

HELIOS LED Processing System

PX1 Receiver

Release Notes v20.09.0

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Legal

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Introduction

The HELIOS LED Processing Platform also includes the PX1 Tile Receiver Card as part of a complete system.

Some features/improvements may require updating the PX1 receiver card firmware also.

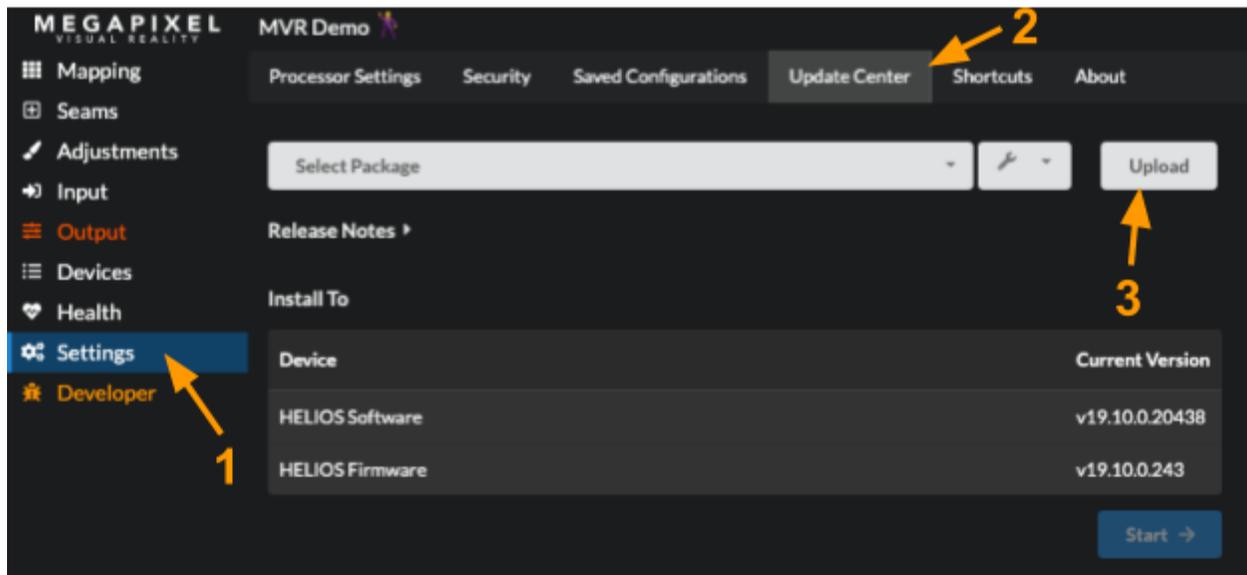
The current user manual and releases for the HELIOS LED Processing Platform can be found at: <http://www.megapixelvr.com/support/>

It is always recommended to update the HELIOS Processor software prior to upgrading the PX1 Receiver Card firmware.

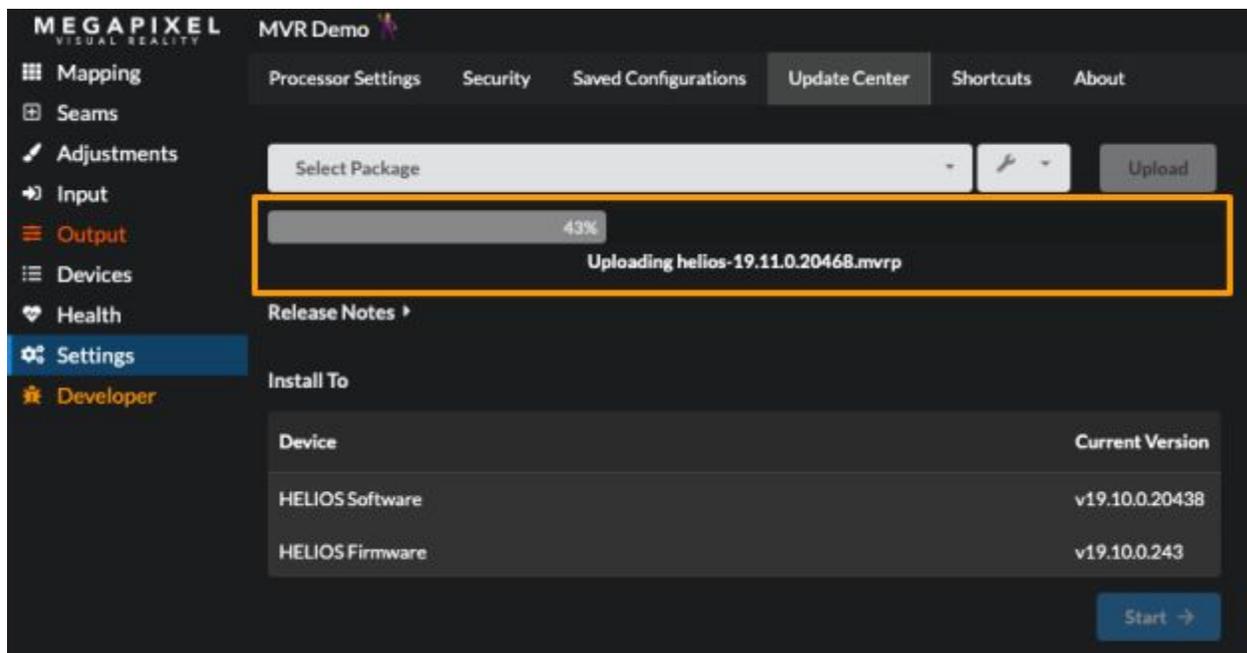
Upgrading the HELIOS Processor will upgrade both the software and firmware versions as needed on the HELIOS Processor.

HELIOS Upgrade Instructions

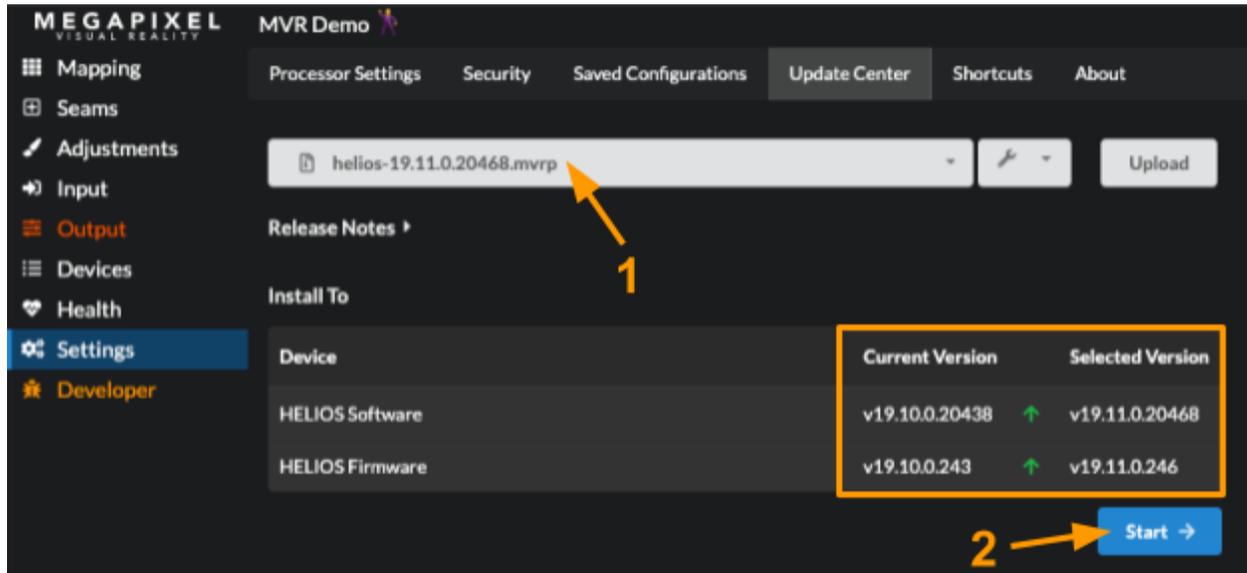
In the HELIOS web UI navigate to: *Settings->Update Center* and select the "Upload" button.



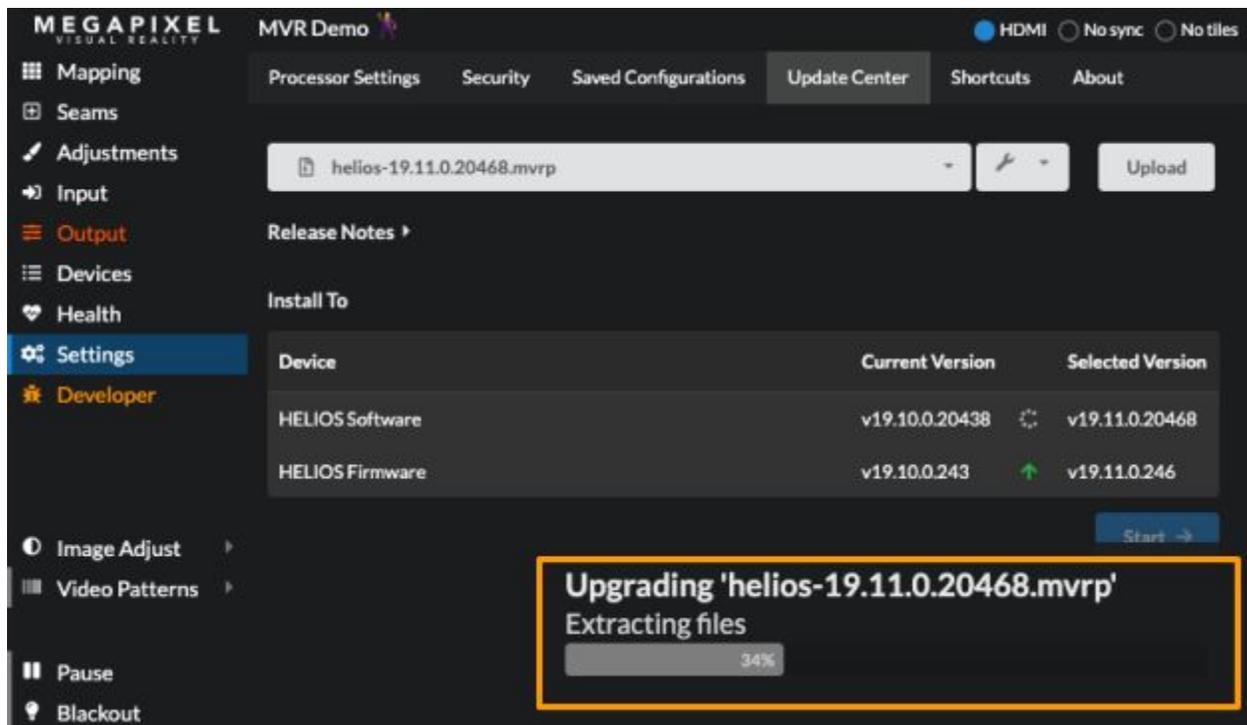
Browse to the current software .MVRP file your computer and upload it. You should see the following progress bar as the file is being uploaded.



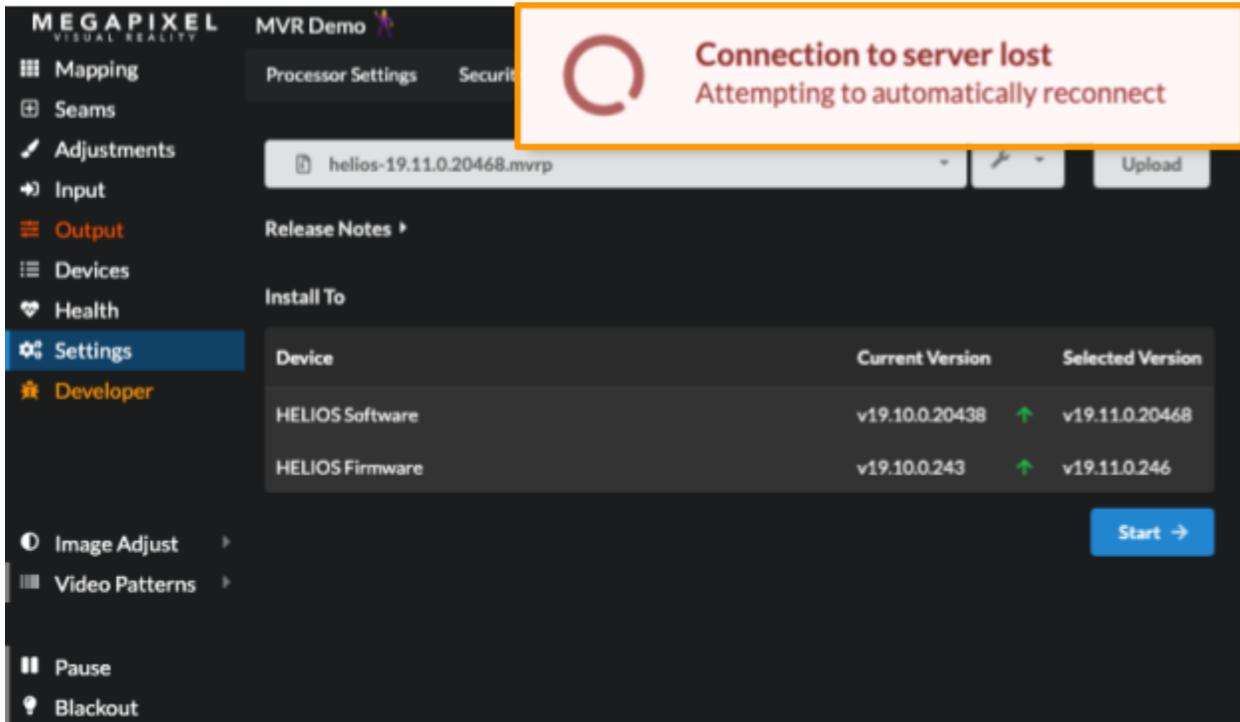
After the package has uploaded, you can then execute installation by selecting the appropriate MVRP package in the drop down list (1) and then clicking on "Start" (2).



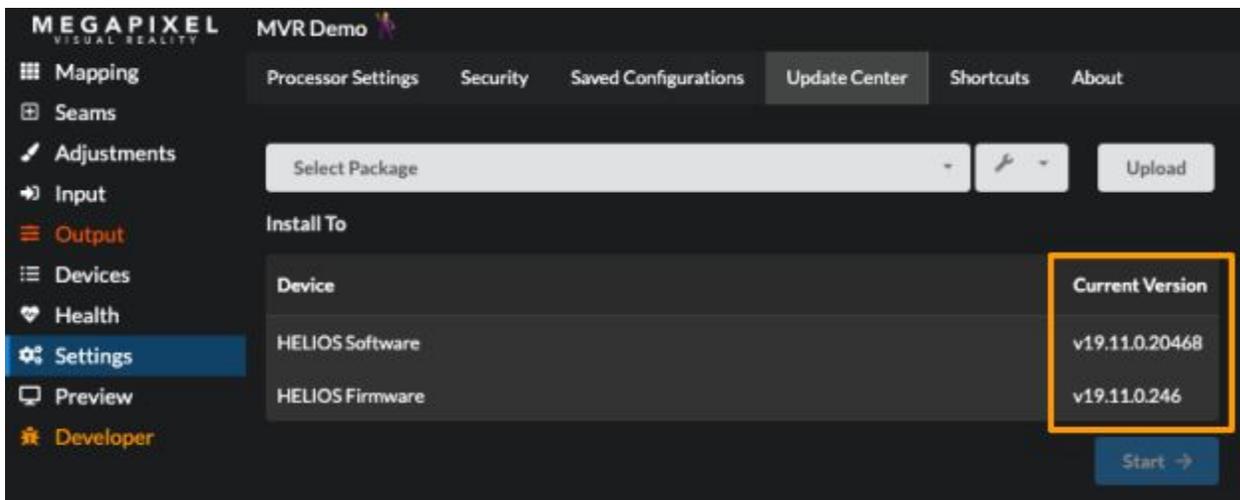
You will then see the upgrade process continuing as shown below.



During the upgrade, you will see the "Connection to server lost" message as HELIOS is performing the upgrade and restarting.



Once the upgrade is complete, you can see the current software and firmware versions displayed below.



PX1 Upgrade Instructions

Once the firmware for the HELIOS Processor has been updated, then the firmware for the PX1 Tile Receiver Cards may also be upgraded using a similar process. Upload the PX1 Receiver Card firmware (px1-xx.xx.xx.xxx.mvrp) using the same process above and then select it in the drop down list.

You will then be presented options for which tiles to update to the latest firmware.

You can enable/disable which tiles are included in the firmware update and then press the "Start" button in order to initiate the firmware upgrade process.

The screenshot shows the MEGAPIXEL MVR Demo software interface. The 'Update Center' tab is active. A dropdown menu is set to 'px1-a19.11.0.213.mvrp'. Below it, a table lists tiles for update. A 'Start' button is at the bottom right. Three orange arrows and numbers (1, 2, 3) indicate key steps: 1 points to the firmware dropdown, 2 points to the 'Update' toggle in the table, and 3 points to the 'Start' button.

Tile	Distro	Port	String	Current	→	Selected	Identify	Update
Eclipse-1.5 HDR	0	A	2	v19.11.0.208	↑	a19.11.0.213	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Eclipse-1.5 HDR	0	A	1	v19.11.0.208	↑	a19.11.0.213	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Eclipse-1.5 HDR	0	A	1	v19.11.0.208	↑	a19.11.0.213	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Eclipse-1.5 HDR	0	A	2	v19.11.0.208	↑	a19.11.0.213	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Version Information

After updating, the following should be displayed as the current versions:

Device	Version
HELIOS Software	v20.09.0.20886
HELIOS Firmware	v20.09.0.291
PX1 Receiver Card	v20.09.0.303

Officially Supported Tiles

- Megapixel Eclipse 1.5 HDR
- Megapixel KELVIN B / W / HDR 2.6
- Revolution Display ADVHD1.5
- Revolution Display ADV4 / ADV5 / ADV8
- Revolution Display RS1 / RS2 / RS3
- ROE Amber 0.9 / 1.5 / 1.8
- ROE Black Pearl 2.8 v2
- ROE Black Quartz 3.9 / 4.6
- ROE Diamond 2.6
- ROE Jasper 2.6 / 3.9
- ROE Ruby 2.3
- ROE Sapphire 1.5

It is strongly recommended to fully upgrade both HELIOS and all LED tiles to this release. Numerous improvements have been made in HELIOS and PX1 greatly improving both performance and reliability. Best performance and interoperability expects both HELIOS and PX1 cards are operating with the version numbers listed above for consistent behavior.

IMPORTANT NOTE: Redundancy operation requires tile firmware v20.02.0.250 or later.

- Unfortunately older tile firmware versions can fail to respond to processors in a redundant configuration.
- **WORKAROUND:** Disconnect the tile from the backup processor (or power off the backup processor) then perform the tile upgrade.

New Functionality

- Redundancy
 - Reworked redundancy to improve workflow and avoid terminology confusion (#583) & (#594).
 - Processors can now be assigned a desired redundancy role (main/backup).
 - Redundancy role is used as part of "Go Main" & "Go Backup" to instruct tiles to connect to the appropriate processor. This is then consistent when controlling from either the main or backup processor.
 - Processors are considered "active" when tiles are connected, "mixed" when tiles are connected to both the main + backup processors, or "standby" when no tiles are connected.
 - A different processor test pattern can be assigned to backup processors to make it much clearer which processor a tile is currently connected to (#604).
- Stacking
 - Syncs input adjustments & output color gamut settings across processors in the stack.
 - **WARNING:** Selecting widest gamut can result in different coefficients for different processors in a Stack.
 - Sync actions such as "Go Main" & "Go Backup" operate across the stack (#583).
- LCD
 - Show redundancy state & stacking group (top right).
 - Added a line under input to show the EOTF.
 - Added input selection to the main menu.
 - Added a pattern menu to be able to select processor test pattern & toggle motion.
- Devices - Support naming of network switches (#223).
- Saved Configurations
 - EOTF Adjustments, Input range override added to saved configurations (#655).
 - Display gamut, Light science, Output adjustments added.
 - Removed LDM seam corrections (for now) from Saved Configurations as these values are stored in the tiles.
 - **NOTE:** We plan to add this back to Saved Configurations when we have tile-level seam correction (#354).

- Processor Settings
 - Tile fan control option to request tile fans run automatic or silent. Requires tile firmware 20.09.299 or newer (#633).

Bug fixes

- LCD - No longer shows the rotary knob position on the main menu.
- Redundancy
 - Adjusted processor announcement periods & improved hand-over to reduce visible disruption when tiles connect to a different processor (#579).
 - Avoid processor backup missing on "Go Backup" (#618).
- Stacking
 - Fixed surprising state changes when initially stacking processors (#584).
 - General communication robustness; addressing startup races, and improving initial discovery + connection (#664).
- Switches
 - Fixed "Unable to communicate with switch" occurring on some switches (#615).
 - Workaround switch sensors not being immediately available (#577).
 - Reported switch uptime errors fixed (#574).
 - No longer crash while initializing newly connected switches (this was pretty rare and really hard to find) (#552).
- Attempt to restart firmware when encountering "Firmware missing" startup error (#196)
- Assert EOTF/range override on the selected input (toggling test pattern was temporarily disabling, which was very confusing).
- Alert when selected stitched input is missing one or more links (#646).
- Avoid getting stuck during a tile firmware update when one, or more, tiles go offline during the update.
- Increase LED Driver power down on blackout to five minutes, delay un-blanking tiles from low power state to avoid visual glitch (#624).
- Sliders - Preventing tabbing into a slider which could reset the slider's value (#671).
- Firmware logging will report more data for alerts and report Sensor ID.
- Continue sending vsync packets even if no tiles are connected.
- Fixed occasional unknown tile type/auth fail issue (#600).
- Scan SFP changes if interrupt is lost (#644).

- Sensors
 - Increased low SFP power range to avoid temporary sensor fault alerts (#603).
 - Renamed SFP alerts to "Over/Under fiber power" (#535).
 - SFP current readings were off by factor of 10x (#581).
 - Added SFP Temperature sensors (#635).
 - Rename fiber SFP sensors (#565).
 - Adjust fiber SFP optical power alert thresholds (#535).
 - Raised chassis over temperature alert to 50C.
- Inputs
 - Update DP EDID for YCC 12-bit input.
 - Increased accuracy of reported refresh rate on HDMI (#558).
 - Fixed an issue with invalid DP data causing invalid refresh rate resulting in pixel capacity exceeded event (#661).
 - Block inputs with invalid sync source (related to #661).
 - Fixed DP input not accepting video, automatically re-initializes input (#620).
 - Added alert for DP input failure (#634).
 - Corrected EDID Manufacturer ID (#516).
 - Fixed jitter in DP sync.
 - Use measured frame rate on DP to display accurate refresh rate (#650).
 - Fixed video artifacts on DP 2x1 when tiles are mapped with a large offset from (0,0) (#629).
 - Fixed occasional DP link issue where Input was lagging by a frame and striping image (#619).
- Fixed I2C issue that could cause internal comm bus to lock (#83).
- Test Patterns
 - Fixed "Image" aspect ratio pattern (#529).
 - "Image" Test Pattern doesn't switch back to normal test patterns correctly (#571).
- Tiles
 - Added Silent Fan setting (#633).
 - Removed scan lines and artifacts going in/out of Blackout (#329).
 - Eliminate white lines when performing tile reboot (#591).
 - Fixed tile freezing in Seamless Redundancy failover mode (#553).
 - Improved Failover Redundancy time (#605).
 - Fixed Tile re-association when looking main processor (#609).

- Fixed single frame glitch in Seamless mode when rebooting switches (#610).
- Fixed delay in going to black on loss of signal (#557).
- Fixed authentication errors in redundant system (#562/#630).
- Changed Ethernet indicator behavior and include them in 'Show Rear Indicators' setting (#564).
- Fixed Ethernet issue causing tile to get into persistent glitchy state (#575).
- Fixed clearing tile counters in redundant system (#576).
- Fixed tile re-association issue when flipping between Main/Backup states (#579).
- Fixed tile power up in redundant system initially coming up in wrong mapping state (#584).
- Fixed MDIO issue causing tile-tile connectivity loss (#585).
- Fixed invalid Ethernet PHY temperature readings due to MDIO issue (#596).
- Fixed random tile redundancy flip due to command processing overhead in some messages (#631).
- Fixed Ethernet MDIO issues (#665)
- Disable IPv6 announce packets (#588).
- Fixed Tile Identify arrow appearance (#590).
- Improved correlation between HELIOS error counters and OMNIS reporting for PHY errors (#614).
- Fixed tile reset when flipping rapidly between test patterns and live video (#628).
- Fixed tile reset when flipping rapidly between main/backup systems (#663).

Known issues

- HDR over DisplayPort is still in progress (#521)

PREVIOUS RELEASES

Version 20.05.0

After updating, the following should be displayed as the current versions:

Device	Version
HELIOS Software	v20.05.0.20743
HELIOS Firmware	v20.05.0.270
PX1 Receiver Card	v20.05.0.276

Officially Supported Tiles

- Revolution Display ADVHD1.5
- Revolution Display ADV4 / ADV5 / ADV8
- Revolution Display RS1 / RS2 / RS3
- ROE Amber 1.5
- ROE Black Quartz 4.6
- ROE Diamond 2.6
- ROE Ruby 2.3
- ROE Sapphire 1.5

New Functionality

- System Redundancy
 - System redundancy capabilities now available using a main/backup HELIOS both driving from each end of a string of tiles.
 - Both traditional failover backup mode and new seamless failover mode available.
 - Please refer to the User Guide for full details on configuration and operation.
 - **IMPORTANT NOTE:** Redundancy operation requires tile firmware v20.02.0.250 or later.
 - Unfortunately older tile firmware versions can fail to respond to processors in a redundant configuration.
 - **WORKAROUND:** Disconnect the tile from the backup processor (or power off the backup processor) then perform the tile upgrade.

- **IMPORTANT NOTE:** HELIOS will need to reconfigure its attached network switches to support redundancy. (#487)
 - Switch reconfiguration will happen automatically when a network switch is connected to an upgraded HELIOS.
 - Current switch configuration version can be seen by looking at the switch's Contact field on the devices page, "v3" is the latest version.
 - **WARNING:** Once a switch has been reconfigured, it is not compatible with previous versions of HELIOS. Please contact us if you need to downgrade.
 - Please upgrade the HELIOS and its switches in an isolated environment before trying out the redundancy.
- HDR - High Dynamic Range with Dynamic Metadata support
 - **IMPORTANT NOTE:** Requires tile firmware v20.01.0.245 or later.
 - Initial support for SDR, HDR (traditional), HLG, and ST 2084 (PQ) curves
 - Initial support for dynamic range metadata.
 - Improved detection of (most) input colorimetry (DP is a known issue).
 - Please refer to the User Guide for full details on configuration and operation.
- Web Interface
 - Re-worked top right status icons.
 - Update sync status icon to indicate sync source (e.g., "Sync to HDMI") (#452)
 - Added a "Global settings" lock (#300).
 - Mobile - Added a test pattern selection to the mobile view (#478).
- Front panel LCD
 - Show the current operating mode (Standard/Jr) (#499).
 - Turning knob moves between pages.
 - Pressing knob now opens a menu:
 - Brightness %, Blackout, Freeze, and Test Pattern toggles.
 - Restore Factory Defaults.
 - Configure DHCP/Static IP address.
- Mapping
 - Identify option will now include "(rear only)" option when the "Rear indicator only" processor setting is set (#467).
 - Editable tile XY position can now be found under the "Positioning tools" (#460).
- Input
 - Added luminance-only support for HDMI 4:2:0. (#456)

- Output
 - Black clipping is no longer considered an “Advanced” function.
 - Default brightness limit to lowest to false, moved toggle to Output adjustment.
 - Added Gray Step Test Pattern (#365)
- Settings
 - Option to reset to factory settings while keeping the assigned IP (#351).
 - Update Center - Sort tiles by identify (#321).
- Shortcuts - Updated CSS. You can always use '?' to see keyboard shortcuts (#389).
- Switches
 - Temperature & fan speed monitoring added.
- Tiles
 - Alert when there's an authentication failure (#458)
 - Added diagonal line test patterns, and additional stats patterns to tiles (#423).
- Public API
 - Exposed device counters & sensors, available inputs, redundancy state, and the directly connected switches.
- Stacking
 - Should now discover other HELIOS when automatically assigned a link-local address (#495).
 - Improved/Reduced HELIOS-HELIOS connection time.

Bug fixes

- Devices - Support for > 1GbE tile port speeds (#484).
- Output - Less truncated edit fields when using an iPad (#470).
- Settings - Support uploading of licenses via Safari.
- SDI Level B fixed (#439).
- Fixed PSU reporting thresholds for VCCINT & VCC_PSINTFP (#465).
- Fixed DP errors on DP disconnect (#481).
- Avoid flickering when the input doesn't match the external sync's frequency (#482).
- Stop reporting that the external sync is valid after the external sync has been removed (#486).
- Changed wording when LDM is not in factory position (#503).
- Corrected DP EDID Vendor ID (#516).
- Heat Map - Hover temperature info above selection (#29).

- Mapping - Simplified selecting tiles when using port dropdown (#355).
- Output - show auto detected gamut (#525).
- Settings - pseudo-random static IP based on unit's MAC address.
- Fixed Interrupt handling issue causing memory corruption (#534).
- Fixed memory allocation issues and improved memory checking.
- Improved RPU crash handling.
- Reduced HELIOS Fan speeds.
- Adjusted ranges for SFP power limits for valid ranges.
- Update crash handlers in PX1 card.

Known issues

- Support HELIOS to same HELIOS redundancy is on our road map (#514)
- HDR over DisplayPort is still in progress (#521)

Version v20.01.0

After updating, the following should be displayed as the current versions:

Device	Version
HELIOS Software	v20.01.0.20551
HELIOS Firmware	v20.01.0.252
PX1 Receiver Card	v20.01.0.245

Officially Supported Tiles

- Revolution Display ADVHD1.5
- Revolution Display ADV4 / ADV5 / ADV8
- Revolution Display RS1 / RS2 / RS3
- ROE Amber 1.5
- ROE Black Quartz 4.6
- ROE Diamond 2.6
- ROE Ruby 2.3
- ROE Sapphire 1.5

New Functionality

- New HELIOS Jr. model released.
- Adjustments - Intensity adjustment to quickly adjust the brightness of a group of LDMs added. (#449)
- Canvas - Escape to deselect any selected objects. (#433)
- Input - Alert when an unrecognized/invalid input is detected. (#436)
- Mapping
 - Show aggregated port details when multiple tiles are selected.
 - Theater mode settings to adjust tile(s) max luminance to a different calibration target. (#450)
 - Show additional test patterns in HELIOS that are supported by tile firmware. (#415)

- Output
 - No longer categorized as "advanced functionality".
 - "Automatic" gamut automatically adjusts the display's gamut to match the source advertisement (which is going to be Rec. 709, see known issues).
 - Added "Limit max to lowest tile max" setting to control how max display brightness is calculated. (#411)
- Light Science feature added for tiles which support enhanced low level controls. (#432)
- PX1
 - Improved control over gamma curves added.
 - Advertise available test patterns to HELIOS. (#415)
 - Added small grid test pattern.
 - Ethernet PHY LED's are now disabled when turning off "Show Indicators" for the tiles.
- Health
 - Reports - Include device's serial number in all reports.
- Settings
 - Identify behavior option added- "Front identify & Rear indicator", or "Rear indicator only". (#264)
 - Licensing (#6)
 - Support for per-unit feature based licensing added.
 - All existing HELIOS units will automatically be issued a "Standard" license to allow selection between Standard & Jr modes.
 - Operating mode (#326)
 - Control whether HELIOS is configured in "Standard" mode (8 x 10GbE SFP+) or a new "Junior" mode (8 x 1GbE copper SFP).
 - Requires HELIOS using at least a OS 19.10.0 release. This can be verified under Devices->Processor->expand HELIOS and note the version listed for "OS". (For those needing this functionality with an OS version lower than 19.10.0, please contact Support for details on upgrading your OS.)

Bug Fixes

- Devices - Removed support for incompatible SFPs. (#6)
- LCD
 - Show dual DP/HDMI in preview thumbnails for HELIOS configured using dual DP or dual HDMI input card configurations.
 - Update current input details if the input is changed while test pattern is active.
- Input
 - Avoid truncating reported frequency (e.g., 59.94).
 - Fix a DP state issue on disconnect. (#387)
- Output
 - Corrected bit depth calculation for 10-bit with non-60Hz frequencies. (#445)
 - Removed "Disabled" gamut.
- Settings
 - Networking - Keep static IP assignment when a DHCP server is available. (#462)
- Updates - Show HELIOS port information when updating tiles.
- Addressed an EEPROM write issue.
- Fixed bad sensor readings after a reboot. (#403)
- Sensor report improvements.
- Suppress some repeat error messages.
- PX1: Clearing Counters isn't clearing PHY errors. (#407)

Known Issues

- Input - Advertised input colorimetry is often incorrectly assumed to be Rec. 709 (#64)
- Output - Still need to handle non-scalable and wide inputs (#210)
- Previews - Only single inputs are supported. i.e., 2x2 SDI, 4x1 SDI will be black (#395)

Version v19.11.0

Device	Version
HELIOS Software	v19.11.0.20468
HELIOS Firmware	v19.11.0.246
PX1 Receiver Card	v19.11.0.216

New Functionality

- Input - Automatically expand details for the selected input (#358)
- LCD - Make it more obvious when in blackout/test pattern (#209)
- Processor Settings - Renamed Experimental to Advanced mode (#334)
- Preview - Support preview for single inputs, but still working on stitched inputs (#159)

Bug Fixes

- Application - Continue showing current input while test pattern is active (#357)
- Devices - Timeout detected sensor faults (#388)
- PX1 - Added delay after blackout before putting tiles into low power mode (#329)
- Fixed Alert Names (#163)

Known Issues

- Previews - Only single inputs are supported. i.e., 2x2 SDI, 4x1 SDI will be black (#395)