



**User Guide** 

# Easy and fast Apply the MCXWeb tool with your MCX

To ensure that you correctly install your MCXWeb please follow this user guide





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# **1. Introduction**

MCXWeb is the online tool used to monitor software applications running into one or more MCX devices connected in a CANbus network.

To monitor MCX devices using the MCXWeb you will need to have at least one MCX061V or MCX152V device in the CANbus network, as these are the MCX models that supports Web Server and an Ethernet connection.

The MCXWeb tool can also be used as a simulator for MCX software applications running on a PC for testing and debugging.

IMPORTANT NOTE.

You can use MCXWeb with popular browsers like Chrome, Firefox, and Safari. Using it with Internet Explorer is not recommended.

This manual refers to the following firmware version or later: Web Server interface: 2v08 Web Server firmware: 2v23 MCX061V-MCX152V BIOS: 2v22

## 2. MCXWeb components



- 1. MCX061V and MCX152V are the MCX models with Web Server included. Like all other MCX models, MCX061V and MCX152V are fitted with a BIOS and can run application software.
- 2. Web Server is the software tool included with MCX061V and MCX152V, providing the user with web pages that are displayed on a browser on remote PCs (6). This service needs the following two software elements: Web Server firmware (xport BIOS) and software interface (web pages).
  - The **Web Server firmware** is the file xport\_pro.romz MCX061V and MCX152V are provided with Web Server's firmware already installed and should be upgraded only in case of special needs (see Paragraph 4.1 Web Server firmware update).

The files needed to upgrade Web Server's firmware (BIOS) are included in the MCX-Web update pack available at <u>http://www.danfoss.com/mcx</u>



- The **software interface** is the set of the files in the following folders present in the root of the server:



The MCX061V and MCX152V are provided with the Web Server software interface already installed and should be upgraded only in case of special needs (see paragraph 4.2 Web Server software interface update).

All the files needed to upgrade Web Server's software interface are included in MCX-Web update pack available at <u>http://www.danfoss.com/mcx</u>

The Web Server software interface includes the folders containing web pages and additional files, for example, the software applications and templates used to configure the MCX present in the MCX CANbus network.

The configuration files should be added or upgraded every time a new MCX device is added to the CANbus network or when there is an upgrade in the MCX firmware or software (see Paragraph 5.6.1, Configuration Network).

- 3. A memory card is a hardware component used to upgrade the firmware and software of Web Server and of the MCX, and to store log data.
- 4. MCX devices can be connected via CANbus to the MCX061V and MCX152V, which can be used as web interfaces for all the MCX present in the CANbus network. Each MCX is provided with its firmware (BIOS) and software application. MCX061V and MCX152V must be configured with a template file for each MCX connected, representing the list of variables involved in the communication.
- 5. A router is a device that connects MCX Web Server to the Internet
- 6. Remote PCs are the computers where MCXWeb pages are displayed through popular browsers like Chrome, Firefox, and Safari. Using Internet Explorer is not recommended.



# 3. MCXWeb connections

To start using MCXWeb, the first step is identifying the MCX061V or MCX152V in the local network supporting the web server. There are two alternative options.

1) Enter in the BIOS menu of MCX061V or MCX152V by pressing and releasing the X and ENTER key at power up.

Configure the TCP/IP settings by navigating to the "GEN SETTINGS" – "TCP/IP" screen. You can manually assign the IP address or get it dynamically from the network via DHCP.

2) Realize a small local network as in Figure



Run the **Gateway Finder** program available at <u>http://www.danfoss.com/mcx</u> to find the IP address of your MCX061V or MCX152V:

ca network adapte	r.		Dan
Area Connection		•	0-1
IP Address	Mac Address	Device Type	Link
10.16.176.53	00:80:A3:AF:46:E2	MCXWeb	open
10.16.176.51	00:80:A3:91:FC:C2	MCXWeb	open

Using the Gateway Finder you get the IP address and MAC addresses of any MCX061V or MCX152V connected to the LAN.

You can then establish a connection with MCX Web Server through a web browser or an FTP client.

For the description of the web pages accessible through the web browser, see Paragraph 5, Web Server User Guide.

The FTP client is used to update the web server elements when needed. See Paragraph 4, Web Server and MCX Update.



# 4. Web Server and MCX Update

To update Web Server's elements, use a FTP client. We suggest using FileZilla. See Paragraph 3, MCXWeb Connection on how to establish a connection. The parameters to configure the FTP client are as follows:

Host:	MCX IP Address	(e.g. 192.168.1.xxx)
Username:	admin	(Username is case sensitive)
Password:	PASS	(Password is case sensitive)

🔁 admin@10.10.10.85 - FileZilla	
File Modifica Visualizza Trasferimento Server Segnalibri Aiuto	
M - N - A - A - A - A - A - A - A - A - A	
Host: 10.10.10.85 Nome utente: admin Passwo	vord: •••• Porta: Connessione rapida 🔻
Risposta:         257 '/apps[' is current directory           Comando:         PASV           Risposta:         227 Entering Passive Mode (10,10,10,85,84,208)           Comando:         LIST           Risposta:         150 data port open.           Risposta:         256 dosing.           Stato:         Contenuto cartella letto con successo	
Sito locale: r\Applicazioni\Chiller\CHILLER-HP_4.02.03\MCXWeb\apps\ 😪	Sito remoto: /apps
Construction of the second sec	Config     Config
Nome file / Dimension Tipo file Ultima mod	Nome file ∇ Dimension Tipo file Ultima modifica Permess
CHILLER+HP.tem 374.005 File TEM 17/04/201: ☐ CHILLER+HP.tem 22.761 File TEM 16/04/201: ☐ prfo.txt 0 Document 03/04/201;	□
< >	

## 4.1 Web Server Firmware Update (xport)

4.2 Web Server Software Inter-

face Update (web pages)

Establish the FTP connection with MCX Web Server as described in Paragraph 3, MCXWeb connection.

To update MCX Web Server's firmware, copy the file xport\_pro.romz in the root of MCX Web Server. The update procedure starts automatically after copying the files. NOTE. The file will be automatically removed during the process.

WARNING: DO NOT power off the MCX061V/MCX152V for 2 minutes after the update.

If you have executed the Web Server firmware update as described in the previous paragraph, wait two minutes from the start of that procedure before proceeding with the Web Server software interface update.

To update the Web Server software interface, you will need the MCXWeb update pack available at <u>http://www.danfoss.com/mcx</u>.

- Establish the FTP connection with MCX Web Server as described in Paragraph 3, MCXWeb connection.
- Remove all the files and folders present on MCX Web Server
- Copy all the following folders, which the software interface is made of, in the root of MCX Web Server.

WARNING: do not copy the Web Server firmware (romz file) with the software interface files, otherwise the firmware update process will start (see the previous paragraph) and the web pages will not be updated. If this happens, you must copy the folder of the wep pages in the root of the MCX Web Server again two minutes after copying the firmware update.

**WARNING**: after an update operation, MCX Web Server may automatically run a defrag operation to optimize space and performance; this operation makes the MCX Web Server inaccessible for few minutes without any visible signal.



## The update for the MCX061V-MCX152V BIOS follows the same procedure of all the other 4.3 MCX061V-MCX152V BIOS MCX models. Update You can update via the CANbus using the MMYMYK or via serial communication using a PC and a USB/485 converter. In addition to the usual options, with MCX061V and MCX152V it is also possible to update the BIOS via memory card and via web pages. To update the BIOS via memory card, the procedure is as follows: - copy the file **mcx061v.bin** or **mcx152v.bin** (the name is case sensitive) in the root of a memory card - switch off the MCX061V or MCX152V - insert the memory card into the MCX slot - switch on the MCX The BIOS updating procedure will start automatically and the MCX display will show the BIOS splash screen. To update the BIOS via the web, follow the instructions in Paragraph 5.6.5.2, BIOS Update. You can also update the BIOS of the MCX connected through CANbus to the MCX061V-MCX152V using web pages. The file needed to upgrade the BIOS is available in the BIOS pack at http://www.danfoss.com/mcx Updates to the application software running on MCX061V or MCX152V follow the same 4.4 MCX061V-MCX152V procedure as all other MCX models. **Software Application Update**

You can update via the CANbus using the MMYMYK or via serial communication using a PC and a USB/485 converter.

In addition to the standard update methods, MCX061V and MCX152V can also be updated using an application, a memory card and web pages.

To update the application software via memory card, the procedure is as follows: - copy the file app.pk (the name is case sensitive) in the root of a memory card

- switch off the MCX
- insert the memory card into the MCX slot
- power on the MCX.

The application will be automatically copied from memory to the MCX061V or MCX152V and executed.

To update the application software using the web pages, follow the instructions in Paragraph 5.6.5.1, Application Update. When updating with web pages, you can also update the MCX's application software connected through the CANbus to the MCX061V-MCX152V.



# 5. Web Server User Guide

### 5.1 Login

Launch an internet browser from the PC connected to the local network and type the IP of the MCX061V or MCX152V (see Paragraph 3, MCXWeb Connection) in the address bar.

WARNING. You can use popular browsers like Chrome, Firefox, and Safari. Using Internet Explorer is not recommended.

Enter your user name and password to log in to the MCXWeb interface User name and password are defined in Configuration > Users. By default, they are **admin** and **PASS**.



If you are using a virtual keyboard (e.g. for touch screens) check the box beside the keyboard icon under the password field





## **5.2 Main Buttons**

The main buttons can be found at the top right of all the MCXWeb pages after login.





Back to home page (Network Overview)



Back to login page



Site information:

Version of the MCXWeb software interface Version of the Web Server firmware in the MCX061V – MCX152V Version of MCX061V-MCX152V BIOS Serial number of the MCX061V – MCX152V MAC address of the MCX061V – MCX152V License information

Danfots ENGINEERING TOMORROW	Danfoss
Network History Alarms Con	iguration 24/05/2017 17:31:07
	♠ -• ?
Info	
Site Ve	sion 2.007.005
Server	/ersion 5.2.0.1R5.DANFOSS_2v23
Bios Ve	sion 2v22
Serial N	umber 1621000233
MAC Ad	dress 00:80:a3:af:46:e2
Further	Info License



#### 5.3 Network Overview Danfoss Danfoss ENGINEERING TOMORROW Network History Alarms Configuration 24/05/2017 17:42:36 (home page) Network Overview ▲ -• ? Device List Device Nam Node ID Chiller MCX061V 1 00 2 Chiller4v31 Active Inactive Ounconfigured

The Network overview is used to list all the devices connected in the CANbus Network to the MCX061V-MCX152V.

For each MCX device detected on the network, the following information is displayed:

- "Device Name" is the name defined in Configuration > Network
- "Node ID" is the CANbus address defined in the BIOS of the MCX device
- "Active" displays the device status:
   A green dot means that the device is active (configured and connected)
  - A yellow dot means that the device is not configured: the template (tem) file has not been associated with this device (see Paragraph 5.6.1, Configuration Network). A grey dot means that the device is inactive and not connected.

If you click the line with the device you are interested in, you will enter the device specific pages. If the device is active, you will see the pages populated with live values (see Paragraph 5.7, Device Pages).

### 5.4 History

On this page you can graph historic data.

Select the variables you want to display as a graph, the date and period and then select Draw.



You can use the mouse wheel to zoom in and out of the graph and the arrows on the bottom right corner to move the graph's time period back and forward. The graph may also display events (yellow flags); use the mouse to click a flag to view additional information on the relevant event.



Press Export to export history data in CSV format.



## 5.5 Alarms

This page displays the list of the alarms active in all the devices connected to the CANbus network.

	ROW			Danfoss
Network History A	Alarms Configurat	ion		25/05/2017 16:29:08
Current alarms				♠ -• ?
Current alarms				
Alarm	Device Name		NodeID	
Alr. Probe Tin Evaporator	Chiller MCX061V	1		
Alr. Probe DischargePress C1	Chiller MCX061V	1		
Alr. Probe DischargePress C2	Chiller MCX061V	1		
Alr. Probe Oil Press Comp1	Chiller MCX061V	1		
Alr. Probe Oil Press Comp2	Chiller MCX061V	1		
EEV1 S2 Error	Chiller MCX061V	1		
Expansion communication faul	t Chiller MCX061V	1		
Alr. Probe DischargePress C1	Chiller4v31	2		
Alr. Probe DischargePress C2	Chiller4v31	2		
Alr. Probe Oil Press Comp1	Chiller4v31	2		
Alr. Probe Oil Press Comp2	Chiller4v31	2		
Expansion communication faul	t Chiller4v31	2		

# 5.6 Configuration

The Configuration menu is used to configure items under the following headers: Network, Template, Users, System, History.

Is also used to update the software (application) and firmware (BIOS) of the devices. The configuration menu is visible only to users with service or admin access levels.

Danfoss ENGINEERING TOMORROW		Danfoss
Network History Alarms	Configuration	12/07/2017 13:31:55
Network Overview	Network	♠ -• ?
Device List	Template & Files	
Device List	Users	
	System	
mcx061v 1	Update	
mcx20b 2	History	



#### 5.6.1 Configuration Network

This page shows which devices are connected in the CANbus network. You can also manually add new devices by pressing the Add button and setting the ID (CANbus address) of the device to be added.

For each device in the list you must specify the description (free text) and the application template.

The application template is a file with a *tem* extension containing the description of variables and parameters of the software application running in the MCX device. Templates must be 1) created, 2) loaded and 3) associated

The template is associated to the device through the combo menu in the Application column.

This combo menu is populated with all the *tem* files created with MCXShape and transferred into the MCX061V-MCX152V following the instruction in the next paragraph. Use the special entry "HIDDEN NODE" if you want to hide some nodes in the network overview or if they do not have a template. This is typically used for nodes such as User Interfaces (e.g. MMIGRS) or Accessories (e.g. MMIMYK) Press Save to save the changes.

Danfoss ENGINEERI	NG TOMORROW			Danfoss
Network Histo	ory Alarms Cor	figuration		24/05/2017 18:00:22
Network Configuration				♠ -• ?
Devices				
				Add Save
Node ID	Device Name	Description	Application	
1	MCX061V	Chiller MCX061V	CHILLER-HP V	
2	MCX20	Chiller4v31	CHILLER-HP •	
96		N.A.	HIDDEN NODE •	
126		N.A.	HIDDEN NODE V	

After the *tem* association, in the "Network Overview" page the device status changes from Unconfigured to Active.

	OMORROW		Danfoss
Network History	Alarms Config	uration	09/05/2017 14:38:54
Network Overview			♠ -• ?
Device List			
		$\square$	
Device Name	Node ID	Active	
t3c	1	•	
Chiller	10	•	
O Active O Inactive	O Unconfigured	$\bigcirc$	



#### 5.6.2 Configuration Template & Files

This page is used to load the templates of the software applications running on the MCX061V-MCX152V and other MCX connected to it into the MCX061V-MCX152V. See the next paragraph for how to create a template.

Danfoss ENGINEERING	TOMORROW		Danfoss
Network History	Alarms Configu	ration	12/07/2017 13:11:49
Templates & Files			♠ -• ?
Files			
File Name	Size (bytes)	Remove	
LightChillerHP_1C.tem	148843	remove	
CHILLER-HP.tem	381289	remove	
Browse	Uploa	d File	

The templates are loaded in the "apps" folder in the MCX. You can also load them here via FTP:

🔁 admin@10.10.10.85 - FileZilla			1	
File Modifica Visualizza Trasferimento Server Segnalibri Aiuto				
1 - N - N - N - N - N - N - N - N - N -				
Host: 10.10.10.85 Nome utente: admin Passwe	ord: •••• Porta:	Connessione rapida		
Risposta: 257 "/apps/" is current directory Comando: PASV Risposta: 227 Entering Passive Mode (10,10,10,85,84,208) Comando: LIST Risposta: 150 data port open.				^
Risposta: 226 closing. Stato: Contenuto cartella letto con successo				~
Sito locale: r\Applicazioni\Chiller\CHILLER-HP_4.02.03\MCXWeb\apps\ 🗸	Sito remoto: /apps			~
EVBindetor     EVBindetor     Converts     MCXweb     Paps     Config     Config	Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Config Co			
Nome file 🕢 Dimension Tipo file Ultima mod	Nome file 🗸	Dimension Tipo file	Ultima modifica	Permessi
	COOFTOP_1.1.2.0.pk ROOFTOP Application.tem mc:061v.bin CHILLER+PP.tem CHILLER+P.pk CHILLER+P-MS.tem	122.456 File PK 199.309 File TEM 258.048 File BIN 355.318 File TEM 162.292 File PK 355.320 File TEM	01/01/2012 0.0 01/01/2012 0.0 01/01/2012 0.0 01/01/2012 0.0 01/01/2012 0.0 01/01/2012 0.0	-rw-rw-r -rw-rw-r -rw-rw-r -rw-rw-r -rw-rw-r -rw-rw-r
< >	<			>

Then the template must be associated to the MCX where the application software described by that template is running (see the previous paragraph).



# 5.6.2.1 Create the application template with MCXShape

Before creating the template, use MCXShape to configure the MCX software application according to your needs.

Then enable the generation of the template file from MCXShape. Go into the Tools-Gateway Configuration menu in MCXShape and select the "Enable Saving Web File" check box.



The template file of the MCX software application has the tem extension and it is created during the "Generate and Compile" procedure.

The *tem* file is saved in the folder "MCXWeb\apps\" in the root of the software application.



#### 5.6.3 Configuration Users

This lists all the users that can access to the MCXWeb interface. There are four possible levels of access: guest, maintenance, service and admin. These levels correspond to the levels assigned in the device template by the MCXShape tool.

Note that you can see only the users with the level equal or lower than the one you logged in.

					A	dd S
lleor	Password	EMail	Level	Mail Alarm	Mail Warning	Remove
USEL						
admin	••••	xyz@gmail.com	3 - admin 🗸	7	~	remove

Select the "Mail Alarm" and "Mail Warning" check boxes to send notification emails to the specified addresses when alarms and warnings occurs in any device present in the CANbus network.

The destination email address is set in the Email column. See Paragraph 5.6.4.3, Site, on how to set the SMTP mail server.

#### 5.6.4 Configuration System

#### 5.6.4.1 Network

This page is used to configure the MCXweb inside the local network to which it belongs. You can manually assign a static IP address (DHCP disabled) or a dynamic address via the dynamic host configuration protocol.

If DHCP is enabled, the IP address of the MCXweb device will be automatically assigned by the DHCP server.

If the DHCP is not enabled, the network setting (IP Default Gateway, Primary DNS and Secondary DNS) must be manually configured

system Config	guration			♠ -• ?
Network	NTP	Site	Reboot	
				Save
DHCP Client		Enable 🗸		
IP Address				
IP Default G	ateway			
Primary DN	5			
Secondary I	ONS			
HTTP Port		80		

You can also set the HTTP port.



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#### 5.6.4.2 NTP

#### Configure the NTP (network time protocol)

ITP Configura	ation			♠ -•
Network	NTP	Site	Reboot	
				Save
NTP Server		0.it.po	.ntp.org	
NTP Server Greenwich I	Mean Tim	0.it.po	.ntp.org /estern European Time, Greenwich Mean Time	~

Set the NTP server you wish to syncronize with. The MCX061V or MCX152V real time clock will then be synchronized and set according to the defined timezone and daylight saving time. Daylight Saving Time:

- OFF: deactivated

- ON: activated
- EU: Start=2nd Sunday of March End=1st Sunday of November
- US: Start=Last Sunday of March End=Last Sunday of October

WARNING. The time synchronization of the MCX connected via CANbus to the MCXWeb is not automatic and must be performed by the application software.

5.6.4.3 Site

Set the Site Configuration used when users are notified of alarms and warnings by email. The destination email address is specified when configuring the Users.

Danfoss EN	IGINEERI	IG TOMOR	ROW				Danfo				
Network	Histo	ory   A	Alarms	Configuration						31/05/2017 14:4	8:01
Site Configurat	t <mark>ion</mark>					♠ -•					
Network	NTP	Site	Reboot								
										Save	7
Site Name		TEST									
EMail Domai	n	smtp.gma	ail.com								
EMail Addres	is	xyz@gma	il.com								
EMail Passwo	ord		•••••								
EMail Port		587									
EMail Mode		TLS									
Test EMail A	ddress						Send	Test EMail			

Site Name is name of the site used in the alarm email message. Email Domain is the name of the simple mail transfer protocol (SMTP) server that you want to use.

Email Address is the email address of the sender.

For the Email Port and Mode, refer to the configuration of the SMPT Server. Unauthenticated and SSL or TLS connections are managed. For each mode, the usual port is automatically proposed but you can manually change it afterwards.

#### Example of email sent by MCXWeb:



Node-Id: 2 Node Description: Chiller4v31 Alarm: Expansion communication fault Date/Time: 31/5/2017 14:28.54

Please do not reply to this email.



The Test Email Address is the address to which an email can be sent to test your settings. In the event of a problem you will receive one of the following error codes:

ERROR CODE	DESCRIPTION	ACTION
50	MAIL_FAIL_LOADING_CA_ROOT_CERTIFICATE	Contact Danfoss Product Support
51	MAIL_FAIL_LOADING_CLIENT_CERTIFICATE	Contact Danfoss Product Support
52	MAIL_FAIL_PARSING_KEY	Contact Danfoss Product Support
53	MAIL_FAIL_CONNECTING_SERVER	There is no connection with the mail server. Check the Email Domain and Email Port settings. Also check Network Settings and the physical connection
54	MAIL_FAIL_SSL_CONFIG_DEFAULT	Contact Danfoss Product Support
55	MAIL_FAIL_SSL_CONF_OWN_CERT	Contact Danfoss Product Support
56	MAIL_FAIL_SSL_SETUP	Contact Danfoss Product Support
57	MAIL_FAIL_SSL_SET_HOSTNAME	Contact Danfoss Product Support
58	MAIL_FAIL_HANDSHAKE	Contact Danfoss Product Support
59	MAIL_FAIL_GET_HEADER_FROM_SERVER	Contact Danfoss Product Support
60	MAIL_FAIL_EHLO	Contact Danfoss Product Support
61	MAIL_FAIL_START_TLS	TLS mode is not supported by the mail server. Check the Email Mode setting.
62	MAIL_FAIL_AUTHENTICATION	Authentication failed. Check the Email Address and Email Password settings
63	MAIL_FAIL_WRITING	Authentication was successful, but something went wrong later. Retry. If the problem persists, contact Danfoss Product Support

5.6.4.4 Reboot

Pressing the reboot button restarts the system.

This button is normally used after applications (software) and BIOS (firmware) update.

#### 5.6.5 Configuration Update

The page is used to upgrade applications (software) and BIOS (firmware) The *application* is the file produced by the MCXShape tool with the *pk* extension; it is executed by the MCX and contains the control strategy and the user interface. The *BIOS* is the firmware pre-installed in the MCX control, so it is the first code run at power on.

To proceed with the application and BIOS update, follow these steps:

#### 5.6.5.1 Application Update

Copy the software application file, created with the MCXShape with the pk extension, into the MCX061V/MCX152V in one of these two ways (used in alternative):

- 1) From the Configuration->Template & Files menu select the application file and upload it
- 2) Establish the FTP connection with the MCX Web Server as described in paragraph 3 MCXWeb connection. Copy the application file into the folder "apps" After the file upload, press F5 to refresh the web pages.

From the Configuration->Update page, select the Application tab and click with the mouse on the line of the device you want to update.

Select from the combo menu which is showing all the pk files that you have loaded, the application to download into the device.

Confirm the update by pressing the Update button.



#### 5.6.5.2 BIOS Update

Copy the BIOS file with the bin extension into the MCX061V/MCX152V in one of these two ways (used in alternative):

1) From the Configuration->Template & Files menu select the BIOS file and upload it

2) Establish the FTP connection with the MCX Web Server as described in paragraph 3 MCXWeb connection. Copy the BIOS file into the folder "apps"

After the file upload, press F5 to refresh the web pages.

Select the BIOS tab from the Configuration > Update menu and click the line of the device you want to update.

Danfois ENGINEERING	TOMORROW			Danfoss
Network History	Alarms Con	figuration		15/05/2017 14:23:27
Update				♠ 🗝 ?
Application Bios				
Node ID	Device Name	Description	Current Bios Version	
1	MCX061V	Chiller	2v22	
126		N.A.	41v1	

Select the BIOS to be downloaded into the device from the combo menu. Confirm the update by pressing the Update button.

If there is the appropriated BIOS (*bin* file) for the MCX model selected in the MCXWeb server app folder, the BIOS update procedure is started, otherwise the "File not found" message will be displayed.



#### 5.6.6 Configuration History

Hangos ENGINEERIN	G TOMORROW				Danfo
Network Histor	ry Alarms Config	guration			30/05/2017 10:35:
listory Configuration					<b>A</b> -••
History					
					Save
Index	Node	Parameter	Color	File	Position
1	1 - Chiller MCX061V 🔻	TinEvaporatorValue	<b>#CC0000</b>	1:/hisdata.log	1 •
2	1 - Chiller MCX061V •	ToutEvaporatorValue	<b>#</b> 000000	1:/hisdata.log	2 •
3	1 - Chiller MCX061V •	DischargePressureC1Value	▼ #00CC00	1:/hisdata.log	3 🔻
4	1 - Chiller MCX061V •	EvaporatingPressureC1Value	▼ #CCCC00	1:/hisdata.log	4 🔻
5	•	•	#CCCCCCC	1:/hisdata.log	1 •

Define the variables to be shown in a graph (max 32) in the History pages. You must define:

- Node to which the variable belongs. WARNING. It is possible to plot a graph of data only from the MCX061V or MCX152V where the web server is running, therefore you must select only this node.
- Parameter: variable to view in the History page. All the variables defined in the application software are listed but only the variables saved by application software must be selected. Please refer to the documentation of the specific application software.
- Color: defines the line color (hex code) in the graph in the History page.
- File: defines the file from which the variable value is taken, whether it is stored in the internal memory (0:/) or external memory card (1:/). Please refer to the documentation of the specific application software.
- Position: the position (column) of the variable in the file. Please refer to the documentation of the specific application software.

Example of software developed with MCXDesign:





## **5.7 Device Pages**

From the home page, if you click on a specific device you will enter the device-specific pages.

5.7.1 Device Overview

The overview page is typically used to show the main application data.



By pressing the Manage button you can select the main parameters to display in this page.

Danfoss EN	GINEERING 1	TOMORROW					
Network	History	Alarms	Configu	ration			25/0
hiller MCX061	IV (1)						
Overview	Details	Alarms	Graphs	Backup	Restore	Info	
							Sav
Lab	el	Descri	ption	Sele	:ted		
Parame	ters						
Input/O	utput						
T Comn	nissioning						
ν <u>Δ</u> Ι							
AI	1	DischargePre	ss C1				
AL	2	DischargePre	ss C2	6	í.		
AI	3	Oil Pressure	Comp1		í.		
AI	4	Oil Pressure	Comp2				
AI	6	Tin Evaporate	or				
🕨 🗀 DO							
P 🔤 AO							
🕨 🖾 Alarm							
Status V	/ar						

When you have selected all the variables you need, press Save and you will see them on the Overview page

Danfoss EN	IGINEERING TO	OMORROW					Danfoss
Network	History	Alarms	Configu	ration			25/05/2017 15:35:1
Chiller MCX06	1V (1)						♠ -• ?
Overview	Details	Alarms	Graphs	Backup	Restore	Info	
							Manage
Lat	bel	Descri	otion	Valu	e		
AI1	AI1 DischargePress C1			3276	5.7		
AI4		Oil Pressure (	Comp2	3276	5.7		



# 5.7.1.1 Customization of the Overview Page

This page can be customized with images and command buttons, by defining the HTML page to be used as interface.

The customized HTML page is placed in the /http folder of the MCX061V-MCX152V server. The name is DeviceOverview\_applicationname.html where applicationname is the name of the application defined in the MCXShape tool.



7.0°C



### 5.7.2 Device Details

This page gives you access to the different parameters and variable values by navigating the menu tree.

	TOMORROW						Danfoss
Network Histor	y Alarms	Configu	ration				25/05/2017 15:37:14
Chiller4v31 (2)							♠ -• ?
Overview Detail	s Alarms	Graphs	Backup Resto	re Info			
Label	Descr	ription	Value	Unit	Min	Max	I
🔻 🔛 Parameters							
🔻 🗀 General							
🔻 🞑 Display							
dSA	Display A va	alue	rEg		0	19	
dSb	Display B va	alue	SEt		0	23	
dSC	Icon for cool	ling mode	ICE		0	1	
Log	Logo		NO		0	3	
Par	Parameter V	/ersion	91		91	91	
Password							
Setup							
Serial setting	)s						
Unit Config							
Regulation							
P 🖬 Alarms							
Compressors							
P Heaters							
Evaporator							
Condenser							
Reversing valv	e						
P Demost							
EEV Parameter	5						
EXC conligurat	ion						
Input/Output							
k Alarm							
<ul> <li>Marri</li> <li>Estatus vor</li> </ul>							
- Juatus Var							

When the parameters are displayed, you can check the current value, the unit of measurement and the minimum and maximum values for each of them. To change the current value of the parameter, click on it.





#### 5.7.3 Device Alarms

This page displays all the alarms active in the device.

Danfois EN	GINEERING TO	MORROW						Danfoss
Network	History	Alarms	Configu	ration				25/05/2017 15:42:49
Chiller4v31 (2)								♠ ⊸ ?
Overview	Details	Alarms	Graphs	Backup	Restore	Info		
De	scription		Status					
Alr. Probe Tir	Evaporator		0					
Alr. Probe Dis	chargePress	C1	•					
Alr. Probe Dis	chargePress	C2	0					
Alr. Probe Oil	Air. Probe Oil Press Comp1		0					
Alr. Probe Oil	Alr. Probe Oil Press Comp1 Alr. Probe Oil Press Comp2							
Expansion co	mmunication	n fault	0					

#### 5.7.4 Device Graphs

This page lets you select the variables to populate the real-time graph. Press "Change Selected", navigate the menu tree and select the variable you want to display in a graph.

Danfoss EN	GINEERING TO	OMORROW					Denfott		
Network	History	Alarms	Configu	uration			25/05/2017 16:01:09		
Chiller MCX06	LV (1)				♠ ━ ?				
Overview	Details	Alarms	Graphs	Backup	Restore	Info			
							Change selected Draw		
Dor	od								
1 Min. •	od								
		Selected							
I/O - AI - Di	schargePress	5 C1							

The period to display in the graph window can be configured in the range of 1 to 24 hours.

Once variables and period have been selected, press the Draw button to start plotting the graph using the real-time variables value.





#### 5.7.5 Device Backup

This page is used to save the current value of the parameters. It allows you to make a backup of your configuration and to replicate the same configuration in a different device where the same software application is running.

The parameters selected in this page (all by default) will be saved into the file specified in a dialog box.

Danfoss ENGIN	NEERING TO	MORROW					2	Danfoss
Network	History	Alarms	Configu	ration			25/05/2017 16	5:15:33
Backup > Chiller N	MCX061V	(1)					<b>^</b>	• ?
Overview	Details	Alarms	Graphs	Backup	Restore	Info		
							Backup configurati	on
Label		Descri	iption	Defa	ult	Value	Backup	
🔻 🖻 Parameters	s							
🕨 🛤 General								
🕨 🎽 Unit Con	ifig							
🕨 🌬 Regulatio						A COLORADO		
🕨 🗖 Alarms						Backup file na	ame 🛛 😸	
🕨 🌬 Compres	ssors							
🕨 🗖 Heaters						The second statements		
🕨 🛤 Evaporat	tor					<ul> <li>Please type t</li> <li>extension No.s</li> </ul>	he backup filename without	
🕨 🍋 Condens	er					allowed.	pecial characters are	
🕨 🍋 Reversin	ng valve							
🕨 🛤 Defrost						I_CHILLER-HP		
🕨 🔤 EEV Para	ameters							
EXC Cont	figuration						Class Canfirm	
🕨 🖾 Input/Outp	out						Close	

By default, the file name is *ID\_Applicationname*.bak, where ID is the address in the CANbus network and *Applicationname* is the name of the application running in the device. The backup file is saved in the /user folder in the MCX061V-MCX152V server.

#### 5.7.6 Device Restore

This page contains all the backup files in the <code>\user</code> folder in the <code>MCX061V-MCX152V</code> server.

Only the backup file created with the same application running in the current device will be accepted upon restoring.

To start the restore process of the saved parameters, click the selected backup file.

Danfott ENGINEERING TOMORROW							Danfoss
Network	History	Alarms	Configu	ration			25/05/2017 16:22:09
Restore > Chill	er MCX061V	'(1)					♠ -• ?
Overview	Details	Alarms	Graphs	Backup	Restore	Info	
File N	ame	Size (b	ytes)				
2_CHILLER-HP.bak		150	11				
1_CHILLER-H	IP.bak	150	11				

If you select a backup file that is not compatible with the application running in the current device, you will stay in the previous page. Otherwise the following page will appear

Danford EN	GINEERING TC	MORROW								Danfoss
Network	History	Alarms	Configu	ration					31/05/	2017 15:39:36
Restore > Chill	er MCX061V	(1)								?
Overview	Details	Alarms	Graphs	Backup	Restore	Info				
								Restore	configuration	Cancel
Lab	el ters	Descri	ption	Current	Value	Restore Value	Min	Max	Restore	



Then deselect the parameters you do not want to restore and press "Restore configuration" to start the process. A pop up window will show you the progress and finally a status report.

Danfois EN					D	anfoss
Network	History Alarms Configuratio				/05/2017 15:	45:28
Restore > Chill	er MCX061V (1)				<b>^</b>	• ?
Overview	Device Restore	8 p Restore	Info			
	Successful Restored.		Restor	re configurati	on Cance	1
Lab		ent Value	Restore Value	Min	Max	Res
Parame	Close					

## 5.7.7 Device Info

This page displays the following information relating to the current device: Application name and version BIOS version Serial number of the hardware

Danfoss Engineering TOMORROW	Danfoss
Network History Alarms Configuration	25/05/2017 16:33:14
Chiller MCX061V (1)	♠ -• ?
Overview Details Alarms Graphs Backup Restore Info	
Application Version Bios Version Serial Number	
TI 4.030.000 2v22 1621000233	



# 6. MCXWeb Simulator

You can simulate the web interface of MCX061V-MCX152V with the Simulator in your MCXShape-based software application in the following way:

Ensure you have the latest MCXWeb folder in the root of your application software:



• Enable the generation of the template file from MCXShape. Go into the Tools-Gateway Configuration menu in MCXShape and select the "Enable Saving Web File" check box.



- Generate and compile
- Run the Simulator and press the Configuration button: enable the MCXWeb simulation if not done already.

MCXSimulator	I/O Configuration
NodeID: 1 bios 5.04 26/05/17 15:48 UP ESC 0:01	Inde Title:
	Device: MCX158
MCX15B AI 1 500 + 100 + 150 +	Senai number: Com2: •
NI	100 -
	0         1         ○ None         0         128x64         ○ 98x64           1         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □
	C.C. keyboard     Backlight always on
	1 MCXWeb http port: 8080 -
	Disable RTC Simulate physical I/O
	Reboot app and clear E2P Associate pk files to MCXSimulator
	Ok Cancel



- MCXSimulator I/0 I/O types NodeID: 1 DI DO AI Dantoss UP ESC 500 100 < > (06) 150 HP 50 В DOWN OK 6 150 MCX15B 500 🜩 100 🌲 50 🌲 AI 1 150 8 800 🚔 150 🚔 800 🜲 100 🜲 AI 5 9 0 + AO 0 200 12 800 13 150 14 150 15 16 0
- Press the Web button and the MCXWeb login page will be opened in your default web
- Press the Web button and the MCXWeb login page will be opened in your default web browser. Insert login (admin) and password (PASS) and you are ready to start. Pages will be populated with data from the simulator.



A Web button will be displayed in the MCXSimulator to start the MCXWeb simulation.
 MCXSimulator - C\Danfoss\ApplicationSW\Chiller\CHILLER\_HP\_v43100\BIN



# 7.7 Appendix -Application template XML structure

File name: /app/application\_template\_name.xml XML structure: <?xml version="1.0" encoding="UTF-8"?> <Template> <VarInfo> <AppName></AppName> <AppDescr></AppDescr> <AppCode></AppCode> <AppID></AppID> <AppVer></AppVer> <TemplateVer></TemplateVer> </VarInfo> <VarList> <Var> <VarCat></VarCat> <VarName></VarName> <VarAddr></VarAddr> <VarType></VarType> <VarLabel></VarLabel> <VarDescr></VarDescr> <VarBitMask></VarBitMask> <VarShift></VarShift> <VarScale></VarScale> <VarOffset></VarOffset> <VarDecimal></VarDecimal> <VarMax></VarMax> <VarMin></VarMin> <VarDefault></VarDefault> <VarAccess></VarAccess> <VarRW></VarRW> <VarVisibility></VarVisibility> <VarConstant></VarConstant> <VarEnumList><VarEnum> </VarEnum></VarEnumList> <VarGroupList> <VarGroup></VarGroup> </VarGroupList> <VarAlarmGroup></VarAlarmGroup> </Var> . . . . </VarList> <Template>

\* <Var></Var> tag MUST be written in a single row with "\r\n" terminator.



## Var tag structure:

Тад	Description	Notes		
VarCat	Var category	0 undefined 1 parameter 2 DI /DO 3 alarms 4 status var		
VarName	Var identification			
VarAddr	Modbus address	Decimal representation		
VarType	Var type	s16 u16 s32 u32		
VarLabel	Var label			
VarDescr	Var description	Max 60 chars		
VarBitMask	Bitmark filter ( used for packed alarms )	32 bits bitmask		
VarShift	Number of right shift to applied after VarBitMask's filter.			
VarScale	Scale to be applied to the value returned from read var request			
VarOffset	Offset to be applied to the value returned from read var request			
VarDecimal	Number of decimals to be applied to the value returned from read var request			
VarMax	Maximum value			
VarMin	Minimum value			
VarDefault	Default value			
VarRW	Read Only / Read-Write	0 read only 1 read write		
VarVisibility	Is visible	0 hidde 1 visible		
VarConstant	ls constant	0 editable 1 constant		
VarEnumList	List of VarEnum tag	VarEnum tags represents the list of descriptions to be applied to the value returned from read var request.		
VarGroupList	List of VarGroup tag	VarGroup tag sequence rep- resents the tree structure of groups.		
VarAlarm- Alarms group Group		Identifier of alarms group. The value is considered as bit- mask of 32 alarms.		



ENGINEERING TOMORROW

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