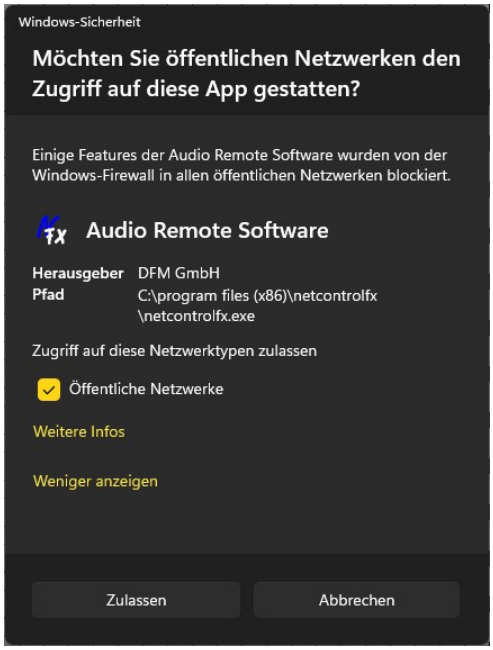
1 Installation

1.1 First Installation

First start the exe file for the installation. The software will then be installed on your computer.

1.2 Firewall

If you do the first scan on NetControlFX Windows will open a dialog box and asks if you wan't to give ac.



When you start a scan in NetControlFX for the first time, a dialog from Windows will open and ask if you allow access to the network.

Please allow this and also activate Public network.

If you do not activate this, you will not have access to the DSPs later.

2 Connection

To connect amplifiers use one of two commands:

2.1 Scan (only in SETUP mode)

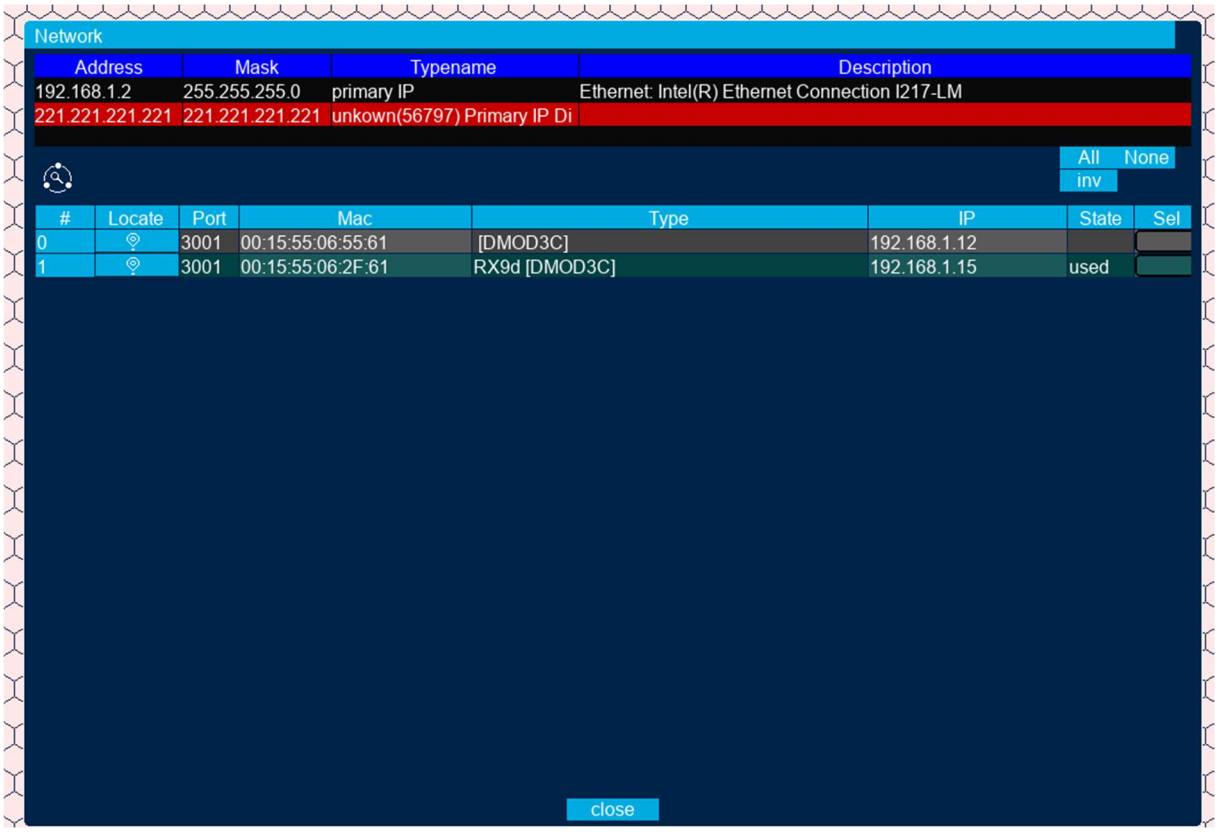
System is scanning all devices and adds it to the view. All Group parameters will be removed.

2.2 Scan + Rebuild (only in SETUP mode)

System is scanning all devices and adds it to the view. Groups are rebuilt from the devices.

Network

The Network menu is used to view the network and find solution with connection problems.



In the top of the window select the network adapter for amplifiers searching.

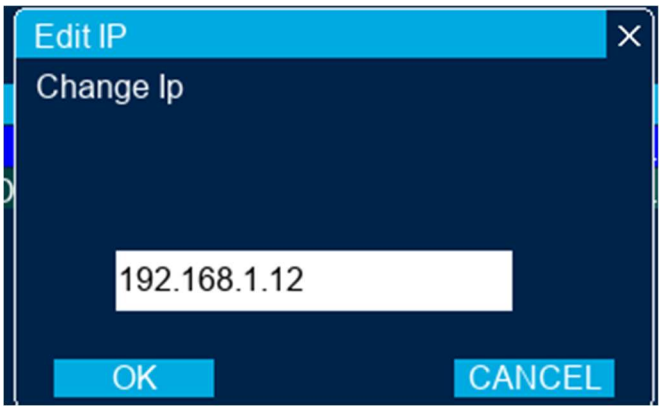
In the lower part displays all detected amplifiers.

 rescan network

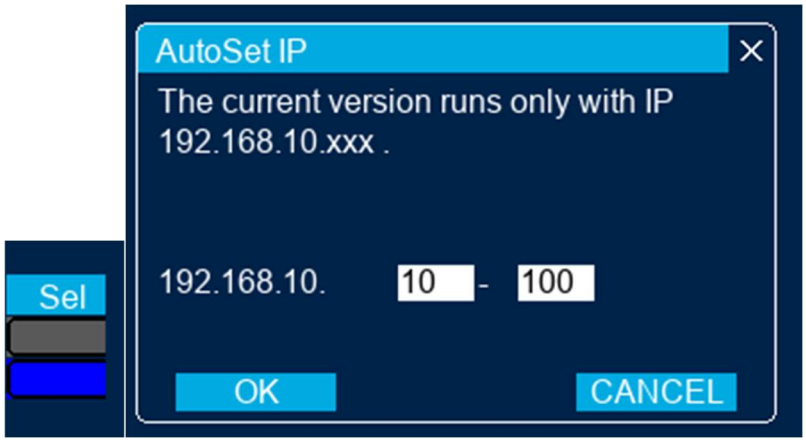
selected amplifier signalling

After selecting the amplifier, the IP icon appears.

Calls up the menu for amplifier IP assigning.



As several amplifiers are selected at the same time, the green icon appear. It allows to assign IP in the selected address range automatically.



3 Main Window

The main menu is divided into 4 sections.

At the top is the toolbar. On the left is the skin menu and on the right is the group list.

In between is the canvas, where all devices are displayed as small pictograms.

3.1 Main Menu

3.2 Operation Mode Setup / Tune

In SETUP-Mode user can scanning the devices. Device can be moved on the screen and groups can be added. This mode should only be used on start to configure the system.

Later when working with devices the TUNE-Mode should be selected. Then you can't add devices and groups and can't move anything on screen, only device parameters can be edit.

3.3 Add Devices (only in SETUP mode)

You can add virtual devices.

3.4 Add Group (only in SETUP mode)

You can add groups.

3.5 Scan (only in SETUP mode)

System is scanning all devices and adds it to the view. All Group parameters will be removed.

3.6 Scan+Rebuild (only in SETUP mode)

System is scanning all devices and adds it to the view. Groups are rebuilt from the devices.

3.7 Store System / Load System(only in SETUP mode)

You can store and load a virtual system, currently it makes not much sense.T.B.D.

3.8 Clear System (only in SETUP mode)

You can remove all devices from the view and clear group parameters.

3.9 Clear Canvas (only in SETUP mode)

You can remove all devices from the view and keep group parameters.

3.10 System list

Overview about all devices in a list

3.11 Network

Here you can configure the IP of the devices.

3.12 Admin/Login

Login for User or Manufacturer. Currently only for manufacturers. Depending on the mode, this function may be invisible. Manufacturers only: If its hidden you can activate it by pressing “Strg”(“Ctrl”) + “Shift “ + “a”. Speaker Library can be created only in this mode.

3.13 Toolbar

3.14 View

 Mute/unmute all device

3.15 View

 Change the viewed parameter of the device на его иконке.

3.16 Zoom

 changes the zoom in 3 steps.

3.17 Remove

 Removes the selected devices

3.18 Arrange

 Devices are aligned in the view.

3.18.1 Scan hirarchi - Not support

 Detects the position of cascaded devices.

3.18.2 Aligne Upwards Not support

 Daisy chained devices can be aligned upwards based on their position in the chain.

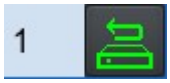
1. => click on “Scan Hierarchy”
2. => select the “master device” which has to be aligned.

3.18.3 Aligne Downwards Not support

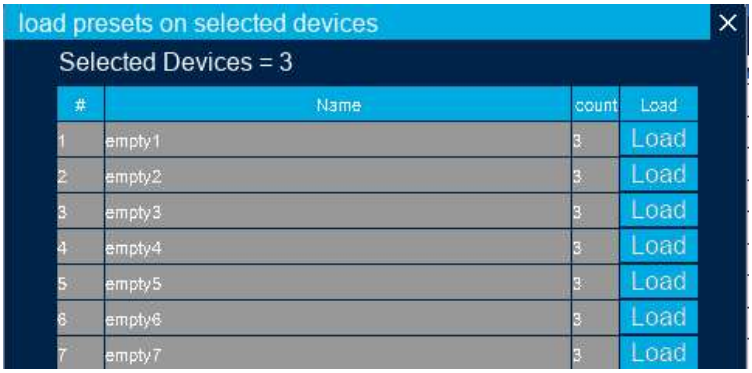
 Daisy chained devices can be aligned downwards based on their position in the chain.

1. => click on “Scan Hierarchy”
2. => select the “master device” which has to be aligned.

3.19 Recall selected Preset

 Recalls the preset on all selected devices.

A right click on the icon opens a dialog box where the preset names of the devices are displayed. If presets have different names, this is indicated by a different color.



3.20 Upload Library

 Uploads Preset Library on all selected devices.

3.21 Canvas

On the screen, all devices are displayed as pictograms.

The resolution of the screen can be set in 3 levels, Depending on the level, the display of the pictogram changes.

3.21.1 Description

The device can be muted and unmuted via the speaker symbol.

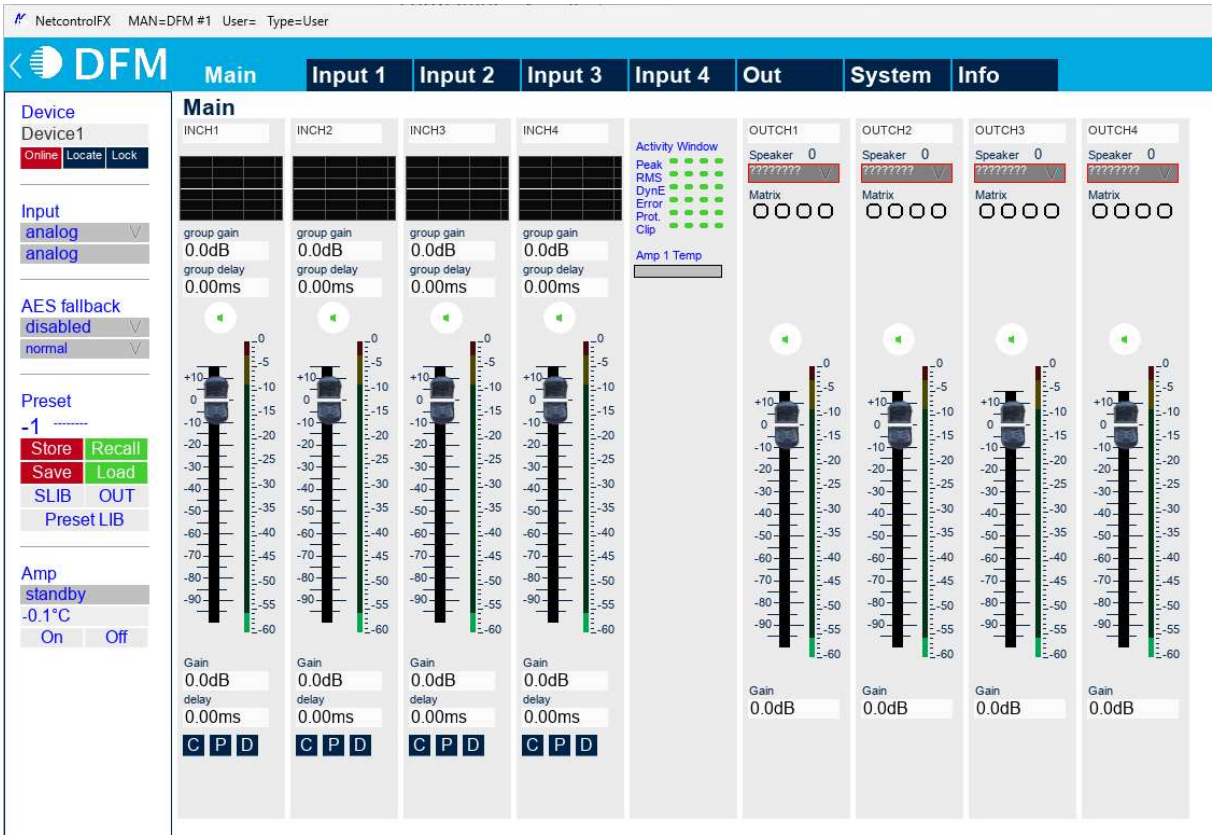
The device view can be accessed via Edit.

3.21.2 View-Modes

Brief info about the displayable device parameters

- Type => Productname
- Name => Username of the device
- Serial => Serial Number ($ xxxxxx)
- IP Address => Connection
- MAC Address => Mac-Adress (xx.xx.xx.xx.xx)
- Daisychain => DAISY-Chain Parameter (OO: Pos / Maxdev)
- Preset => Presetnumber / Name (P: name)
- Temperature
- Source => input source
- Status => power state
- Line-Array => line-length and curving

4 Device View



Online – Pressing the button reconnects the amplifier. States: red– offline, black – online.

Locate – short flashing of all amplifier indicators.

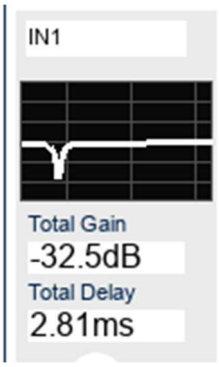
Lock – Locking local amplifier control

Input section

Gain & Delay - input channel parameters

C P D - **C**opy, **P**aste from one channel to another or **D**elete settings

physical input selection



input channel naming (editable)

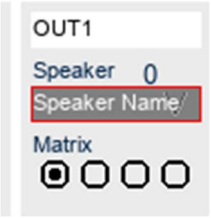
current input EQ setting

Total Gain – sum of group and channel gain

Total delay - sum of group and channel delay

Output section

Output channel naming (editable)



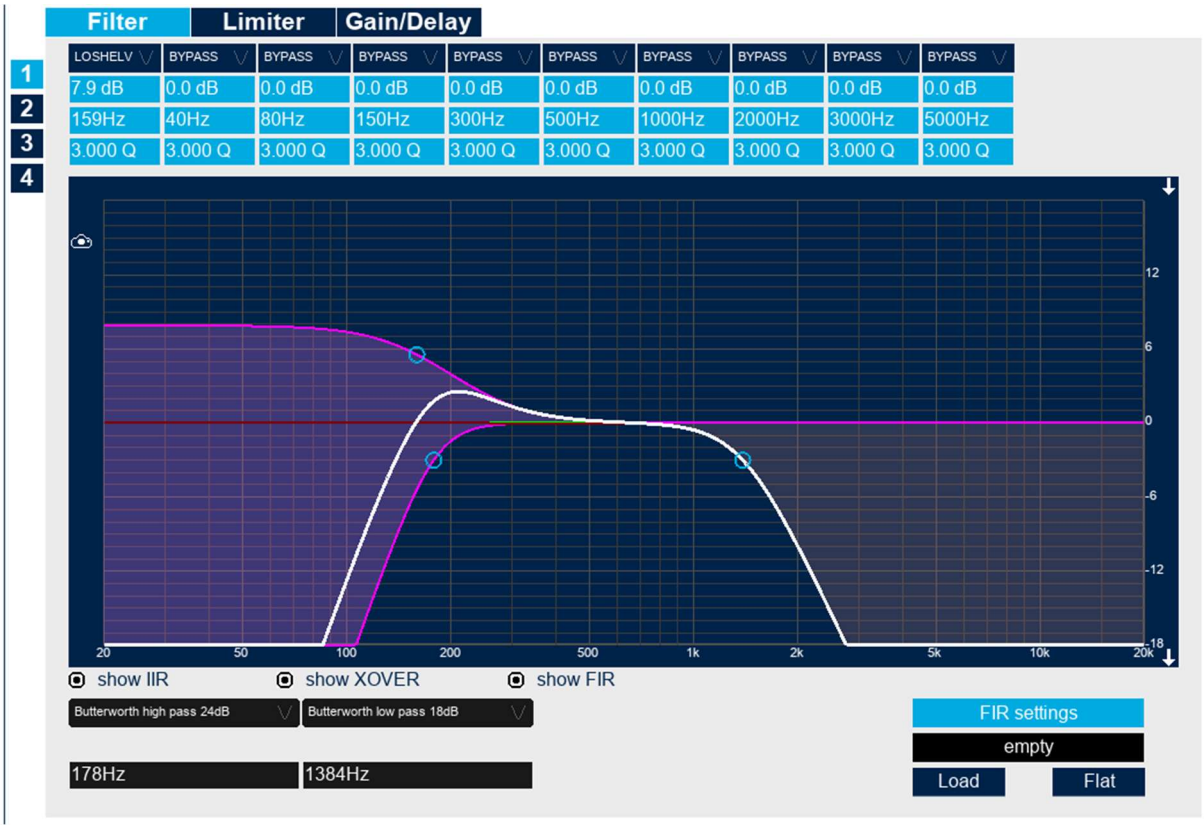
Speaker name – assigned speaker

Matrix

Units for delay can be changed by press “Shift” + “u” or “Ctrl” + “u”

Output Section

Allows to set crossover, EQ and FIR filter loading (maximum 512 taps)



Each channel has one block of FIR filters with 512 points length. Filters must be pre-generated as numerical coefficients and can be loaded with the Load command.

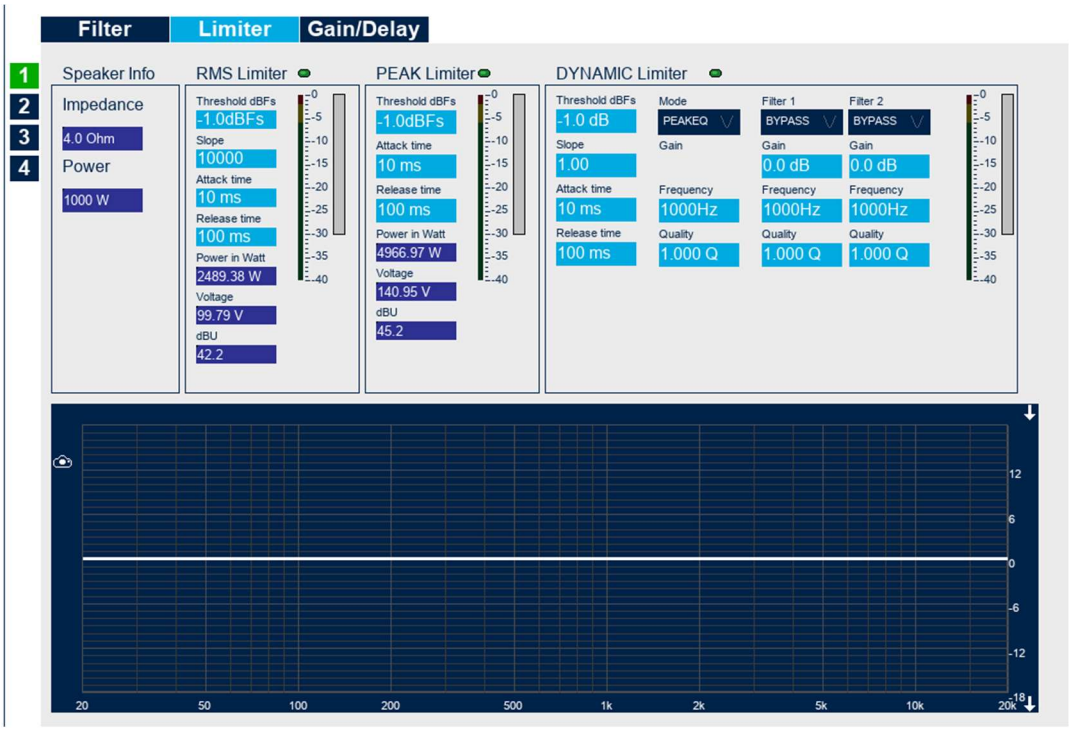
The software requires sharp compliance with the file extension:

FIR coeffs 32bit – xxx.F32

FIR coeffs 64bit - xxx.F64

FIR coeffs text - xxx.FIT

Limiter



Used to set RMS and Peak limiters. To calculate Power in watt, the Impedance value specified in the Speaker Info parameters is used.

Recommended limiter time constants:

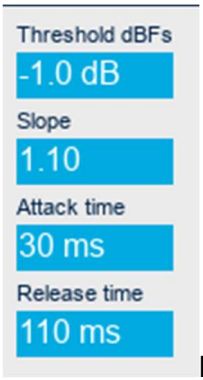
PEAK limiter parameters		
Voice Coil and Power Handling	**Att.**	**Rel.**
1" Tweeter 20 - 50 W 10 ms 500 dB/s 30 ms 9 dB/s	6	12
1.5" Tweeter 50 -75 W 20 ms 250 dB/s 40 10 dB/s	10	20
2" Horn driver 50 -100 W 50 ms 100 dB/s 100 11 dB/s	20	40
3" Horn driver 75 -125 W 100 ms 50 dB/s 200 12 dB/s	40	80
2" Midrange 75 - 300 W 100 ms 50 dB/s 600 13 dB/s	60	120
3" Midbass 100 - 500 W 200 ms 25 dB/s 1000 14 dB/s	80	160
4" Woofer 00 -1000 W 500 ms 10 dB/s 1250 14 dB/s	100	200
4" Woofer 500 - 1500 W 1000 ms 5 dB/s 2000 15 dB/s	100	200
RMS limiter parameters		
Voice Coil and power handling	**Att.**	**Rel.**
1" Tweeter 20 - 50 W	100	500
1.5" Tweeter 50 -75 W	100	500
2" Horn driver 50 -100 W	100	500
3" Horn driver 75 -125 W	400	1000
2" Midrange 75 - 300 W	600	1500
3" Midbass 100 - 500 W	1000	2500
4" Woofer 500 -1000 W	1200	2500
4" Woofer 500 - 1500 W	1500	4000

The RMS limiter is usually set to the loudspeaker nominal power (Nominal Power Handling).

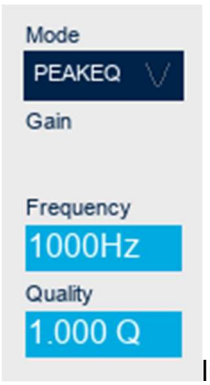
Peak limiter is usually set to the loudspeaker peak power (Continuous Power Handling). As an example, consider the limiter setting for the 12NDL76/4 speaker (B&C speakers):

Nominal Power Handling		400
Continuous Power Handling		800
Voice Coil Diameter		3.0 in
Nominal Impedance		4 Ω
RMS LIMITER		
Threshold	Attack	Release
400W/4Ohm	1000mS	2500mS
PEAK LIMITER		
Threshold	Attack	Release
1600W/4Ohm	80	160

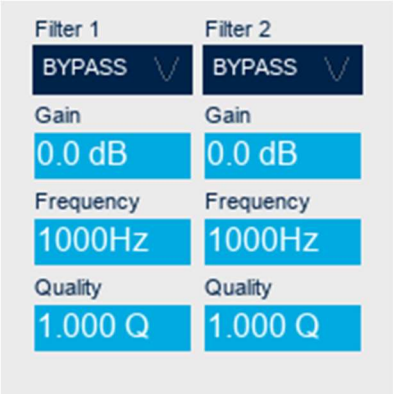
Dynamic limiter



Detector parameters setting



limiter action setting



Side chain filter

Speakers

4.1 What does speaker mean here

Speaker refers to the output parameters of a single output channel. These are located in the device view under the “Out” tab.

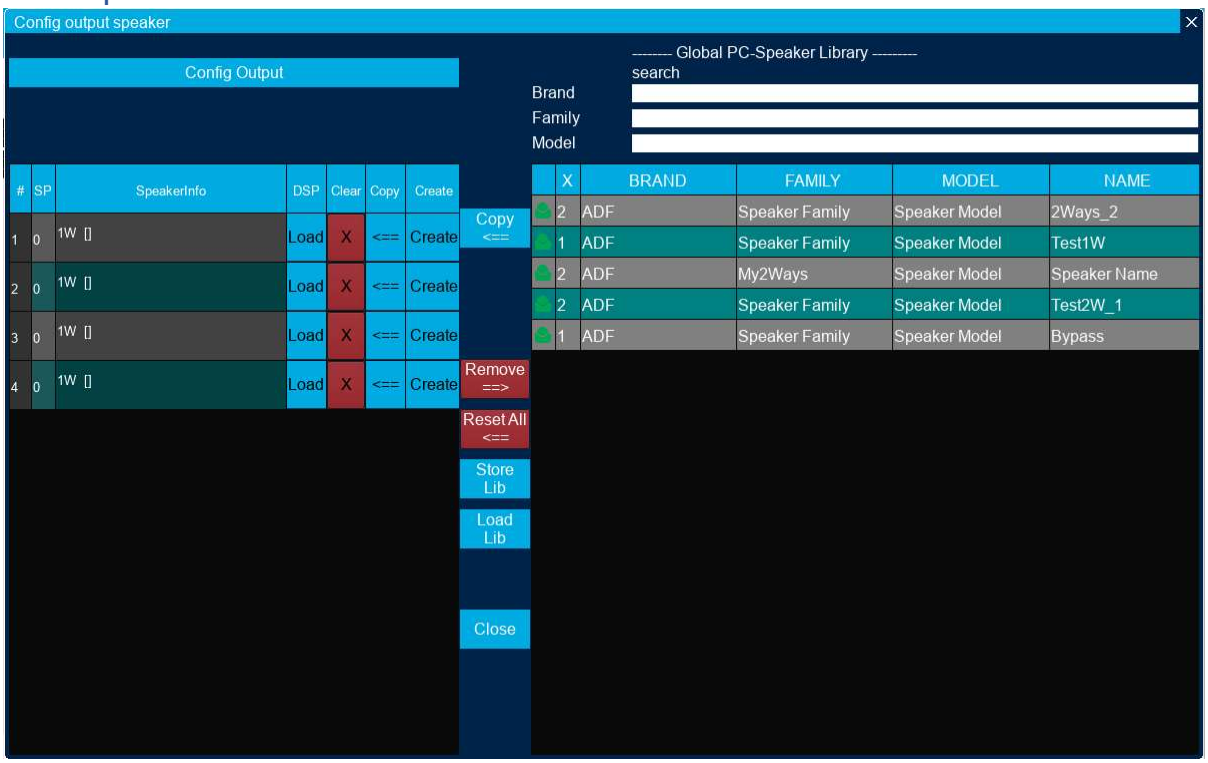
In detail these are:

IIR output filter, FIR output filter, X-Over, Limiter as well as Gain, Phase and Delay.

These parameters together form a "crossover" for a loudspeaker.

With “Load Lib” a new Library can be loaded from default location.

4.2 Speaker menu



The output channels of the device are displayed in a table on the left-hand side.

The values 1W – 4W (located in the Speaker Info field) show the number of ways in the speaker.

The available speakers from the PC library are displayed on the right-hand side.

With "Load", a speaker ***from the library on the device*** can be assigned to an output. The loaded speaker number is displayed under SP or 0(if not loaded).

Multi-way speakers can only be loaded into properly configured output channels.

Press "X" to reset the speaker on the respective channel.

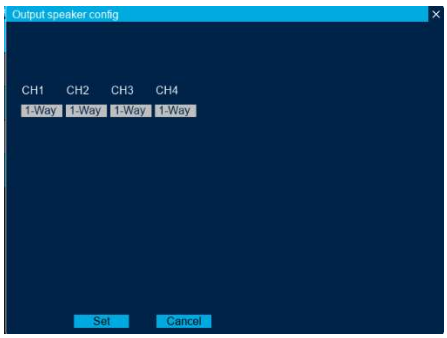
With "<==" a speaker can be copied from the PC library to the output channel.

With “Reset All”, the output section will be reset to default values.

A new speaker can be created with "Create", more on this in the next section.

4.3 Config Output

The number of crossover ways can be set here. By default, a one-way loudspeaker is configured at the output, but multiple-way loudspeakers can also be connected here.



If output 1 and 2 are configured to a 2-way loudspeaker, only 2-way loudspeakers can now be loaded.

4.4 Global PC-Speaker Library

Global library is located in folder: C:\Users\xxxx\AppData\Local\Netcontrolfx\NetControlFX\Data\MyLib.json and can be copied and paste to another PC.

All speakers on the PC are displayed in the speaker table. All usable speakers are displayed in the PC speaker library. These can be assigned to an output directly from the library.

„X“ : Here the number of ways is shown here.

“Brand”: Company who developed the speaker.

“Family”:

“Model”:

“Name”:

With “Copy” a speaker can be loaded on the selected channel.

With “Remove” a selected speaker can be removed from library

With “Load Lib” the PC-Library can be loaded from default location.

With “Store Lib” the PC-Library can be stored.

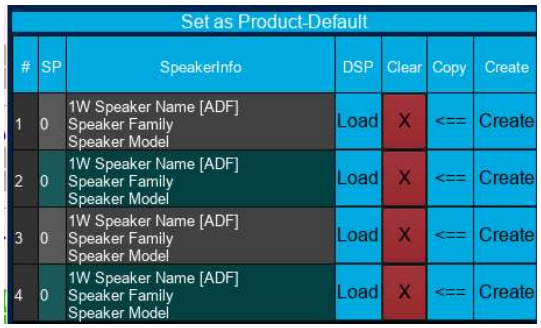
After adding/removing the speaker, store the library.

4.5 Creating speakers

This section explains how you can create your own speaker.

To create a speaker enter the Manufacturer mode.

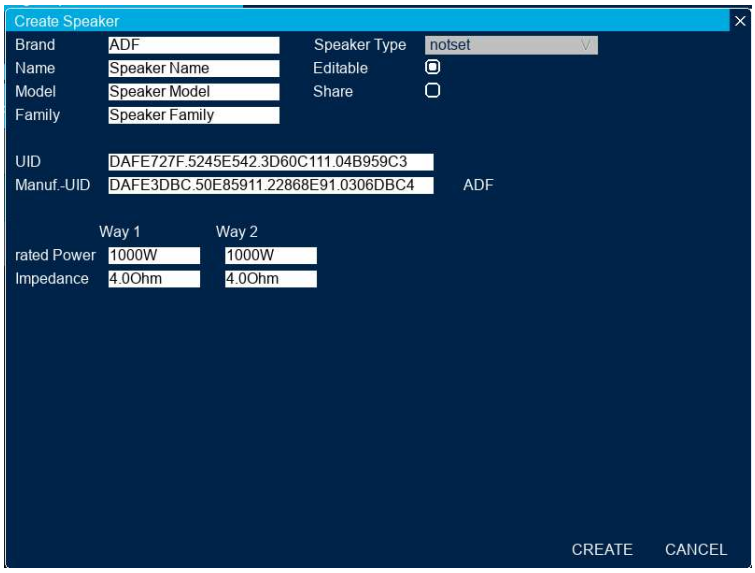
Several steps are necessary for this. To create a loudspeaker, you must first select an output channel from which you want to create a loudspeaker and reset the output channel with "X".



Now switch to the output section of the device and configure the crossover and the limiters.

Then create dialog with "Create".

A dialog will now open where you can assign a name to the speaker and create it.



Brand: The field is filled in automatically.

Name: Name of the new speaker

Model: You can use this designation freely

Family: You can use this designation freely

When you are finished, you can create a new speaker with "Create". This is automatically copied to the speaker library.

Please note that you should definitely save the speaker library, otherwise the new speaker will be lost

5 DSP Speaker Library

In addition to the Global PC-Speaker Library you can create your own libraries and save them in the amplifier.
The speakers can be charged directly on the device without the need for a PC.

The SLIB button opens a dialog for creating a library.

5.1 Creating DSP Library

A library needs a name and a version number. The easiest way is to simply count them up.

The left table contains the entries for the speakers and the right table shows the speakers on the PC.

To enter a speaker in the table, first select the position to which the speaker is to be copied on the left and the speaker that you want to take over on the right.

Then simply click on "Copy".

If there are no speakers in the table on the right, you must first create some, or load a speaker table.

5.2 Load / Store

Via "Store SpeakerLib" and "Load SpeakerLib" you can store the table on the PC and also load it again. When loading a table, no data is transferred to the PC.

5.3 Exporting to device

Via "Export to device" a SpeakerLib can be transferred to the DSP.

However, this should not be done shortly before or during a concert !!!!

6 Preset Library

Current amplifier settings can be stored as presets. A preset saves all amplifier settings, excluding group settings.

Store – save current settings as a preset in the amplifier memory

Recall – restore the current settings from the amplifier preset

Save - store the current settings as a preset on the PC

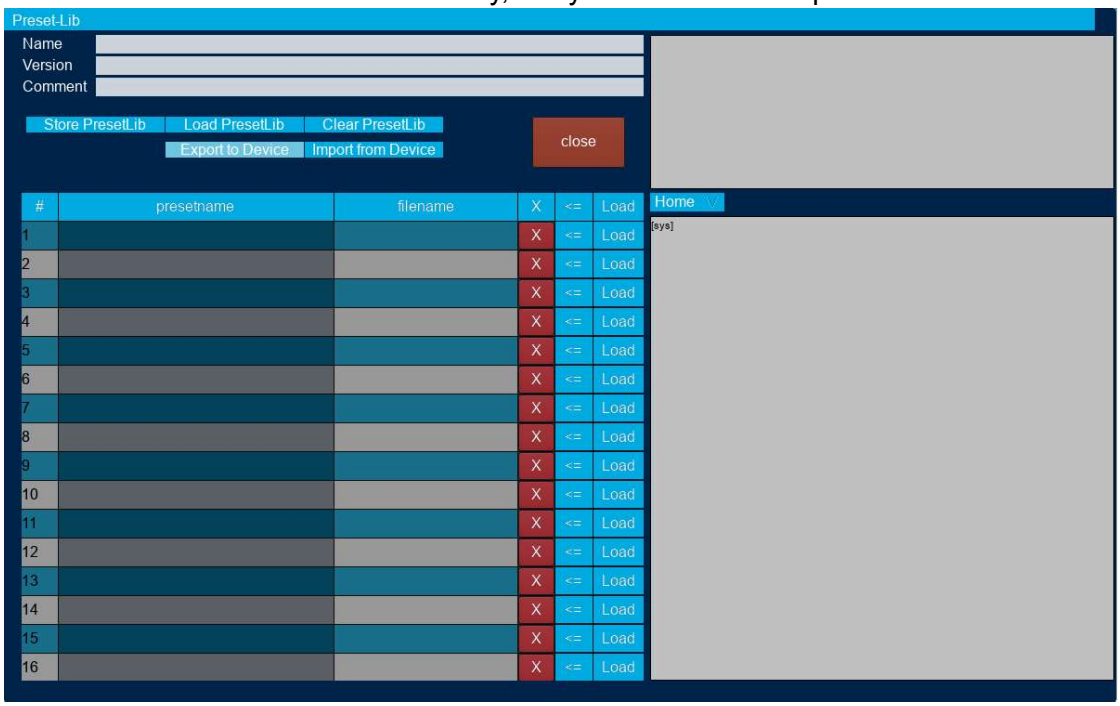
Load - restore the current settings from a preset on the PC

6.1 Creating Preset Library

In NetControlFX you can combine several individual presets into one library.

The preset can be charged directly on the device without the need for a PC.

To work with the library, you must open the SLIB menu



In the left table the presets are displayed. Via cursor you can scroll through the table.

In the window at the bottom right, the saved single presets are displayed. To load a preset into the table you have to select the preset in the right window and then paste it via the copy button "<=".

With "X" a preset can be removed again.

The Load button in the table loads the preset directly into the device.

6.2 Load / Store

Via "Store PresetLib" and "Load PresetLib" you can store the table on the PC and also load it again. When loading a table, no data is transferred to the PC.

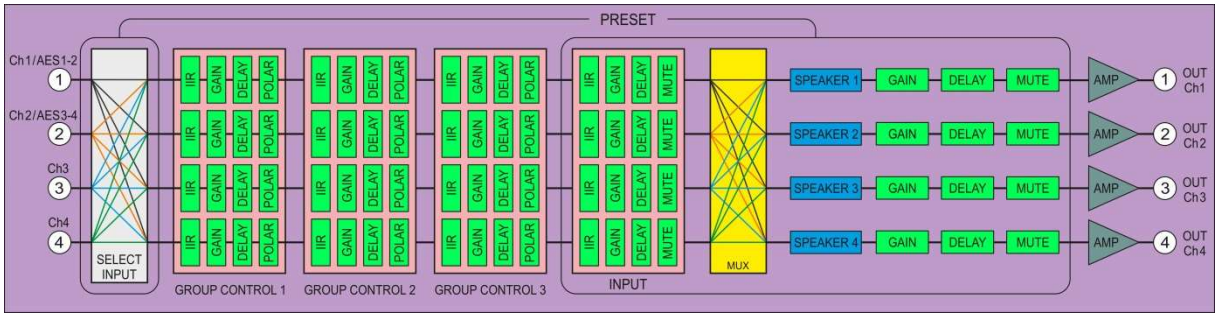
6.3 Export / Import

With “Export to device” you can upload the library to the device.

With “Import from device” you can do the opposite and download the library from the device.

7 Group Menu (in development)

Amplifier Path Structure



Select input – select physical input connected to the input section

Group control – three Group control blocks connected in series. Respectively each channel can be included in three different groups maximum. Group control blocks are located before the main MUX.

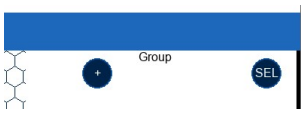
Input – input section

Mux – matrix

Speaker – output section. Its settings can be stored into the Speaker library. Its structure is following:

7.1 Create group

With the "+" button a new group can be created.

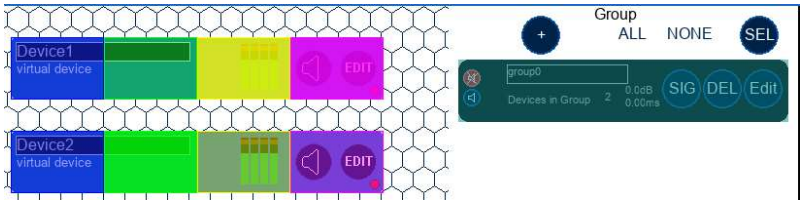


A group icon appears.

7.2 *Sel*

The group can now be assigned individual channels of one or more devices.

The "SEL" button is used to activate and deactivate group assignment.

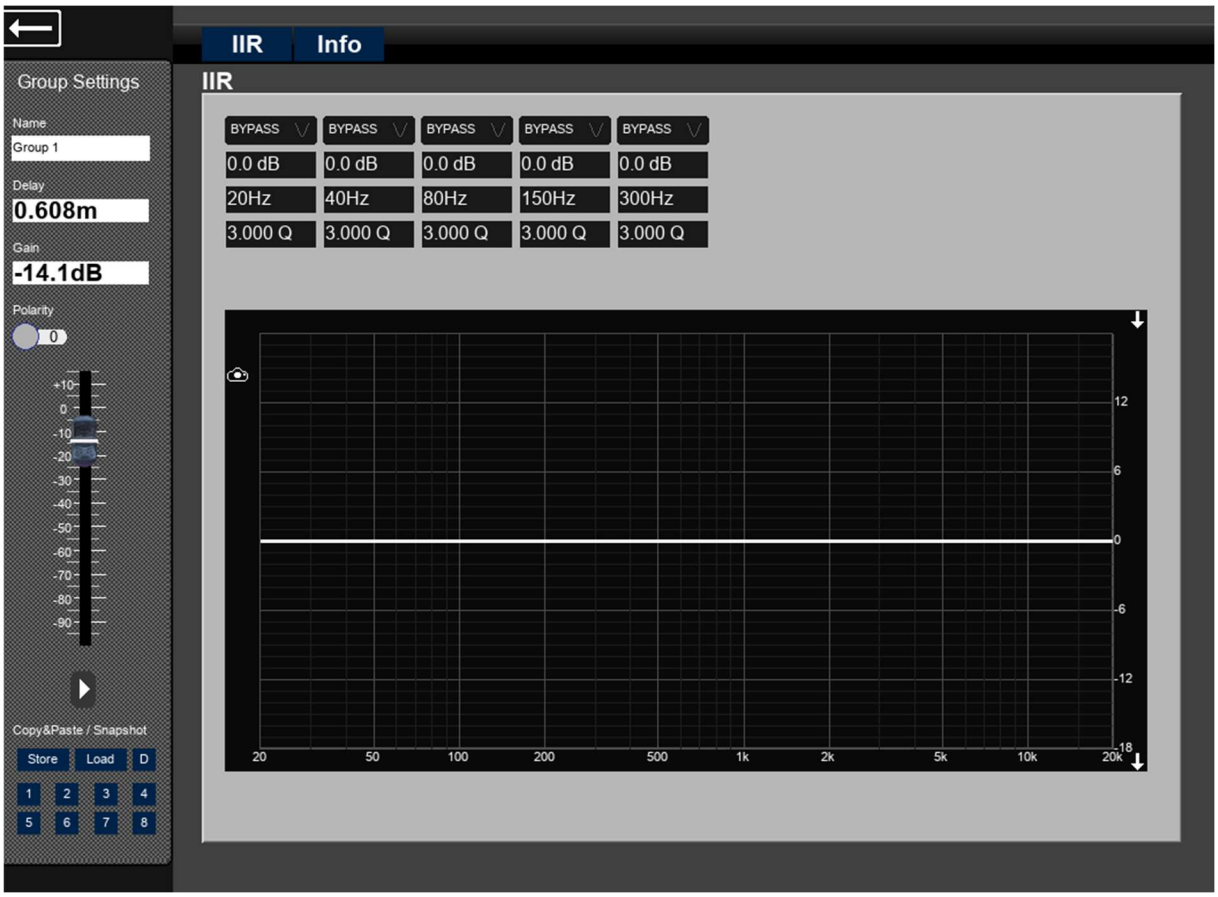


If the group assignment has been activated, you can now first select the group (will now be colored bluish).

The devices now show the color of their membership in the group. By clicking on a device color, this channel is added to or removed from the group.

EDIT

IR EQ, Delay and Gain can be set in each group.



Examples of using groups

Two speaker sets are connected to two amplifiers – Left & Right. The set includes a subwoofers and a 3-way systems. Since the matrix is located after the group sections – we will do the routing on the input switch section. The signal is fed to all input sections from input

1. Now we can combine both subs in group 1, both tops - in group number 2 and all speaker together – in group number 3.

If the system uses many amplifiers, you can make routing on the matrix (MUX), after group control. In this case, only the entire amplifier can be included in the group. The example shows the use of 4 amplifiers group.

.


PRESET
LEFT
Ch1/AES1-2
Ch2/AES3-4
Ch3
Ch4
SELECT INPUT
IIR
GAIN
DELAY
POLAR
MUTE
GROUP CONTROL 1
GROUP CONTROL 2
GROUP CONTROL 3
INPUT
MUX
SPEAKER 1
SPEAKER 2
SPEAKER 3
SPEAKER 4
AMP
OUT Ch1
OUT Ch2
OUT Ch3
OUT Ch4
SUB
GROUPS
ALL
PRESET
RIGHT
SUB
GROUPS
ALL
PRESET
LEFT
LOW
LOW
MID
HIGH
GROUPS
TOP
ALL
PRESET
RIGHT
LOW
LOW
MID
HIGH

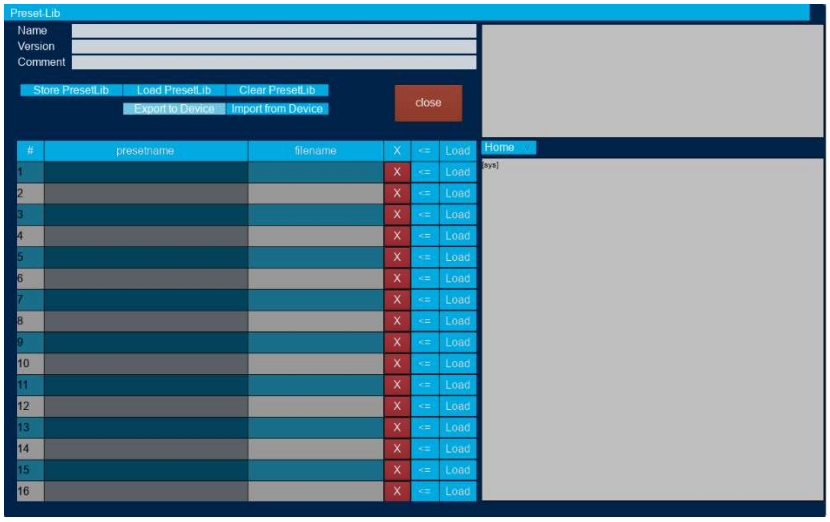
8 Updates

In this chapter the update of Libraries and firmware is discussed.

8.1 Update of the Preset-Library

To update the preset-library of a device, connect the device first and then click on “Preset LIB”. A Special dialog will be opened. Here you can load a stored Library and then upload the library to the device.

For uploading click on “Export to Device”



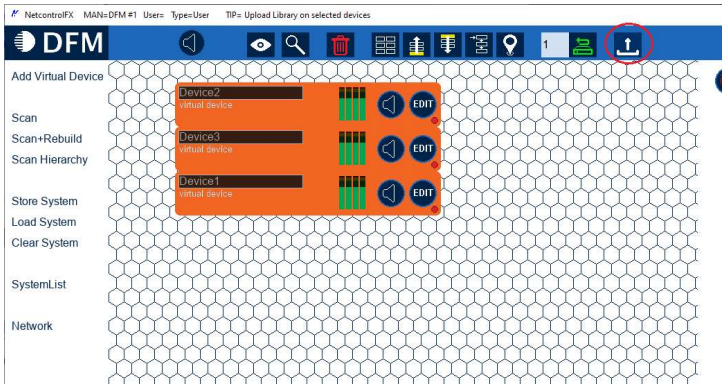
8.2 Update of the Speaker-Library

To export a Speaker-Library to the device go to the device view and than click on SLIB. A dialog for speakers will be opened.

With “Export to device” you can upload the speaker-Lib to the device.

8.3 Library update of Multiple devices in the canvas

It is very tedious to upload a library for each device individually. Therefore, there is the possibility to upload a library for several devices in the canvas.
To update the library of one or more devices, select them in the canvas and click on the update icon.



A file-open dialog will pop up where you can select the library for the upload. Please use the same product-type for all of the selected devices otherwise the upload will not start.

You can upload a preset-Library (or a speaker-Library => in future) with this functionality.

8.4 Firmware update

If you open the “system list” you see an overview about all used devices. If there is a new firmware available an update button will be shown. To update the firmware click on this button. The firmware-update can take longer so please don’t do this short before you need the devices for a concert.

While the update is in progress you can’t close the dialog.