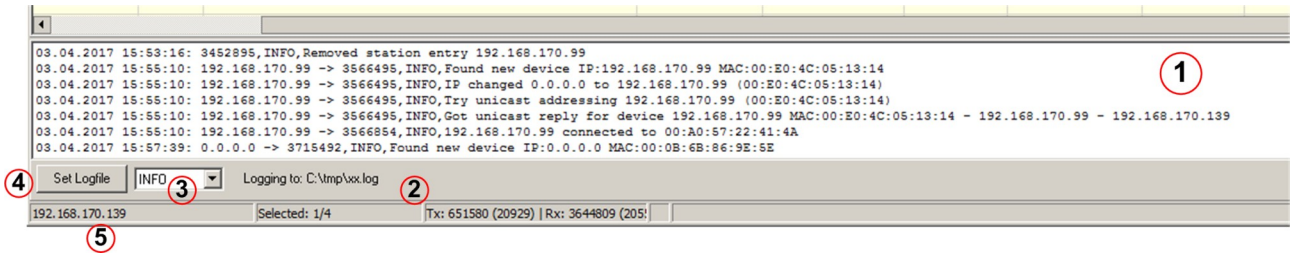
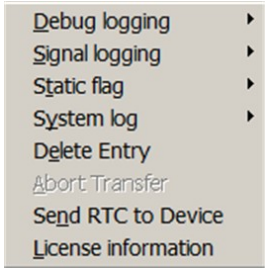


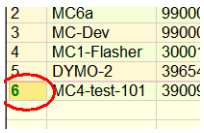
Figure 4: MCConfig Debug settings

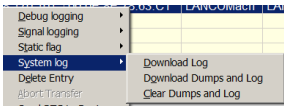
Bereich	Name	Funktion
1		The system messages of the MCConfig program are displayed in this area. If the debug logging function is switched on for a WLAN client and the corresponding list entry is selected, the window changes and displays the messages of this WLAN client.
2	Log-Datei	The messages of the MCConfig program are written to the file specified here.
3	ERROR INFO DEBUG TRACE	With this selection, you can set how detailed the messages that the MCConfig program is to output should be. Here it is sufficient to set the setting to "ERROR" or "INFO", unless you want to analyze an error situation more precisely.
4		This button opens a dialog where the log file can be defined.
5	IP Interface	The IP address of the interface with which the communication to the MC takes place is displayed here. Several IP addresses can also be displayed here.

3.1.4 Context menu for the list entries

If you click on an entry in the list with the right mouse button, a context menu appears with the following selection:



Menü	Funktion	Werte
Debug logging	Here the output of the debug messages for the marked MC is switched on or off. First, a target file is queried in which the debug messages are to be written. see also Chap. 9.2	on off
Signal logging	This function saves the WLAN data (signal strength, connected AP, channel, bit rate) received by the MCConfig program for the MC device in a file in the form of text lines.	on off
Static Flag	If you want to keep all existing devices in the table in an application, even if they are not currently available, you can set the entries to "static". This means that the entries are not deleted from the table, even if the corresponding MC devices are not currently in operation. Entries in the state "static" are marked yellow in the 1st column:  	

Systemlog	This allows operations to be performed on the log and dump files stored in the MC device.  There are "Log" files that store text messages and "Dump" files that contain recordings from the WLAN or LAN interface of the MC device. "Download Log" transfers the System Log file to the MCConfig program. "Download Dumps and Log" leads to a dialog in which all log and dump files for download can be selected and downloaded. "Clear Dumps and Log" deletes all relevant files. This deletion should always be carried out before a test, during which a certain function is to be tested and logged.	
Delete Entry	This allows you to delete the selected entry from the list.	
Abort Transfer	With this function a running transfer (e.g. firmware upload) can be aborted.	
Set RTC to Device	This transfers the system time of the PC to the MC and applies it there. This allows you to set the MC system time to a real value without a time server, e.g. to be able to better identify the time data in log files.	
Licenense Info.	Here you will find information on "Open Source Compliance" for the MC devices.	

3.2 Settings and functions via the main menu

The main menu can be used to trigger actions that have already been mentioned as well as to make advanced settings for the MCConfig program.

3.2.1 File Menu

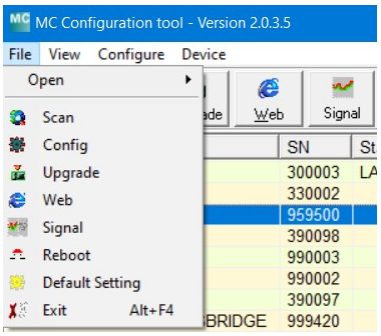


Figure 5: File Menü

This allows the functions of the keys above the list to be called up.
see 3.1

3.2.2 View Menu

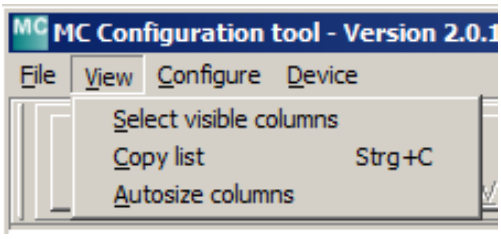
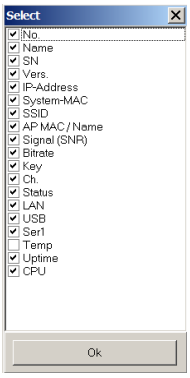
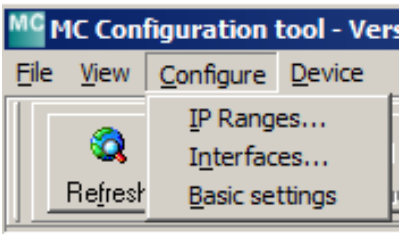
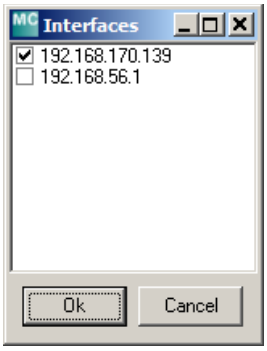
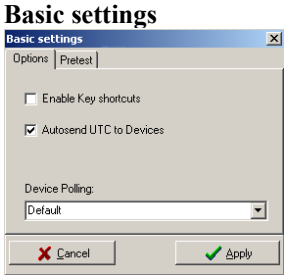


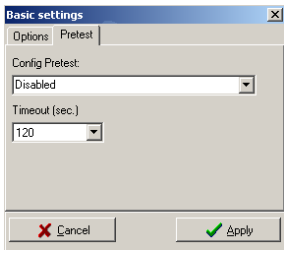
Figure 6: View Menu

Menu item	Function
Select Visible Column 	With this function you can set which columns of the list view are visible and which are not.
Copy list	This function copies the text content of the list view with the information of the WLAN clients to the clipboard. This function can be used, for example, to further process this information using a text editor.
Autosize columns	This function automatically sets the column width of the visible columns so that all information is shown. This action can also be triggered by clicking on the list view and pressing the Ctrl-V key combination.
Place Center	This will reposition the main window of the MCConfig program.

3.2.3 Configure menu

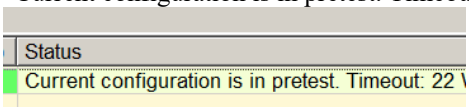
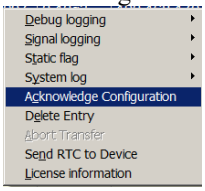


<table>
<tr><th>Menu item</th><th>Function</th></tr>
<tr><td>IP Ranges</td><td>In particular if the MCConfig program is to connect to the WLAN clients via WLAN and the WLAN system does not forward the broadcast UDP packets that the MCConfig program sends to search for the WLAN clients, it is necessary to scan specific IP address ranges. This menu item is used to define the parameters for scanning.
see --> 8.1</td></tr>
<tr><td>Interfaces
 
</td><td>If the computer on which the MCConfig program is running has several IP network interfaces, you can select here which of the interfaces should (can) be used to connect to the WLAN clients. The user should use these settings to activate only the interface that is necessary for communication with the MC device, so that an unnecessary number of broadcast requests are not distributed over the various interfaces.</td></tr>
<tr><td rowspan="2">Basic settings
 
</td><td colspan="2">This menu item contains settings that affect the functionality of the MCConfig program.</td></tr>
<tr><td>Enable Hotkey Shortcuts</td><td>With "Enable Hotkey Shortcuts" key commands are enabled for the list view. If this option is activated, the list view reacts to the following entries:
<table>
<tr><th>Key</th><th>Function</th></tr>
<tr><td>'s'</td><td>Set selected item to “static“</td></tr>
<tr><td>'S'</td><td>Reset “static“ state</td></tr>
<tr><td>ESC</td><td>Cancel data transfer in process</td></tr>
<tr><td>'c'</td><td>Call Config-function</td></tr>
<tr><td>'u'</td><td>Call Upgrade-function</td></tr>
</table></td></tr>
<tr><td></td><td>Autosend UTC to devices</td><td>With "Autosend UTC to devices" the MCConfig program can be set so that the current time of the PC is continuously transmitted to the WLAN clients. This makes sense if no time server is available in the network.</td></tr>
<tr><td></td><td>Device Polling</td><td>This parameter sets how often the current status of the devices in the list is updated. It also sets how often a "DISCOVER" is sent to find new devices in the system.
<table>
<tr><th>Option</th><th>Statusabfrage</th><th>Discover</th></tr>
<tr><td>fast</td><td>5 x per sec.</td><td>1 x per 3 sec.</td></tr>
<tr><td>default</td><td>1 x per sec.</td><td>1 x per 5 sec.</td></tr>
<tr><td>slower</td><td>1 x per 3 sec.</td><td>1 x per 10 sec.</td></tr>
<tr><td>Extremely slow</td><td>1 x per 6 sec.</td><td>1 x per 20 sec.</td></tr>
</table>
The setting should be set depending on how many devices are listed in the table and how much (WLAN) data traffic is to be generated by the MCConfig program and how promptly status changes in the devices are to be detected.</td></tr>
</table>



Pretest
If this option is activated, a new Config, which has been transferred to an MC device, is initially accepted and executed "for test". If this Config is not confirmed within the time defined by the “Timeout” parameter, the MC activates the previous Config again and restarts it.
This prevents a wrong setting in the Config from causing the connection to an MC device not to be re-established after this Config has been sent.

The following settings are possible:

Option	Function
Disabled	Pretest not active
Enabled - Need user acknowledge	The new Config must be confirmed by the user. After the device has been registered with the MCConfig with the new Config, the message appears in the status column: "Current configuration is in pretest. Timeout: xx"  The user must confirm the new config before the timeout expires, otherwise the previous config will be reactivated and the device will restart. To confirm, activate the context menu for this device. The new Config is permanently activated via the menu selection "Acknoledge Configuration". 
Enabled - Auto acknoledge on contact	The new Config is automatically confirmed when the device is registered again after downloading the new Config.

3.2.4 Device Menu

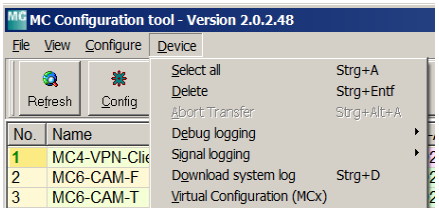


Figure 7: Device Menü

Menu item	Function	key combination
Select all	Select all list entries	Strg + A
Delete	Delete selected list entries from the table	Strg + Entf
Abort transfer	Cancel all running data transfers	Strg + Alt + A
Debug logging	Enable or disable logging of debug messages for all marked WLAN clients.	

Signal logging	Enable or disable logging of WLAN connection data for all marked WLAN clients.	
Download system log	Download and save the saved debug messages of the marked WLAN clients.	Strg + D
Virtual Configuration (MCx)	With this function you can view and edit an existing Config file without having to use an MC device.	

4 Config function

Pressing the Config button transfers data from the selected WLAN client to the MCConfig program, which defines both the parameters to be set and the current values of these parameters. This means that the parameters to be set for the Config program are dynamic and are only defined by the firmware of the WLAN client.

When all the data has been received from the WLAN client, the following window opens:

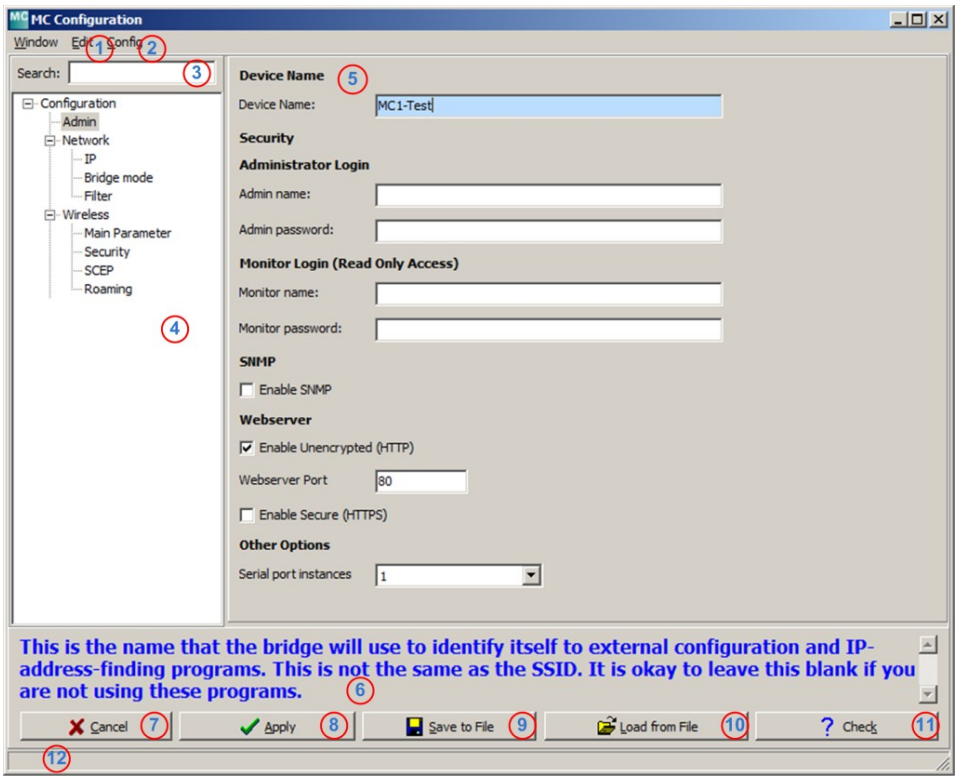


Figure 8: Config Dialog

The window shows the following sectors:

(1 + 2)	menu
(3 + 4)	Config structure with search function
(5)	Parameter definition
(6)	Field for notes and help regarding the individual parameters
(7-11)	Buttons to save, load and allocate the configuration data
(12)	Status messages

In order to display or edit certain parameters, the segment in which the parameter is defined must first be selected from the config structure. To search for a parameter, you can use the search function (3), which displays the segments with hits in blue in the search field if they match.
The available settings for the selected segment are displayed in the parameter area (4). The user can make

changes. Modified parameters are highlighted in bold. In addition, the relevant segment is shown in red in the structure display. This allows the user to keep track of where changes have been made. The changes can be undone with the key combination "Ctrl - R". With the key combination "Ctrl - D" all values can be reset to the factory default.

When all changes have been made, press the "Apply" key (8) to return the configuration to the WLAN client. The client takes over the parameters and reboots or restarts the WLAN connection depending on the changes. This closes the Config dialog.

The buttons of the Config dialog have the following function:

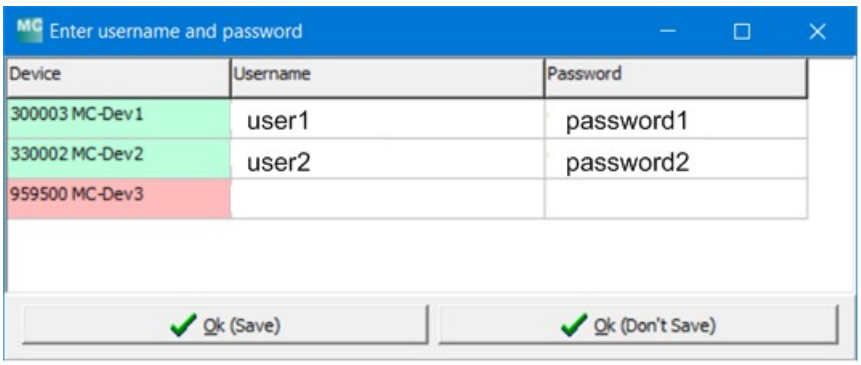
No.	Button	Function
7	Break	Close the Config dialog without transferring the changes to the WLAN client.
8	Apply	Transmission of the parameter set to the WLAN client. The Config dialog is closed.
9	Save to File	Save the current parameter set in a file.
10	Load from File	Loads a parameter set from a file.
11	Check	Transmission of the parameter set to the WLAN client for verification. The result of the check is displayed in the status bar at the bottom (12).

4.1 Variable number of input fields

There are a number of parameters that have multiple instances. For example, under "Network" → "Bridge Mode" → "NAT" there are forwarding rules (NAT Rules). The number of configurable rules can be set by right-clicking on one of the input fields to open a context menu and selecting "Change option count".

5 Access protection with user name and password

Access to the configuration of an MC device can be protected by entering Username + Password in the Config under "Admin". If the same values of User + Password are valid for all WLAN clients, one has to enter these values in the main window under User and Password and can thus access all devices. You can also enter the values for User + Password when starting the MCConfig program. With the arguments "MCConfig_2_0_3_5.exe user=.... password=..... " these values are taken over into the two input fields at the start.
However, if the WLAN clients require different user password specifications, you can also leave the user + password input fields empty. When protected functions are accessed by one or more WLAN clients, a dialog opens. There you can enter the username and password.



Already during the input the program checks the correctness of the data and colors the "Device" field green if the Username+Password input is correct.
These entries can be stored permanently in a file (Save) or temporarily (don't Save) in the memory. With "don't Save" the entries are deleted when the MCConfig program is closed. “Save" creates a <SN>.cred file in the "Credentials" directory for each device, which contains the encrypted username+password entry.

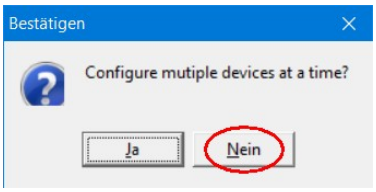
6 Firmware-Updates

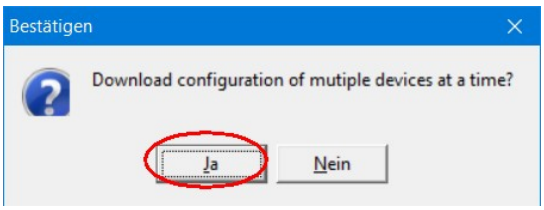
By pressing the Upgrade button, the user accesses a dialog with which a firmware file can be selected. Firmware files for WLAN clients have the type "bin".
The selected file is then transferred to the WLAN client and stored in the flash memory. The parameters of the WLAN client are adopted by the new firmware.

7 Download config from multiple devices

To download and save the config files from several devices at the same time, proceed as follows:

mark in the main window the devices from which you want to download the config. This is done by clicking on the device entry while holding down the <Ctrl> key.
After pressing the Config key the following dialogs appear, which are to be operated as shown.





In the following a directory is defined where the config files are stored.

The config files stored in the directory have this name format:
Cfg_<ip-addr>_<MAC-addr>_<SN>_<Device Name>.cfg

8 Search WLAN clients

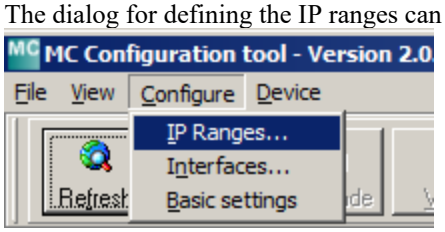
8.1 IP-Ranges

The following conditions may be responsible for the MCConfig program not being able to establish a connection to WLAN clients:

- The WLAN clients are located in another network.
- The WLAN clients are connected via a WLAN infrastructure that does not forward the MCConfig program's broadcast requests.

In order to reach these WLAN clients, IP ranges can be defined which are scanned when the MCConfig program is started and after pressing the refresh button.

The dialog for defining the IP ranges can be opened here:



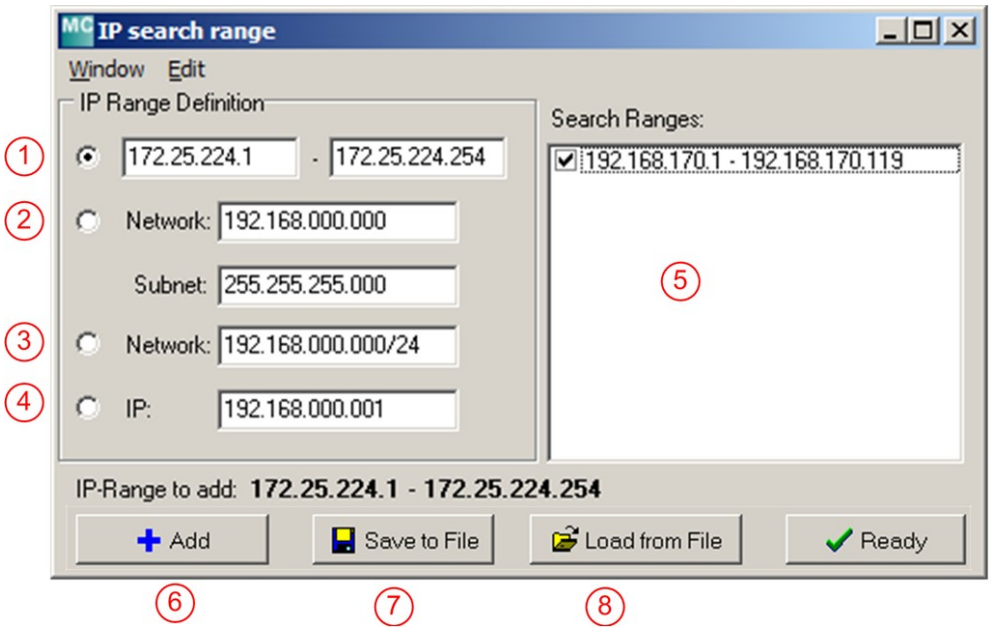


Figure 9: Setting the IP ranges

With the selection 1 - 4 different methods can be selected to define a scan area.
1) Freely definable IP range with start and end IP
2) Definition of an IP range with network address and subnet mask
3) Definition of an IP range with network address and bit mask
4) Single IP address information

Clicking „Add“ (6) the selected and edited information will be added to the range (5).
With „Save to File“ (7) the information can be saved to a file and with “Load from File” (8) loaded from a file.
With the “delete”-Key a selected IP range item in (5) can be removed.
After leaving the dialog the defined and activated ranges are scanned.

9 Recording debug messages

The MC devices can save messages in files during operation, which record certain events and error situations. How and what is to be recorded can be defined in the configuration of the MC.
For the time allocation of the messages it is useful if a time server (NTP server) is configured in the MC (see Realtime Clock).

9.1 Record system messages

Depending on the current problem to be investigated, the "intensity" of the debug messages for individual program parts of the MC firmware can be set via configuration (--> logging).
In addition, protocol recordings of the data traffic can also be made on the WLAN as well as on the of the LAN interface.

9.1.1 Setting the logging parameters

Debug log

Log Destination	Here you can set in which memory the file with the media will be stored. Possible targets are:		
	Selection	**Destination**	**Note**
	RAM	Internal RAM memory	The messages recorded in this way are lost after a "power down" or a reset

	Internal FLASH	Internal FLASH memory	After a "Power Down" or a reset the following messages are written to the end of a possibly already existing debug file. The maximum size of the file is 16 MByte.
	USB	External USB FLASH memory	In this mode, a numbered new debug file is created after each reset. So "DebugLog0.dat", "DebugLog1.dat" etc. The size of the file is only limited by the capacity of the USB memory.

Debug information

In addition to the actual text of the message, you can specify what additional information will be included.

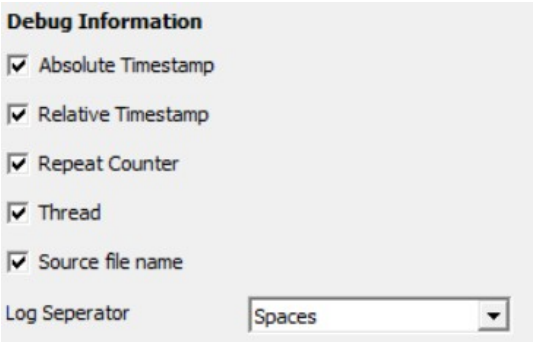


Figure 10: Debug information

No.	Information	Note
1	Absolute Timestamp	Time specification in the format "day.month hour:minute:second.microsecond". If no time information was received via the network (NTP), the elapsed time since the system start is indicated here.
2	Relative Timestamp	Time indication as counter of the past milliseconds since the start.
3	Repeat Counter	Counter that indicates how often this message has been issued since system startup.
4	Thread	Name or ID of the process that issues this message
5	Source file name	a) name of the program file and b) Number of the program line, that generated this message.
6	Class	There are the classes: ERROR WARN INFO TRACE active according to the debug settings (Default, Detailed, Maximum).
7	Message	

Example of an output line:

13894468 8152 696 9.3. 12:57:03.903116 MMqttClKA Mqtt.c [1705] INFO: ID_00:0E:8E:64:D4:CC: Send PING

Elements:

2	3	1	4	5a	5b	6	7
13894468	8152	9.3. 12:57:03.903116	696	MMqttClKA Mqtt.c	[1705]	INFO:	ID_00:0E:8E:64:D4:CC Send PING

Log Separator

With this parameter one can define which separator should be set between the individual elements of an output line. For example, if you want to insert the log file into an Excel list, you can use this

Take characters as separation:
1) Space
2) Comma
3) Pipe
4) Tab

Syslog Server

The messages can also be sent to a syslog server. For this purpose, the IP address of this server is defined. With the specification "0.0.0.0" this function is not active.
To use a syslog server, it should be accessible via the LAN port. Sending syslog messages to a server via WLAN is not recommended because they can significantly increase the data traffic via WLAN. In addition, the messages are usually lost in the event of a fault on the WLAN connection.

Traffic Dump Configuration

The "Traffic Dump Configuration" function can be used to record the data traffic on the LAN and (or) the WLAN interface. The files generated in the process can be analyzed with well-known programs such as *Wireshark.*

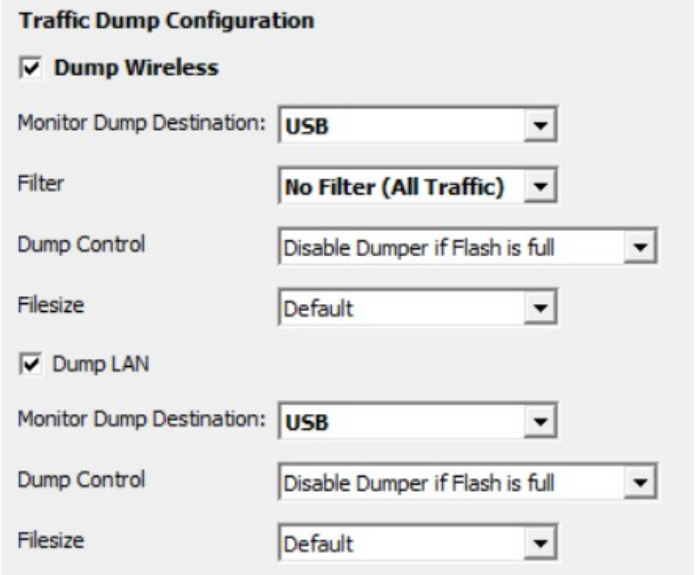


Figure 11: Traffic Dump Configuration

Parameter	Function	
Dump Wireless	This activates the recording of the data packets on the WLAN side	
Monitor Dump Destination	Setting the Steicherplatz for the WLAN - recordings	
	1) Internal Flash	Internal flash memory (approx. 400MByte)
	2) USB	External USB memory (depending on the capacity of it memory stick)
Filter	In order to record WLAN data over as long a period as possible, you can activate a filter here that only stores the data sent and received by your "own" WLAN radio card. Alternatively, you can also specify a self-defined filter. To do this, however, you should familiarize yourself with the filter format of the pcap module.	

Dump Control	With "Dump Control" you can set what happens when the memory limit of the internal flash or the USB memory is reached. 1) The recording is stopped 2) The oldest recording will be deleted and the recording will continue with a new file.
Filesize (only displayed if "Monitor Dump Destination" = USB)	If the recordings are stored in the USB memory, you can set the maximum size of the file here: Small = 8 MByte Medium = 32 MByte (Default) Large = 128 MByte
Dump LAN	This activates the recording of the data packets on the LAN side
Monitor Dump Destination	As above
Dump Control	As above
Filesize	As above

During recording, the current recording file is closed at a size of 32MByte (or 8 or 128MByte) and a new file is opened. The stored file is then compressed and written to the file system as a *.gz file, after which the original file is deleted. Depending on the compression rate of the data, the data traffic can be logged over a long period of time.

:
This type of recording of the data traffic on the interfaces places a considerable load on the FLASH memory in particular and **should only** be **activated for error diagnostics. In productive use, this function should be deactivated**.

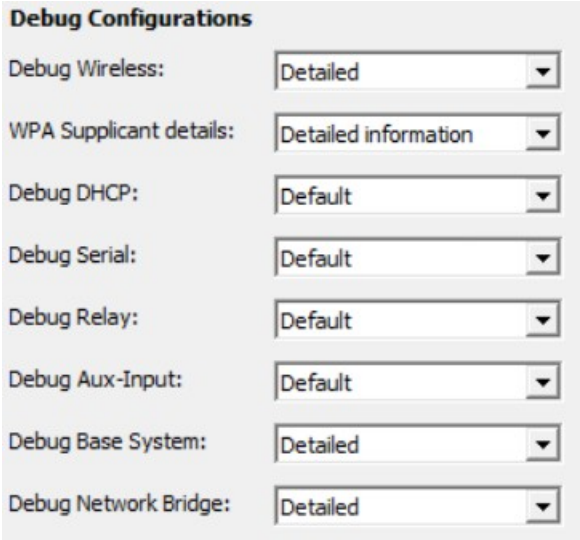
The dump files can be cleared using the context menu in the main window → System Log → Clear Dumps and Log.

Debug Configurations

In this section you can set the intensity with which certain firmware program parts write messages to the debug log file.

The following levels are selectable:
1) Default Only warnings and errors are recorded
2) Information Additional messages are recorded
3) Detailed More detailed message is recorded.
3) Maximum Maximum number of messages is recorded

For the observation of a rather rarely or sporadically occurring event the setting "Detailed" is sufficient.
The "Maximum" setting generates very many outputs, so that very large amounts of data can be generated in a short time. This often complicates the analysis and possibly also changes the program flow due to the high load.
Therefore, you should set "Maximum" only if the error you are looking for can be reproduced quickly.



The configuration shown here would be well suited for monitoring communication via WLAN and analyzing any problems caused by connection interruptions.

9.2 Recording debug messages with the MCConfig program

The debug messages can be transferred from an MC device to the MCConfig program via the context menu of the list view.

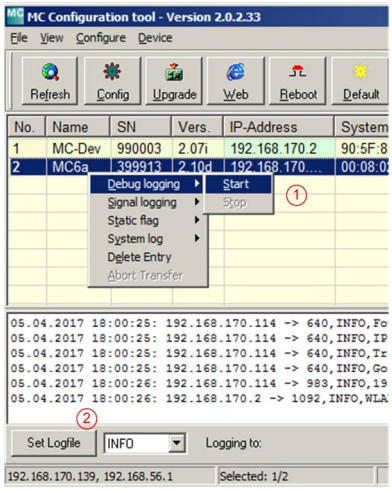


Figure 12: Recording debug messages

To start the recording, click on the relevant entry in the device list "right" and select "Debug logging" --> "Start" (1). Once the log file has been defined in the following dialog, all messages are written to this file and also displayed in the area (2). It is possible to save debug messages for several MC devices simultaneously in this way.

A double click on the area (2) displays the recorded messages in the text editor specified by the Windows system.

The devices with active DebugLog transmission are marked accordingly in the status column.

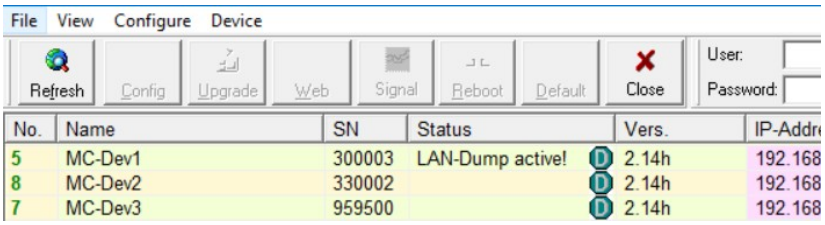


Figure 13: Devices with active debug log

The function can be switched off by clicking on the symbol

9.3 Download debug messages and (W)LAN recordings

The debug messages and recordings on the interfaces stored in the MC can be downloaded via the selection System log -> Download Dumps and Log.

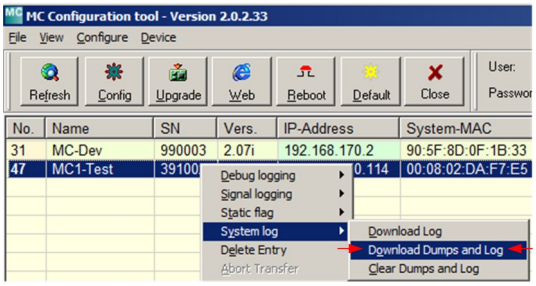


Figure 14: Download Dumps and Log

First, a dialog opens to specify the folder in which the files are to be created. Then a dialog opens where you can select the log and dump files to download. Before opening this dialog all active dump processes are stopped. The remaining pcap files are compressed. This process can take some time. This state is displayed in the "Status" column.

Then the following dialog is displayed:

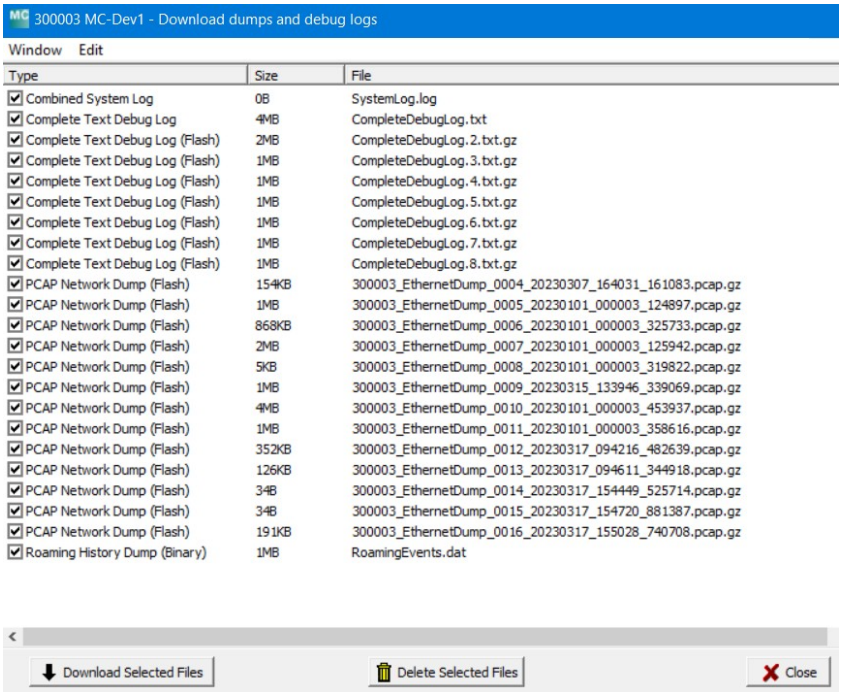


Figure 15: File selection for download or deletion

This selection always lists the file "SystemLog.log", which contains a lot of information about the current status of the MC with the last system messages and the current config data. This file is always important for the analysis of error situations.

The file "CompleteDebugLog.txt" contains the system messages that were generated during operation depending on the settings made under "Logging". This file is filled up to a length of 16MByte. When this size is reached, it will be renamed to "CompleteDebugLog.**x**.txt". Further system messages are then written to a newly created " CompleteDebugLog.txt". “**x**” is a number that is incremented when the current debug file has reached the 16MByte size again.

The dump files are listed in the order they were written. First the LAN dump files then the WLAN dump files. If a time server could be used, the date and time of the start time appears in the file names of the dump files. This is helpful because it allows you to select exactly the file that could have documented the error that occurred.
The file name is composed as follows:

nnnnn_	Serialno. of the MC device	
WLAN(Ethernet)Dump		
xxxx	File numbering	This is important if no time server is set up and the MC restarts in between.
YYYYMMDD	Date of recording	Ohne Realtime Clock startet der MC mit dem Datum 01.01.2000
hhmmss	Start time	Hour-minute-second. Without real-time clock, the time starts at 00.00.00
_uuuuuu		in micro seconds

From this list you can select one or more files and either download or delete them.

Both log and dump files are shown in the list, which are stored in the internal flash as well as in the USB stick that may have been plugged in. Files on the USB stick are marked with "(USB)".