

Products	Aquilon RS alpha, Aquilon RS1, Aquilon RS2, Aquilon RS3, Aquilon RS4, Aquilon C, Aquilon C+
Date	July 31 st , 2020
Version	2.0.231

The version (s) indicated here above has (have) been tested and validated by the QA Department.

Technical Notes:

Warning: When updating to version 2.0.23x from a 1.x version, the following drawbacks may be encountered:

- **Any output configured with a capacity 2 but delivering a dual-resolution format (up to 2560x1600 @ 60hz) will have its capacity automatically changed to 1**
- **Due to the new implementation of Aux. Screens with several layers, the Screens Memories for these Auxiliary Screens must be checked after the update as the size of the previously existing layer is automatically forced to default 1920x1080.**

Bug fixes:

- o 12G-SDI output signal is not stable at 29.97Hz and 23.94Hz
- o SDI outputs jitter is too important with 100/1001 internal rates (59,94Hz, 29.97Hz and 23.94Hz)
- o Result of HDR to SDR conversions may be slightly too bright
- o When in group mode, the SMPTE test pattern must be displayed using the HDR configuration of the plug.

PREVIOUS VERSIONS

Products	Aquilon RS alpha, Aquilon RS1, Aquilon RS2, Aquilon RS3, Aquilon RS4, Aquilon C, Aquilon C+
Date	July 27 th , 2020
Version	2.0.228

The version (s) indicated here above has (have) been tested and validated by the QA Department.

Technical Notes:

Warning: When updating to version 2.0.228 from a 1.x version, the following drawbacks may be encountered:

- Any output configured with a capacity 2 but delivering a dual-resolution format (up to 2560x1600 @ 60hz) will have its capacity automatically changed to 1
- Due to the new implementation of Aux. Screens with several layers, the Screens Memories for these Auxiliary Screens must be checked after the update as the size of the previously existing layer is automatically forced to default 1920x1080.

New features and Improvements:

o HDR support and real time SDR/HDR conversion

- Available for any input, image and output
- Conversion allows:
 - To display any source on any display whatever their dynamic ranges are.
 - To display SDR and HDR contents in the same screen
 - To switch layers' content (including cross-transitions) whatever their dynamic ranges of the sources are
- First select in the Pre-Configuration>System step if you want to handle HDR content and the internal profile you want to use for processing SDR/HD10/HLG BBC. If you choose HDR10 or HLG BBC, all the HDR settings appears in the Inputs, Outputs and Images pages:

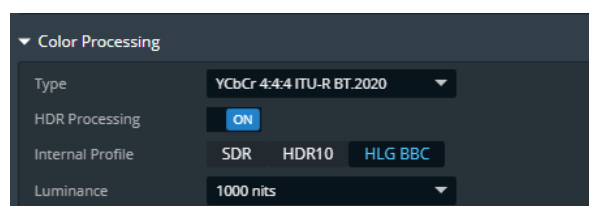


Figure 1: HDR feature pre-configuration

- Then for each input, image and output indicate the profile settings. By default, the Auto mode is selected and achieved processing based on EDID and info-frames data.

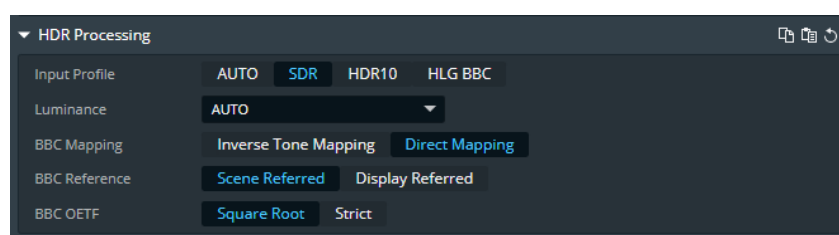


Figure 2: Example of HDR setting for Inputs

- o **Management of Input and Output groups**
 - Support of content up to 4K over 1, 2, 3 or 4 cables and process it as one single stream
 - Save resources:
 - One single 4K content spread over 4 HD outputs
 - Get more layers optimizing the processing pipelines for large displays using more than 4HD outputs
 - Easily work using the Leader input or output



Figure 3: Example of 1x2 output grouping

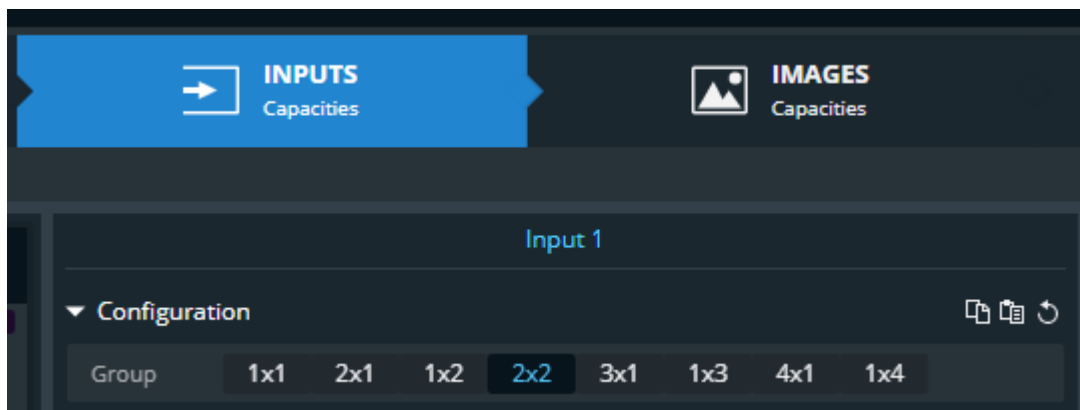


Figure 4: Example of 2x2 input grouping

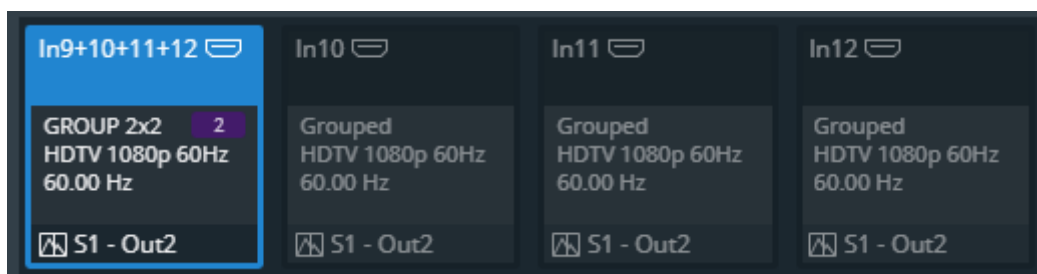


Figure 5: Example of grouped input display

o **Layers available in Auxiliary Screens**

- Each Auxiliary output screen natively two HD layers or on 4k layer per aux. output.
- Preempt resources of next adjacent outputs to get up to 8 layers in a single aux. output. Outputs whose resources preempted are disabled.
- Useful for DSM application

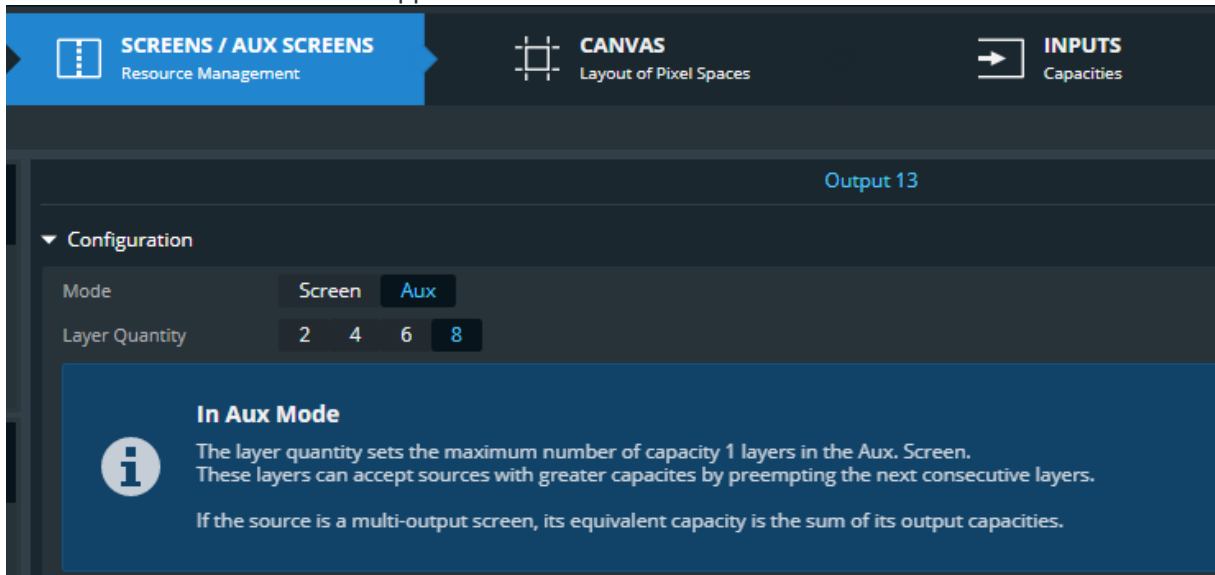


Figure 6: Example of auxiliary

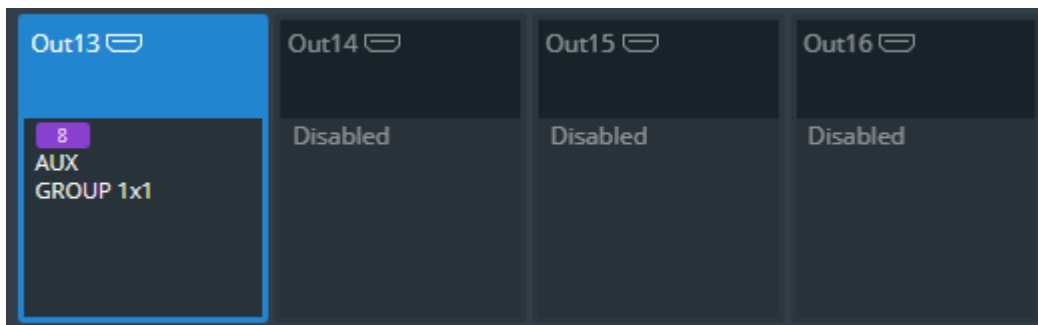


Figure 7: Example of an auxiliary output preempting the next 3 outputs

o **On board timer available in in screen layers and aux. layers**

- New 4th timer
- Assign your timer to an image resource
- Use this image in any screen layer and aux. layer

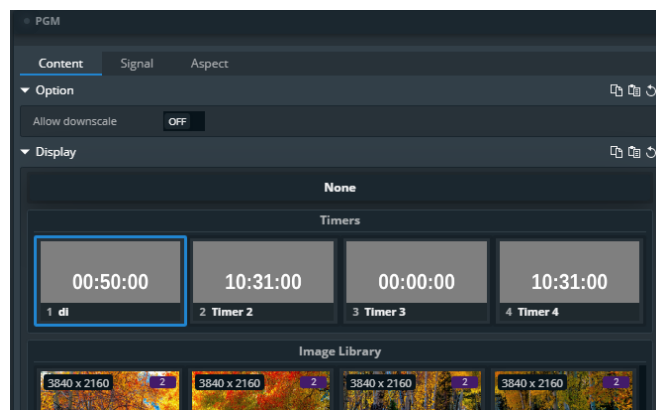


Figure 8: Selecting a timer as an Image source

o Layer memories

- Save some or all the properties of a layer as a template
- Apply this template to any layer selection with a simple click or drag&drop
- Include category filters (source, position, size, cut&fill, border, transitions, ...)
- Supported by RC400-T

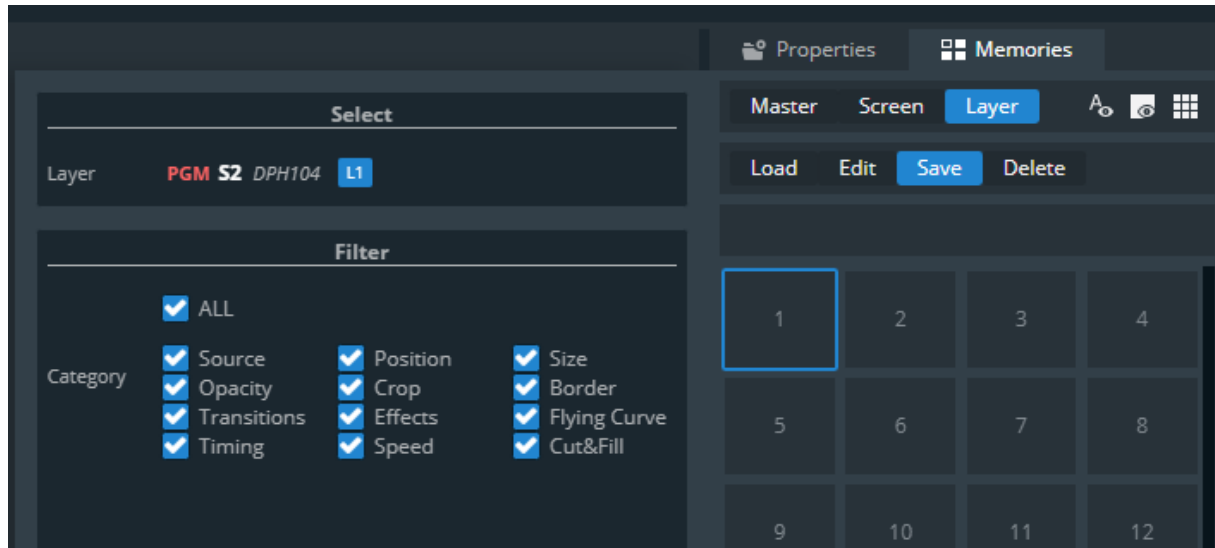


Figure 9: List of filters when saving a Layer memory

o New 'TAKE filter' management

- Loading a Master Memory automatically activates/arms in the TAKE Filter the screens that have been saved with this memory, so they are part of the next transition
- When saving a Master Memory, the screen selection to be saved is automatically loaded according to the screens currently armed in the TAKE filter

o New Management of Background

- The same input can be used as Background in all compatible outputs

o Screen Patterns

- Patterns now displayed over multi-output screens
- Include a new 'Geometric' pattern

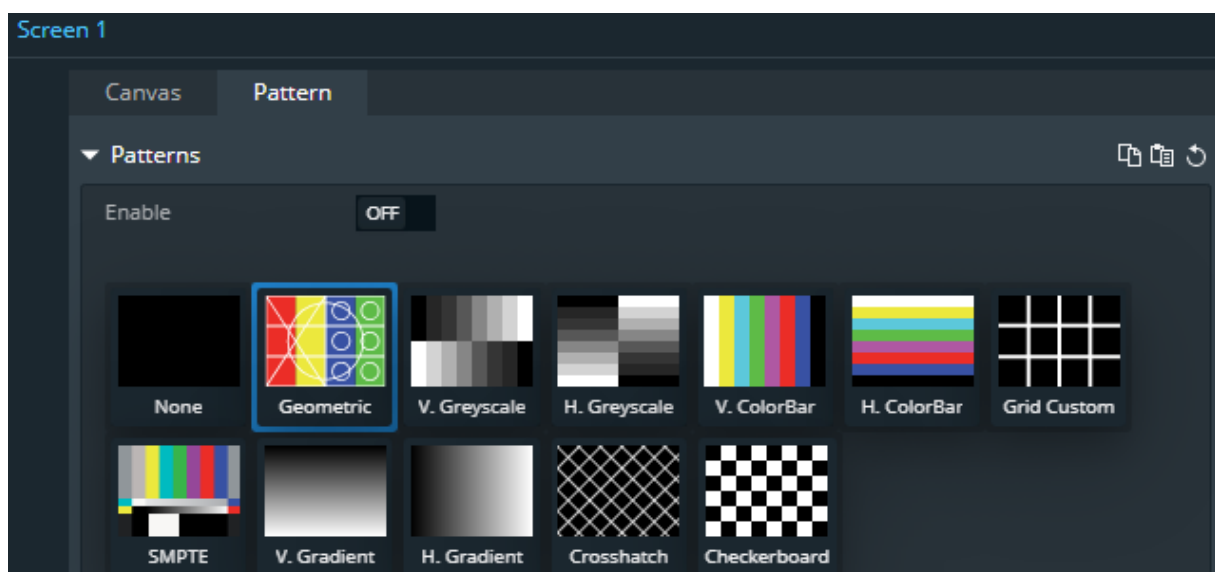


Figure 10: List of Screen patterns

- o **Up to 64 widgets per multiviewer outputs**
 - Possibility to display all your screens and inputs at the same time on a single display
- o **New Basic OSD mode for multiviewers' widgets**
 - Title only to save space
- o **4K30Hz managed with capacity 1 when Internal rate is 30Hz**
 - 4K30Hz is now processed with
 - More 4K30Hz outputs available for Program
 - More layers available to handle 4K30Hz inputs
- o **HDCP 2.2 support, in addition to HDCP 1.4**
 - For HDMI and DisplayPort inputs and outputs.
 - Supports conversion from HDCP 1.4 to HDCP 2.2
- o **90° step rotation of output groups/DPH104**
 - Add a 1-frame latency
 - Enable the rotation of output group in the page SETUP>Preconfig>Screens/Aux.Screens

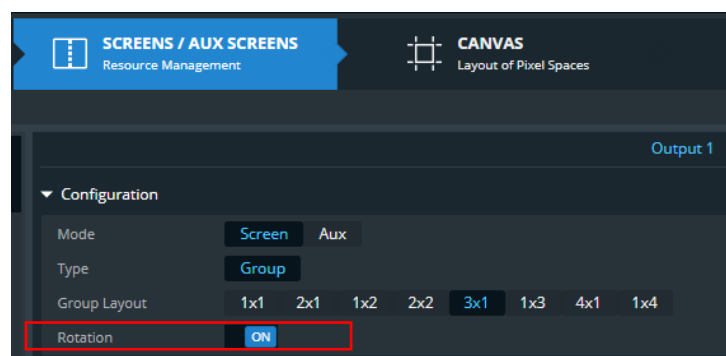


Figure 11: Enabling the rotation of an Output Group

- In the page SETUP>Preconfig>Canvas, select the group or DPH 104 in the tree view and adjust the rotation angle. This rotation is applied to each output individually.

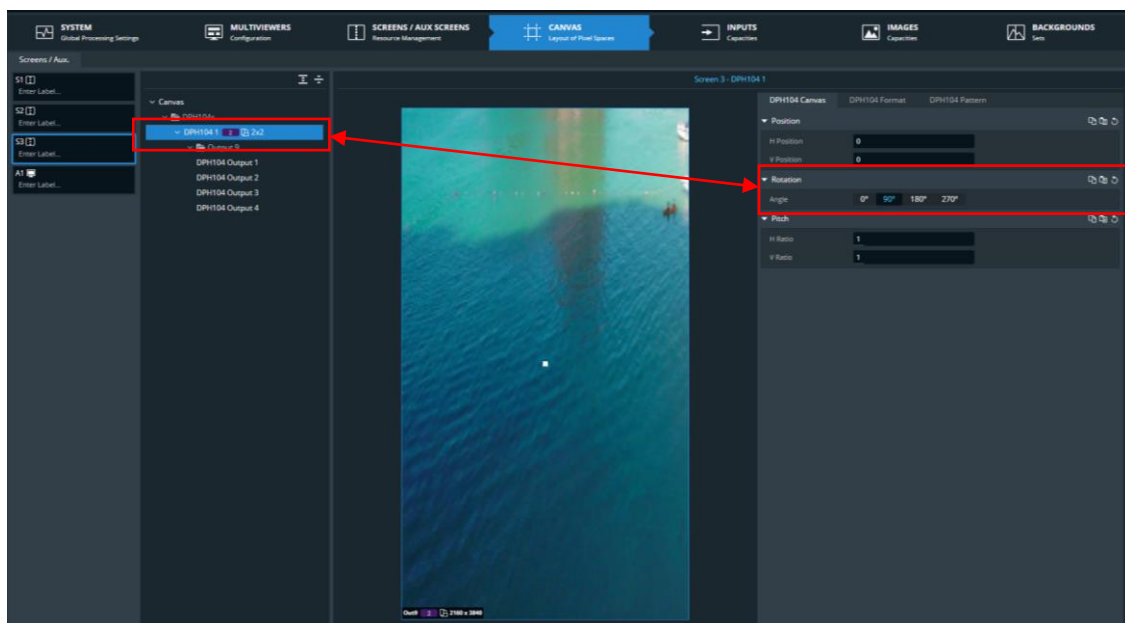


Figure 12: Setting of the rotation angle

- o **Management of level A & B for outputs delivering 3G-SDI formats**
 - When the output format is HDTV 1080p at 60Hz, Level A or B can be selected

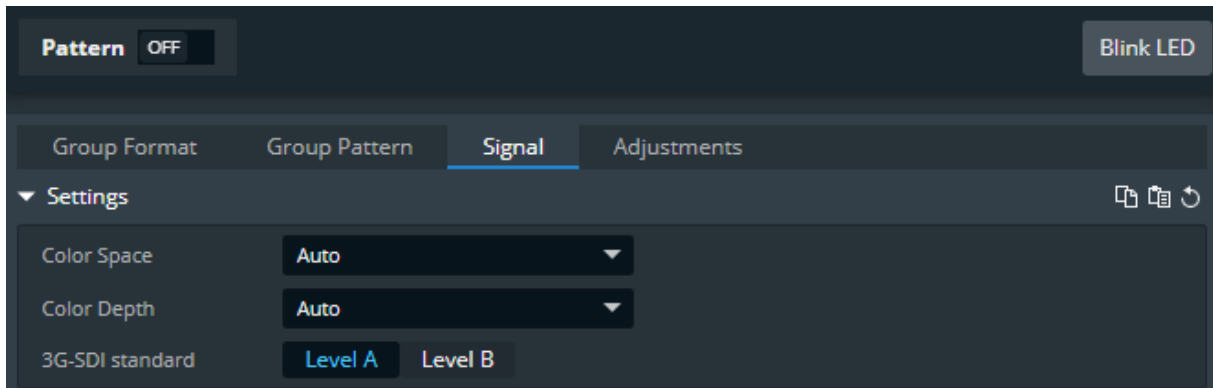


Figure 13: Setting of 3G-SDI level A/>B

- o **Support of DPH104**
 - Configure your output in DPH104 Slicer mode
 - Select the outputs layouts
 - Select the output format used for all the DPH104's outputs
 - Using 16 x DPH104 on a full C+ Aquilon, get up to 64 Full HD outputs for your Program.

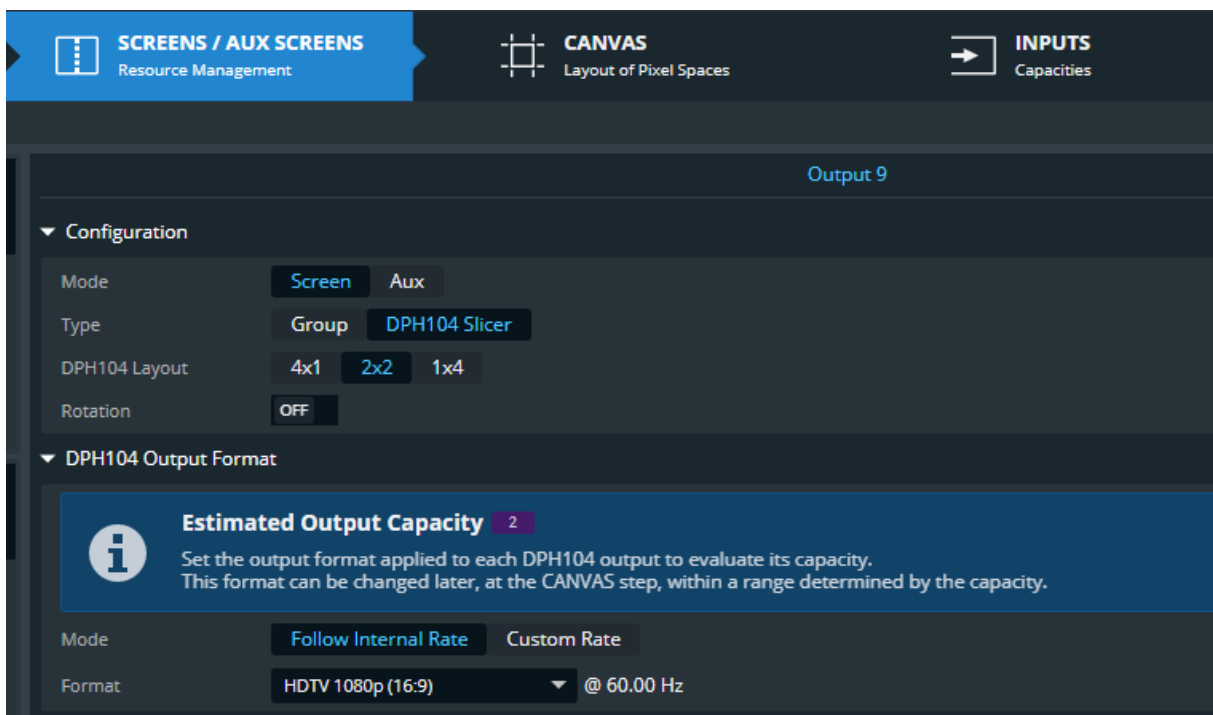


Figure 14: Settings of the DPH104 Slicer mode

- o **Support for forthcoming HDMI2.0 over Optical Fiber I/O cards (end of Q3)**
 - Four SC multimode fiber optical 4K60 4:4:4 ports per I/O card
 - HDCP 2.2, embedded audio (up to 8 channels) and HDR
 - Up to 600m/1900ft at 4K60Hz 4:4:4 and up to 2500m/8200ft at 1080p60Hz 4:4:4.

Web RCS's new features and improvements:o **Improved Input EDID Management**

- Change directly the preferred format in the input section. No need to do it the library
- Edit the EDID label directly

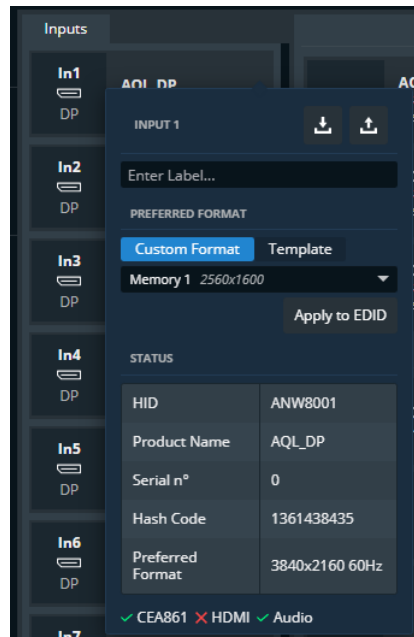


Figure 15: Input EDID settings

o **New SET>Preconfig>Canvas page**

- Add the management of Output Groups and DPH104
- New tree view for a better understanding of what is selected

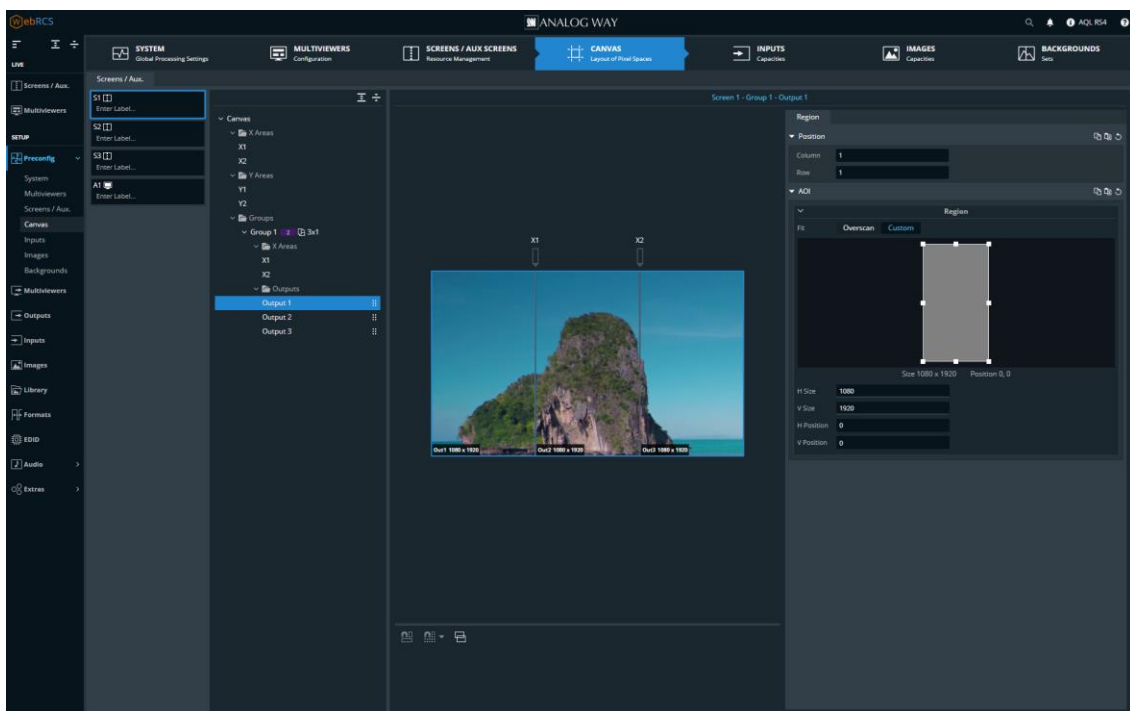


Figure 16: Canvas page with tree view

- o **Background creation and management simplified**
 - Not necessary anymore to declare an input or a still image as a background
 - All settings are now available on a single page
 - Background sets simply updated by dragging & dropping sources into the outputs

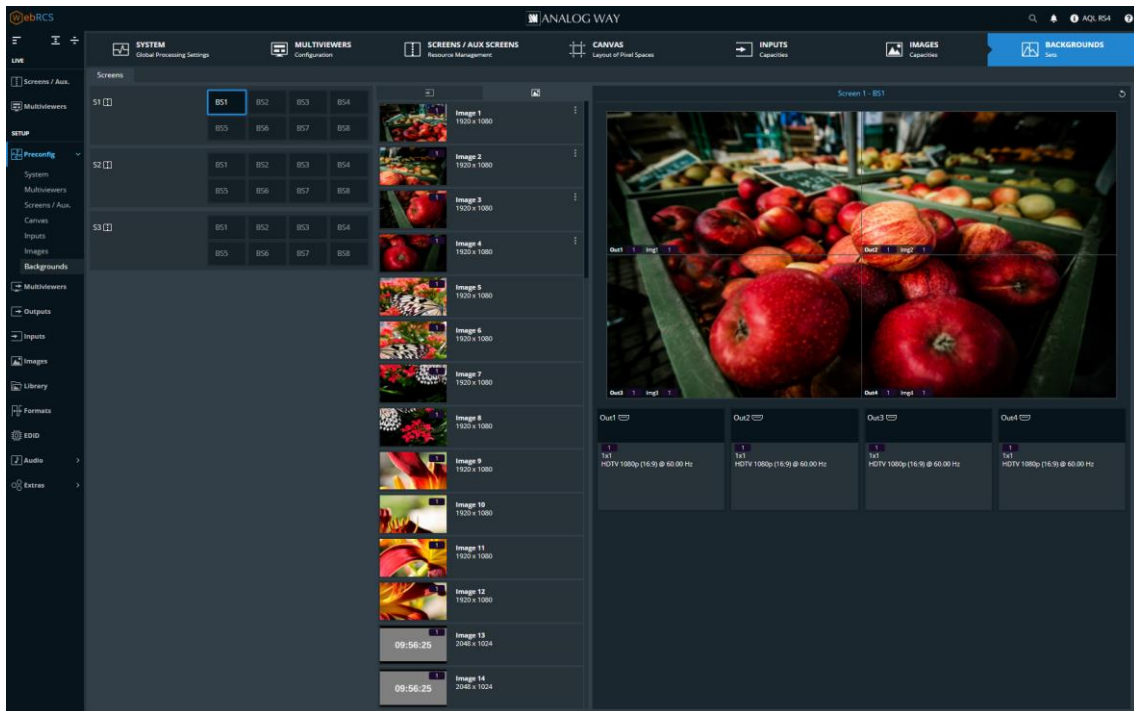


Figure 17: new Canvas page

- o **Web RCS screens workspace can be easily rearranged and resized**
 - Rearrange your screens and aux. screens with a simple drag and drop move
 - Resize the width of a screen or aux. screen to better match reality
 - Adjust the height of the workspace to give more space to the Preview or Program.

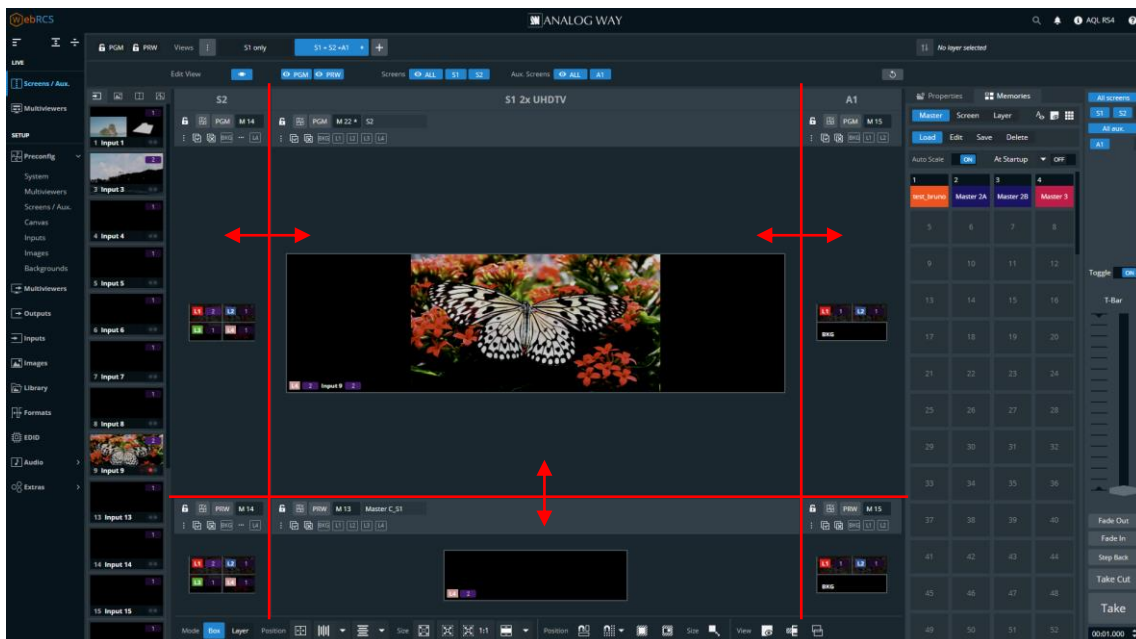


Figure 18: Adjustable Web RCS layout

o **Web RCS password protection**

- Restrict access to the Web RCS via a password
- Password can be customized (by default, it is the device MAC address)
- Protection can be disabled from the front panel menu
- Available for desktop and mobile version

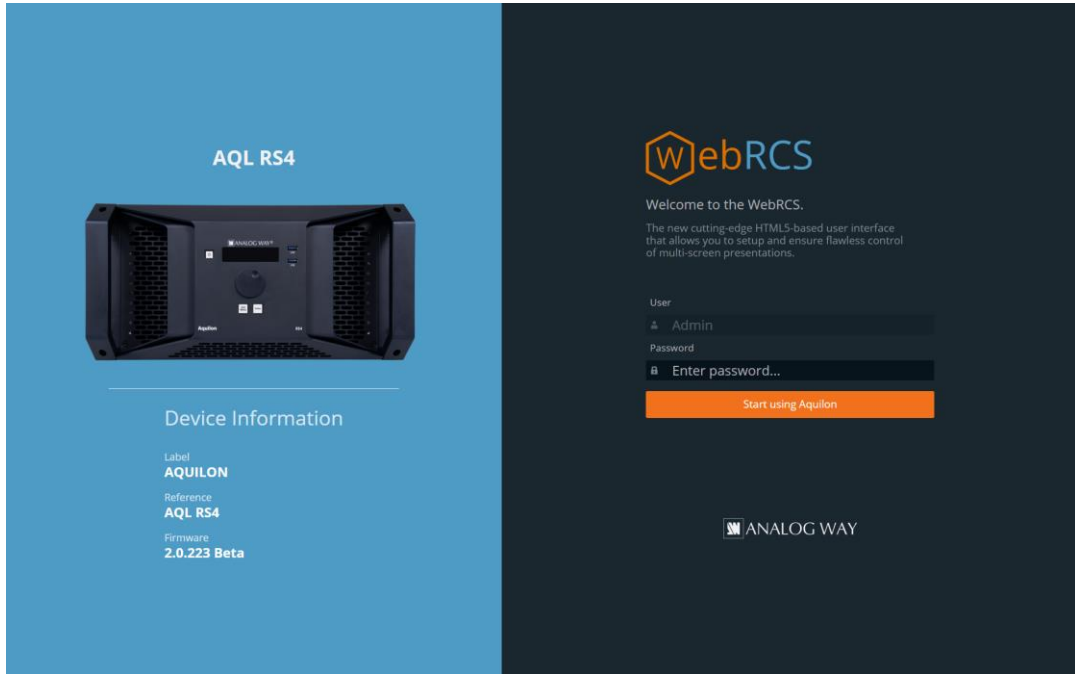


Figure 19: Web RCS protection page

o **View Memories**

- Easily create layouts displaying different screens and aux. outputs, and save them in view memories
- User can instantly switch from one view to another by clicking on the corresponding view memory button at the top of the page

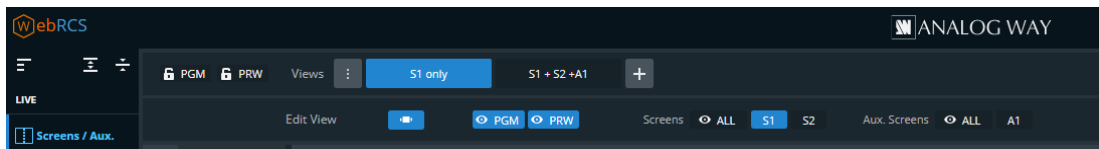


Figure 20: Tool bar for View Memories

o **Memories tabs**

- Add a background color for the memory buttons to better arrange and identify them
- Change the layout of the memory buttons to improve readability: 1, 2 or 4 columns
- Users can now hide empty memory buttons and/or memory labels

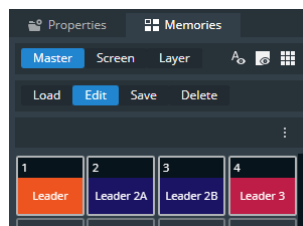


Figure 21: Memories Filters & Colors

Known limitations & constraints:

- Input Groups
 - All the inputs of a group must receive signals with the same format. All non-compliant inputs are blackened.
 - The position of the inputs in a group is determined by the group (2x1,1x2,2x2...)
 - All the input settings are common to the group (HDCP/HDR, color settings, Pattern, Crop, Keying).
- HDR
 - Color settings may not have the expected linear behavior.
 - Soft-Edge blending curves are not linear in HDR mode. Using the projectors blending curves is recommended.
 - Keyed inputs may be degraded in HDR mode.
- OUTPUT GROUPS and DPH104
 - All the output settings are common to the group (HDCP/HDR, color settings, Pattern,).
 - Rotation of outputs with capacity 2 disables the adjacent output
 - Soft-edge blending curves are available for outputs groups but not for the sub-outputs of DPH104. Using the projectors blending curves is recommended.
- PATTERN
 - Output test patterns are generated using the internal profile. If the output is converted to another profile, the pattern may not be compliant with the SMPTE standard. To obtain "Broadcast" results, the internal profile must be set to SDR and the internal color space must be YCbCr 4:4:4 ITU-R.BT709 Limited
 - Only Raster Patterns contains transparency.
- TIMER
 - There is a 500ms delay between a timer displayed on a multiviewer output and the same timer displayed on a Screen or an Auxiliary Screen.

Known issues:

- 12G-SDI output signal is not stable at 29.97Hz and 23.94Hz

Products	Aquilon RS alpha, Aquilon RS1, Aquilon RS2, Aquilon RS3, Aquilon RS4, Aquilon C, Aquilon C+
Date	May 12 th , 2020
Version	1.2.11

The version (s) indicated here above has (have) been tested and validated by the QA Department.

Technical Notes:

New features and Improvements:

- o None

Web RCS's new features and improvements:

- o None

Bug fixes:

- Working with RC400T can crash the Web RCS server

Products	Aquilon RS alpha, Aquilon RS1, Aquilon RS2, Aquilon RS3, Aquilon RS4, Aquilon C, Aquilon C+
Date	April 27 th , 2020
Version	1.2.10

The version (s) indicated here above has (have) been tested and validated by the QA Department.

Technical Notes:

New features and Improvements:

- o Ability to load a Master Memory on Program and Preview when the device starts.
- o Support of the RC400T event controller (requires RC400T firmware 1.00.03 minimum)

Web RCS's new features and improvements:

- o None

Bug fixes:

- HDMI outputs don't work with specific external devices due to low level negotiation failure

Products	Aquilon RS alpha, Aquilon RS1, Aquilon RS2, Aquilon RS3, Aquilon RS4, Aquilon C, Aquilon C+
Date	March 11 th , 2020
Version	1.1.36

The version (s) indicated here above has (have) been tested and validated by the QA Department.

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Technical Notes:

New features and Improvements:

- o None.

Web RCS's new features and improvements:

- o None

Bug fixes:

- SDI outputs may deliver content with artefacts
- DP output signal doesn't work with specific display systems.

Products	Aquilon RS alpha, Aquilon RS1, Aquilon RS2, Aquilon RS3, Aquilon RS4, Aquilon C, Aquilon C+
Date	February 24 th , 2020
Version	1.1.32

The version (s) indicated here above has (have) been tested and validated by the QA Department.

Technical Notes:

New features and Improvements:

- o None.

Web RCS's new features and improvements:

- o None

Bug fixes:

- Input test patterns don't work when the input doesn't receive any signal
- Input test patterns don't work with SFP inputs
- Keying function doesn't work with SFP features
- The device doesn't start if the power supply units are connected to the mains one at a time
- The Web RCS fails to start when the device contains many Master/Screen memories (>100)

Products	Aquilon RS alpha, Aquilon RS1, Aquilon RS2, Aquilon RS3, Aquilon RS4, Aquilon C, Aquilon C+
Date	December 17 th , 2019
Version	1.1.29

The version (s) indicated here above has (have) been tested and validated by the QA Department.

Technical Notes:

New features and Improvements:

- o Support for new Aquilon RS alpha
- o Support for new I/O boards with 4x SFP-12G SDI
- o New default 50Hz EDIDs in the library (HDMI 1920x1080 50Hz, HDMI 3840x2160 50Hz, DP 1920x1080 50Hz and DP3840x2160 50Hz)

Web RCS's new features and improvements:

- o **Pre-configuration Section**
 - The capabilities of inputs, images, outputs and layers have been renamed to 1, 2, 4, 6 and 8 with dedicated help sections to explain what each capability means in the context
 - New tool to ease the configuration of soft-edge and video/LED walls display applications
 - New tool to quickly enable/disable HDCP for all inputs, outputs and multiviewers
- o **Setup section**
 - In inputs, outputs and multiviewers pages, all the links on the rear panel view of the device are available for fast page changing
 - New help texts explaining how to set up a custom output format
 - In the EDID page, AW EDIDs are now displayed at the top of the page, in a specific section called 'Default EDID'
 - The naming and classification of the list of output formats has been improved.
- o **Live Section**
 - Layers
 - New toolbar to quickly align / center / resize layer(s)
 - New button to quickly enable/disable the visibility of empty or pre-empted layers
 - Memories
 - Tab of Master Memories now appears first in the list.
 - New button to reorder memories in the default order (increasing index)
 - Improve interface for labelling memories

- Tally indicators for Screen Memories
- Visual indicator for Memories indicating a specific filter has been registered
- Possibility to hide empty presets
- When recording a master preset from the Program or Preview and the selected screens are already loaded with a screen preset, the default memory selected for each screen is now the current screen memory
- Layout creation
 - New tool for Multiviewers to easily create a scalable widget mosaic
 - New tool for Screens to easily create a scalable layer layout
 - New Cascading layout now cascades all the layers over Layer 1 set full screen
- o **Notifications:**
 - Notification issued when the system is configured as Framelocked and the Framelock source is lost.
 - Notification issued when one of the power supplies is missing or not powered.
 - New management and notifications of temperature alarms
 - Notification center is always accessible, even if all notifications were read.
- o **Miscellaneous**
 - Help page now points to the current product page of Analog Way's website
 - Contact Us page new layout

Bug fixes:

- o **Processing**
 - HDCP random disconnections
 - HDMI DDC error
 - Signal loss of HDMI output plugs
 - DP Input format 1080p@50Hz not detected properly
 - DP Output 4:2:0 sends wrong data
 - Custom format rate must be limited at 60Hz to be useable
 - 4K Live Inputs strobe on an Aux Screen when they are half cropped
 - Input cropping doesn't consider the content ratio
 - Layer fill option choice don't affect stills
 - Aux Output can't be used as reference of input/image used in backgrounds
 - Management of preempted layers when an "out of capacity" is encountered
 - Black areas are not handled properly
 - Blending is not applied properly
 - Using Master/Screen Memories with enabled Auto-scale can generate non integer layer position and size
 - Resetting the widget position on the multiviewer sets the value to -32768
- o **EDID**
 - No information is displayed when an invalid EDID is downloaded

- Allow to add an EDID directly in the EDID banks using a bin file
- Formats whose width is 4096px shouldn't be allowed in EDID templates as they are not supported
- o **Web RCS**
 - if an invalid EDID is imported in a slot, this slot can't be filled with another EDID anymore
 - The upload button is not visible on an empty EDID slot (impossible to download an EDID file)
 - Cut and Fill icon doesn't stay in the layer
 - When the system configuration is extracted, the parameter area must keep its position and size.
 - "On Program" and "On Preview" tallies are not raised for Inputs on used in backgrounds
 - Program/ Preview interface doesn't display layers correctly after specific resize
 - "Valid only" feature doesn't work with the management of Memories
 - Crop status is not updated properly
 - The crop settings have an unexpected behavior when an image is used in a background set
 - Front panel unlock doesn't work when reset is applied to the Front Panel Section
 - Impossible to delete a config memory slot
- o **System Configuration**
 - Modifying the system time is modified, the current count up or down are lost
 - Wake on LAN settings are lost after reboot
- o **Front Panel**
 - Folder names containing special characters can't be accessed from the front panel
 - Update phone number for APAC technical support
 - Pressing a very long time ENTER or EXIT keys should behave as Press and Hold

Known limitations

- Test patterns currently only available per output
- Layer anchor point currently defined as center of layer
- Output rotation not currently available
- HDCP2.2 not yet supported
- Capture input to store as frame not currently available
- Keyboard shortcuts not currently available except the "delete" key
- Offline simulator not yet available
- Support 4K60p signal as double or quad plugs not supported yet
- WebRCS is currently optimized to be used on a Google Chrome browser (any platform). Other browsers, such as Firefox, Safari, or Opera aren't currently fully supported

Products	Aquilon RS1, Aquilon RS2, Aquilon RS3, Aquilon RS4, Aquilon C, Aquilon C+
Date	October 13 th , 2019
Version	1.0.47

The version (s) indicated here above has (have) been tested and validated by the QA Department.

Technical Notes:

Updating to firmware version 1.00.47 from older version

- Due to firmware update of very low-level components, the update time to 1.00.47 from an older version is long and the unit may seem stalled. Please **DO NOT POWER OFF** the unit as long as it has not rebooted.

Bug fixes:

- Color management on SDI outputs (HD/3G/6G/12G formats)
- Random problems of card detection at the device boot

Known limitations

- Screen Canvas layouts currently require manual setting of details include setting blending parameters by each edge
- Test patterns currently only available per output
- Layer layout tools to quickly define layer positions not available yet
- Layer anchor point currently defined as center of layer
- Output rotation not currently available
- HDCP2.2 not yet supported
- Capture input to store as frame not currently available
- Keyboard shortcuts not currently available except the "delete" key
- Offline simulator not yet available
- Further improvements of Screen and Layer resource allocations ongoing
- Support 4K60p signal as double or quad plugs not supported yet
- WebRCS is currently optimized to be used on a Google Chrome browser (any platform). Other browsers, such as Firefox, Safari, or Opera aren't currently fully supported

Known issues

- 1200p output format not properly supported yet (SDI only)

Products	Aquilon RS1, Aquilon RS2, Aquilon RS3, Aquilon RS4, Aquilon C, Aquilon C+
Date	October 2 nd , 2019
Version	1.00.40

The version (s) indicated here above has (have) been tested and validated by the QA Department.

Technical Notes:

Updating to 1.00.40 from older firmware version

- Before updating to 1.00.40, please backup the current configuration (needed in case you should downgrade to an older firmware version later)
- Apply the firmware 1.00.40 (from the front panel USB or WebRCS) -> your current configuration will be kept and automatically upgraded
- Once the new firmware has been successfully applied, please backup your configuration (upgraded to 1.00.40)
- **DON'T import the configuration file exported from an older firmware version (it won't be converted and some settings might be lost)**
- You're done!

Initial published release

- Support for Aquilon RS1, RS2, RS3, RS4, C, C+
- Support for HDMI2.0, DP1.2, and SDI-12G input and output connector cards
- Manage 4K, DL and 2K inputs, outputs, and layers
- Create and operate Screens and Auxiliary outputs
- Configure layers as Mixers or Split layers, defined per Screen
- Screen Canvas Layout can be freely configured
- Pixel pitch management per output available
- Configure and operate Multiviewers with 24 widgets per screen
- Create and load Screen Presets, Master Memories, with filters by layer, attribute, screen, etc.
- Manage TAKE per Screen
- Upload and display still images
- Audio Dante™ available: de-embedding / re-embedding/ routing
- SB80-2 and SB124T-2 supported via direct USB connection (one controller max)
- Support custom formats up to 8196px in width
- EDID management supported up to 4K
- HDCP 1.x supported
- HTTP REST API available with documentation
- AWJ JSON protocol updated (may affect existing implementations, contact support for more details)

- Import/Export backup file from WebRCS or front panel

Known limitations

- Screen Canvas layouts currently require manual setting of details include setting blending parameters by each edge
- Test patterns currently only available per output
- Layer layout tools to quickly define layer positions not available yet
- Layer anchor point currently defined as center of layer
- Output rotation not currently available
- HDCP2.2 not yet supported
- Capture input to store as frame not currently available
- Keyboard shortcuts not currently available except the “delete” key
- Offline simulator not yet available
- Further improvements of Screen and Layer resource allocations ongoing
- Support 4K60p signal as double or quad plugs not supported yet
- WebRCS is currently optimized to be used on a Google Chrome browser (any platform). Other browsers, such as Firefox, Safari, or Opera aren't currently fully supported

Known issues

- 1200p output format not properly supported yet (SDI only)