Info - Integration PRODIGY series with Lawo HOME

Introduction

This document provides step-by-step instructions for connecting and configuring devices of the DirectOut PRODIGY series (PRODIGY.MP, PRODIGY.MC and PRODIGY.MX) in order to integrate with a Lawo HOME system and a Lawo mc² audio console.
Knowledge about the operation principles of DirectOut / globcon and Lawo / HOME gear is assumed and not part of this document.

Version Information

Document Version: August 2025
Firmware Versions / System Builds used:

- PRODIGY.MP: [System Build 25.05 beta 2; home_v0.10 or newer]
- PRODIGY.MC: [System Build 25.05 beta 2; home_v0.10 or newer]
- PRODIGY.MX: [System Build 25.05 beta 2; home_v0.10 or newer]
- RAV.IO: [rav2_hw_0_36_sw_1_25]
- HOME Server: [release-v2.2.0-271]
- Audio Production Release for mc² [10.10.2 or newer]
- Computer connected to the MGMT network and running globcon (1.20)

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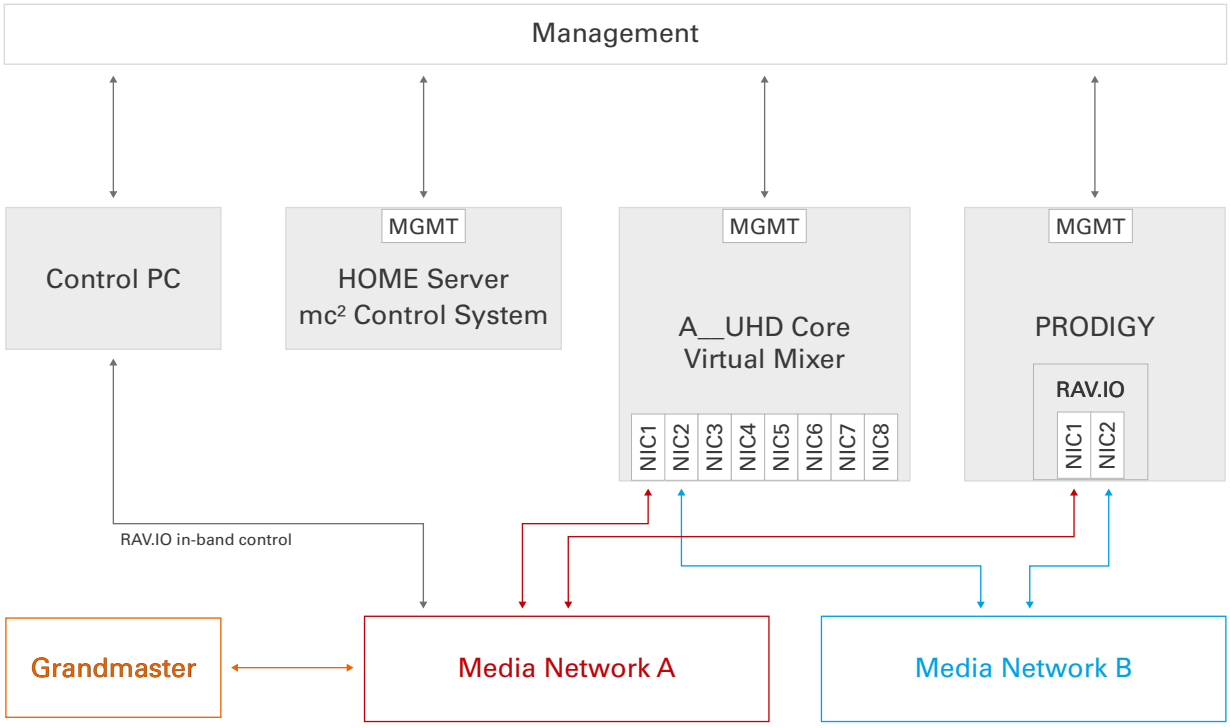
System Requirements

- Lawo HOME Server with mc² Control System
- Lawo A__UHD Core (or HOME mc² DSP App)
- DirectOut PRODIGY.MX, PRODIGY.MP or PRODIGY.MC device with a license for HOME installed and populated with RAV.IO or RAV.SRC.IO audio network modules.
- Network infrastructure:
  - management network,
  - media network (redundant) with support for PTPv2, AES67 and ST 2110-30

Topology (Example)



IP Address Mapping used in this setup

Device / Network	MGMT	Media Network A	Media Network B
PRODIGY	192.168.2.170		
RAV.IO		192.168.1.190	192.168.3.190
A__UHD Core	192.168.2.133		
strm 0 (ra0 / ra1)		192.168.1.35	192.168.3.35
HOME Server	192.168.2.130		
Control PC	192.168.2.109		
Grandmaster		192.168.1.234	

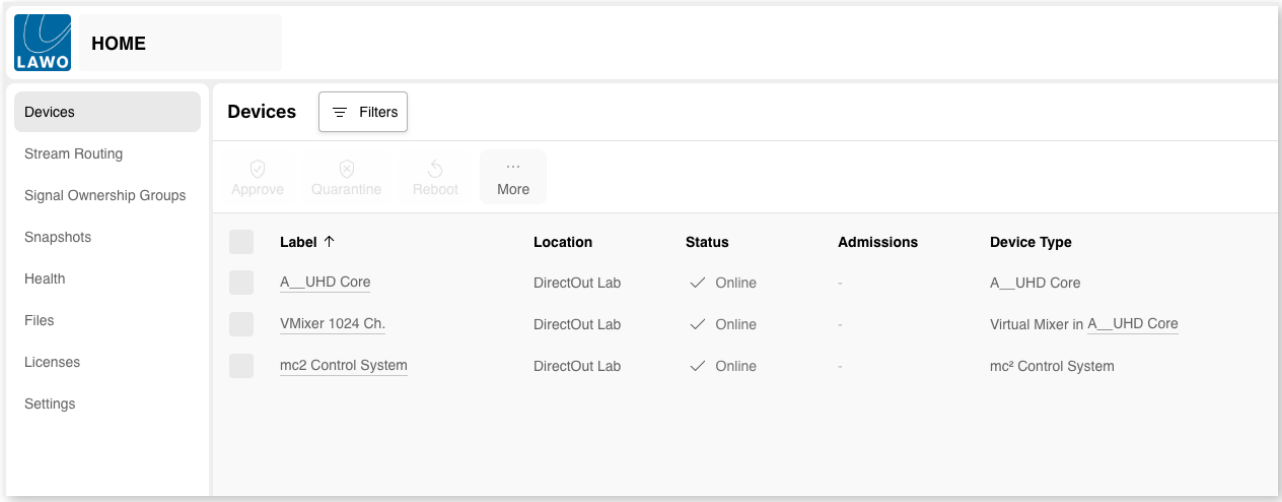
Device configuration

Access to HOME Server Web Interface

Navigate to: http://[HOME_SERVER_IP]:5000

The web UI displays available and already connected hardware devices.
For this document the following hardware was used:

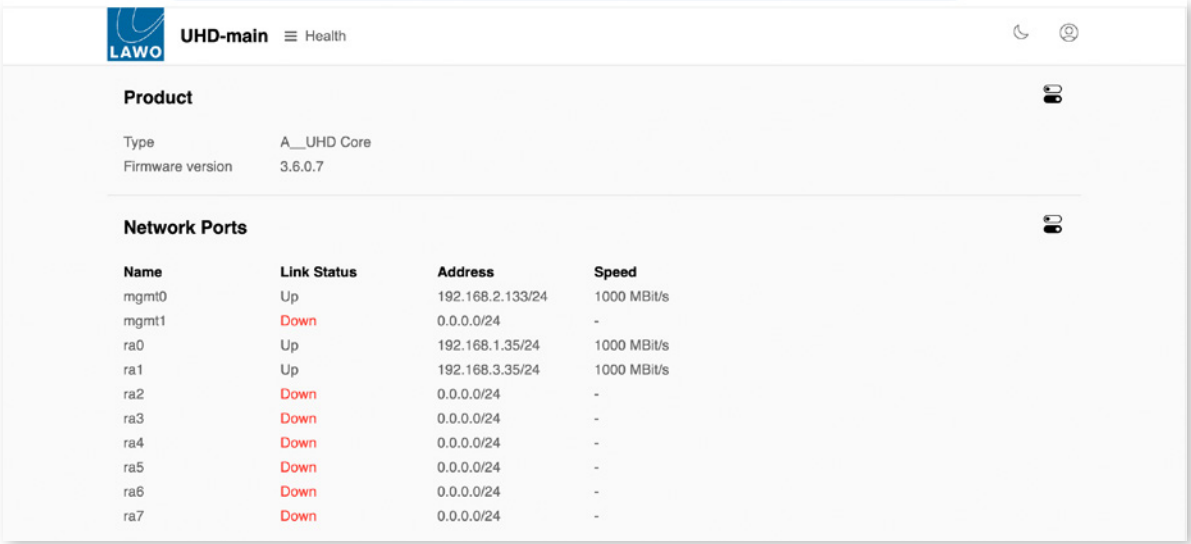
- A__UHD Core (DSP hardware)
- Virtual Mixer (DSP engine)
- mc² Control System



Access to A__UHD Core Web Interface

Navigate to: http://[UHDCORE_IP] and log in

Access the Health page for hardware status monitoring



Synchronization configuration

The media nodes require alignment of the particular sync settings for successful media streaming:

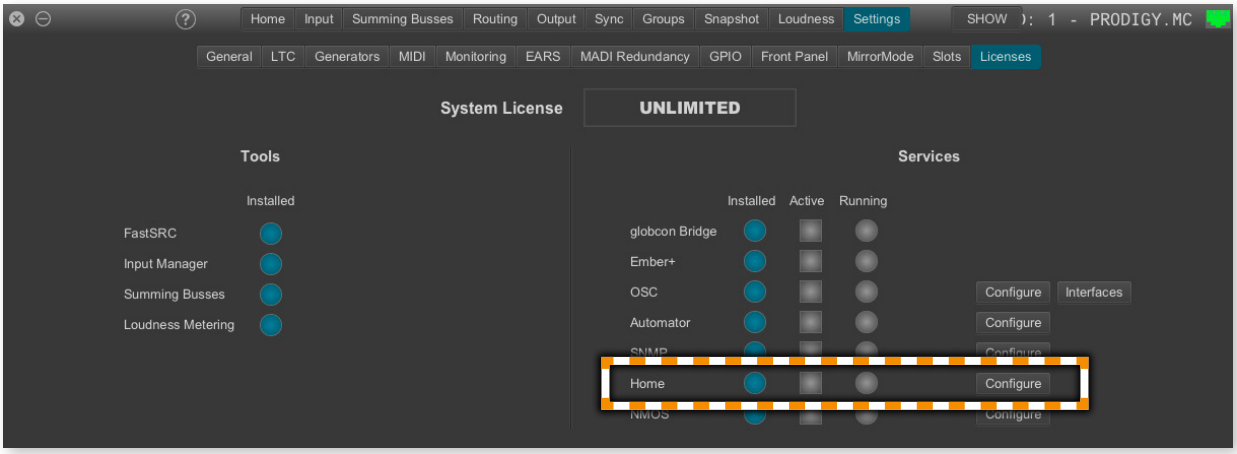
- A__UHD Core - Sync page
- RAV.IO - web ui http://[RAV.IO NIC1 IP]

The RAV.IO is hosted in the PRODIGY mainframe, whose sync settings of the mainframe are accessible via globcon.

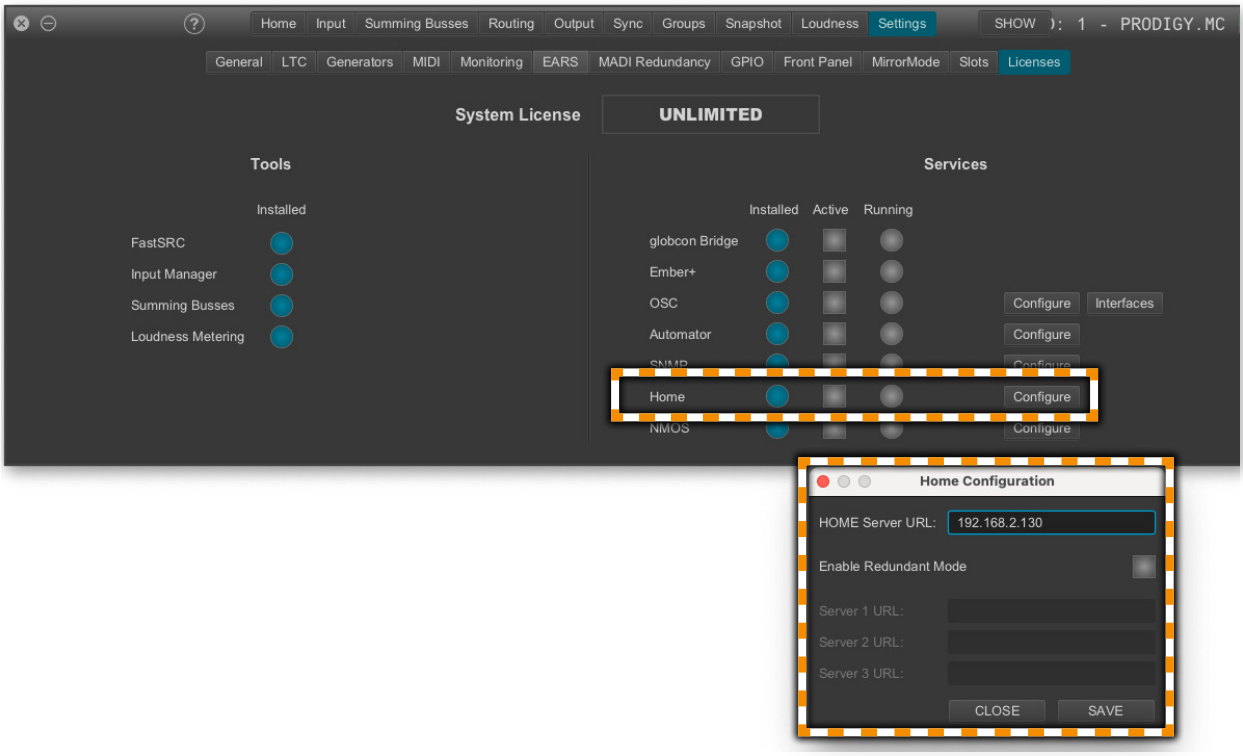
Connecting PRODIGY to HOME

Connection Process

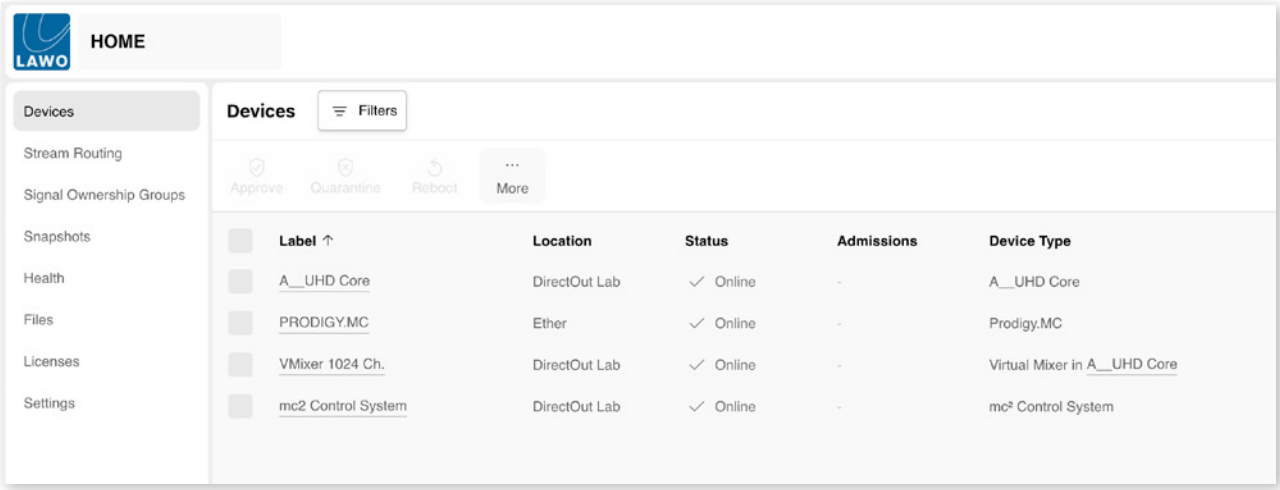
1. Access Device Settings
   - Connect to the Prodigy device's MGMT port via network
   - Launch globcon software
   - Navigate to Settings > Licenses (ensure 'installed' is blue)
   - Locate the HOME service configuration section



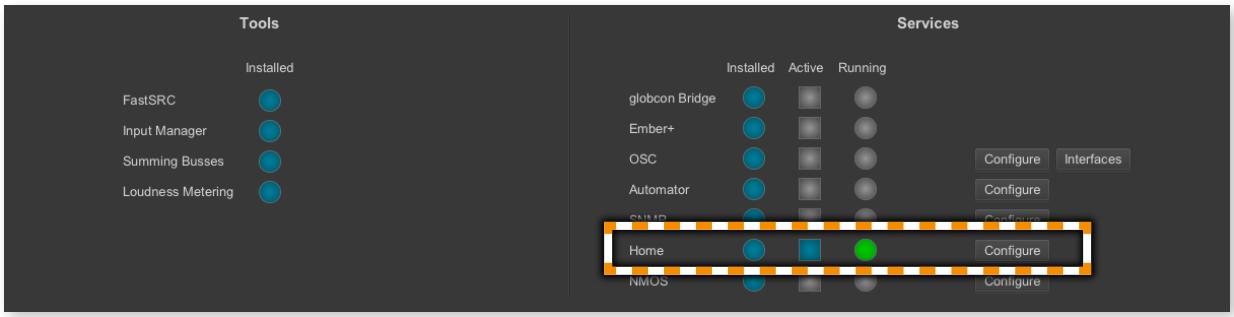
2. Configure HOME Connection
- Enter HOME server IP address
- Click **Save** to close 'Home Configuration'
- Click **Activate** (square button) on the licenses tab to activate the Home service



3. Verify Connection
- Device appears in HOME devices list (home_server_ip:5000/devices)



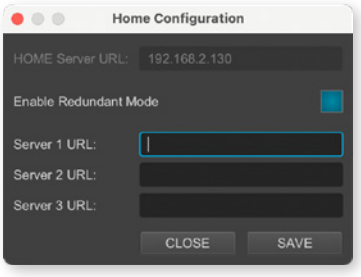
- Service status displayed in column 'Running'
- led green solid = active connection



Redundant Mode (optional)

For redundant HOME server setups:

1. Enable Redundant Mode



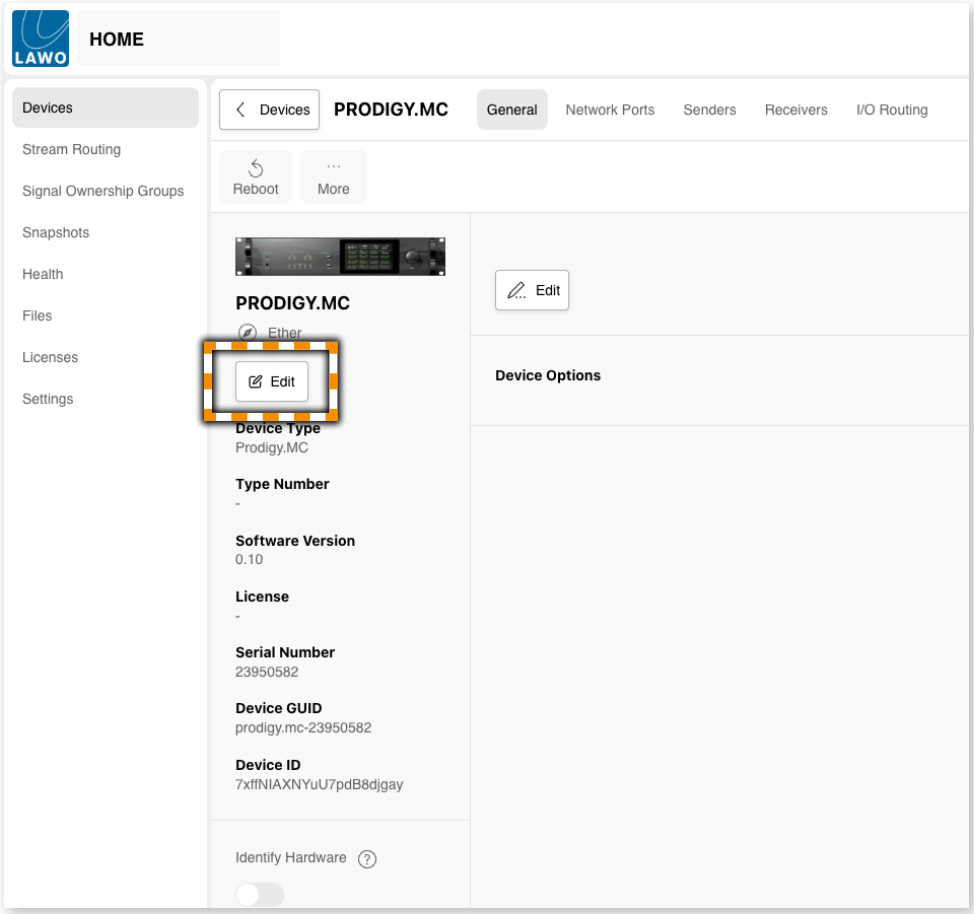
2. Add all cluster unit IP addresses

Device management of PRODIGY via HOME Server UI

Device view - General

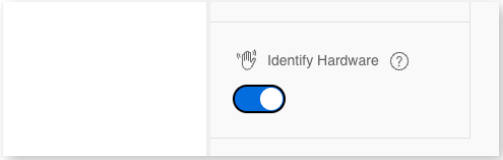
In the devices view select PRODIGY to enter the device configuration settings

Edit device name



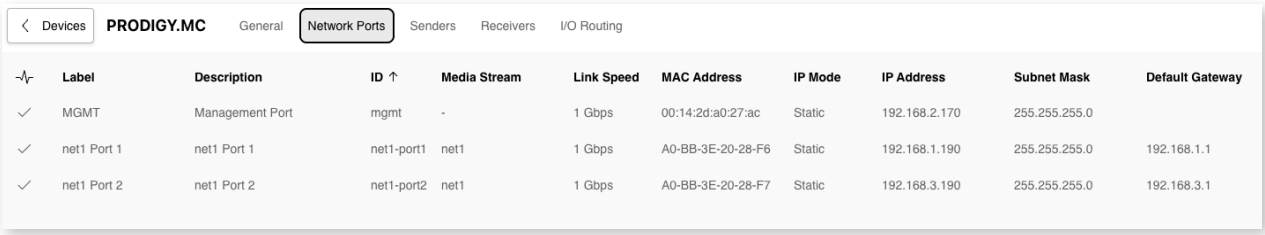
Identification

- Click 'Identify Hardware'
- Front panel LEDs of the PRODIGY will flash for location identification
- Click again to deactivate

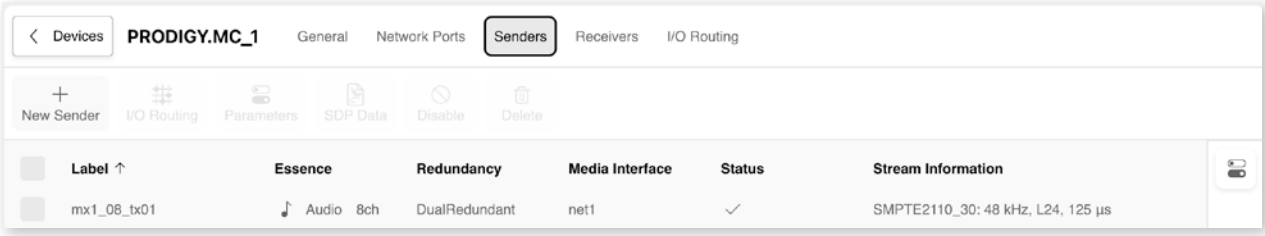


Device view - Network Ports

- Management NIC status information
- Media NICs status information

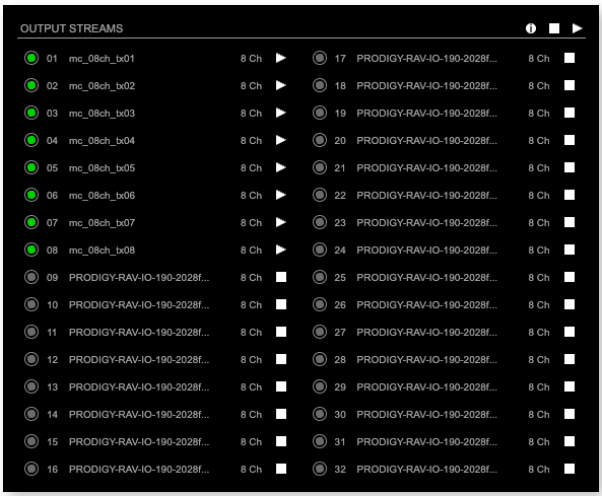


Device view - Senders



Senders will only show up in the HOME control UI if activated = 'play' condition. HOME does not display senders and receivers in 'stop' condition.

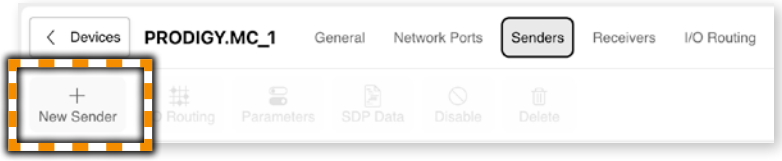
A RAV.IO module offers 32 senders which are visible on the control UI of the RAV.IO.



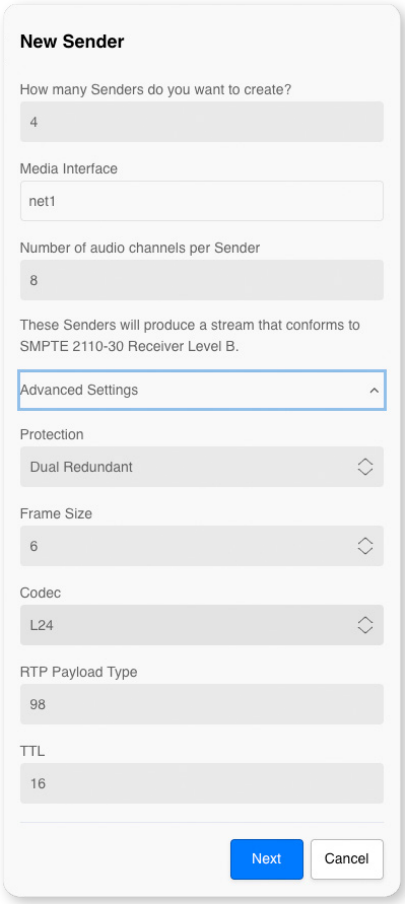
▶	=	stream activated	- 'play'
■	=	stream deactivated	- 'stop'

Creating sender / output streams

Click the ‚+' button to add senders.

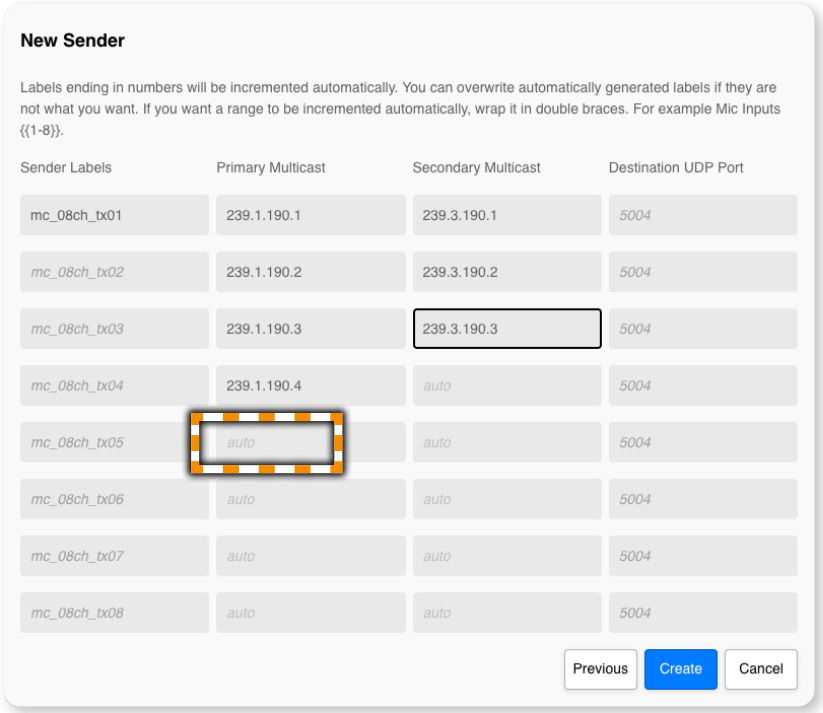


Multiple senders can be created at the same time.



RAV.IO supports:

- 32 senders (output streams)
- 32 receivers (input streams)
- channel count per stream: 1 to 128
- channel count total @1 FS: 128
- network redundancy (ST 2022-7)



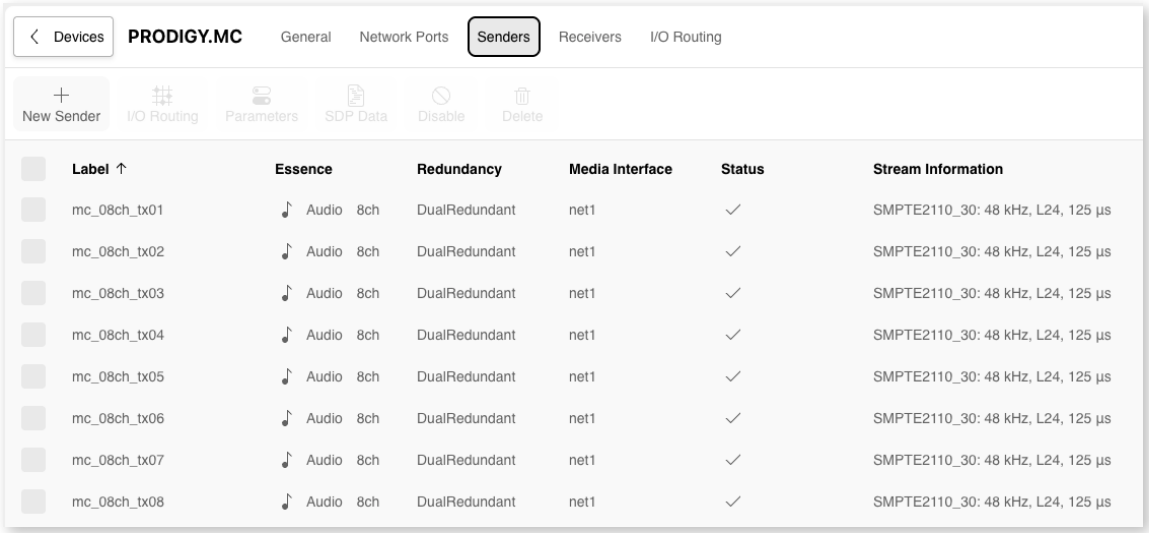
NOTE

If ‚auto' is selected for the multicast address assignment of senders, the default settings of RAV.IO are used. This may cause multicast duplicates if several RAV.IOs are used in the system.

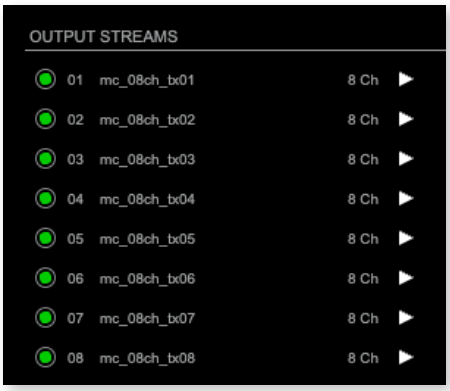
To avoid duplicates please use manual multicast assignment for senders.

Display of Senders / Output streams:

- in the HOME UI



- in the RAV.IO UI



After the creation of ‘senders’ in HOME, the ‘output stream’ will go into ‘play’ mode and show a green led on the status tab.

State of outgoing streams

(OFF) = stream not activated

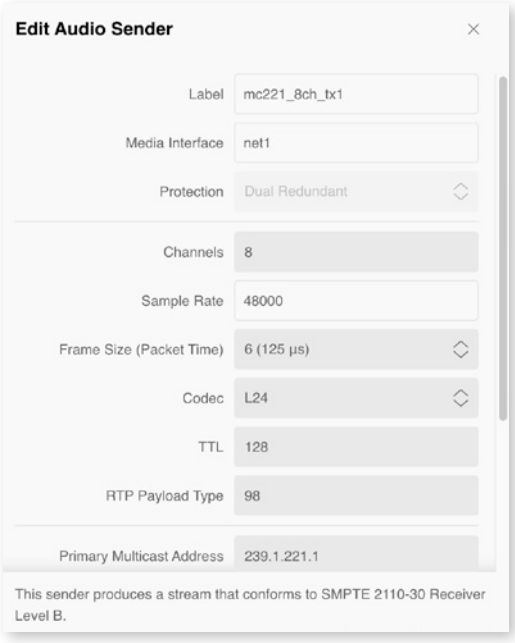
(ON) = stream activated, sending data

(ON) = stream activated, stream output via both NICs selected, but one NIC is not linked to the network.

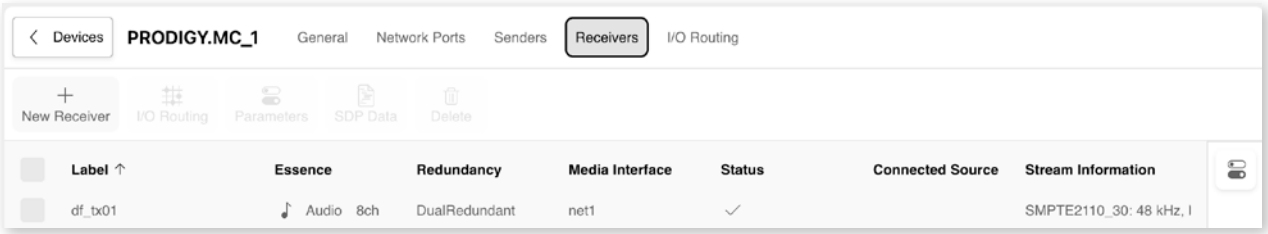
Checking sender configuration

Access sender configuration (Output Stream Settings) by clicking the stream name (hyperlink) on the status tab of the RAV.IO UI.

The ‘start channel’ is dynamically selected by HOME, depending on the number of audio channels occupied in the previous streams.



Device view - Receivers



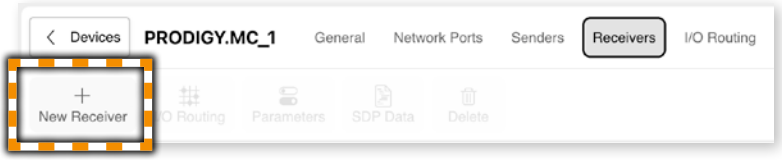
Receivers will only show up in the HOME control UI if activated = 'play' condition. HOME does not display senders and receivers in 'stop' condition.

A RAV.IO module offers 32 receivers which are visible on the control UI of the RAV.IO.

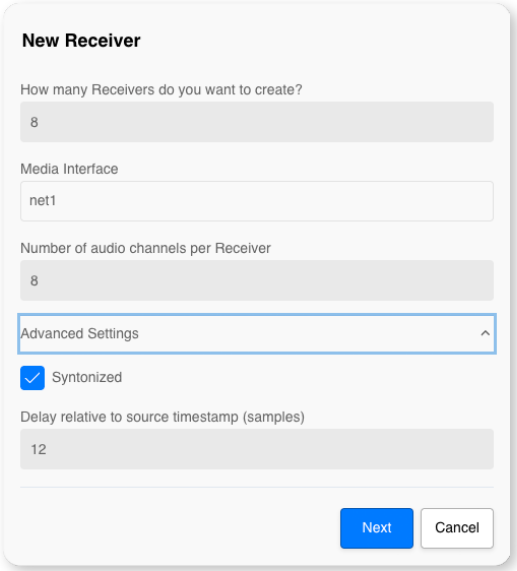
▶	= stream activated	- 'play'
■	= stream deactivated	- 'stop'

Creating receiver / input streams

Receivers are created the same ways as senders.
Click the ‚+' button to add senders.

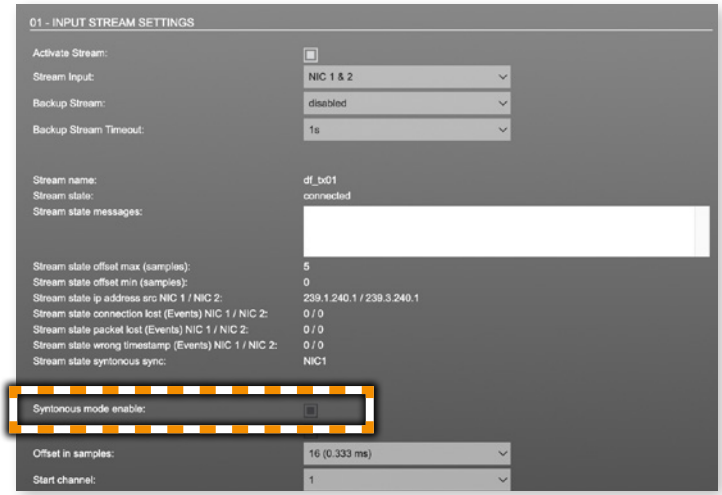


Multiple receivers can be created at the same time.



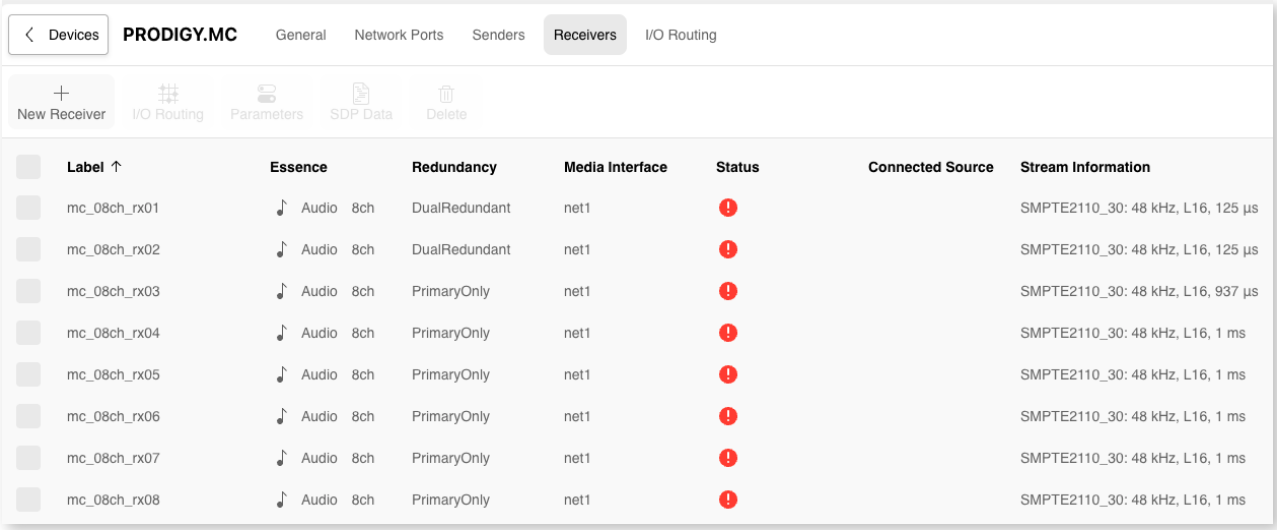
NOTE

Syntonous mode ('syntonized') is supported by the RAV.IO receivers, it has to be manually activated in the Input Stream settings on the web UI of the RAV.IO.

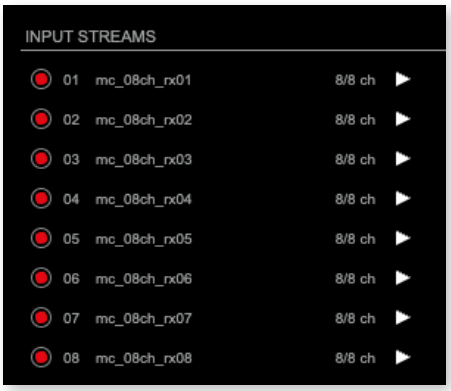


Display of Receivers / Input streams:

- in the HOME UI



- in the RAV.IO UI



After creation of ‘receivers’ in HOME, the ‘input streams’ will display a red led. This is expected since all necessary parameters (NIC, multicast address, audio codec) are pushed only once the stream is patched in the stream routing - see ‘Stream Routing’ on page 21.

State of input streams

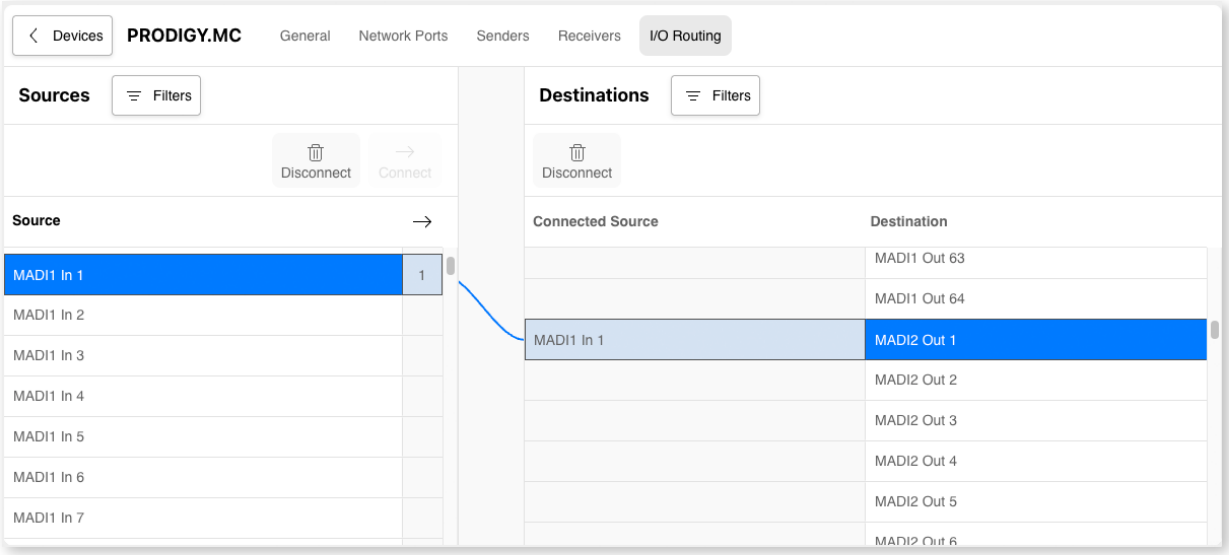
(OFF)	=	stream not activated
(ON)	=	stream activated, receiving data
(ON)	=	stream activated, receiving data via one NIC only (input redundancy)
(blinking)	=	stream activated, not receiving data (unicast, connection not established)

Checking receiver configuration

Access receiver configuration (Input Stream Settings) by clicking the stream name (hyperlink) on the status tab of the RAV.IO UI.

Device view - I/O Routing

The I/O Routing tab displays physical inputs and physical outputs of the device.



Matrix connections are patched here or in globcon.

In HOME UI the display of sources or destinations of PRODIGY is restricted to:

- physical inputs and outputs (analog, AES3, MADI)
- active senders and receivers of RAV.IO
- signal generators

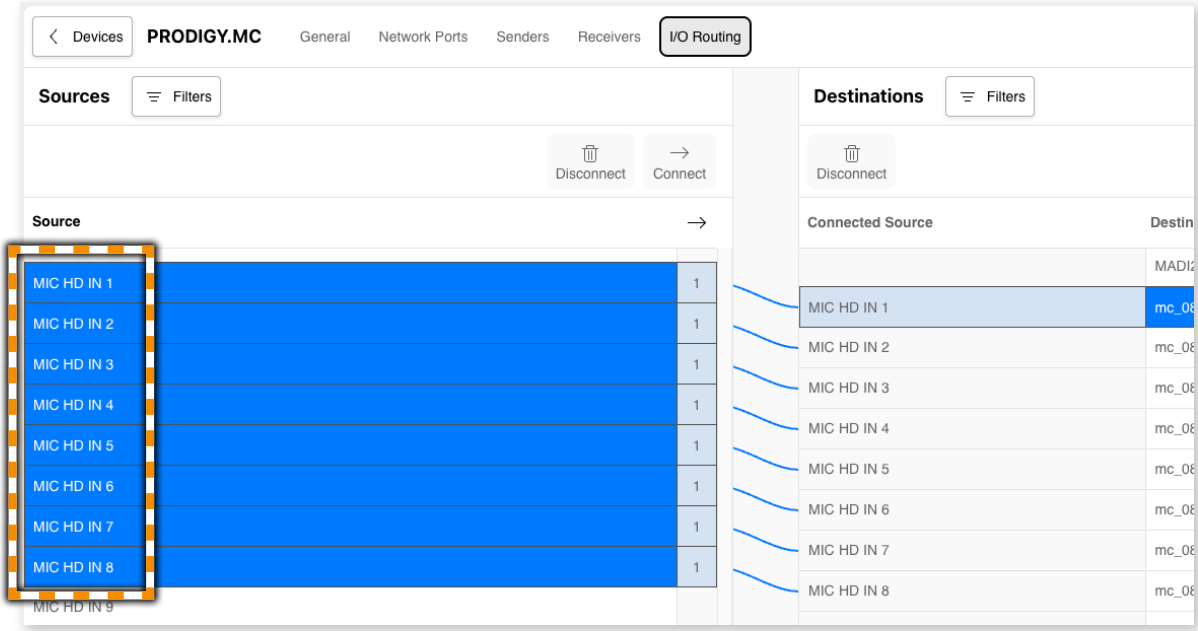
NOTE

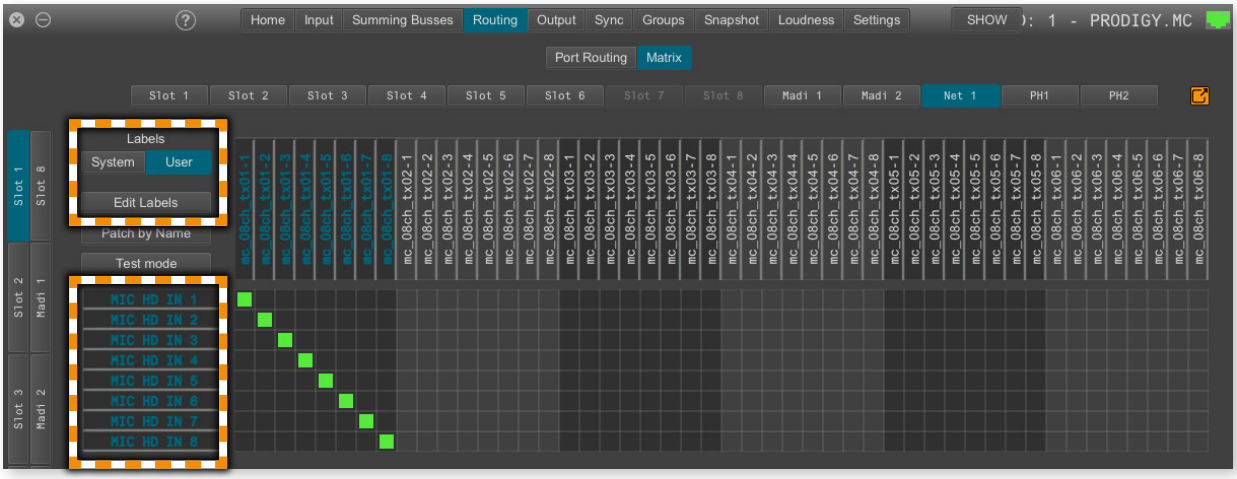
DSP Sources of PRODIGY like ‘summing busses’ or ‘flex channels’ are not displayed in HOME.

Labels - Physical I/Os

In globcon there are ‘user labels’ for physical inputs and outputs.
These user labels are:

- are displayed in HOME
- can be edited only via globcon

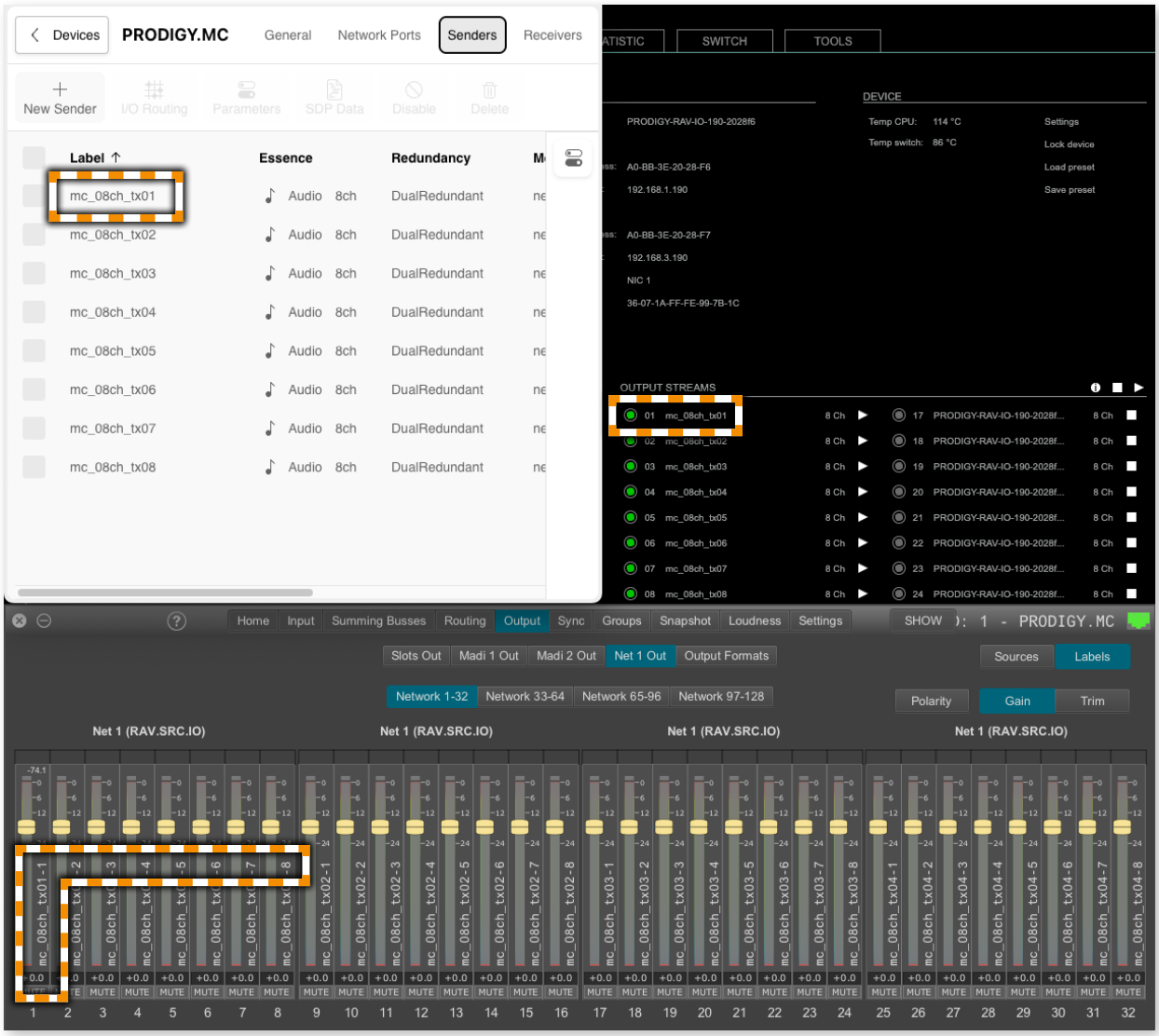




NOTE

Labels of ‘senders’, ‘receivers’ and down to ‘single channels’ are determined by the stream names - see page 20.

Labels - Streams



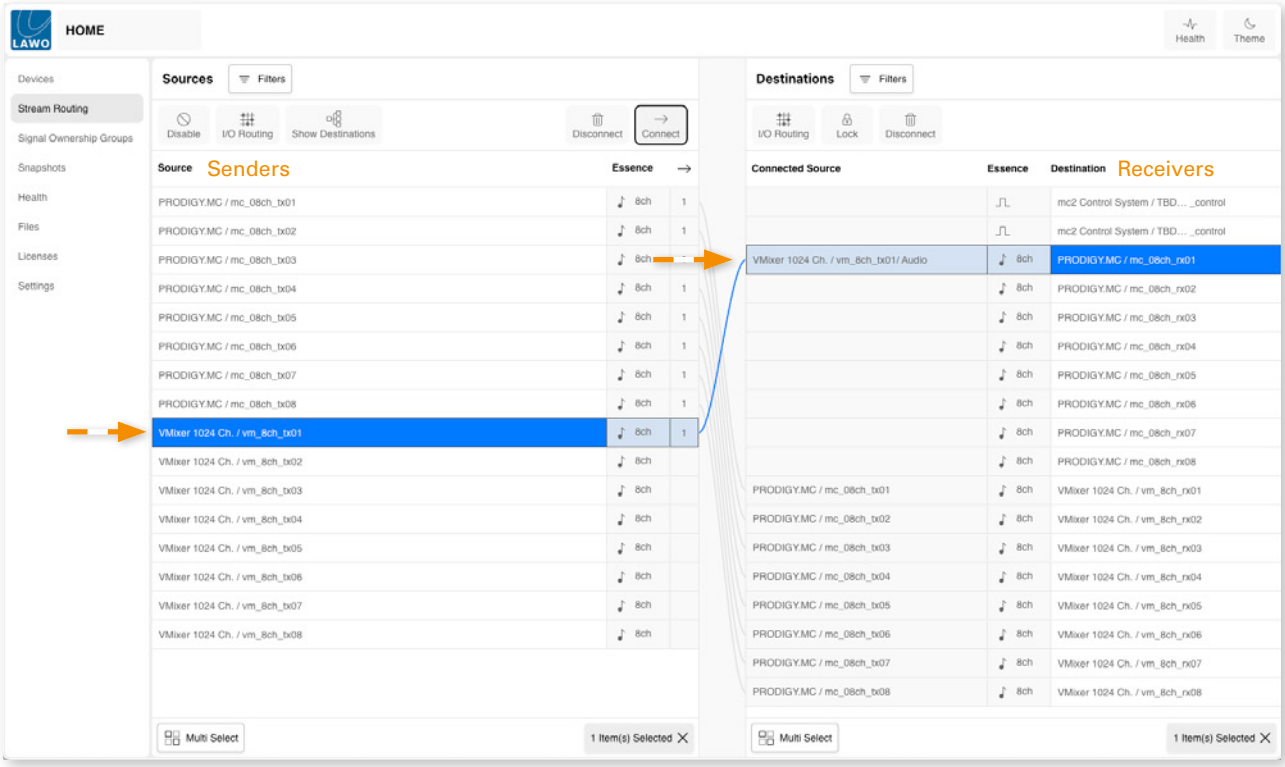
UI	user label
HOME - sender / receiver	<stream name>
RAV.IO - input / output stream	<stream name>
globcon - I/O channels	<stream name> - <channel no>

Example:

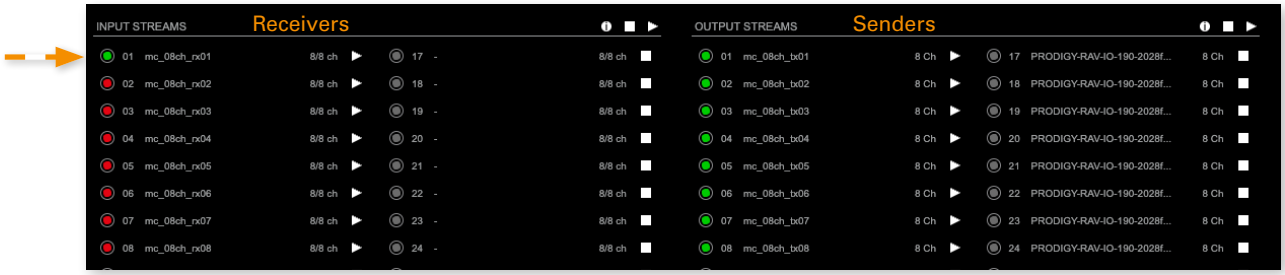
- RAV.IO: mc_08ch_tx01 (transporting 8 audio channels)
- HOME: mc_08ch_tx01
- globcon: mc_08ch_tx01-1 to mc_08ch_tx01-8

Stream Routing

Senders and receivers are patched in the ‘Stream Routing’ of the HOME UI.



- Create ‘senders’ and ‘receivers’ for RAV.IO - hosted in PRODIGY
- Create ‘senders’ and ‘receivers’ for Virtual Mixer - hosted in A__UHD Core
- Patch streams in ‚Stream Routing’

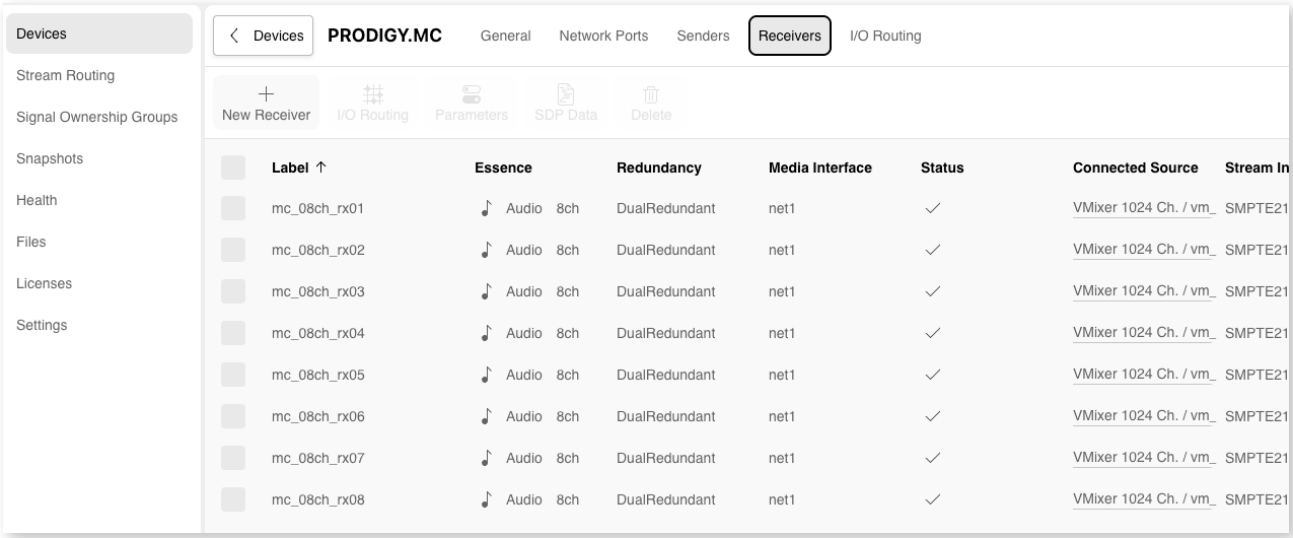


The status of an input stream changes (led green = stream active, receiving data) once this receiver has been patched to a sender.

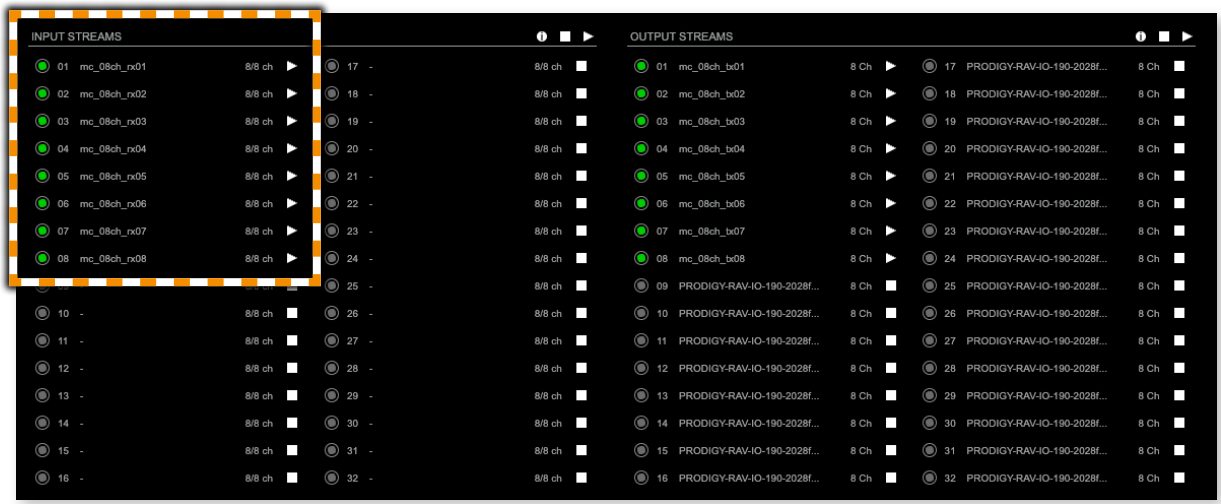
Example:

- Sender: Virtual Mixer 1024 Ch. / vm_8ch_tx01
- Receiver: PRODIGY.MC / mc_08ch_rx01

All receivers connected.



Once connected, the stream state of the receivers of RAV.IO is healthy.



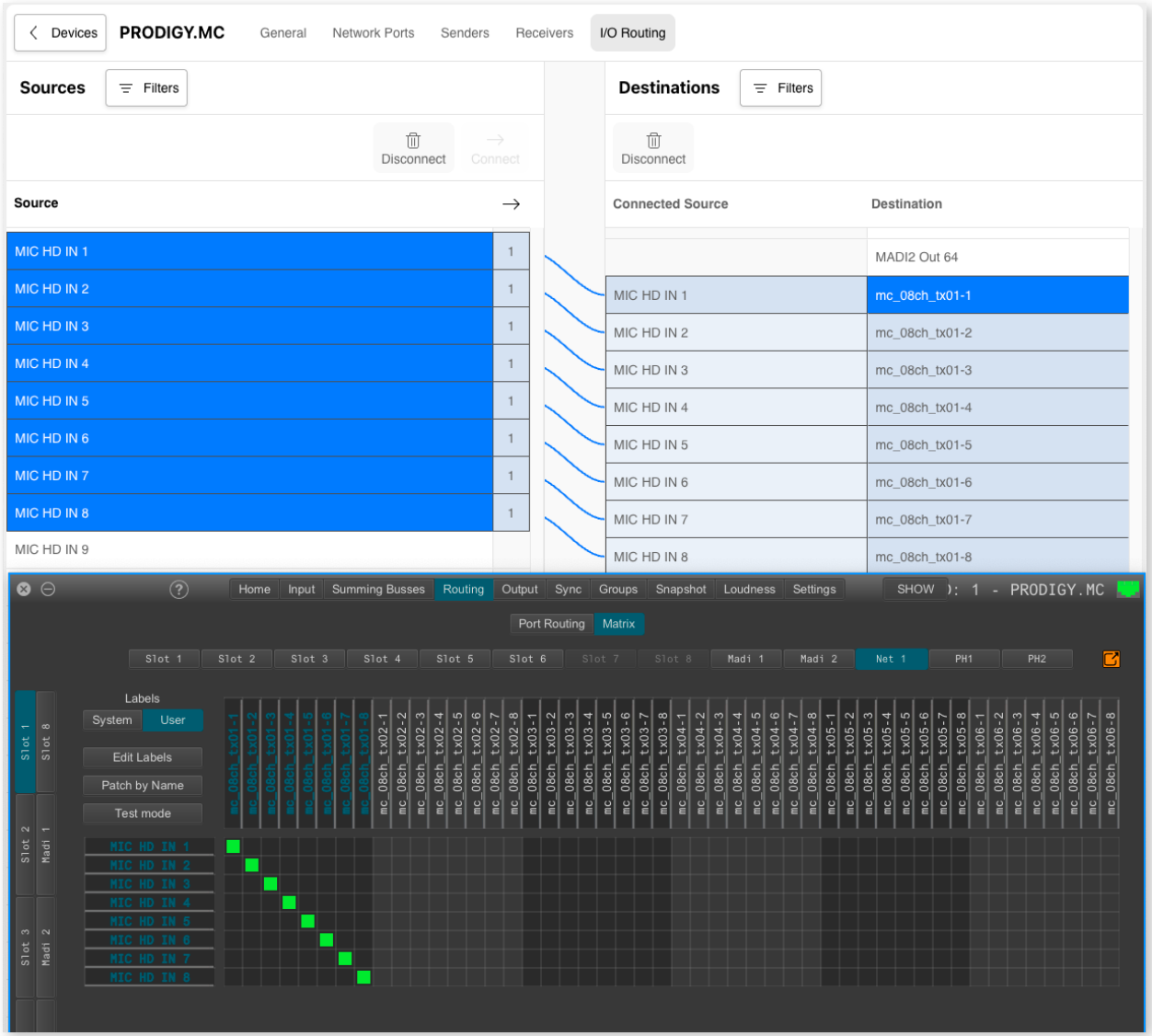
PRODIGY I/O - controlled via Lawo mc² console

Physical inputs and outputs of a PRODIGY can be controlled from a Lawo mc² console via HOME. For example the gain control of a MIC8 module is accessible from the audio console surface.

How:

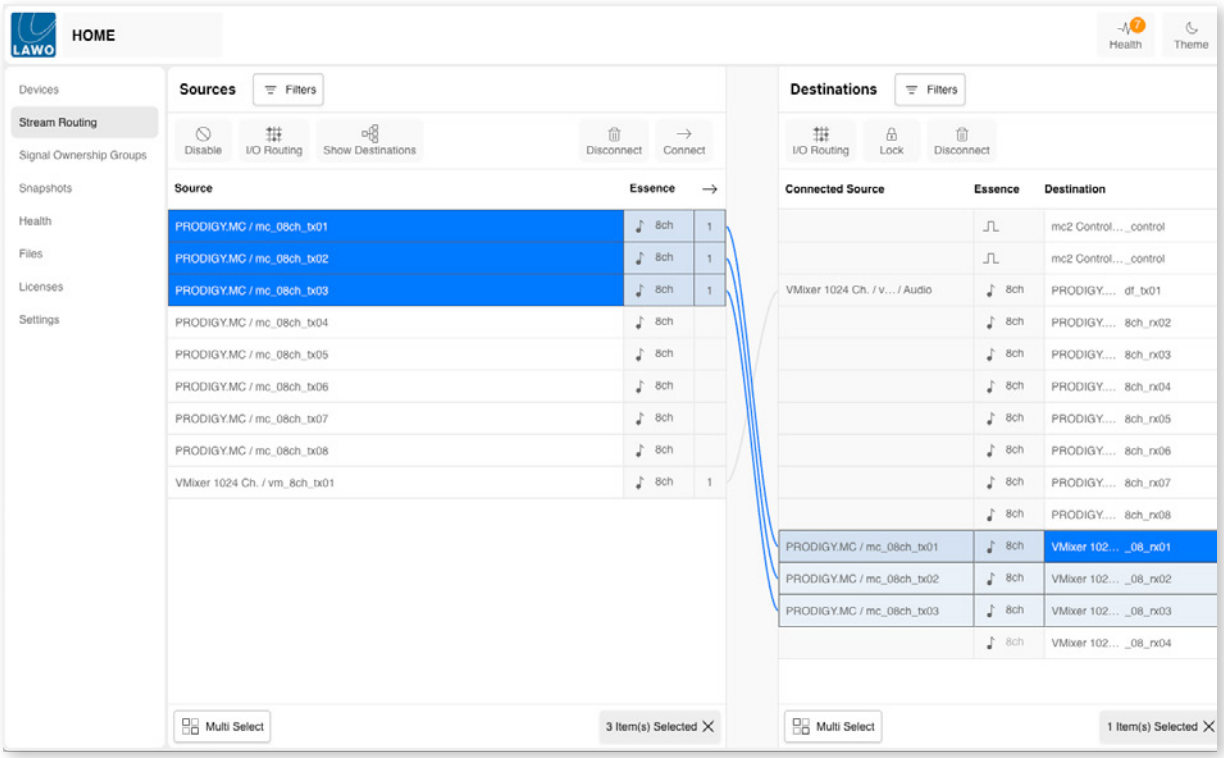
1. create ‘sender’ and ‘receiver’
2. patch physical input to a ‘sender’ of PRODIGY or
   patch physical output to a ‘receiver’ of PRODIGY
3. patch ‘sender’ of PRODIGY to a ‘receiver’ of Virtual Mixer or
   patch ‘sender’ of Virtual Mixer to a ‘receiver’ of PRODIGY

Use ‘I/O Routing’ in HOME or ‘Routing’ in globcon for this patch (**2**).



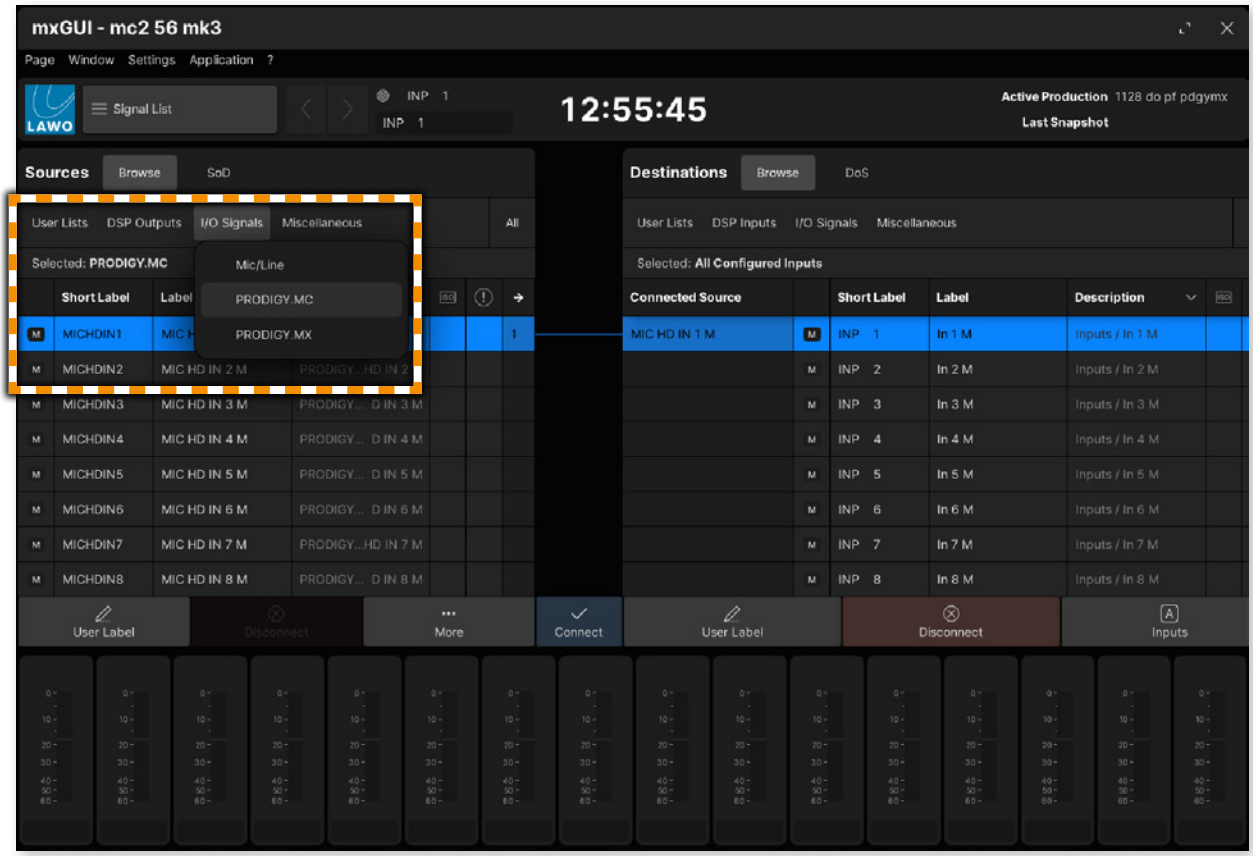
Once the physical inputs are patched to sender(s):

- select 'Stream Routing' on the left sidebar from the Home UI
- patch the sender from PRODIGY to a receiver of the Virtual Mixer* (**3**)

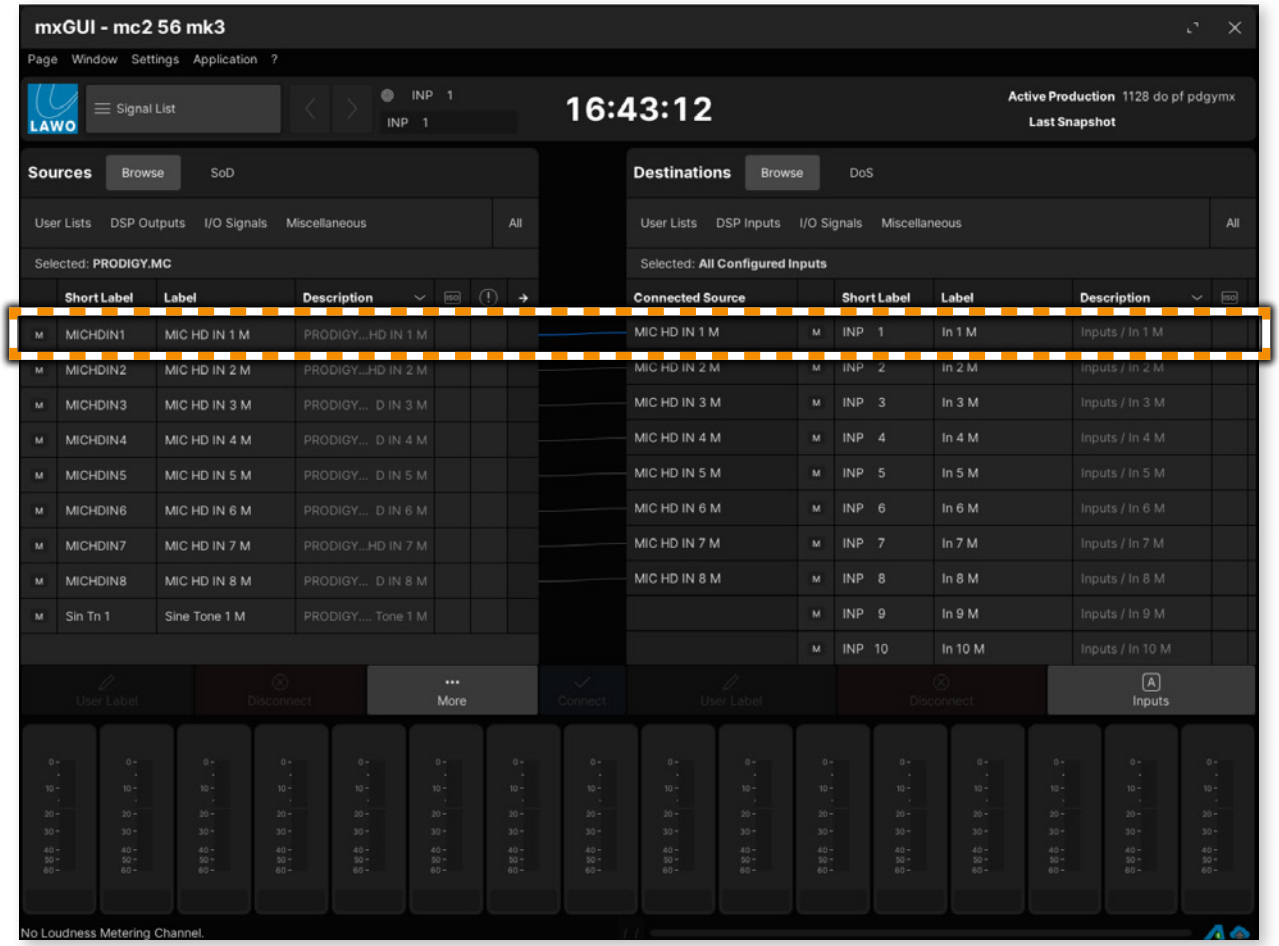


* Virtual Mixer is a DSP partition, which is running on the Lawo A__UHD Core.

In the ‘Signal List’ PRODIGY.MC from the ‘I/O Signals’ list is selected.



Patch the source to an ‚input channel' of the mc² console.



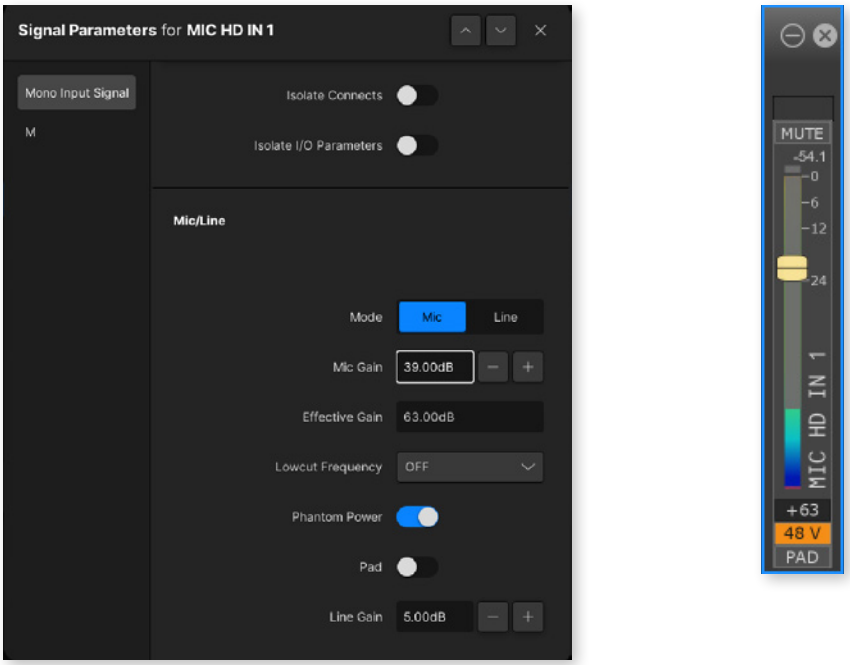
In the ‘Signal List' of the mc² console the source signal is displayed with it's ‘user label'.

Example:

- physical input of PRODIGY.MC: slot 1 ch 01 (‘MIC HD IN 1')
- transported as stream - ‘sender mc_08ch_tx01'
- collumn ‘Label' displays ‘MIC HD IN 1'

Right click on the source and select the ‘Signal Parameters'.

mc² console - Signal Parameters



Parameter settings are synchronised with globcon.

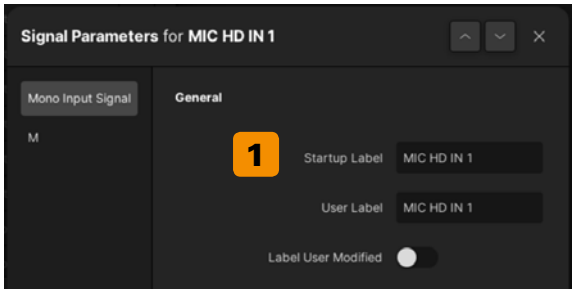
Available parameters:

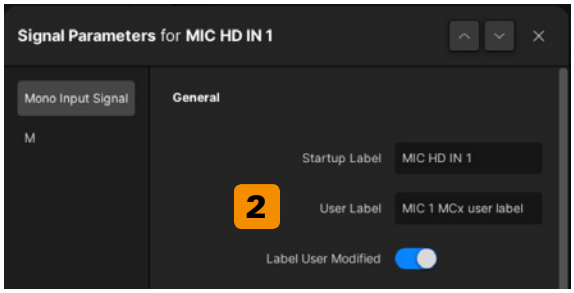
- Mic gain
- Phantom Power 48V
- PAD

'Effective Gain' represents the gain value of the input channel in globcon.

mc² console - Labels

- the 'startup label' in the signal parameters view displays the PRODIGY 'user label' and cannot be edited from mc².
- the 'user label' from mc² is not pushed to globcon / PRODIGY.
- the 'startup label' is currently not automatically updated in mc² (the HOME UI displays the label).





1	Startup Label = PRODIGY user label, pulled once from globcon when connecting
2	mc² User Label, will not be pushed to PRODIGY / globcon

TIP

To push a modified label from PRODIGY to mc²:

- disconnect the input channel in the globcon matrix from the 'sender' of the RAV.IO and re-connect it.

mc² console - Main Display

Audio and control becomes available from the channel control of mc².

NOTE

The gain value displayed in the mc² Input Channel currently does not necessarily correlate with the gain value displayed on the input channel of PRODIGY / globcon. A matching representation of the gain is displayed in the 'signal parameters' only- 'Effective Gain'- see page 27.

NOTE

DirectOut MIC8.HD.I and MIC8.LINE.I modules operate with different PADs:

Module	PAD
MIC8.HD.I	- 20 dB
MIC8.LINE.I	- 9 dB

The PAD function of an mc² Input Channel calculates with a PAD of - 20 dB to display the gain value in the input channel.

This leads to different offsets in the displayed gain values depending on the type of input module used in PRODIGY.

Good to know!

- DirectOut MIC8.HD.I and MIC8.LINE.I modules do not provide a dedicated line input function. To enable mic gain control, deactivate 'Line/On' in the mc² DSP channel.
- DirectOut line input modules AN8.I do not provide a gain function, the gain control of the DSP channel will not work.
- The Trim (digital gain) function of the PRODIGY inputs is not controlled by mc², as the Digamp is placed in the DSP channel of the mixing core.

Control data vs audio data

Control data is transported via management port to PRODIGY (out-of-band via HOME server)

- Control data
  - Virtual Mixer (mc²) => UHD Core => HOME Server => PRODIGY => IO Module
- Audio data
  - PRODIGY => RAV.IO => UHD Core => Virtual Mixer (mc²)