Release Notes

Radio Consoles & Routers
VisToolMK2

Release: 6.6
Date: May 18th, 2021

Table of Contents

Introduction

This document applies to the following products and components:

- ruby & Power Core

- configuration software On-Air Designer

- VisTool MK2

- sapphire

- sapphire compact

- crystal

- crystalCLEAR

- Nova17 MK2, Nova 29

- SoP Explorer

In this document, you will find information about feature enhancements, bug fixes and known issues in the latest official software version 6.6 and previous releases. It also provides content information on patch releases, which are published from time to time for bug fixing purposes in between regular releases.

We strongly recommend to read this document carefully before you decide to update your system.

Before you start

Before you start
Please ensure to have all necessary software components and tools available before you start the update.

⚠️ **Before updating VisTool to 6.6 or any later patch level: Backup your snapshots if you use VisTool to handle your snapshots!**

Restructuring the snapshots, the Power Core is now only saving and loading partial snapshots. To work with the new snapshots, it is necessary to load all snapshots after the upgrade of the Power Core and save them again.

Please be aware:

In order to have the possibility to downgrade your system, you need to backup your snapshots before upgrading your system. VisTool snapshots are stored on the VisTool runtime PC. They are stored in the "Visconfigurations.mdb", the file defined in VisTool Editor's "Global Settings" (via the Snapshots field). Usually the default file path (C:\ProgramData\DSA\VisToolMK2\database\Visconfigurations.mdb) is used so that data can be stored independently on each VisTool PC. Alternatively, if you wish to share snapshots between VisTools, then you can create a shared file location.

If you are using a SQL database instead, please backup your SQL database.

⚠️ **Do not update a sapphire surface with 6.6 or any later patch level**

Please do not update your sapphire surface attached to a sapphire master card with the SoP Explorer until you made all the changes being described in "for_sapphire.zip", please note the included pdf file "How_To_Upgrade_sapphire.pdf".

⚠️ **Incompatibility of configuration files**
Please note that configuration files created with versions <4.0 have to be converted to run with versions 4.0 or higher. That happens automatically when an older configuration file is opened with the current version. A copy of the original file before conversion will be created. Shall the configuration be moved from a sapphire MKI mastercard to a MKII mastercard, another conversion is needed. A conversion tool called "zirkon migrate" can be optionally installed when installing the software. (Please note that this conversion tool needs the .NET framework 4.0 installed on the PC.) Migrating an older configuration to a version 4.0 or higher using "zirkon migrate" will not cover all configured items. Manually checking the migrated configuration is strongly recommended. Also, please refer to the "Known Issues" chapters before migrating.

⚠️ **crystal and zirkon console frames cannot be downgraded from 4.0 to 3.x**
ATTENTION: Please note that crystal and zirkon console frames cannot be downgraded once they have been upgraded to 4.0. There is **no way** to downgrade your system on site. If a downgrade is necessary, an RMA is required and the console has to be shipped to the

company.

⚠ Order of updates
ATTENTION! Because of the incompatibility of configuration files you must ensure that the firmware of the mastercard(s) is updated before you transfer the converted configuration files to the mastercards.

⚠ New Windows services for DMS and CAN implemented
The structure of the drivers has been changed to support Windows10®. Therefore it is essential that you check your custom applications that communicate with the CAN- or DMS-service for compatibility.
Especially on closing the application you have to take care that the application is correctly terminated. The new CAN-Service does not support the PCI- or ISA- CAN-Card.

History

- **Release Notes 6.6_PL-003, V6.6/7**

  Includes On-Air Designer 6.6.0.34 and VisTool MK2 6.6.0.16.

- **Release Notes 6.6_PL-003, V6.6/6**

  Includes On-Air Designer 6.6.0.24 and VisTool MK2 6.6.0.16.

  Update of Power Core Known Issues.

- **Release Notes 6.6_PL-003, V6.6/5**

  Includes On-Air Designer 6.6.0.24 and VisTool MK2 6.6.0.16.

  Smaller changes and updates.

- **Release Notes 6.6_PL-003, V6.6/4**

  Includes On-Air Designer 6.6.0.24 and VisTool MK2 6.6.0.16.

- **Release Notes 6.6_PL-002, V6.6/3**

  Includes On-Air Designer 6.6.0.20 and VisTool MK2 6.6.0.16.

  Additional Point in On-Air Designer release 6.6.0.6, "Know Issues": Conversion of MAX projects to new On-Air Designer version incl. workaround; now fixed.

- **Release Notes 6.6_PL-001, V6.6/2**

  Includes On-Air Designer 6.6.0.6 and VisTool MK2 6.6.0.16.

  Change in "Before you start": note on how to update sapphire surface with 6.6 and following patch levels.

  Additional Point in On-Air Designer release 6.6.0.6, "Know Issues": Conversion of MAX projects to new On-Air Designer version incl. workaround.

  Correction in VisTool MK2 6.6.0.16, "New / Enhancement": Logicelement: JSON Object modifier (#20910) (for LUCI Studio)", the seperator is not a "=" but a ":".

- **Release Notes 6.6_PL-001**

  Includes On-Air Designer 6.6.0.6 and VisTool MK2 6.6.0.16.

  Additional point in the section "Before you start": do not upgrade Power Core 710/10 with inbuilt RJ45 to release 6.6 is deleted, because of the patch.

- **Release Notes 6.6_1**

  Includes On-Air Designer 6.6.0.4 and VisTool MK2 6.6.0.2.

  Additional point in the section "Before you start": do not upgrade Power Core 710/10 with inbuilt RJ45 to release 6.6.

- **Release Notes 6.6**

  Includes On-Air Designer 6.6.0.4 and VisTool MK2 6.6.0.2.

Contacting the Support Department

Before you plan to carry out a software update for your system, please make sure, it is beneficial for your setup. An update should be done if

- your systems requires bug fixing.

- a new feature is provided and you want to make use of it.

- the update is recommended by your Lawo partner.

Please refer to the release notes provided with a release to find out, what's new and which fixes have been made. Please check the "Known Issue" chapter to find out, which topics have been left open.

If you intend to update and *you are still not sure* , please contact our service department in due time. You will be supplied with the necessary documentation and software. If necessary, you can coordinate a date for telephone support if required. Telephone support can be given in the common office hours (Mon – Fri 9:00 – 17:00 hrs CET, Berlin time zone). In case you require further support or remote assistance, please contact our service department, too. Please check our website, where we provide all necessary tools. http://www.lawo.de/en/support/service-support/service-contact.html

Call to: +49 (0) 72 22 1002-4000

Email to: support@lawo.com

Your e-mail should include the following information:

- Name and phone-number of the contact person as well as the time when this person is available.

- Number and type of the systems.

- If available: name and project number of the system(s).

- Current software versions of the ruby/crystal/sapphire/zirkon/Nova17 systems (see web browser).

- Access information for current TeamViewer version.

- The configuration file of the system and a screen shot of a running SOP Explorer showing the system.

Power Core

Note on network settings

When setting up your network, please note the following settings for your switch in order to run a smooth network:

For all network connections where the Power Core is involved please set the parameters as follow: speed: 1 Mbit/s, auto negotiation : off, duplex mode: full duplex.

Adding additional I/O cards to your POWER CORE

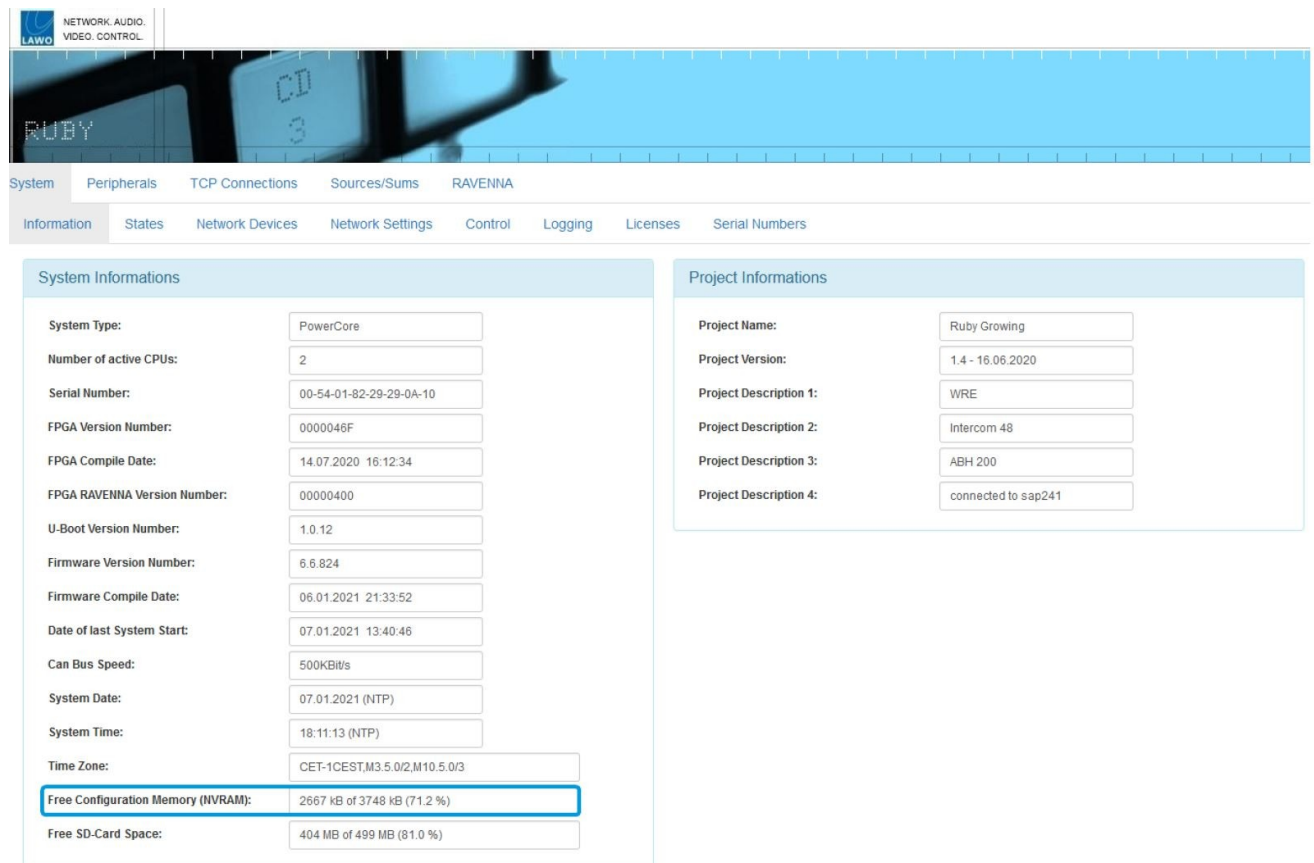If you want to add additional I/O cards to your Power Core, please proceed as follows:

- Use a PH 1 or PHILIPS #1 screw driver.
- Unscrew all screws of the existing I/O cards and blind plates in the Power Core.
- Remove the blind plate on the slot where you want to add the I/O card.
- Insert the new I/O card.
- Make sure the new I/O card and the other I/O cards do not overlap with their front plates.
- Make sure all front plates are closely applied to the Power Core housing.
- Hand-tighten the screws of all I/O cards.

Release 6.6_PL-003, Version 6.6.0.24

New / Enhancement

- **Show available NVRAM on website (#19887)**

  As in sapphire and compact engine, the available NVRAM should be displayed on the web page ("Free Configuration Memory (NVRAM)").

- **PAD available in VisTool Parm element (#19888)**

- **Parameters on the web page who are in need of an Ravenna Restart are read only (#21001)**

- **Parameter "Side" is now controllable via VisTool (#21123)**

- **dwc (0) and dwc (1) can now be in the same subnet without using LACP (#21130)**

- **Tuning mode selectable: Peak Jitter / STD Dev (Jitter Class Select Mode) (#21141)**

    The parameter "Jitter Class Select Mode" can be used to configure whether the peak jitter or the standard deviation (Jitter StdDev) is used to select the jitter class.

    From now on the Peak Jitter setting is used as default.

    Since the peak jitter is larger than the standard deviation, the resulting time offset addition can be higher than before.

    This occurs especially with strongly jittering signals like virtualized R3LAYs for example.

    In the course of adjusting, the names of the jitter classes were also adapted:

    "Class n: StdDev Max" was changed to "Class n: Jitter Max"

    If you want to keep the standard deviation measurement, you can change the Jitter Class Select Mode to Jitter StdDev.
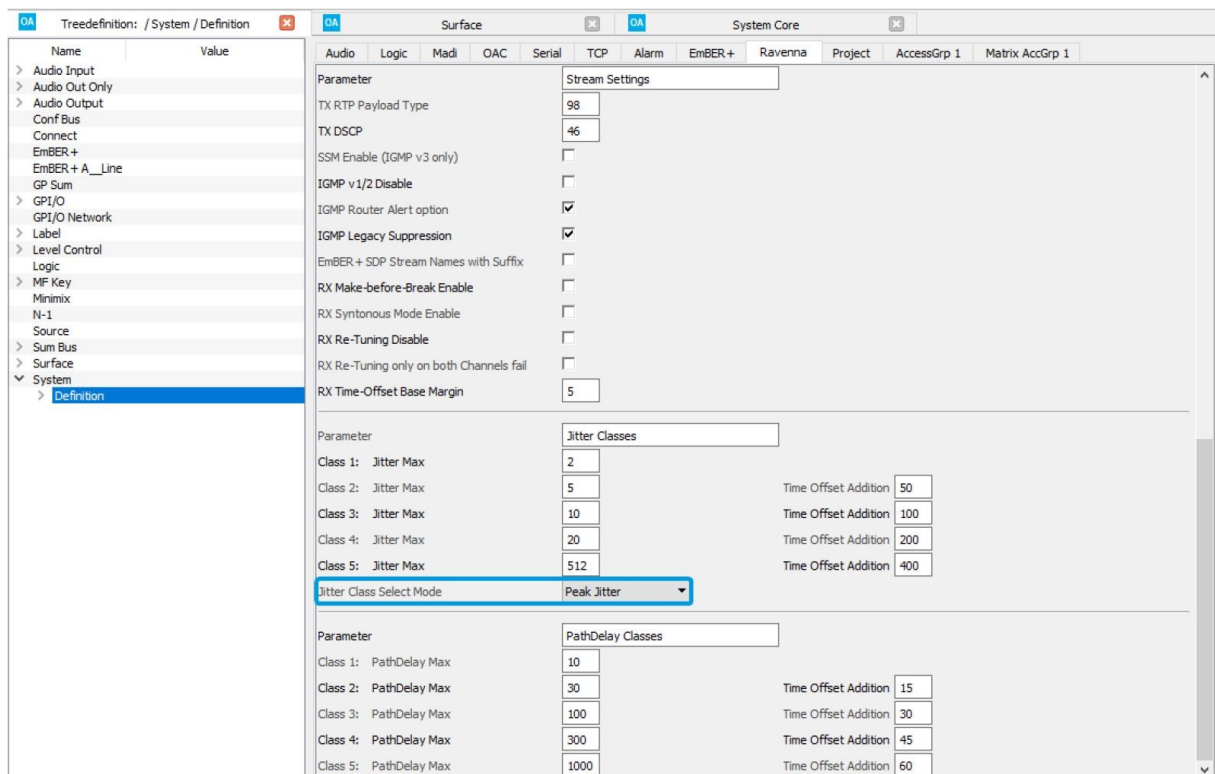
- **Jitter reserve (Timeoffset) for static streams can be configured as a fix value (#21142)**

    For static streams, the time offset used can be set via the config.

    For this purpose, the "Fixed Jitter Reserve [samples]" is configured in the RAVENNA static stream element in the config.

    "Fixed Jitter Reserve [samples]" is configured in the RAVENNA Static Stream element.

    By default the value is set to 0 (= none), so it will be used (as before) with automatic tuning, respectively manually set offset time via the web page.

The fixed jitter reserve must contain the PathDelay, as well as the desired minimum buffer margin (buffer used).

Fixed jitter reserve = path delay + desired minimum buffer margin.

The resulting time offset is calculated from the configured jitter reserve and the packet size (samples per frame) of the incoming stream:

Time offset = fixed jitter reserve + samples per frame.

If you want to define a fixed play out time, you have to subtract the packet size from the configured fixed jitter reserve.

Since no measurement takes place in the case of a configured fixed jitter reserve, the path delay is displayed in the web GUI as 0 and is part of the displayed jitter reserve.

To distinguish whether a static time offset has been set by config or by web GUI, the jitter

reserve field is used.

When setting the time offset via the web page the following is displayed:

Path Delay = 0 and Jitter Reserve = 0

When setting the time offset via the configuration it is displayed as follows

Path Delay = 0 and Jitter Reserve > 0

If the time offset of a stream with statically configured jitter reserve is changed via web GUI, it will be reset to the configured value instead of being automatically tuned if late packets are arriving permanently at the receiver.

- **Automatic stream tuning can be deactivated by "RX Re-Tuning Disable" (#21143)**
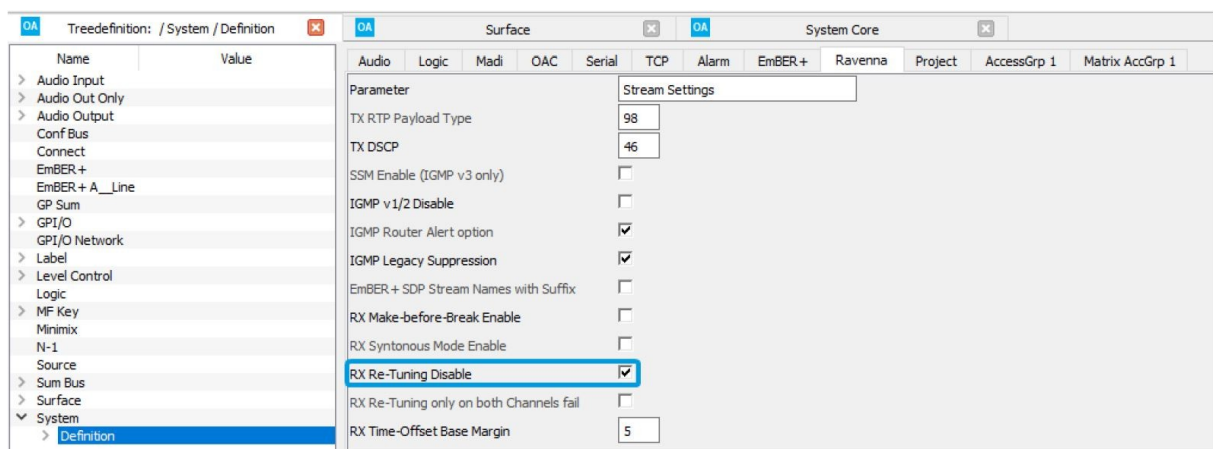
The "RX Re-Tuning Disable" parameter can be used to globally disable automatic retuning by permanent late packets.

If the option is enabled, the tuning of streams must be triggered manually if this is desired.

Time offsets set manually via web GUI are thus not triggered by network errors / adjustments (e.g. change of routes leading to longer runtimes).

In this case, audio disturbances may occur permanently due to missing samples.

An exception is when connecting new streams, if no (manually or by tuning) time offset values are stored for a stream in the NVRAM.

In this case an automatic tuning is performed.

- **Add-on to stream tuning: path delay classes (#21157)**
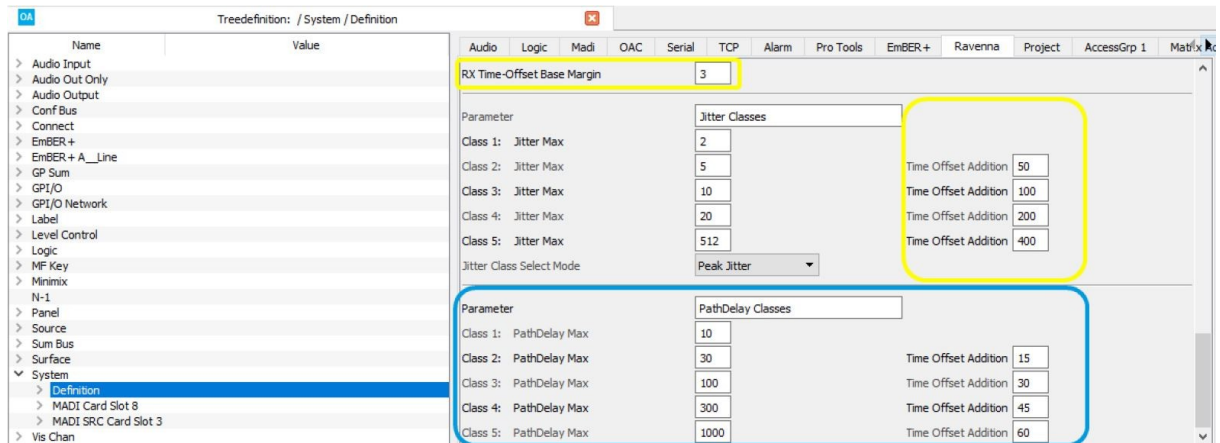
The stream tuning is extended by configurable path delay classes.

The jitter reserve is the sum of:

1. time offset base margin

2. time offset addition of the determined jitter class (as before)

3. time offset addition of the determined path delay class.

Jitter Reserve = Time Offset Base Margin + TimeOffset Addition (Jitter + Path Delay)

Jitter Reserve = 3 samples (base margin) + 0 samples (pathdelay class 1) + 0 samples (jitter class 1)

Time Offset = 48 samples (samples per frame) + 6 samples (Path Delay) + 3 samples (Jitter Reserve)

The values of the path delay classes are configured in samples, as the values of the jitter classes.

Since a time offset addition is configured by default after conversion of existing projects,

the determined jitter reserve and therefore the time offset will increase after the next tuning.

If this is not desired, the "Time Offset Addition" of the path delay classes should be set to 0.

• **Enhancement to stream tuning: additional jitter information used from SDP (#21159)**

Computer-based stream sources such as R?LAY are depending on the host system (virtualization) and are sometimes strongly jittered. During automatic tuning of the Power Core, very large jitter reserves (time offsets) may happen.

In order not to generate "excessively large" jitter reserves, R?LAY can - in the SDP of a stream - provide information about the jitter and the internal delay (latency between the PTP time stamp and the transmission of a RTP packet).

SDP parameters (unit is microseconds) are used for this purpose:

a=lawo-delay:2080

a=lawo-jitter:4160

Stream SDP Data

Stream Name: R3LAY-A1:foobar

```
v=0
o=- 1610012438368633 0 IN IP4 192.168.99.23
s=R3LAY-A1:foobar
t=0 0
a=lawo-vm:0
a=lawo-delay:2080
a=lawo-jitter:4160
a=clock-domain:PTPv2 0
a=ts-refclk:ptp=IEEE1588-2008:20-B7-C0-FF-FE-00-4F-91:0
a=mediaclk:direct=0
a=group:DUP ra0 ra1
m=audio 5004 RTP/AVP 98
c=IN IP4 239.98.23.4/1
a=source-filter: incl IN IP4 239.98.23.4 192.168.99.23
a=rtpmap:98 L24/48000/2
a=mid:ra0
a=framecount:48
a=recvonly
a=ptime:1
a=sync-time:0
a=mediaclk:direct=0
m=audio 5004 RTP/AVP 98
c=IN IP4 239.98.23.5/1
a=source-filter: incl IN IP4 239.98.23.5 192.168.98.23
a=rtpmap:98 L24/48000/2
a=mid:ra1
a=framecount:48
a=recvonly
a=ptime:1
a=sync-time:0
a=mediaclk:direct=0
```

In R3LAY, those values can be set up in the ini file:

`[DEBUG]`

```
StreamLawoDelayMicrosecs=2080
StreamLawoJitterMicrosecs=4160
```

If a received SDP contains the described values, the Power Core will only measure the path delay to determine a path delay class (#21157). This is used to compensate jitter on the transmission path.

Jitter Reserve = lawo-delay (SDP) + lawo-jitter (SDP) + Time Offset Addition (Path Delay Class)

Time Offset = Path Delay + Jitter Reserve + Packet Size

Streams that have been tuned using the new parameters are displayed in the Stream Destinations List with Jitter Class 0 and Path Delay Class >0.

Stream Destinations List

No.	Name	Type	Codec	Samples per Frame	Path Delay	Path Delay Class	Jitter Class	Jitter Reserve	Time Offset	Connected Outputs Count	Remote Stream No.	Remote Stream Name	Tracks
1	Dst01	stereo	L24	48	6	1	1	3	57	1	1527	SRV1 PTG:var	0 1
2	Dst02	stereo	L24	48	6	1	1	3	57	1	1449	SRV2 PTG:var	2 3
3	Dst03	stereo	L24	48	5	1	1	3	56	1	911	R204:Sum02	4 5
4	Dst04	stereo	L24	48	71	3	0	330	449	1	106	R3LAY-A1:foobar	6 7

In the stream list (or also for active streams under stream destinations) of the Power Core, SDPs contain now these parameters:

a=lawo-vm:0 (virtual machine: not used so far)

a=lawo-delay:0

a=lawo-jitter:0

If the parameters were not supplied in the received SDP of the stream, they have the value 0.

The Powercore itself does not send the parameters in SDPs of outgoing streams, because the RTP packets have no latency and no delay.

- **console command to activate FTP: sys_ft (#21173)**

  FTP access can be (de-)activated via the sys_ft command.

  ```
  sys_ft      - Set enable FTP
              - usage: sys-FT y|n
  ```

- **Identify a Power Core (#21162)**

 To identify one Power Core among many, a message can be displayed via Ember+ / web UI in the front panel display.

  It can be controlled via:

  1. Ember+ provider 1: /Ruby/System/Identify (1.29.20)

  2. Web UI (supervisor/Administrator): System/Control/Front Display/Identify

  3. Console command: `sys_id [y|n]`

  When the parameter is activated, the display shows "HELLO I AM [dwc0 IP Address]" in yellow.

When the parameter is deactivated or the encoder on the device is operated, the message disappears.
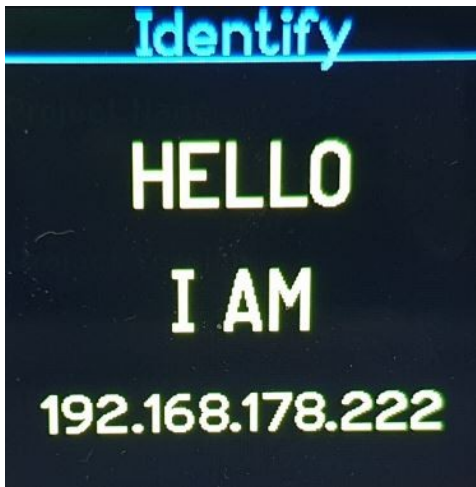
- **Source parameters switch-able via Ember+, even if they are not on faders (#21181)**

  Parameters of sources can now be switched via Ember+ if they are not assigned to faders.

  So control systems are able to prepare a source before it is assigned to a fader, exeption: faders, fader levels are read only if the according source is not assigned to a fader.

- **Screen Source Assign: colour swap (#21186)**

  The option colour swap, which had been disabled because of performance issues is now back in.

  It is activ per default and can be deactivated.

  Please check the settings after a possible conversion!
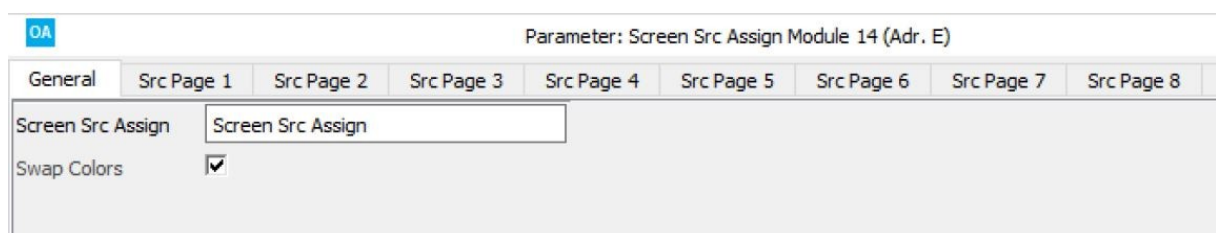
- **VCA group order can change due to configuration changes (#21191)**

  The order of the VCA groups depends on the configuration order. Configuration changes (deleting and adding sources) may unintentionally change the order of the VCA groups.

  Now the order of the VCAs within the VCA sources can be configured. The parameter "VCA Group No." can be used to configure the order in which the VCA appear in the VCA menu.

  For compatibility of existing projects the default value is "auto". If this is selected, the VCA groups are ordered according to the configuration sequence.

Values between 1 and 8 define the position at which the VCA group is displayed in the VCA menu or the visual extension.

There is no need to change the parameter.

Restrictions:

1. Each VCA group number may be used only once within a configuration.

2. Mixing auto and fixed group number within one configuration is not allowed.

Attention:

Only the group number is stored in snapshots. If existing snapshots are to be used further, the sequence with fixed numbering must correspond to the automatic sequence.

- **Selective loading of snapshots (#21172)**

    Using Definition/Parameter it is possible to configure a new behaviour on how to load snapshots with the parameter "Enable Load Groups Logic".

    Global logic inputs shall be used to control which source parameter of a snapshot are loaded, depending on the depending on the fader status and production mode.
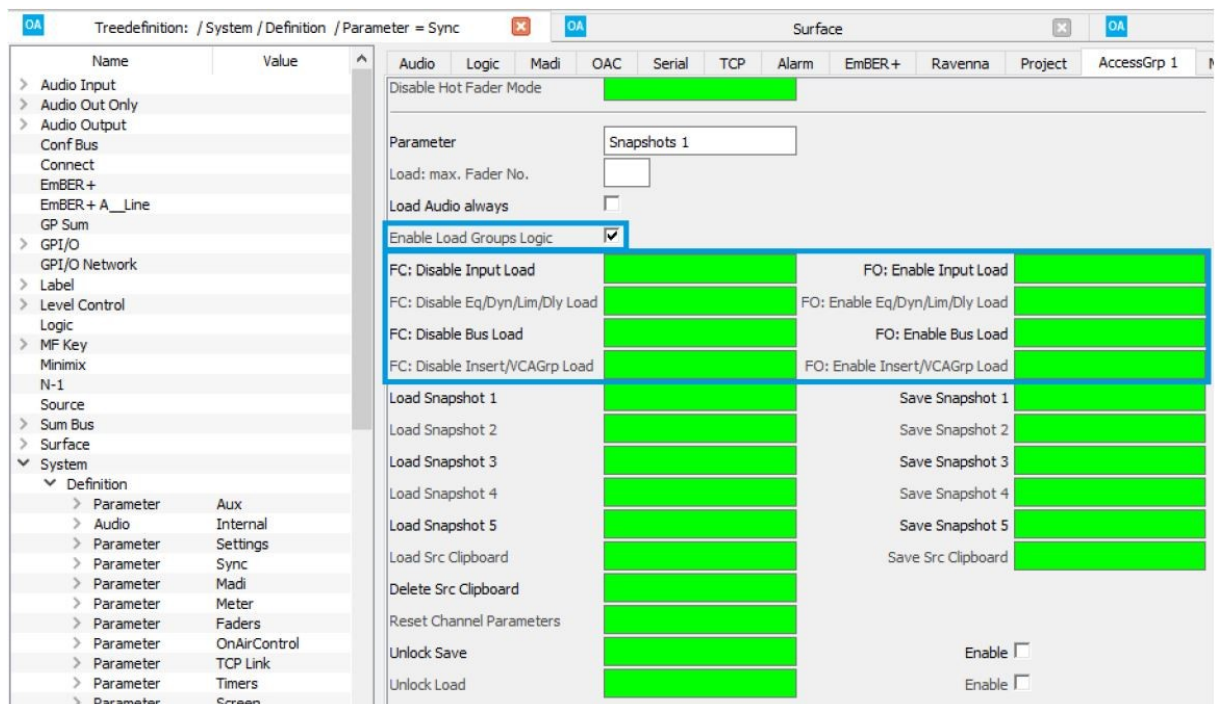
    The production mode controls whether the following parameters are loaded depending on the status "Fader Result".

    - Fader assignment

    - Fader level

    - Ravenna stream

    - User label

If "Load Groups Logic" is activated, source parameters are only loaded if the status "Fader Result Start" is **not** active.

This rule can be overridden via 8 logic inputs:

Fader closed:

- FC: Disable Input Load

- FC: Disable EQ/DYN/LIM/DLY Load

- FC: Disable Bus Load

- FC: Disable Insert/VCA GRP Load

Fader open:

- FO: Enable Input Load

- FO: Enable EQ/DYN/LIM/DLY Load

- FO: Enable Insert/VCA GRP Load

- FO: Enable Bus Load

Sum parameters are always loaded. Source Snapshot parameters are always loaded.

Enable "Load Groups Logic", as well as the associated logic inputs are available per access group.

Functions and logic states:

Mode	On Air	Production
	Snapshot	
fader levels	ignored	loaded
fader assignments	loaded	loaded
Ravenna stream user label	loaded	loaded
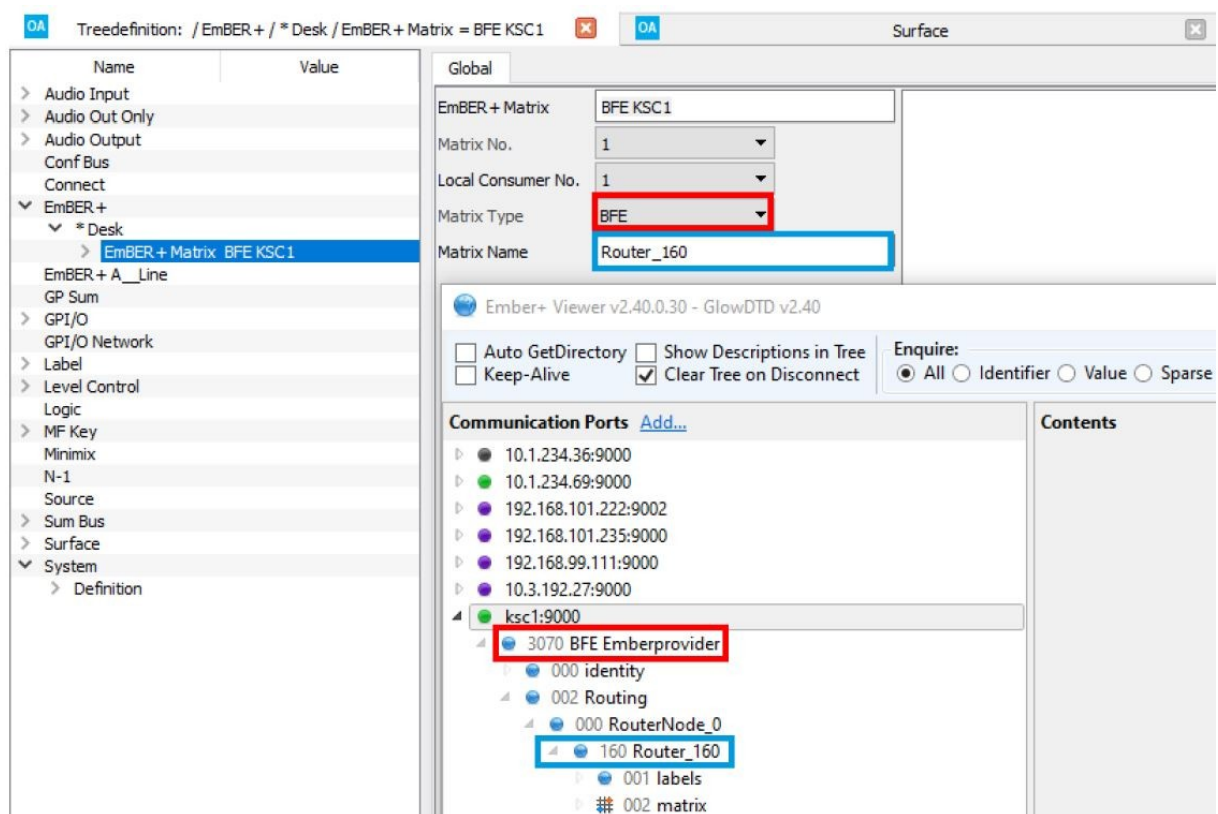
	Selective Source Parameter Load	
	Selection	Snapshot
Fader close		loaded
Fader close	FC: disable load	ignored
Fader open		ignored
Fader open	FO: enable load	loaded

Logic Inputs for Source Parameter Selections

	Logic inputs effective on fader closed	Logic inputs effective on fader open
Input	FC: disable input load	FO: enable input load
DSP	FC: disable EQ/DYN/LIM/DLY load	FO: enable EQ/DYN/LIM/DLY load
Bus	FC: disable bus load	FO: enable bus load
Insert/VCA	FC: disable Insert/VCA GRP load	FO: enable Insert/VCAGRP load

- **New Ember+ consumer: BFE KSC Core Matrix (#21200)**

  This Ember+ consumer is to control the BFE KSC Core Matrix with know matrix elements.

- **Source Replication: new variant "by negotiation" (#21201)**

  In addition to provider -> consumer and consumer -> provider, a third variant is available for initial replication direction: by negotiation.

  If this variant is configured, the provider and consumer negotiate who has more current data. This information is then used to determine the initial replication direction.

  The first step is to compare whether

  - provider or consumer have already been replicated at runtime. If this is not the case, the runtime of the systems decides on the replication direction.

  - If only one of the systems has already exchanged parameters (to be replicated), this system

replicates its parameters to the other system.

- If consumer and provider have already exchanged parameters, the time stamp of the last exchange of a parameter to be replicated decides the replication direction.
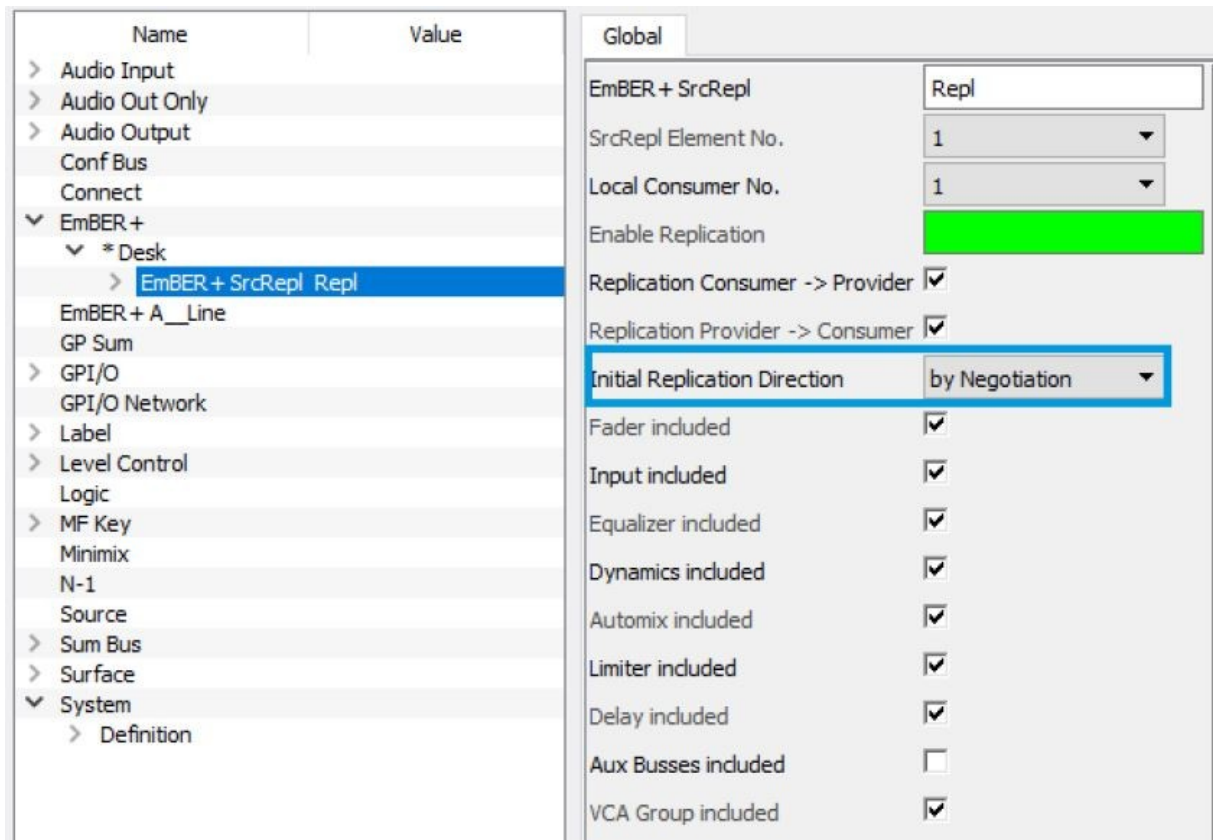
- **Receiving single streams as ASM in a SSM environment (#21266)**

Streams should also be able to be connected as ASM in an SSM environment.

This can happen via:

1. Per SDP via Ember+ if the source IP address is omitted in the source filter. Example SDP:

v=0

o=- 12147110680049 0 IN IP4 192.168.99.215

s=STE Loop:51

t=0 0

a=clock-domain:PTPv2 0

a=ts-refclk:ptp=IEEE1588-2008:20-B7-C0-FF-FE-00-4F-91:0

a=mediaclk:direct=0

a=group:DUP ra0 ra1

m=audio 5004 RTP/AVP 98

c=IN IP4 239.99.215.51/5

a=source-filter: incl IN IP4 239.99.215.51

a=rtpmap:98 L24/48000/2

a=mid:ra0

a=framecount:48

a=recvonly

a=ptime:1

a=sync-time:0

a=mediaclk:direct=0

m=audio 5004 RTP/AVP 98

c=IN IP4 239.98.215.51/5

a=source-filter: incl IN IP4 239.98.215.51

a=rtpmap:98 L24/48000/2

a=mid:ra1

a=framecount:48

a=recvonly

a=ptime:1

a=sync-time:0

a=mediaclk:direct=0

(Alternatively, the property a=source-filter: can be omitted. However, it is recommended to remove only the source IP.)

2. Per static stream (multicast source IP address left blank).

Fixed Bugs

- **Using an invalid or non existing NTP or SysLog server name leads to a cryptic error message (#19287)**

- **Bus buttons are showing wrong status after re-start (#19382)**

- **Ember parameters Network/Device dwc(0/1)/Device ra(0/1)/Link Speed and Link State are denying an update or subscribe (#20400)**

- **The feedback of Ravenna SrcPool is showing false results (#20497)**

- **VisTool is not receiving updates for the MF keys on the start process if the console is set to assign mode (#20746)**

- **No update on a DSP channel in assign mode and the according fader module is being powered on (#20747)**

- **No update on a DSP channel in access mode and the according fader module is being powered on, no update on a DSP channel in access mode and VisTool is being powered on (#20748)**

- **Parameters for VCA gain display are not evaluated correctly (#20900)**

- **Fiber optics SFP 981/60-10 and -20 does not work in the Power Core as networking interface (#20906)**

- **Configuring the NTP server IP address requires cold start if no name server is defined (#20923)**

- **A_line integration (#20937)**

  (Does require new A_line release, available around April 2021)

- **Function of multichannel sources in A_line inconsistent (#20534)**

  (Does require new A_line release, available around April 2021)

- **Displaying the mic gain value in VisTool is not considering the PAD (#20939)**

- **Ember+ consumer configured by host name are missing after warm / cold start (#20992)**

- **Preventing to load Ravenna streams for sources with Ravenna on when no receiver is connected (#20979)**

- **Crash by log matrix (log m) command via console (#21064)**

- **dwc (1) not shown in front panel display (#21069)**

- **Multi access - Balance on central module address 18 is not working (#21075)**

- **In SDPs (via stream list) it is only shown the sample rate of the system instead of the stream (#21079)**

- **Deactivating LACP is crashing the Power Core (#21086)**

  (Be careful, to use LACP in the Power Core, the switch needs to be configured for LACP too; otherwise you cannot reach the system on the LACP ports)

- **Default-AES3-channel-data missing for routing from ANTE I/O to AES3 I/O (#21090)**

- **If a fader gets unassigned, the Ember+ parameter "Fader Result Start" jumps to True (#21105)**

- **Missing VCA labels after powering up a surface while the Power Core is already switched on (#21145)**

- **User labels get erased during loading data from the clipboard (#21155)**

- **Wrong count of allocated summing inputs on the web page (#21158)**

- **Update of the source element (ChannelStat) when changing the VCA assignment of a source via Ember+ (#15239)**

- **VisChan encoder (fader related Mic gain) in VisTool does not get an update when PAD is switched on/off (#21175)**

- **Value range of the Parm Control and VisChan Mic gain is incorrect when PAD is active (#21176)**

- **Motorised fader position of sources not being assigned to a fader is wrong in the Ember+ protocoll after a coldstart (#21184)**

- **No streaming RTSP URL in the Ember+ tree (#21196)**

  The RTSP URL is now only available for the audio production I/O node in the Power Core Ember+ tree.

- **Layer 2 default assignment is not loaded if "Disable Layer 2" is active (#21203)**

- **SDP parameter in the Ember tree is empty for a locally connected stream when you close and reopen the tree (#21208)**

- **SDP field is empty, if a stream can not be connected or is set to waiting (#21209)**

- **"Conf" status is not updated on unassign by a downsource functionality (#21228)**

- **No SDP patching possible, if stream is dropping during the receive and the receiver then jumps to -0-W---- (#21262)**

Known Issues

- **A__line GPIO are working the wrong way round (#21336)**

- **MTX QRY does not provide values after cold start if connection type is MNOPL (#21330)**

- **On-Air Designer is showing more than 32 mono delays for summing buses (#21418)**

- **Server based timer does count up negative time (#21343)**

- **Conference buses are closed when a conf bus being removed from a fader and conference being activated on any source (#21367)**

  Removing a conference summing bus from a fader and activating a mix minus button in any source on the console leads to no conference audio at mix minus buses at all.

  Possible workarounds:

  - Set up a mix minus bus on a manual basis with aux busses.

  - Use a mini mixer connected to the output of the mix minus bus in order to change the level.

  - Use hidden faders for the mix minus buses and map them if required.

- **Fader stays open while loading a snapshot in OnAir mode though the associated VCA group assignment is removed (#21382)**

  This happens with the following prerequisites:

  1. Enable load groups logic is inactive

  2. Production mode (save value) is inactive.

  3. Before loading a snapshot, a VCA group (VCA1) is assigned to a source and the fader is open.

  4. The VCA fader (VCA1) is closed.

  5. A snapshot is loaded without a VCA group for this source.

Unwanted result: the fader remains open, the status FaderResultStart becomes active.

From Release 6.6_PL-002:

- **tcpd computing time rises when telnet session closes (#20157)**

    Closing the telnet session while a TCPdump is active does not close the TCPD task:

    Workaround: please finish the tcpdump first and then close the telnet session.

- **Static Ravenna source pool stream names are only allowed up to 28 characters instead of 124 (#20773)**

From Release 6.6_PL-001:

- **Streams being tuned are being retuned on a reconnect (#20625)**

    This happens if the Power Core is **not** set to "slave only". If the Power Core is set to "slave only", he is storing the best connection values and does not retune them.

From Release 6.6:

- **Missing update of parm control buttons when old source snaps are being loaded (#20782)**

    The problem exists with sources that are in access while a "full snapshot" is loaded with an old hardware ID = 16. The Parm Control Module Access 1 - 40 indicates that the source would be in access. In Vistool the name of the channel and the graphics of the equalizer, dynamics and limiter can be seen. On/Off, Gain and so on remain black and not operable.

- **VisTool and the central panel are not receiving any status update of the DSP if a channel is in access (#20748)**

    If a channel is in access and a panel or VisTool is powered up, then VisTool and the central panel are not receiving any update of the DSP.

- **If a channel is in assign mode and a panel is powered up, there is no information in the display (#20747)**

    If a channel is in assign mode and the control panel is powered up in this state, information of the MF Keys (except 2a and 2b) is missing in that channel and the display is black, as if no source is assigned. After ending the assign mode the missing update information is displayed.

- **VisTool is not receiving information about MF 3 & MF4 key when powering up while the channel is in assign mode (#20746)**

    If ruby is in assign mode and VisTool is starts in the same moment, only MF keys 2a and 2b will get an status update. All other keys remain black. If assign mode is terminated and the MF key 3 is pressed, for example, MF key 3 gets teh status update.

- **System labels are assigned to the sys number, not to the source name (#20644)**

    The SystemLabels (e.g. defined by Vistool) are (for all previous products) assigned by design to the system numbers. For static configurations, or when sources are added, the system labels remain with the original source. However, if sources are deleted that have a system number < as a source with a system label, the system label is moved. With the console command src you can check the assignment of the system labels.

- **A shut down is rejected if multicast is connected to dwc(0) (#20609)**

- **Status feedback of Ravenna pool source elements are missing (invalid) (#20497)**

- **EmBER+ parameter network / devices / dwc(0) / dwc(1) / ra(0) / ra(1) / link speed and link state are not joining a subscribe nor are they sending any status updates (#20400)**

- **Error runing an rotary panel on top of a central panel (#19779)**

  If a rotary extension panel is operated on top of a central panel, the gain is reduced by 3dB (or the configured step size) with each power on of the panel. Not all VCAs are always affected.

- **IGMP report flooding (on a Arista switch) prevents membership reports (#19717)**

- **The direct out of a stereo source cannot be routed directly to a stereo output (#20335)**

  The direct out of a source cannot be given directly to a stereo output. Only the left channel appears. If the direct out is fed into a loopback and this is then fed to the output, both L and R are present.

- **DeEsser PPM showing wrong modulation in VisTool (#19264)**

  The assignment of the pre-/post DeEsser PPMs (Access) is wrong for stereo channels.

  Pre DeEsser L shows Pre DeEsser R

  Pre DeEsser R shows Post DeEsser R

  Post DeEsser L shows Post DeEsser R

  Post DeEsser R shows Post DeEsser R

- **Screen Matrix elements show no source labels for IDs >8192 (#20241)**

  Behaviour due to Matrix Server.

Release 6.6_PL-002, Version 6.6.0.20

New / Enhancement

- **Erase "RTSP URL from the Ember+ tree (#20989)**

  The Ember+ parameter "RTSP URL" in the Ember+ tree has been erased.

- **mDNS behaviour for networks with lots of streams and clients now customizable (#20990)**

  At System\Definition, parameter "Control Settings" it is possible to custimize the settings for the mDNS behaviour.

  o Respond each instantly (default parameter and set in older versions)

    Every query is answered. With many requesters and many streams, a large flood of announcements is triggered.

  o Collect and respond once (optimized operation)

    After receiving a query, the Power Core waits 10 seconds until a response is sent. If queries are received within this period, the timer is set to 10 seconds again. After the timer has expired or 45 seconds at the latest, the responses are sent.

  o **Please be aware:**

    "Collect and respond" is recommended for SDP announcements in mDNS. To use it, make sure all Power Cores in your network are using 6.6_PL-002 (On-Air Designer version 6.6.0.20) or higher.

- **IGMP v3 leave within SSM (#21070)**

  As some switches are not supporting the (*,G) leave with IGMP v3, leave now happens as (S,G) "BLOCK_OLD_SOURCES".

- **DMS parm control values should be available if the element is inactive (#21071)**

  The VisTool element "Box" will now be updated if the DSP element is inactive. Values can be changed with sliders or rotary.

Fixed Bugs

- **Wrong clock domain in the SDP when an SDP with a different ref clock mac adress is patched (#20882)**

- **Streams whose stream name is configured via the stream name parameter cannot be received locally by default. (#20899)**

- **SDP announcing via mDNS leads in large networks to a flood of mDNS messages (#20901)**

- **Logic of a pressed source MF key remains active when MF key is no longer available (unassign or bus menu active) (#20921)**

- **Additional loopbacks 57 to 64 without audio (#20931)**

- **A locally "received" RAVENNA stream cannot be disconnected via the web page (#20946)**

- **Maximum encoder value setting does not work for central module slim (#20977)**

- **Dante I/O cards log off regularly (#21007)**

- **No fader messages are sent to VisTool when the first surface module is virtual (#21028)**

- **Configuration of more than 100 source replications lead to disconnections (#21034)**

  Now it works with up to 253 sources, depending of the remaining Power Core cpu load.

- **Sample rate switching to 44.1kHz does not work (#21081)**

  In case you want to use the sample rate switching with streaming activity, you have to configure a "true" to switch during the boot of the system.

- **No audio for Minimix TB in as output of a PriConnect TCONN64, the right channel is not routed correctly (#21088)**

- **Ember+ GPIO level is decoded wrong on the consumer side, level now restricted at +9dB (#21082)**

- **Power Core display shows LAWO logo permanently after warm start with small configs (#21093)**

Known Issues

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  Behaviour due to Matrix Server.

Release 6.6_PL-001, Version 6.6.0.6

New / Enhancement

Fixed Bugs

- **Streams being tuned are being retuned on a reconnect (#20625)**

  This happens if the Power Core is **not** set to "slave only". If the Power Core is set to "slave only", he is storing the best connection values and does not retune them.

- **Display doesn't follow when switching in the "Gate" from release time to attenuation (#20890)**

- **Operating the equalizer with LPF and HPF, it may happen that the console stops displaying the values and turning the encoder doesn't lead to changes in the value (#20891)**

- **If a bus is assigned to a fader via "List enable" or as default assignment, you can rout that bus fader by activating bus assignment to other buses (#20892)**

- **Only 710/10: Massive Rx error on ra(1) (only on Power Core with inbuilt RJ45 connections) (#20898)**

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- **Screen Matrix elements show no source labels for IDs >8192 (#20241)**

  Behaviour due to Matrix Server.

Release 6.6, Version 6.6.0.4

New / Enhancement

- **Speed increase of loading a snapshot (#20706)**

  Restructuring the snapshots, the Power Core is now only saving and loading partial snapshots. To work with the new snapshots, it is necessary to load all snapshots after the upgrade of the Power Core and save them again.

  o **Please be aware:**

    In order to have the possibility to downgrade your system, you need to backup your snapshots before upgrading your system. VisTool snapshots are stored on the VisTool runtime PC. They are stored in the "Visconfigurations.mdb", the file defined in VisTool Editor's "Global Settings" (via the Snapshots field). Usually the default file path (C:\ProgramData\DSA\VisToolMK2\database\Visconfigurations.mdb) is used so that data can be stored independently on each VisTool PC. Alternatively, if you wish to share snapshots between VisTools, then you can create a shared file location.

    If you are using a SQL database instead, please backup your SQL database.

- **Discrepancy between fader scale (+9dB) and rotary VCA control (0dB) (#18878)**

  At System/Definition/Settings, position "VCA encoder max value" it is now possible to set up the maximum global value: 0dB or 9db. Default is 0dB, in order to use VCA and faders in parallel, 9dB should be chosen.
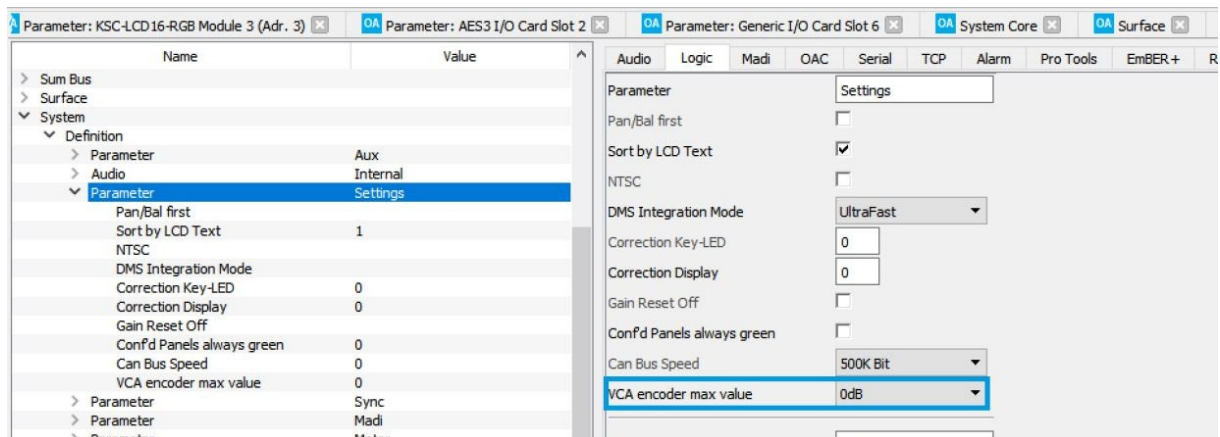
- **New Power Core license: Power Core EDGE (#20743)**

  The new license provides:

    - MADI channels (Front-panel inputs)*: 2x 64/64
    - AES67 / RAVENNA IO channels*: up to 128/128
    - AES67 / RAVENNA IO streams: up to 64
    - AES67 / RAVENNA redundancy (SMTPE 2022-7 and LACP): yes
    - Physical GPIO support: no (see add on licenses)

- Maximum number of expansion cards: 8
- Configurable fader assignable resources: 0
- Parallel Mix Inputs with DSP (EQ+DYN+LIM+LOUDNESS measurement) (incl. AutoMix/DeEsser)*: 0
- AutoMix Groups: 0
- Busses (no processing)*: 0
- N-1 Returns: -
- Bus Processing DSP Blocks (EQ+DYN+LIM)*: 0
- Bus Processing Delay: No
- PFL Busses: 0
- VCA Groups: 0
- 5.1 Mixing & Processing: No
- Utility Tool MiniMixer (Talkback 2 out of 8): 0
- Utility Tool MiniMixer with free selectable Talkback Input: -
- Patchable Meters (PPM & Loudness) / Silence Detects incl. Loopback Function*: 128
- Loopback Function, only per 8ch card: -
- Maximum Number of Consoles: 0
- KSC panel support: yes
- VisTool Control: yes
- Logic Elements: 200 [1]
- GPIO tunnel over audio channels: 64
- GPIO Net Elements: 8
- External Matrix Remote Control (KPF / EMBER+ / NTP-DOT): yes (EmBER+)
- Automation System Control Interface (RAS): no
- Mackie HUI Support: no
- Ember+ Provider: 1
- Ember+ Consumer: 0
- Routing Matrix*: 1280x1280
- Intercom Matrix – Number of clients: 0

* Listed numbers are mono equivalent.

[1] limited to basic elements

- **Add on licenses (#20741)**

  With 6.6 Lawo releases additional resources for the Power Core with so called add on licenses. Available are:

  o GPIO for EDGE and SUPER AUDIO NODE license: usage of in build GPIO (8/8) in the Power Core (#20740)

  o Mini Mixer for SUPER AUDIO NODE, L, XL and MAX license: 64 mini mixer with free selectable talk back input (also known from the Nova29) (#20702)

  o N-1 for SUPER AUDIO NODE, L, XL and MAX license: 64 N-1 return feeds (#20703)

  o Loopbacks for EDGE, SUPER AUDIO NODE, L, XL and MAX license: 128 loopbacks (#20704)
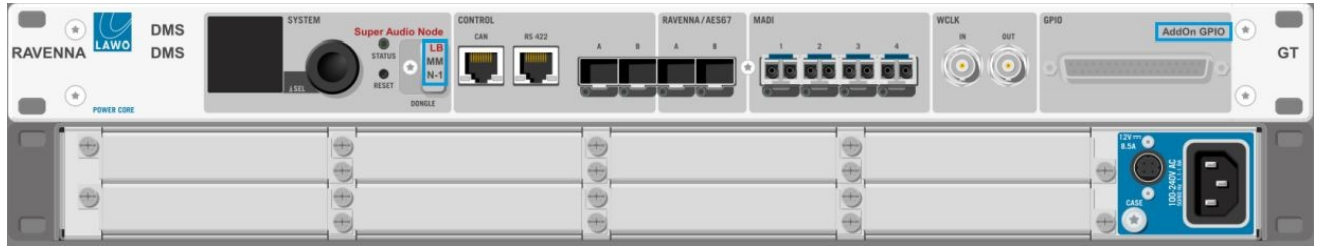
In order to configure the additional elements they need to be enabled with a right click of the mouse on the element in the system core element tab.

- **Additional mini mixers (#20702)**

New is the element "Minimixer TB In". You may know the element already from the Lawo routing system Nova29 with a free selectable TB input.
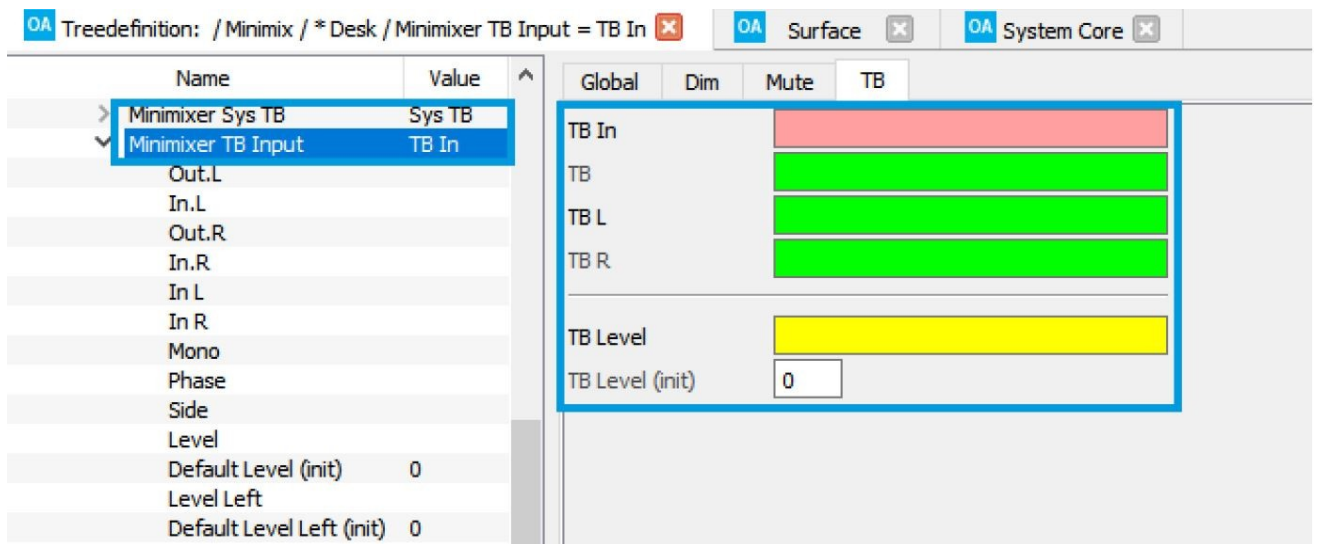
The already existing mini mixers are now called "Minimixer Sys TB". A new entry in the resources window is also added.

- **Additional N-1 (#20703)**

This new element can be used to create additional N-1.
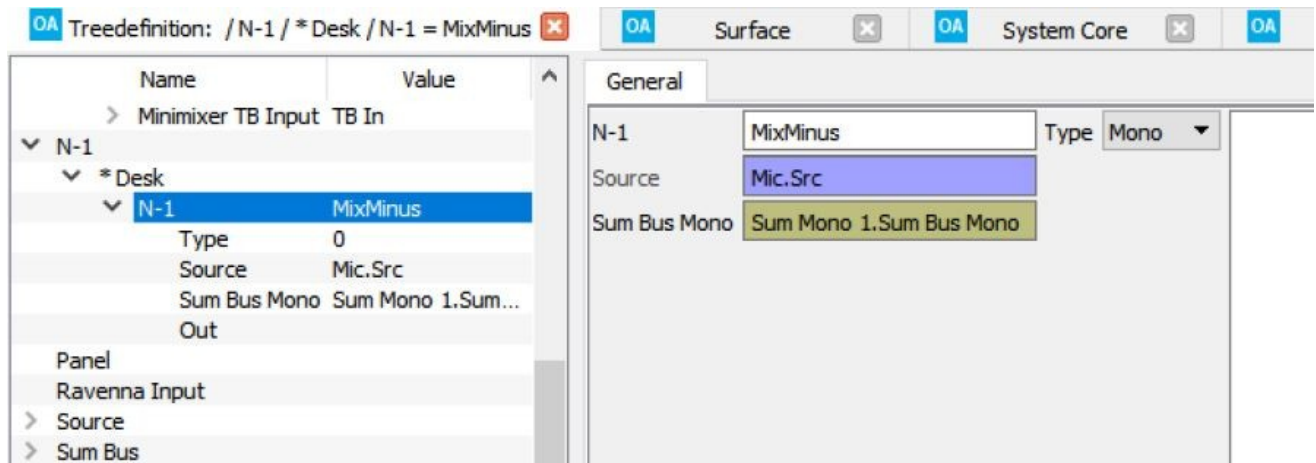
The output of the element is a summing signal. You need to define mono or stereo, the source that should not be part of the summing signal and the summing bus. There are 64 mono summing buses available. Using a stereo N-1 return will count as 2 channels.

- **Additional loop backs (#20704)**

  For every configured 8 channel card in the Power Core you will receive 128 loop backs without DMS functionality. They are called "MADI Loopbacks" and are configurable like MADI I/O cards. An MADI output is feed back to the accordingly MADI input.

  o **Please be aware:**

     The functionality is not available for configured generic I/O cards.
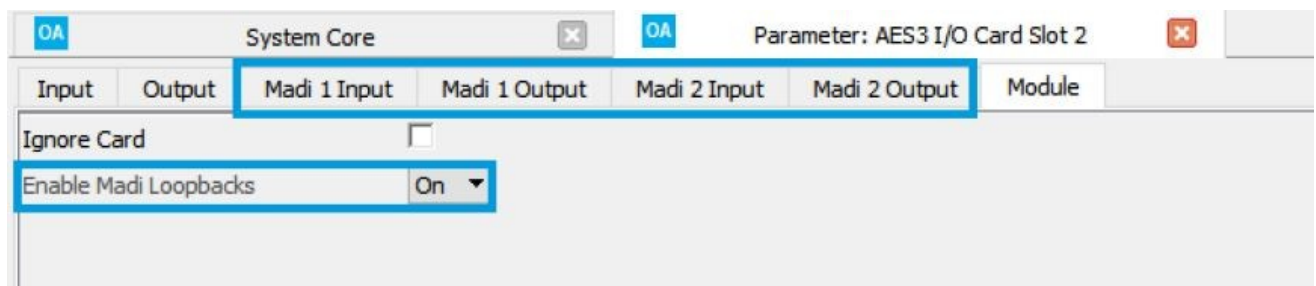
- **Tone generator for each access group (#20708)**

  With 6.6 the amount of tone generators changed:

  License EDGE, SAN and RADIO L are having 1 tone generator.

  License RADIO XL is having 2 tone generators.

  License Power Core MAX is having 4 tone generators.
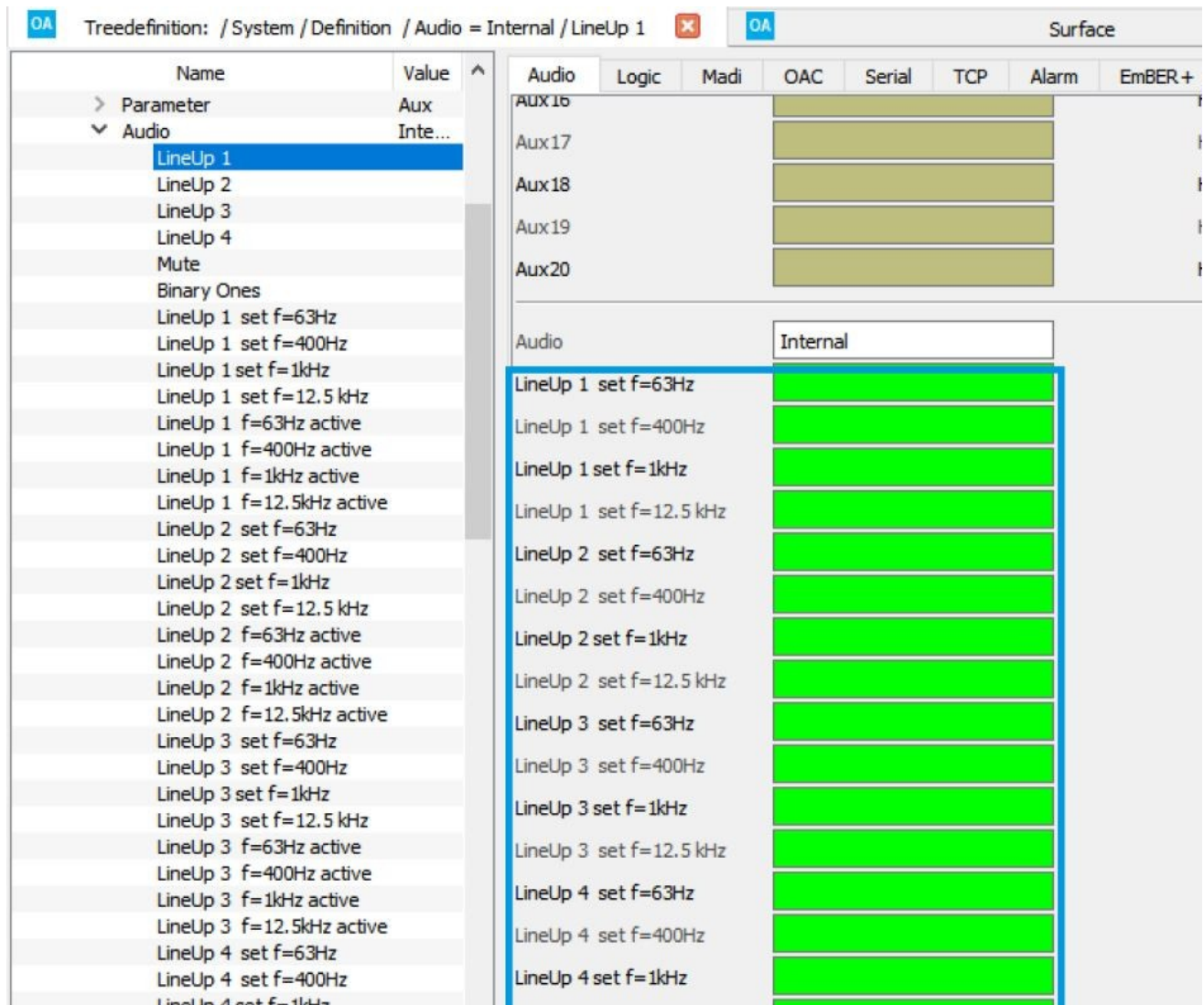
- **GPIO (#20740)**

  This add on license will activate the physical GPIO for the EDGE and the SUPER AUDIO NODE license. Remember: in order to configure the additional element it needs to be enabled with a right click of the mouse on the element in the system core element tab (see also #20741, above).

- **DeEsser and AutoMix (#20742)**

  The DeEsser and the AutoMix are now fully integrated into the DSP channel of sources. As for the other DSP units, the DeEsser / AutoMix block is now active by default and can be deactivated via configuration. When converting to the new On-Air Designer version, the old check marks are deleted (DeEsser / AutoMix in the source configuration). For all sources the DeEsser / Automix is active after the conversion. If the unit should be deactivated to minimize the latency, this needs to be done manually.

- **Ravenna Make-Before-Break (#20752)**

  Make-Before-Break optimizes the audio interruption when changing the receiving stream on a receiver. If Make-Before-Break is enabled, the stream receipt of the new stream is prepared before the original stream is disabled on the receiver. Thus, the audio interruption at change of the stream is minimized. Prerequisite are free receiver capacities (use of <128 stream receivers) The feature must be enabled under System/Definition/Stream Settings (Ravenna Tab) (In the web view under Ravenna/Outputs the scheduled stream name is displayed when switching).
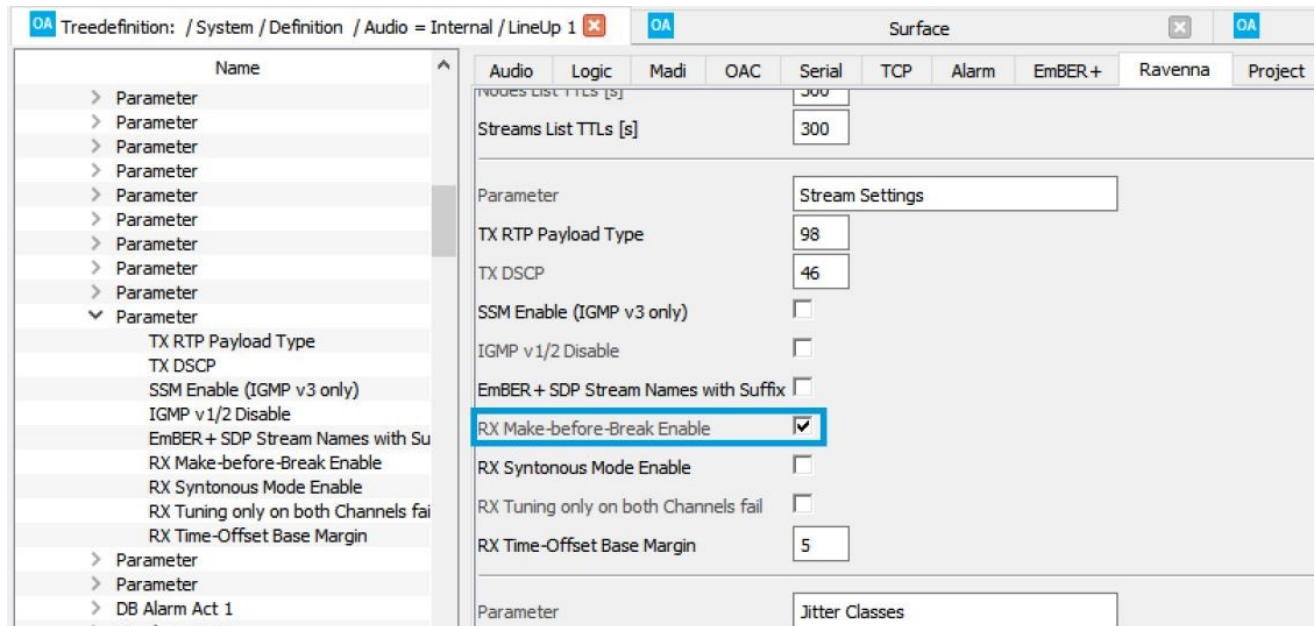
- **Gnet UDP can be configured unidirectional (#20755)**

  Gnet UDP element can now be configured as follow:

  - Rx/Tx

  - Rx only (new)

  - Tx only (new)

  If you want to use Rx or Tx only, please leave the IP cell for the IP address and port in the according direction empty.

- **AES3-id card (#20761)**

  The new AES3-id card, type 710/42, supports signals via HD-BNC connectors (75 ohm). The functional range is same as 710/41 AES3 card with a D sub connector. Details can be found in the data sheet.
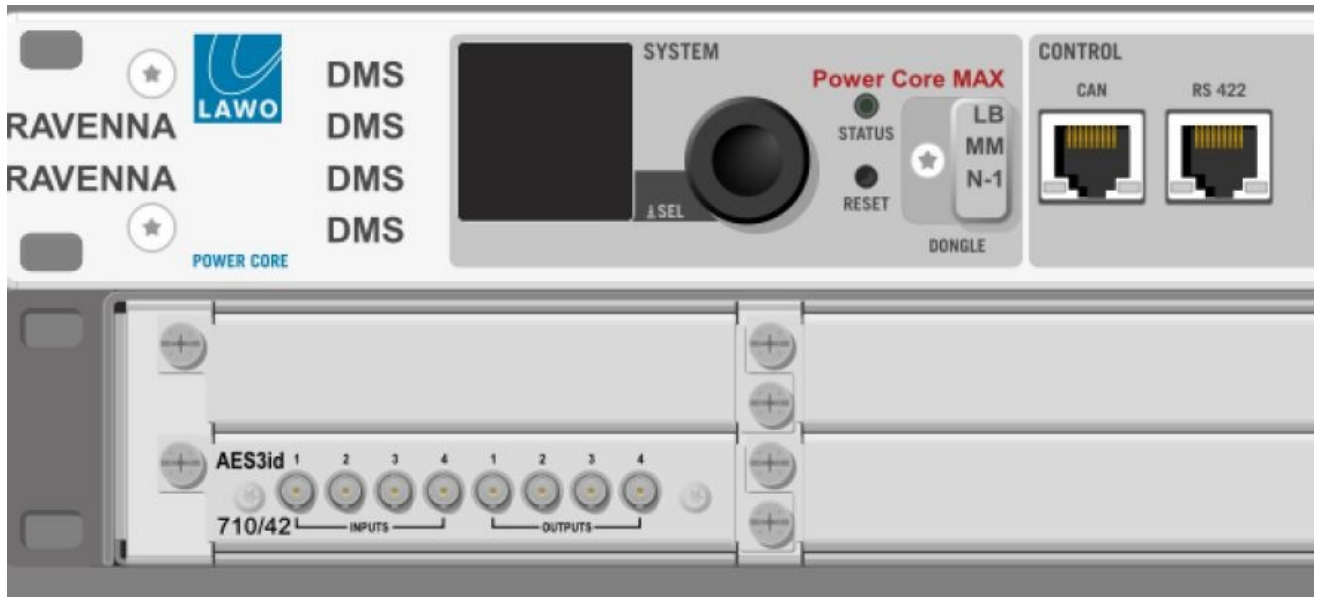
- **Ravenna outputs are configured as SPS per default (#20775)**

  When creating a new configuration, ra(0) & ra(1) should be configured as Ravenna output devices. Up to now, reconfiguring the outputs for seamless protection switching was very time-consuming but probably the standard use for most customers.

- **https for the web user interface (#20791)**

  The Power Core web page can be opened with a secure connection (SSL) if the according certificates are stored in the Power Core. Via the console / or via telnet, keys, requests and, if required, a self-signed certificate can be created. It is recommended not to use keys larger than 1024bit to improve the performance of the Power Core (at 2048 bit the web server needs very quick 5 to 8% of the available computing power).

  With Freebsd Openssl Manpage (https://www.freebsd.org/cgi/man.cgi?query=openssl) you may start to create a certificate.

  - First you need to create or adapt a config file (here: request.conf) and copy it per ftp to the Power Core:

- Sample configuration:

    [req]

    distinguished_name=req_distinguished_name

    req_extensions=req_ext

    prompt=no

    [req_distinguished_name]

    C=DE

    ST=Nordrhein-Westfalen

    L=Troisdorf-Spich

    O=DSA-Volgmann

    OU=Development

    CN=RUBY-DSA-DWC0-240.internal

    [req_ext]

    extendedKeyUsage = clientAuth,serverAuth

    subjectAltName = @alt_names

    [alt_names]

    DNS.1 = RUBY-DSA-DWC0-240.internal

    #DNS.2 = [fqdn2]

#DNS.3 = [fqdn3]

#DNS.4 = [fqdn4]

IP.1=192.168.101.240

#IP.2=192.168.101.242

#IP.3=192.168.101.243

#IP.4=192.168.101.244

- Create a RSA key with openssl genrsa:

  command: openssl genrsa -out webs.key.pem 1024

```
222-WRE1
SHLL [/] # openssl genrsa -out webs.key.pem 1024
Generating RSA private key, 1024 bit long modulus (2 primes)
................+++++
.................................................+++++
e is 65537 (0x010001)
```

- Create a request with openssl:

  openssl req -batch -new -key webs.key.pem -out webs.csr -config request.conf

```
SHLL [/] # openssl req -batch -new -key webs.key.pem -out webs.csr -config request.conf
SHLL [/] #
```

- Create a self signed certificate with openssl:

  openssl x509 -req -days 1825 -in webs.csr -signkey webs.key.pem -out webs.pem -extfile request.conf -extensions req_ext

```
SHLL [/] # openssl x509 -req -days 1825 -in webs.csr -signkey webs.key.pem -out webs.pem -extfile request.conf -extensions req_ext
Signature ok
subject=C = DE, ST = Nordrhein-Westfalen, L = Troisdorf-Spich, O = DSA-Volgmann, OU = Development, CN = ruby-dsa-dwc0-240.internal
Getting Private key
SHLL [/] #
```
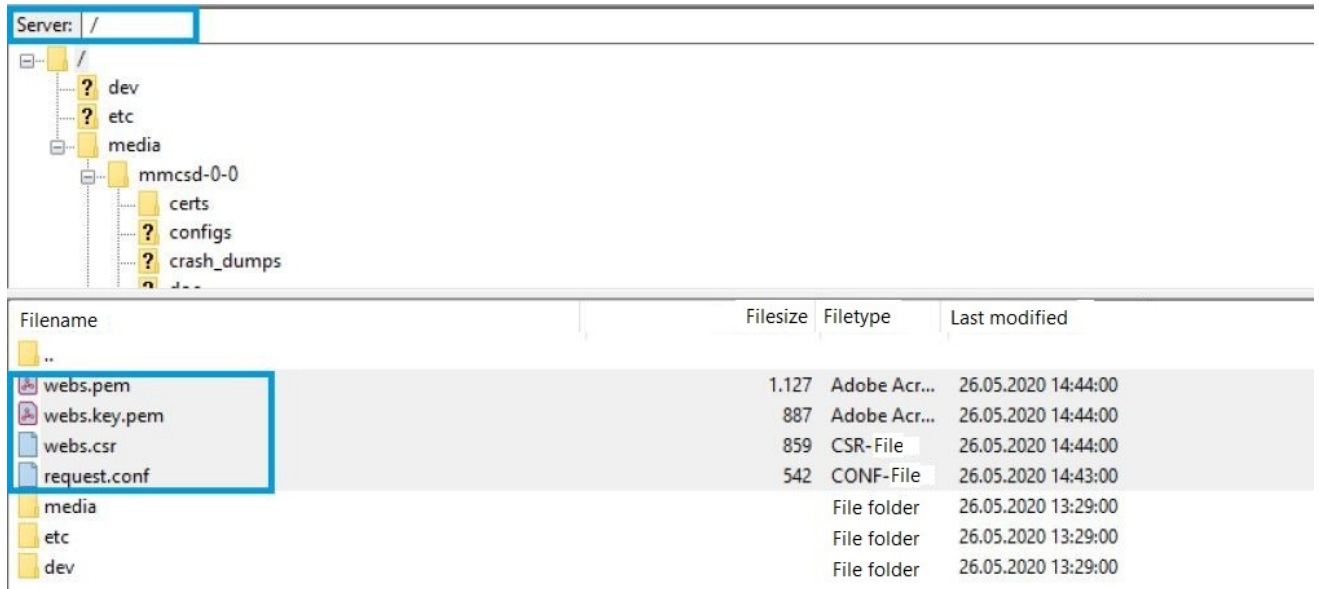
  Copy the resulting certificate /webs.pem via ftp to /media/mmcsd-0-0/ certs.

- Let an external CA sign the certificate:

  download request.csr

  let it sign from CA

upload the certificate (webs.pem) per ftp to /media/mmcsd-0-0/certs
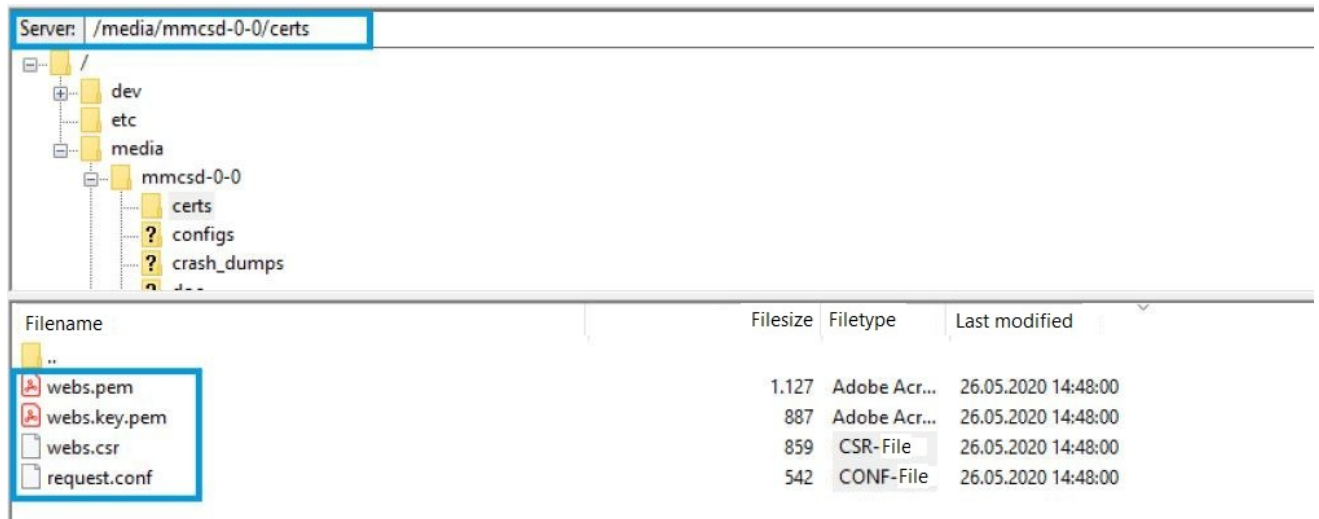
- Lets do some clean up:

  copy webs.key.pem, request.conf and webs.csr via ftp to /media/ mmcsd-0-0/certs.

to

- Start your Power Core via sys_cs in cold start mode

  during cold start you can see the following on the console output (using a serial cable):

  28.06.2020 20:18:24 DSK   system: init: ---------- Starting Webserver ------------------------------------

28.06.2020 20:18:24 DSK   system: init: Web Server started, result = 0

28.06.2020 20:18:24 DSK   system: init: Starting Webserver completed

28.06.2020 20:18:24 WEBS   system: init: Webserver bind https (certificate found)

- **Intercom Net Client supports 48 buttons (#20837)**

  48 keys can now be configured in the Intercom Net Client for Power Core. It only works if Intercom client and server are a Power Core. From intercom-1.2.0.7 on T48 can be selected as station type. A conversion of the intercom does not exist. If necessary, the "Sprechkonf" must be created again.

- **Power Core MAX: new parameter snapshot class (#20831)**

  The snapshot class is used to map the buses for the transfer of (VisTool) snapshots between access groups realized. Busses in different access groups that have been assigned the same snapshot class are not taken into account when load is considered identical.

  o   If snapshot class = 0, the bus number (0-19) is saved in the snapshot.

      The following specifications must be observed:

      If snapshot classes have to be configured ALL buses must be configured with a snapshot class! (In snapshots without snapshot class the buses are numbered 0 based, in snapshots with configured snapshot class, 1 based)

  o   Within an access group, the snapshot classes must be unique!

o **Please be aware:**

Since the use of differential snapshots (with 6.6), transferring snapshots between access groups are destructive if no snapshot class is configured.

Buses that are not available for the respective access group are set to off!

- **Localhost may be used as EmBER+ consumer (#20836)**

You need to have entered the IP of a name server in order to use localhost as 127.0.0.1.

- **The IGMP behaviour is now configurable: IGMP Legacy Suppression / IGMP Router Alert Option (#20853)**

At System/Definition/Ravenna there are two additional parameters for configuring the IGMP behaviour. Both parameters are active by default and can be deactivated if required.

o IGMP Legacy Suppression (sysctl: net.inet.igmp.legacysupp)

If this variable is non-zero, then IGMP v1 and v2 membership re-ports received on a link will be allowed to suppress the IGMP v3 state-change reports which would otherwise be issued by this host. This sysctl is normally enabled by default.

o IGMP Router Alert option (sysctl: net.inet.igmp.sendra)

If this variable is non-zero, then IGMP v2 and v3 reports will contain the IP Router Alert option. This sysctl is normally enabled by default.
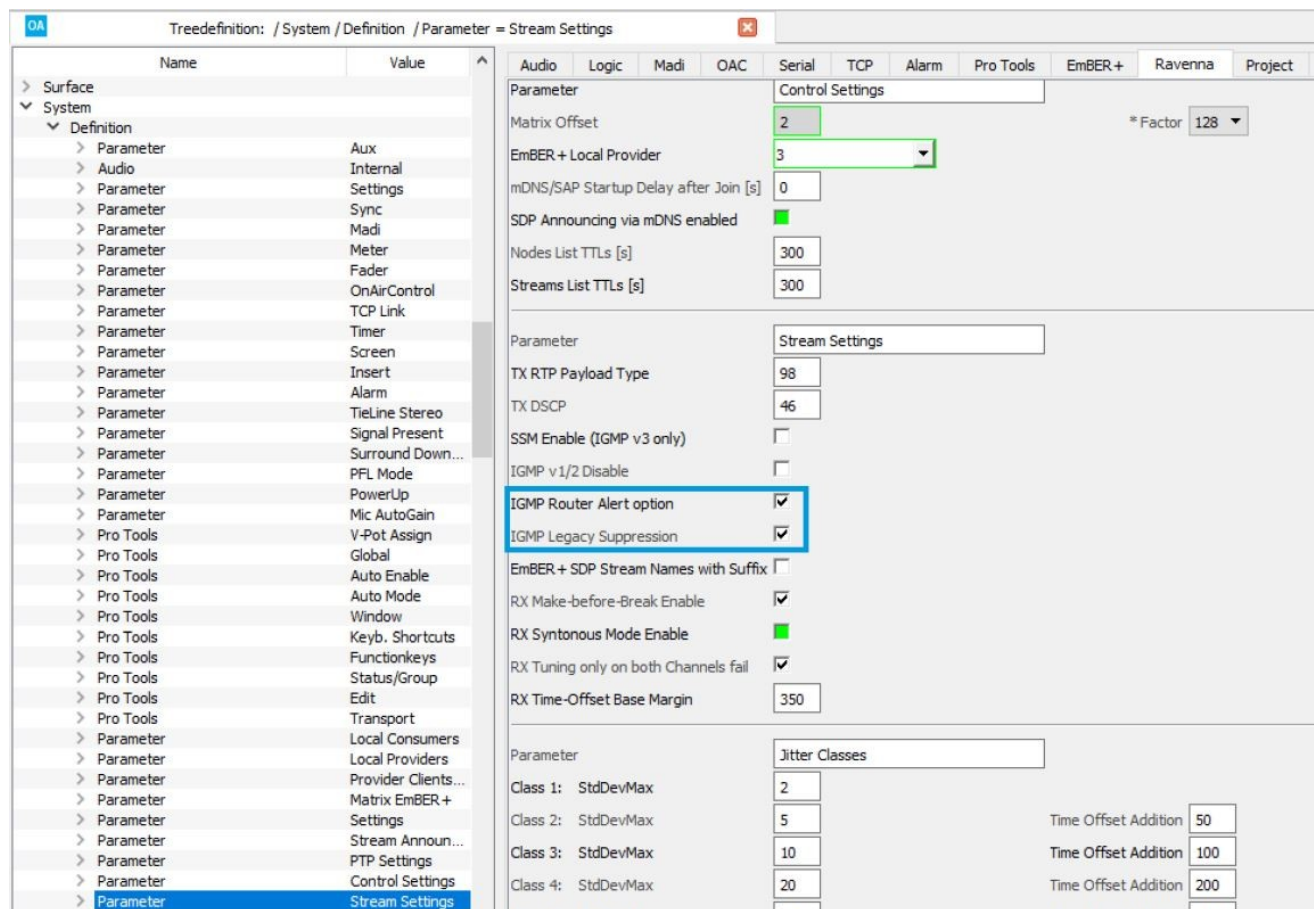
Fixed Bugs

- **AutoMix cannot be used if "DYN Disable" is activated in the source (#20675)**

- **Panels are shown as wrong type on the web UI (#20692)**

  Panels where shown on the web page as KSC.LCD16 but not with their real type like KSC.LCD14P2 or KSC.LCD15P1.

- **The loading of VisTool snapshots from several VisTool instances at the same time had been destructive (#20705)**

- **Microphone arbitration deactivated Phantom power (#19394)**

- **VCA group menu could not be activated if a different VCA menu or bus menu had already been active (#20724)**

- **Unsubscribeing EmBER+ parameters in interaction with VSM fixed (#20771)**

- **Signal present LEDs not longer moved by -8 displays (#20777)**

- **The status of the bus assignment is now shown correct on the central panel (#20606)**

- **Loading a source Snap does not affect PFL any more (#20736)**

- **If loading a snapshot from VisTool fails for whatever reason, the Power Core can now receive data a second time (#20788)**

- **Channel module #3 & #4 are receiving snapshot information (#20610)**

- **AMix / internal source control query working (#20792)**

- **No more Layer flipping caused from a new device registering on the CAN bus (#20805)**

- **Creating a snap load will not lead to a jump to +9dB of the replicated source fader (#20815)**

- **Enabling the aux fader during snap load will not cause the summing bus fader to jump to 0dB (#19754)**

- **Editing empty fields on the Power Core display with the encoder now working correct (#19793 & #20828)**

- **VCA OLEDs showing only 5 characters (#19860)**

  VCA names next to a MF key are only displaying 4 characters, VCA names without a MF key next to them are displaying 6 characters.

- **Streams connected via EmBER+ are not showing"@@Source_IP_Adress" in the fader display (#20439)**

- **While copying and pasting stream names from the web user interface, control character are not considered (#20541)**

- **The layer key in VisTool is getting an update from assigning or removing a source on a fader (#20689)**

- **The output of the logic element PTP present is working (#20698)**

- **Ravenna I/O names in the EmBER+ tree are receiving a leading"_" while having a number as the first character (#20733)**

- **VisTool receiving a status update while moving from a channel in access to assign on an empty fader (#20754)**

- **If a source is moving from one fader to an other fader parm control access keys 1-40 are being updated (#20799)**

- **Changing channel numbers via EmBER+ on Tx streams during runtime are being evaluated after a warm start (#20824)**

  For the encoding and decoding of the stream packets the CURRENT channel count is now always taken from the connected stream. For the creation of the tracks the MAXIMUM number of channels is still used from source or destination.

- **Downloading the configuration on the web user interface is not leading to a connection loss (#20825)**

- ** When loading access group snapshots, the bus assignment will not be reset (#20827)**

- **DMS data is send more efficiently (20833)**

In case you have set up a logic to be used as heartbeat, this may cause trouble as the ping now may flood your devices.

- **Streams that are being configured as static stream or Ravenna connect 8 or with Ravenna stream control can be added via EmBER+ SDP patching (#20431)**

- **Pasting an existing SDP into the same receiver does not lead to a reconnect (#20795)**

- **Aux bus routing via EmBER+ after loading a snapshot is receiving an update (#20846)**

- **The replication of VCA group mapping within source replication is correct (#20852)**

- **IGMP problems with CISCO multicast router because of missing router alarms solved (#20854)**

  Solved with the introduction of the router alert functionality:

  IGMP Legacy Suppression (sysctl: net.inet.igmp.legacysupp) If this variable is non-zero, then IGMP v1 and v2 membership re-ports received on a link will be allowed to suppress the IGMP v3state-change reports which would otherwise be issued by this host. This sysctl is normally enabled by default.

  IGMP Router Alert option (sysctl: net.inet.igmp.sendra) If this variable is non-zero, then IGMP v2 and v3 reports willcontain the IP Router Alert option. This sysctl is normally en-abled by default.

Known Issues

- **Missing update of parm control buttons when old source snaps are being loaded (#20782)**

  The problem exists with sources that are in access while a "full snapshot" is loaded with an old hardware ID = 16. The Parm Control Module Access 1 - 40 indicates that the source would be in access. In Vistool the name of the channel and the graphics of the equalizer, dynamics and limiter can be seen. On/Off, Gain and so on remain black and not operable.

- **VisTool and the central panel are not receiving any status update of the DSP if a channel is in access (#20748)**

  If a channel is in access and a panel or VisTool is powered up, then VisTool and the central panel are not receiving any update of the DSP.

- **If a channel is in assign mode and a panel is powered up, there is no information in the display (#20747)**

  If a channel is in assign mode and the control panel is powered up in this state, information of the MF Keys (except 2a and 2b) is missing in that channel and the display is black, as if no source is assigned. After ending the assign mode the missing update information is displayed.

- **VisTool is not receiving information about MF 3 & MF4 key when powering up while the channel is in assign mode (#20746)**

  If ruby is in assign mode and VisTool is starts in the same moment, only MF keys 2a and 2b will get an status update. All other keys remain black. If assign mode is terminated and the MF key 3 is pressed, for example, MF key 3 gets teh status update.

- **System labels are assigned to the sys number, not to the source name (#20644)**

  The SystemLabels (e.g. defined by Vistool) are (for all previous products) assigned by design to the system numbers. For static configurations, or when sources are added, the system labels remain with the original source. However, if sources are deleted that have a system number < as a source with a system label, the system label is moved. With the console command src you can check the assignment of the system labels.

- **Streams being tuned are being retuned after a reconnect (#20625)**

  A stream that was already connected and tuned will be re-tuned again when reconnecting. This happens only if the Power Core is NOT set to slave only!

- **A shut down is rejected if multicast is connected to dwc(0) (#20609)**

- **Status feedback of Ravenna pool source elements are missing (invalid) (#20497)**

- **EmBER+ parameter network / devices / dwc(0) / dwc(1) / ra(0) / ra(1) / link speed and link state are not joining a subscribe nor are they sending any status updates (#20400)**

- **Error runing an rotary panel on top of a central panel (#19779)**

  If a rotary extension panel is operated on top of a central panel, the gain is reduced by 3dB (or the configured step size) with each power on of the panel. Not all VCAs are always affected.

- **IGMP report flooding (on a Arista switch) prevents membership reports (#19717)**

- **The direct out of a stereo source cannot be routed directly to a stereo output (#20335)**

  The direct out of a source cannot be given directly to a stereo output. Only the left channel appears. If the direct out is fed into a loopback and this is then fed to the output, both L and R are present.

- **DeEsser PPM showing wrong modulation in VisTool (#19264)**

  The assignment of the pre-/post DeEsser PPMs (Access) is wrong for stereo channels.

  Pre DeEsser L shows Pre DeEsser R

  Pre DeEsser R shows Post DeEsser R

  Post DeEsser L shows Post DeEsser R

  Post DeEsser R shows Post DeEsser R

- **Screen Matrix elements show no source labels for IDs >8192 (#20241)**

  Behaviour due to Matrix Server.

On-Air Designer

Release 6.6_PL-004, Version 6.6.0.34

New / Enhancement

Fixed Bugs

- **Logic Elements: jump to window opens at the wrong position (#20544)**

- **Swapping in input and/or output lists, not all columns are taken into account (#20988)**

- **Special characters in I/O names cause 'create config' to abort (#21026)**

- **Message "Unique Constraint Failed" after configuration conversion including 'check frame' (#21283)**

- **Default names for fader module parameter groups are not assigned (#21400)**

- **On-Air Designer is showing more than 32 mono delays for summing buses (#21418)**

Known Issues

From release 6.6:

- **Static Ravenna stream pool source names are not allowed to have more than 28 characters (#20773)**

Release 6.6_PL-003, Version 6.6.0.24

New / Enhancement

Fixed Bugs

- **No updates after ShowOnSlct changes in Parameter views (#19657)**

- **Parameters of the last I/O of an audio slot are not synchronized between In-/Output list and the Treedefiniton synchronized (#21046)**

- **Native integration of A_line series (#18863)**

  (Does require new A_line release, available around April 2021)

- **View switches after changing the slot assignment to Treedefinition tab (#21151)**

Known Issues

From release 6.6:

- **Static Ravenna stream pool source names are not allowed to have more than 28 characters (#20773)**
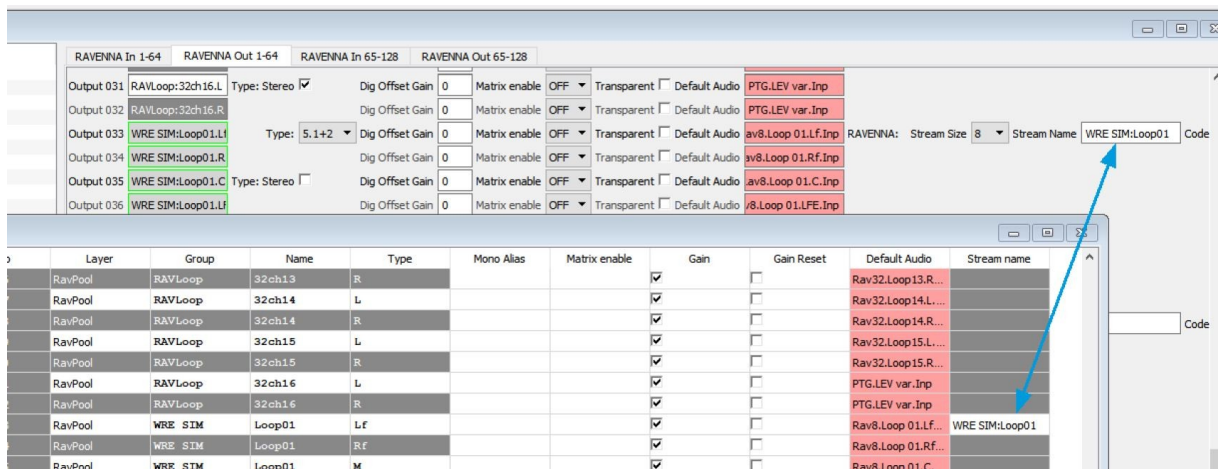
Release 6.6_PL-002, Version 6.6.0.20

New / Enhancement

- **Stream name in outputs list from parameter "Stream name" instead of "Group:Name" (#20987)**

  In the outputs list the parameter "Stream name" should be used as stream name, not as before the compound stream name of "Group:Name".

  The stream name is also editable via the outputs list (including short cuts F5-F7 and F9-F10).

Fixed Bugs

- **Elements without names (substituted) are used in cfg (#19069)**

- **Stereo information from reference to substituted input is not updated correctly when changing units (#20199)**

- **After converting a Power Core MAX project the access groups 2 -4 are missing under System/Definition (#20909)**

- **Ember Consumer is not visible after opening a previously created project (#20927)**

- **Element names of references are not displayed correctly in the tree for several elements (search does not work) (#21059)**

- **New slot is not inserted into existing project during conversion of existing project (#19231)**

- **After "save as substitution" windows jump to first position (#20477)**

- **Selection "jumps" after paste / copy of logic elements (#20558)**

- **Crash when hiding a parameter that is marked in the tree of the tree definition (#20649)**

- **Old mdbs cannot be opened on new Windows10 & On-Air Designer installations (#20999)**

- **Tip error in MF-Key (#21066)**

Known Issues

From release 6.6:

- **Static Ravenna stream pool source names are not allowed to have more than 28 characters (#20773)**
- **Native integration of A_line series (#18863)**

Release 6.6_PL-001, Version 6.6.0.6

New / Enhancement

- **Performance improvements (#20903)**

    The performance of On-Air Designer in connection with large projects is optimized. This is reflected in the time needed to switch the unit and insert logic elements. Various progress bars have been added, which show that the program still works properly when time-consuming actions are triggered.

Fixed Bugs

Known Issues

- **Ember Consumer not visible after opening a previously created project. (#20927)**

    If you loose the information on the EmBER+ consumers in On-Air Designer, it helps to change the frame and then back again to the original type as workaround.

- **After converting a Powercore MAX project to the new On-Air Designer version the Access Groups 2 -4 are missing under System Definition. (#20909)**

    Workaround: save the project and open it again, then all groups are accessible.

From release 6.6:

- **Static Ravenna stream pool source names are not allowed to have more than 28 characters (#20773)**

- **Native integration of A_line series (#18863)**

Release 6.6, Version 6.6.0.4

New / Enhancement

- **New resource counter: complex logic elements (#20839)**

  To differentiate between different logic element types (Powercore Edge supports only a selection of logic elements) a new resource counter "Complex Logic Elements" was introduced. The number of available elements is for all products except Edge equal to the logic resources, where - in contrast to the logic counter - only 1 is counted per logic element.

Fixed Bugs

- **Drag and Drop on KSC.LCD RGB version corrected (#20636)**

- **Order of elements in timer system definition and server based timer logic elemts are harmonized (#20716)**

- **Reboot time out improved (#20790)**

- **After inserting elements in the treedefinition window, branches are shown which where not able to contain any elements (#20841)**

- **Missleading error message when opening a project with invalid parameters (#20834)**

  New window:
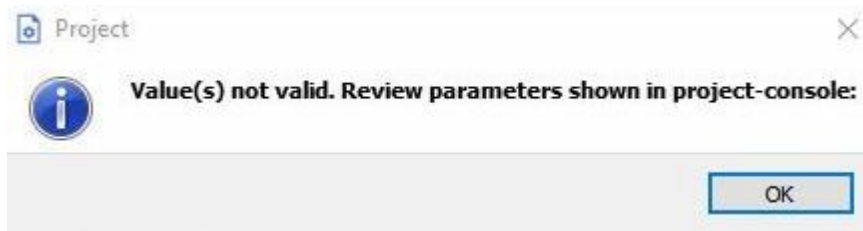
  The parameters not being valid need to be checked in the project window of the On-Air Designer, left side, lowest window: console output from the Power Core.

- **Deleting of more than one substitutions in On-Air Designer is not causing a reset (#19609)**

- **Deleting a new add on N-1 element leads to a wrong presentation of other elements (#20858)**

Known Issues

- **Static Ravenna stream pool source names are not allowed to have more than 28 characters (#20773)**

- **Native integration of A_line series (#18863)**

sapphire, sapphire compact, crystal, Nova17, Nova29

sapphire, sapphire compact, crystal, Nova17, Nova29

Release 6.6_PL-002, Version 6.6.0.20

New / Enhancement

-

Fixed Bugs

-

Known Issues

From release 6.6:

- **Please do not update your sapphire surface attached to a sapphire master card or compact engine with the SoP Explorer.**

   All necessary files and the description for the upgrade of a sapphire surface with the SoP Explorer can be found in "for_sapphire_surface_with_sapphire_master_card.zip" in the released software, please note the included pdf file "How_To_Upgrade_sapphire.pdf".

   The files can be found in the according patch level of the radio software or the folder On-Air Designer in the Lawo download folder on the web.

- **DeEsser PPM showing wrong modulation in VisTool (#19264)**

   The assignment of the pre-/post DeEsser PPMs (Access) is wrong for stereo channels.

   Pre DeEsser L shows Pre DeEsser R

   Pre DeEsser R shows Post DeEsser R

   Post DeEsser L shows Post DeEsser R

   Post DeEsser R shows Post DeEsser R

Release 6.6_PL-001, Version 6.6.0.6

New / Enhancement

-

Fixed Bugs

-

Known Issues

From release 6.6:

- **Please do not update your sapphire surface attached to a sapphire master card with the SoP Explorer until there are the according SoP files available in the download server or we do have a patch level 6.6_PL-001.**

    All necessary files for changes and the describtion for the upgrade of a sapphire surface with the SoP Explorer can be found in "for_sapphire_surface_with_sapphire_master_card.zip", please note the included pdf file "How_To_Upgrade_sapphire.pdf".

- **DeEsser PPM showing wrong modulation in VisTool (#19264)**

    The assignment of the pre-/post DeEsser PPMs (Access) is wrong for stereo channels.

    Pre DeEsser L shows Pre DeEsser R

    Pre DeEsser R shows Post DeEsser R

    Post DeEsser L shows Post DeEsser R

    Post DeEsser R shows Post DeEsser R

Release 6.6, Version 6.6.0.4

New / Enhancement

-

Fixed Bugs

-

Known Issues

- **Please do not update your sapphire surface attached to a sapphire master card with the SoP Explorer until there are the according SoP files available in the download server or we do have a patch level 6.6_PL-001.**

  All necessary files for changes and the describtion for the upgrade of a sapphire surface with the SoP Explorer can be found in "for_sapphire_surface_with_sapphire_master_card.zip", please note the included pdf file "How_To_Upgrade_sapphire.pdf".

- **DeEsser PPM showing wrong modulation in VisTool (#19264)**

  The assignment of the pre-/post DeEsser PPMs (Access) is wrong for stereo channels.

  Pre DeEsser L shows Pre DeEsser R

  Pre DeEsser R shows Post DeEsser R

  Post DeEsser L shows Post DeEsser R

  Post DeEsser R shows Post DeEsser R

VisTool MK2

Release 6.6_PL-003, Version 6.6.0.16

New / Enhancement

-

Fixed Bugs

-

Known Issues

- **If one access button is active and VisTool or a surface module are starting, there are no updates to the DSP of the channel (#20748)**

From release 6.6:

- **Channel PPM are showing level after a coldstart, even if there is no source assigned to the fader (#20637)**

- **DeEsser PPM showing wrong modulation in VisTool (#19264)**

  The assignment of the pre-/post DeEsser PPMs (Access) is wrong for stereo channels.

  Pre DeEsser L shows Pre DeEsser R

  Pre DeEsser R shows Post DeEsser R

  Post DeEsser L shows Post DeEsser R

  Post DeEsser R shows Post DeEsser R

Release 6.6_PL-002, Version 6.6.0.16

New / Enhancement

- **New VisTool license: VisTool Solo Plus**

  The new license provides:
    - Large time-of-day clock
    - 3 event timers
    - 40 generic elements (Background, Graphics, Text)
    - 128 buttons (Box, Button)
    - 24 levels (Fader, Slider, Rotary)
    - 8 stereo meters (PPM, PPM2, EmBER+ peak meter, EmBER+ PPM, EmBER+ VU,
    - 8 correlation meters
    - 8 loudness meters
    - 8 loudness value labels
    - 8 LUFS value labels
    - 8 PPM value labels
    - 4 advanced element (web view)
    - 8 pages
    - 8 overlays

Fixed Bugs

-

Known Issues

- **If one access button is active and VisTool or a surface module are starting, there are no updates to the DSP of the channel (#20748)**

From release 6.6:

- **Channel PPM are showing level after a coldstart, even if there is no source assigned to the fader (#20637)**

- **DeEsser PPM showing wrong modulation in VisTool (#19264)**

  The assignment of the pre-/post DeEsser PPMs (Access) is wrong for stereo channels.

  Pre DeEsser L shows Pre DeEsser R

  Pre DeEsser R shows Post DeEsser R

  Post DeEsser L shows Post DeEsser R

  Post DeEsser R shows Post DeEsser R

Release 6.6_PL-001, Version 6.6.0.16

New / Enhancement

- **Visible labels for buttons with predefined user text (#20850)**

  The visible label for buttons with predefined user text shall be configurable. Behind the predefined user text, the visible label can be configured separated by spaces. The label must not contain a leading space or a space at the end. To use an empty string, use a secure space (ALT & 255).

  Example:

  #userlabels: edit Edit||Label

  visible label:

  Edit

  Label

  Up to now, this works for:

  "#userlabels: edit"

  "#snap: load"
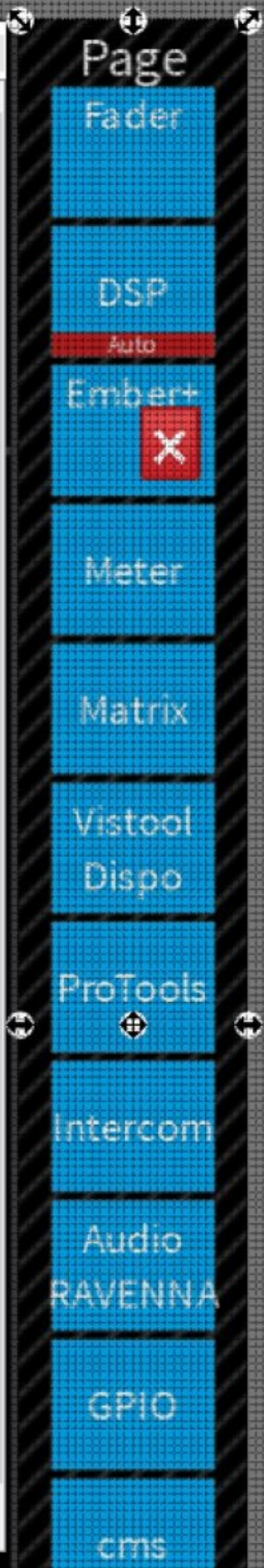
  "#snap: save"

  "#snap: delete"

  "#snap: save_src"

  "#snap: login"


- **Multipage objects (#20908)**

  For elements (groups) that are repeated on several pages, such as page switching elements or other elements in the dock bar (like Timers, PPM's,...) there can be templates created from 6.6.0.16 on. This minimizes the size of projects, improves performance, and makes it easier to customize elements because they only need to be adjusted on one page. Boxes and overlays have a new property "multipage Object". This can be activated when the object is located directly on a page. This is not possible with child objects.
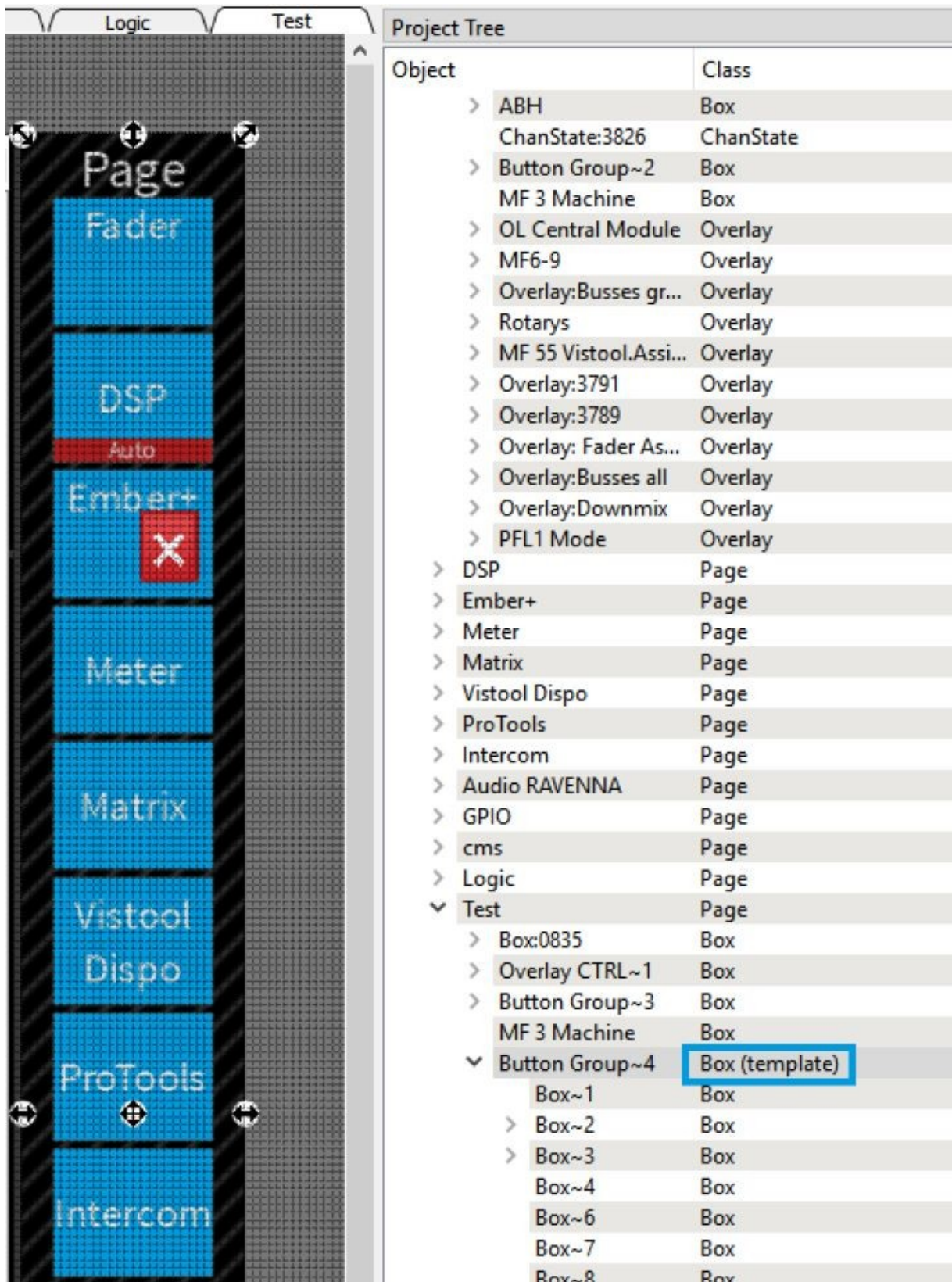
Property	Value
ClassName	VisTool.Element.Box
Name	Button Group~4
Design	None
ButtonType	None
UserText	Page
> Pos	(1.808,00 / 0,00)
ZValue	1
> Size	112,00 x 979,68
ClipChildren	☐ False
Movable	☑ True
Selectable	☑ True
Glass Look	None
Metal Frame	0
Opacity	1
Roundness-X	0
Roundness-Y	0
TextAlign	TopCenter
> Font	A [Source Sans Pro, 20]
> Color	■ [0, 0, 0] (255)
> ColorNone	■ [136, 136, 136] (255)
> ColorOff	■ [2, 253, 99] (255)
> ColorPost	■ [253, 253, 20] (255)
> ColorPre	■ [253, 2, 20] (255)
> FontColor	[227, 227, 227] (255)
manual-min	nan
manual-max	nan
manual-step	nan
(Blink Simulation)	☐ False
__GUID__	{d7961b92-e068-47c1-aca3-37ff9...
Channel Index	None
ColorMap	default
DateFormat	dd.MM.yyyy
DisplaySnapShotName	☐ False
Glow On Press	☐ False
hide on empty dms text	☐ False
Logic.setPressedSynced	☐ False
Mf Key Text	default
multipage Object	☑ True
Reassignable	None
TextAppearance	Normal

If this is activated, you can right-click on the object under the entry "reference on page" to open the object including all child objects on other pages.
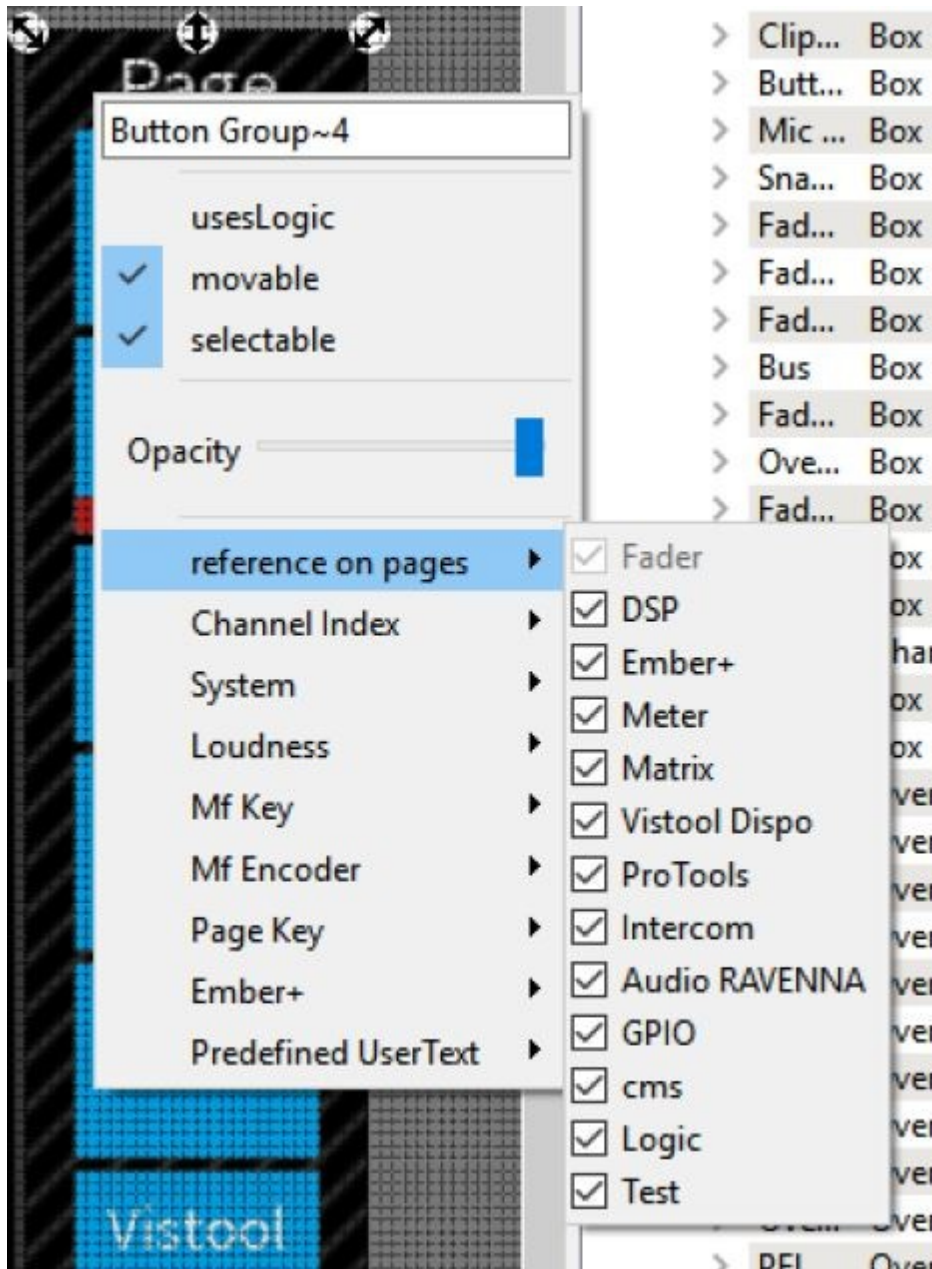
On pages on which the object is referenced, the object is displayed in the project tree as a template.
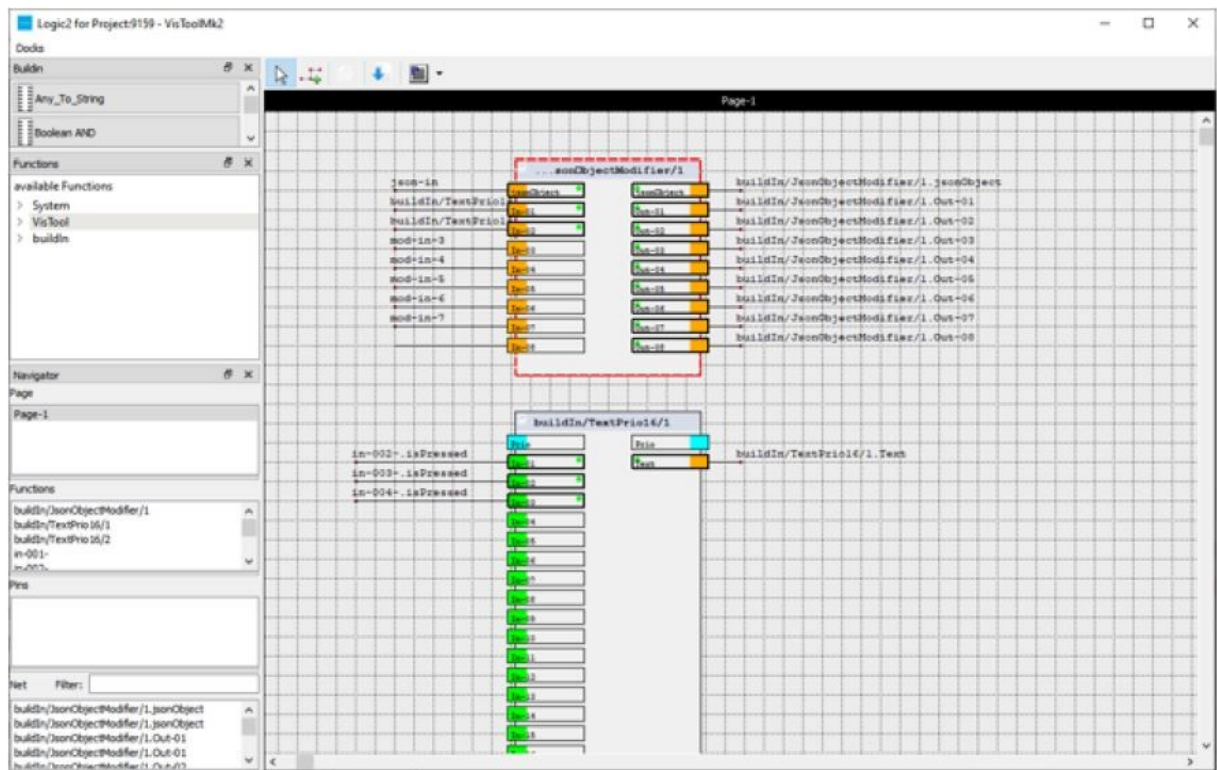
All properties of the object apply to all occurrences. This therefore also applies to the item. This is set to the same on all sides. Deleting the object on one page deletes the object on all pages.

- **Logicelement: JSON Object modifier (#20910) (for LUCI Studio)**

  There is a change in the handling of the JsonObjectModifier. This has become an encoder and decoder in one.

  A JSON object string attached to [JSonObject] is decomposed and, if a (string) name is set to parameter to be selected by the user ModifierName-01 to ModifierName-08 applies, written in corresponding OUT-1 to OUT-08. The other way round, a JSON object is written from the inputs IN-01 to IN-08 with the names of "ModifierName". The entry "remove outer brackets" is used to remove the outer object clamps (see LUCI Studio).

  So: jsonObject input -> OUT-01 to Out-08

  And: IN-01 to IN-08 -> JsonObject output

  The following applies: Only if a ModifierName is set, the input and the according output are used.

  If a ModifierName is set, but there is no string (or an empty one), then it will not be included in the JSonObject.

  Example:

  ModifierName-01 = "P1"

  ModifierName-02 = "P2"
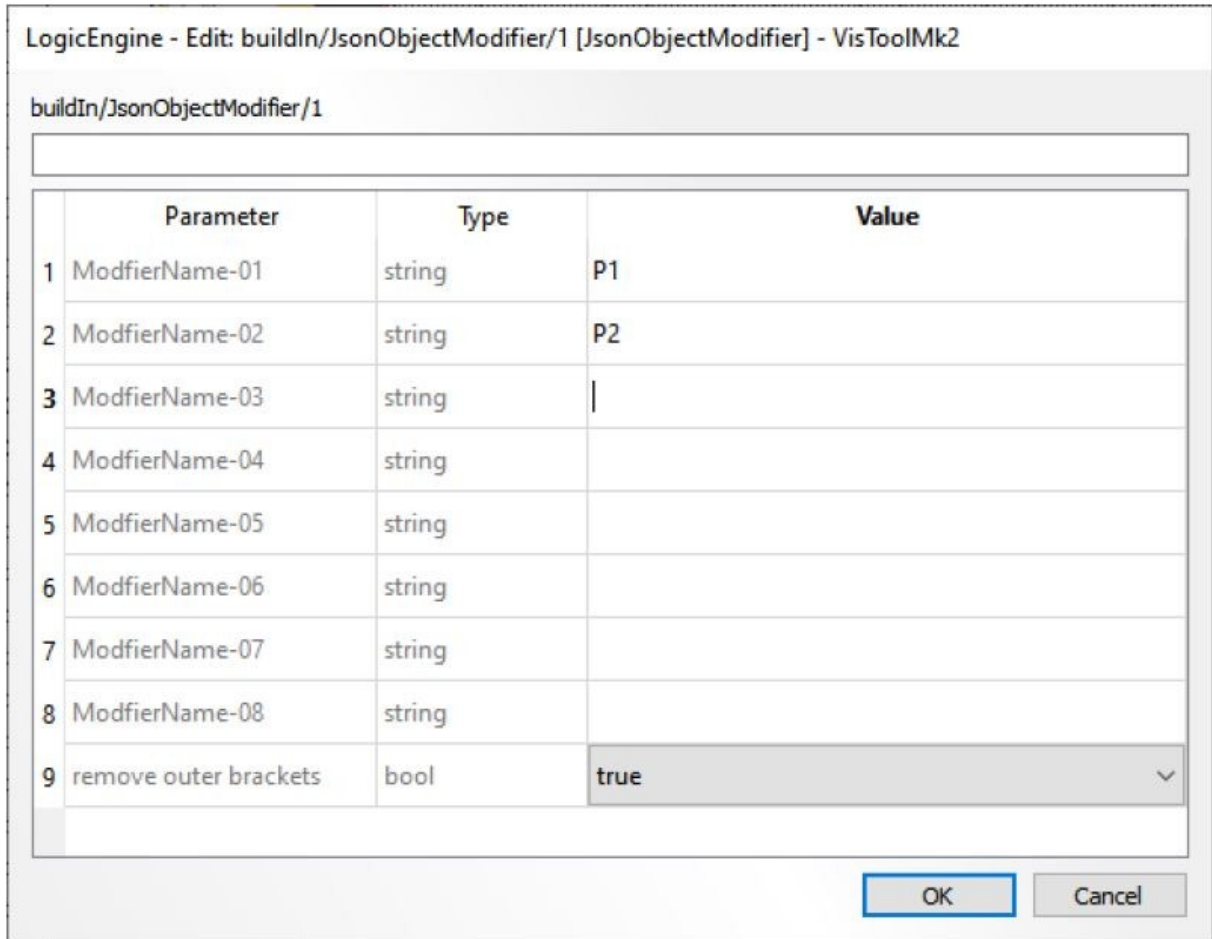
  IN-01 = "Marius"

  IN-02 = "Mustermann"

  Generates the following output : {"P1" : "Marius", "P2" : "Mustermann"}

  But:

IN-01 = ""

IN-02 = "Mustermann"

Generates the following output : {"P2" : "Mustermann"}

- **Mousehandling for Limiter (#20911)**

    The limiter graphic element can also be operated by mouse from 6.6.0.16 on. At first only the threshold can be operated. The operation is similar to the EQ operation.

Fixed Bugs

- **Possible VisTool Editor crash when unloading the old project while loading a new project (#20888)**

Known Issues

- **If one access button is active and VisTool or a surface module are starting, there are no updates to the DSP of the channel (#20748)**

From release 6.6:

- **Channel PPM are showing level after a coldstart, even if there is no source assigned**

to the fader (#20637)

- **DeEsser PPM showing wrong modulation in VisTool (#19264)**

   The assignment of the pre-/post DeEsser PPMs (Access) is wrong for stereo channels.

   Pre DeEsser L shows Pre DeEsser R

   Pre DeEsser R shows Post DeEsser R

   Post DeEsser L shows Post DeEsser R

   Post DeEsser R shows Post DeEsser R
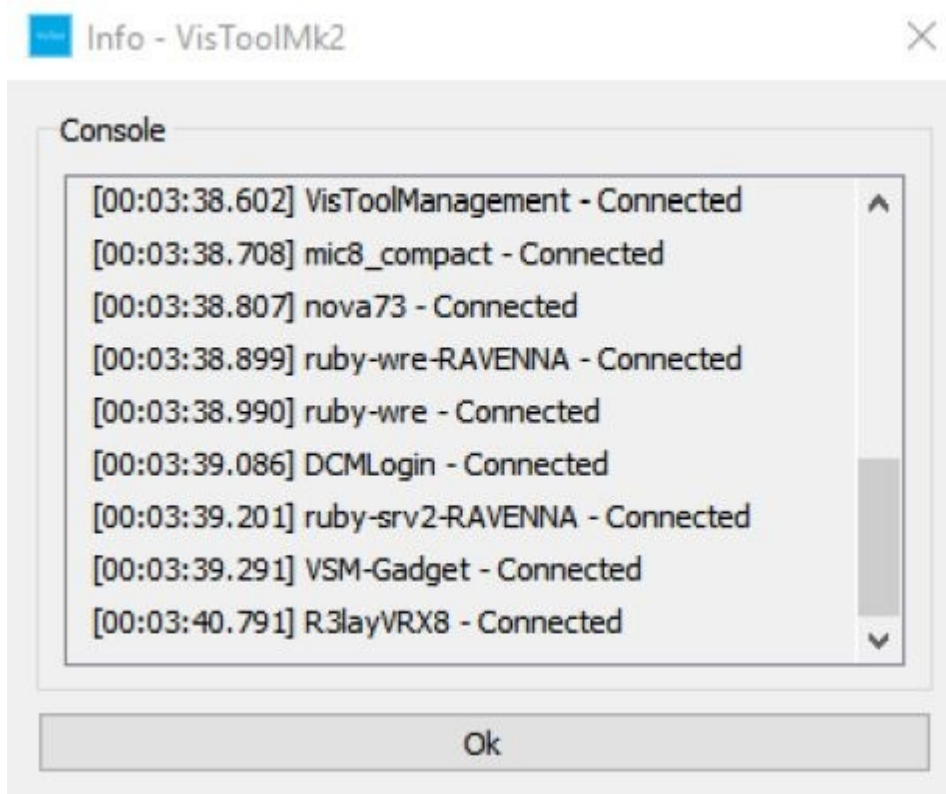
Release 6.6, Version 6.6.0.2

New / Enhancement

- **EmBER+ hosts can be deactivated in the Emberhosts.ini (#20765)**

  With the use of "~" in the Emberhost.ini an EmBER+ host can be deactivated.

- **EmBER+ connection log (#20803)**

  Using CTRL & F12 during runtime it is possible to open the EmBER+ connection log. The log is showing when EmBER+ connections have been set up and disconnected. The window will not refresh while being open.

- **EmBER+ reconnect with variable times (#20856)**

  After a termination a reconnect to a remote EmBER+ consumer is initiated after a "random" time out to avoid bursts.

- **QT 5.15.0 / Chromium 80 / Vcredist 2019 (#20847)**

  With VisTool release 6.6, VisTool is based on QT 5.15.0 and uses vc-redistributes 2019. The web engine now uses Chromium 80.

  (see also https://wiki.qt.io/New_Features_in_Qt_5.15)

- **The dialogue for user labels can be opened via simple box and predefined user text (#20849)**

  The edit user label dialogue can be opened via Simple-Box and predefined user text (#userlabels:edit).
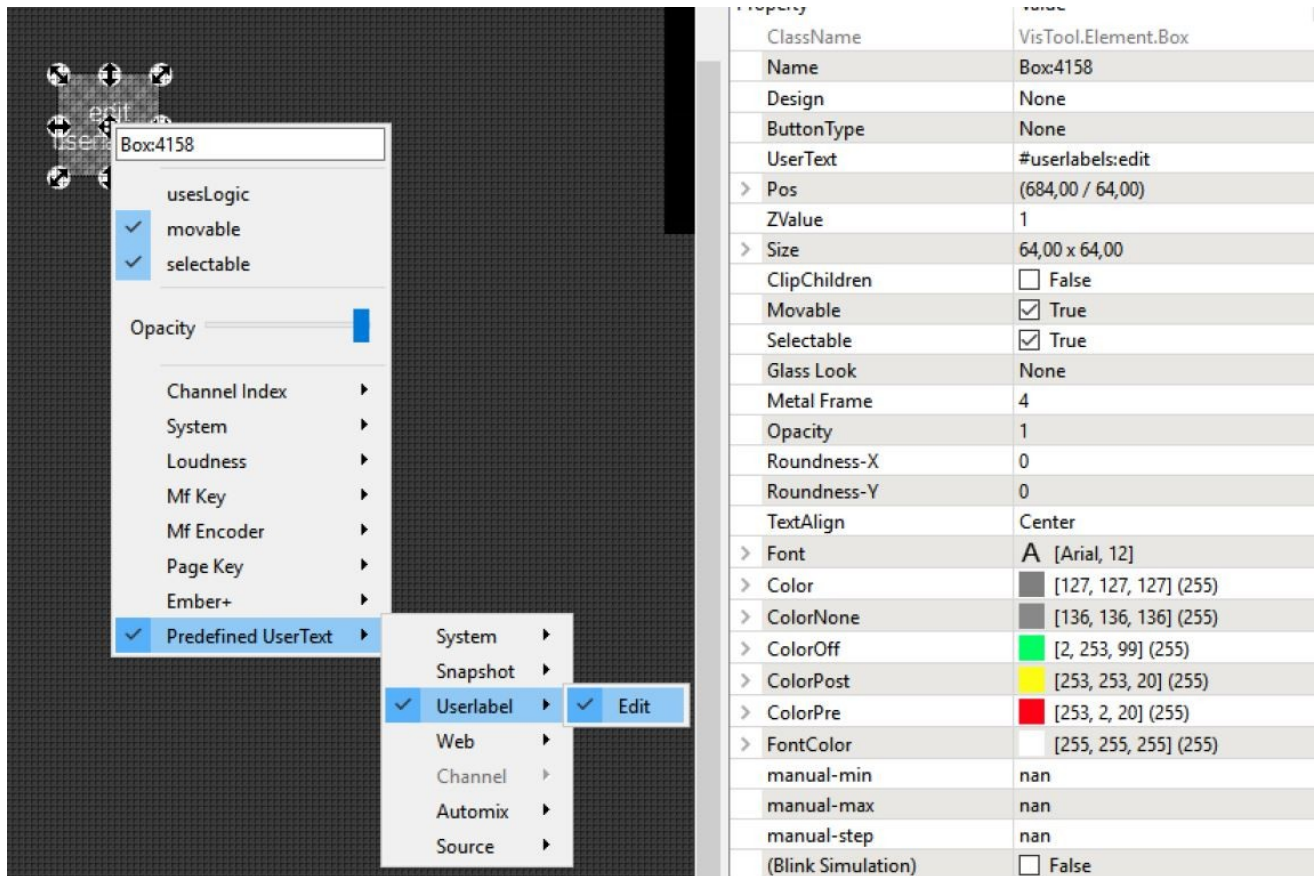
- **Support console can be activated during runtime (#20855)**

  With CTRL & F12 an error console can displayed (for selected errors), for example connection terminations at runtime are listed with time stamp for EmBER+ consumers.

Info - VisToolMk2   ✕

Console

[00:03:38.602] VisToolManagement - Connected
[00:03:38.708] mic8_compact - Connected
[00:03:38.807] nova73 - Connected
[00:03:38.899] ruby-wre-RAVENNA - Connected
[00:03:38.990] ruby-wre - Connected
[00:03:39.086] DCMLogin - Connected
[00:03:39.201] ruby-srv2-RAVENNA - Connected
[00:03:39.291] VSM-Gadget - Connected
[00:03:40.791] R3layVRX8 - Connected

Ok

Fixed Bugs

- **DMS snap shots can be load during runtime (#20787)**

- **Runtime window is not always shown on the mains screen (#20804)**

- **Redundancy switch over in case of a VSM failure improved (#20851)**

Known Issues

- **Channel PPM are showing level after a coldstart, even if there is no source assigned to the fader (#20637)**

- **DeEsser PPM showing wrong modulation in VisTool (#19264)**

  The assignment of the pre-/post DeEsser PPMs (Access) is wrong for stereo channels.

  Pre DeEsser L shows Pre DeEsser R

  Pre DeEsser R shows Post DeEsser R

  Post DeEsser L shows Post DeEsser R

  Post DeEsser R shows Post DeEsser R

Compatibility

- VisTool MK1 is compatible with release 4.0 in all products except sapphire master card MKII.

- VisTool MK1 is not compatible with release 4.2 or higher in all products.

- sapphire master card MKII (947/62 and 947/65) will only run with VisTool MK2.

- VisTool MK2 is compatible with all current Lawo Radio OnAir products running release 4.0 and 4.2. This includes zirkon, which does run release 4.0 and 4.2, but will not support releases higher 4.2.

Using a VisTool MK1 configuration with VisTool MK2

VisTool MK2 can open and convert VisTool MK1 configurations. Please note that manual corrections will be necessary to the converted version. Since VisTool MK2 is complete rewrite of the application, some parameters cannot be copied 1:1, and have to be corrected manually.

Please reserve some time to make these corrections and check resulting configuration properly.