

## Release note for 2.5.0 BETA

### Notes

This release includes the first public beta of the integrated Motive experience. This is an early release and must be enabled in System Configuration, Sensors (disable Legacy Mode) to be used.

As this is a BETA, please review the Known Issues and contact [support@blacktrax.ca](mailto:support@blacktrax.ca) with any issues or bug reports.

### Motive Dongle Date Requirement:

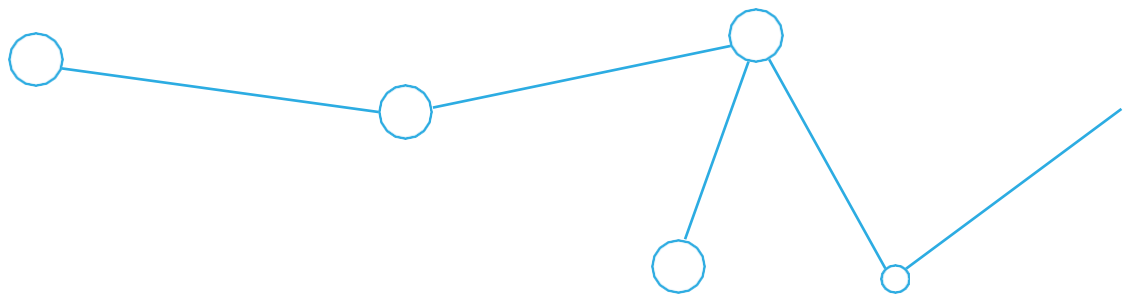
November 8<sup>th</sup>, 2019

### Major changes:

- Motive has been updated to Motive 2.2 with support for Slim X13 sensors
- Motive now uses .motive files instead of .XML files for Profiles
- The first phase of the Motive API to control Sensors and track Beacons within BlackTrax
  - Off by default, to enable go to Sensors under System Configuration and disable Legacy Mode
- BTWYG has been updated to R45
- 64-Bit compatibility

### Known issues:

- BTWYG may hang/crash if trying to fullscreen Shaded View on a second monitor
- When removing Sensors from the Sensor List, a blank row may be left over until the Sensor Group selection is toggled
  - **Note:** If a Sensor Group is attempted to be made based on one of these empty rows, BlackTrax will crash
- If Sensors are renumbered when a Sensor is missing, the Main GUI might crash
- If a Sensor with a lower serial number is added to a project after a higher serial number is connected, the Main GUI will crash
  - The workaround is to either connect Sensors in sequential order or to connect all Sensors first before connecting to BTNet
- Cue may crash if old recordings are played back
- When starting Sensor Calibration from BlackTrax, Stage may not shut down fast enough for Motive to start up
  - If this happens, Motive will tell you another instance is already running; please wait a few seconds and manually launch Motive to continue
- After making a Trackable change and Applying Changes, tracking will momentarily stop for a few seconds and then resume
- Changing the universe of a Fixture while it is actively tracking will not update its patch until a Chapter change



- When using the new Set Home centroid feature, if the LEDs move since the first Set Home, it is required that Set Home is clicked twice for any additional centroid updates

**Firmware Package Date:**

February 2020

**Build Numbers:**

BlackTrax: 2.5.0.12814

BTWYG: 2.45.48.203

Motive: 2.2.0.1.48012

**Server Version Requirement:**

February 2021

**Device Manager Compatibility:**

2.5.0

**Compatible with RTTrP Versions:**

6

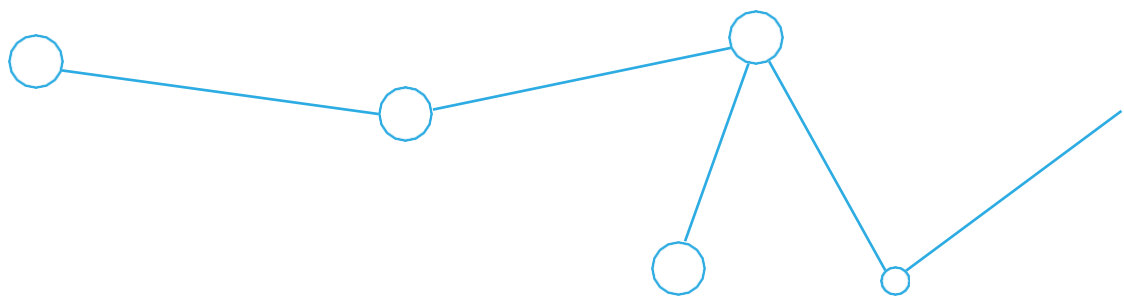
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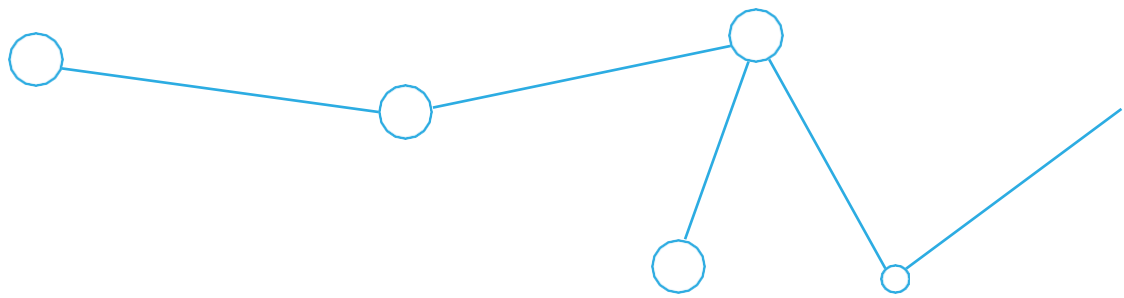
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**Features and Fixes:****Bug**

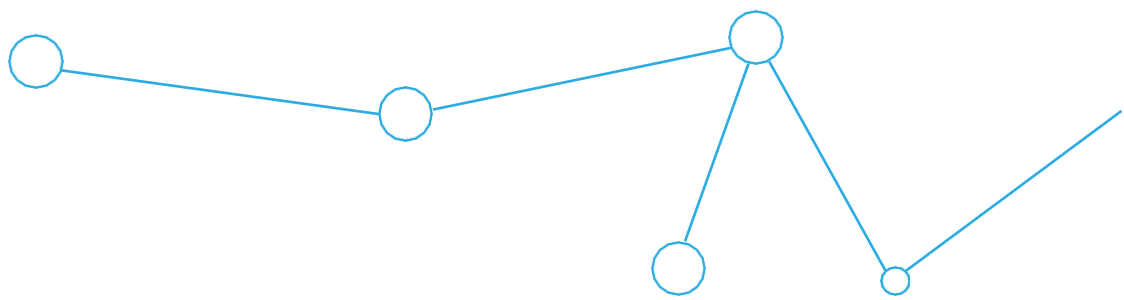
- *Fixed: BlackTrax could crash if a fixture with incorrect profile information in the Zoom or Iris channels was imported and Beam Control was attempted to be used; An error is now displayed in the Beam Control Distance Range output when this occurs in addition to the error message displayed in Messages*
- *Fixed: BlackTrax would crash when a Portfolio was attempted to be duplicated*
- *Fixed: It was not possible to save the Portfolio after resetting BlackTrax settings*
- *Fixed: Portfolios were not being fully closed when a user closed them*
- *Fixed: The Main GUI would close even if the user chooses to cancel closing a Portfolio*
- *Fixed: Sorting by most recent in File Dialogues would not sort by date*
- *Fixed: Resetting settings would log a blank entry in the Messages widget*
- *Fixed: Selecting Trackables would not always highlight all borders of the widget*
- *Fixed: Blank rows would be logged in the Messages widget when opening some Portfolios*
- *Fixed: Changing a Chapter's fade time while it was still fading would leave the Live View cell stuck in a yellow colour*
- *Fixed: Moving lights without Zoom/Iris control could not enter Static Mode for Beam Control*
- *Fixed: Fixtures no longer flash selection / are double selected when incoming and outgoing selection to BTWYG is enabled*



- *Fixed: Show Report would sometimes not export Fixtures in their correct Spot ID order (it was first sorted by universe)*
- *Fixed: Conventional fixtures would export their calibration during a calibration export (which is invalid as they can't be calibrated)*
- *Fixed: In certain older projects, not all fixtures would be displayed in fixture calibration view, and would instead appear as blank lines*
- *Fixed: It is no longer possible to assign and unassign Beacons to fixtures or clear/apply calibration data while in Normal Mode (Fixture Calibration Mode must be active)*
- *Fixed: When copying/pasting fixtures across Trackables, sometimes they would not appear until the Trackable selection was changed*
- *Fixed: Float endianness would always be little-endian regardless of selected setting if the decimal precision was less than 6*
- *Fixed: Launching BTEngine would cause the modules to briefly flash their GUIs before hiding away*
- *Motive fixes:*
  - *Fixed: Synchronizing with an external device no longer can result in a crash*
  - *Fixed: Active markers now respect the ray count property*
  - *Fixed: Rays now calculate the correct length with active markers*
  - *Fixed: Toggling cameras no longer results in no incoming data warning message.*
  - *Fixed: Masking behaviour on Flex cameras now behaves in a consistent manner*
  - *Fixed: Flex cameras no longer are being put into precision mode instead of object mode for calibration*
  - *Fixed: Single-pixel masking now behaves as expected*
  - *Fixed: Takes no longer stutter on playback*
  - *Fixed: Motive no longer displays an incorrect software version message in the splash screen*
- *BTWYG fixes:*
  - *Fixed: BTWYG no longer crashes trying to insert a Mountable Yoke*
  - *Fixed: Adjusting certain fixture' shutter cuts via Properties no longer crashes BTWYG*
    - *Also, shutter cuts would not always match their Shaded View outputs*
  - *Fixed: Batch printing no longer crashes with files with many fixtures*
  - *Fixed: No longer crashes when a Report cell contains more than 255 characters*
  - *Fixed: When changing a fixture property in the Options tab, BTWYG would crash if the fixture also has a lens option*
  - *Fixed: LED labels can no longer be far away from the LED in Shaded View*
  - *Fixed: SketchUp imports always import in the correct scale*
  - *Fixed: If a 3D solid entity in a DWG file cannot be decomposed to a mesh during import, the entire DWF file import would fail*
  - *Fixed: If a DWG file with nested blocks was imported, the objects may be scaled twice*

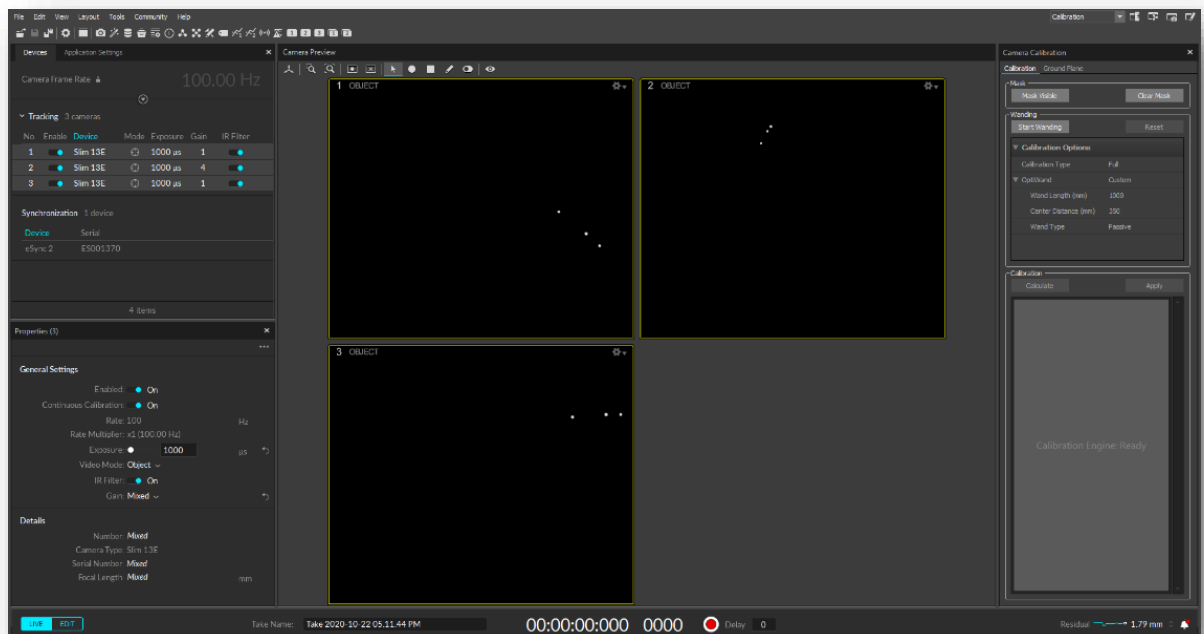


- *Fixed: BTWYG was sending over all Trackables from all motion universes, not just the patched motion universe to the BlackTrax Network*
- *Fixed: BTWYG was sending over fixtures that were missing spot IDs, but not fully resulting in half fixtures being imported into BT then error*
- *Fixed: Reports now correctly export to .csv files*
- *Fixed: Distance & Angle relative moves were not working*
- *Fixed: When adjusting the start point of a pipe, the length would increase unexpectedly*
- *Fixed: The selected Camera Path is no longer deselected when switching between modes*
- *Fixed: Pointing a camera directly upwards in CAD mode caused its position to reset*
- *Fixed: Shortcuts that have `&` in their name now display correctly*
- *Fixed: Truss that doesn't support mirroring can no longer be mirrored*
- *Fixed: Library Browser and Layer Database windows could expand larger than previously saved when changing views*
- *Fixed: Production Team Info Favorites are now correctly saved*
- *Fixed: Disconnect and BTX Apply buttons in the BTX Panel were not aligned with each other*
- *For additional fixes please refer to WYSIWYG's release notes*

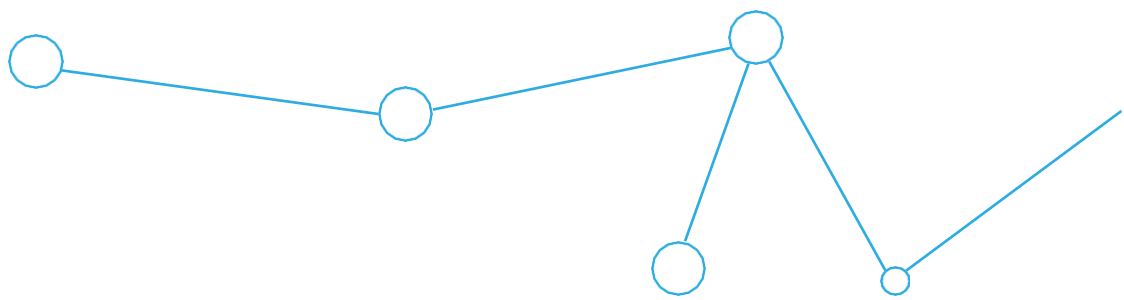


## New Feature

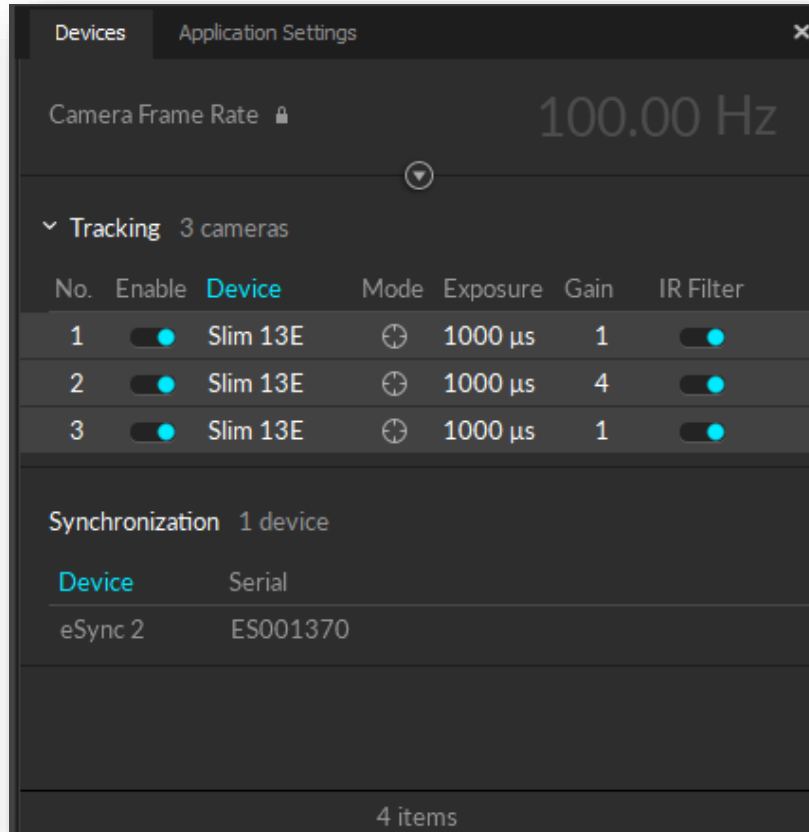
- **64-Bit support**
  - All BlackTrax modules are now 64-bit
  - BTWYG and Device Manager must be 64-bit to be compatible with this version of BlackTrax (please see requirements above)
  - BlackTrax is now installed in Program Files instead of Program Files (x86)
  - The installer will remove all previous version of BlackTrax from the old folder
- Motive has been updated to version 2.2



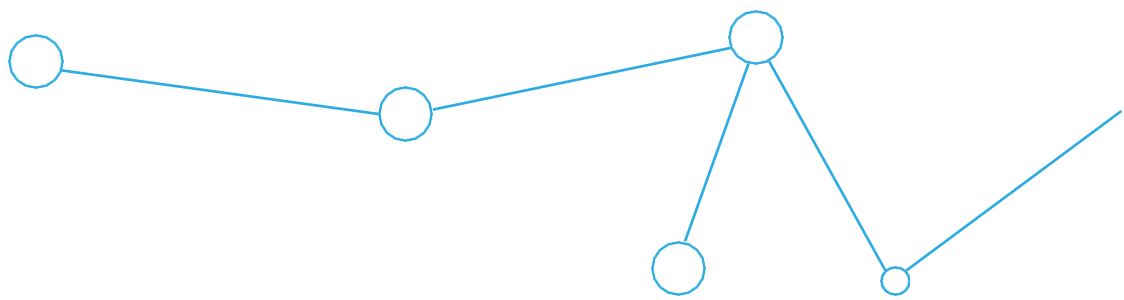
- Layouts and settings have been updated to support the changes in Motive 2.2
- This brings support for the new X series of sensors including the Slim X13
- Profile.xml files have been replaced with a profile.motive file
- A variety of improvements were made to profiles
  - The file extension has been changed to (.motive) and that extension has been associated with Motive
  - It is now possible to export a subset of the profile meaning that it is easy to create profiles that only contain assets, system properties, capture sessions, or hotkeys
  - As well as resetting a subset of Motive settings
  - Existing profiles can be still be opened, but they will be saved as a motive file



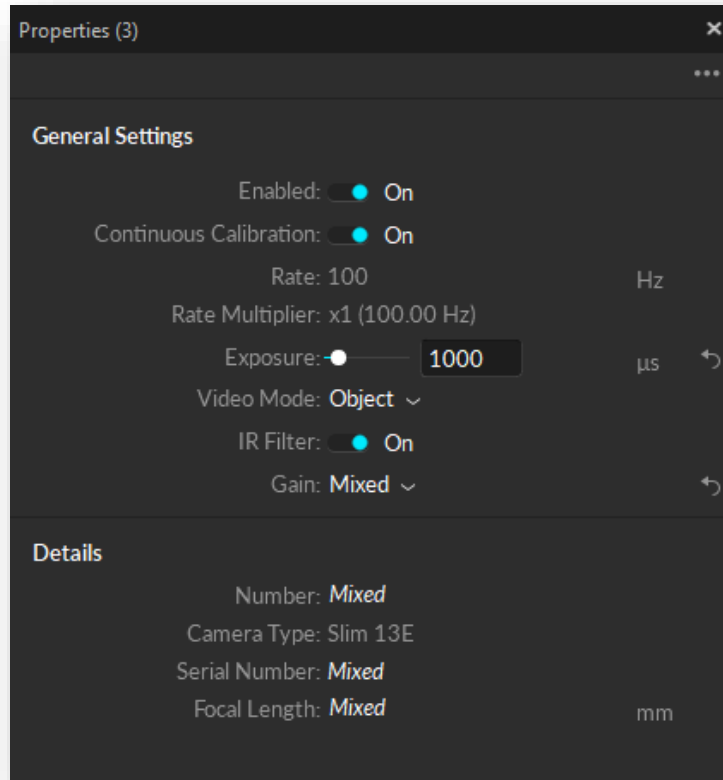
- Added profile files to the list of recently opened files
- New UI
  - The process continues towards a whole new user interface by adding two new panes that help to consolidate similar functionality from throughout Motive
  - Devices Pane



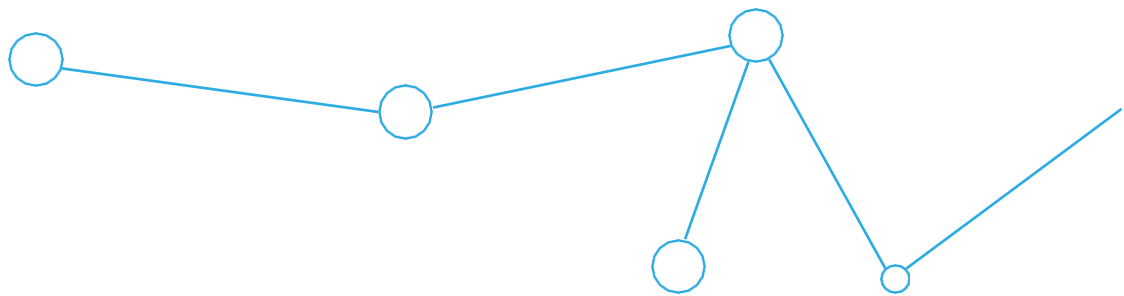
- Displays all devices in one location (eSyncs and Cameras)
  - Synchronization pane is gone, as the settings are accessed via Devices and Properties
- It also now allows users to create selection sets of devices, use a more compact device list view, show/hide columns of device properties, and sort the view based on particular properties
- Camera mode is toggleable via the Mode column (Object and MJPEG)
- By default, Exposure, Gain, and IR Filter is all displayed but it is possible to add other columns by right-clicking the header
- Presets are moved to a right-click menu and custom preset is removed



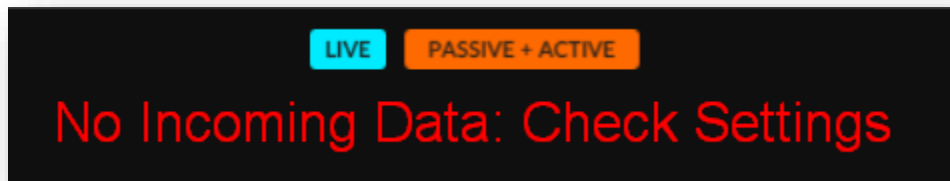
- *Camera errors and warnings are not displayed per camera any longer and instead, a general error/warning is displayed at the top of the pane*
  - *This information is still logged in the System Log and is accessible when using Non-Legacy Mode in BlackTrax*
- *Properties Pane*



- *All devices have been converted to work with the properties pane*
- *This makes changing settings for a group of cameras much easier, and it also helps persist camera and device settings in Motive*
- *Customize which settings appear with a basic/advanced view (these are preset with BlackTrax specific settings)*
- *LED controls have changed to a simple on/off instead of a value/slider*
- *For eSyncs, Source and Sync Offset have been moved here*
  - *It is no longer required to apply eSync changes*
- *Updated the file icons for the installer file, (.tak), (.cal), and (.motive) files to be more easily identifiable.*
- *Improved active marker tracking at faster movement speed*

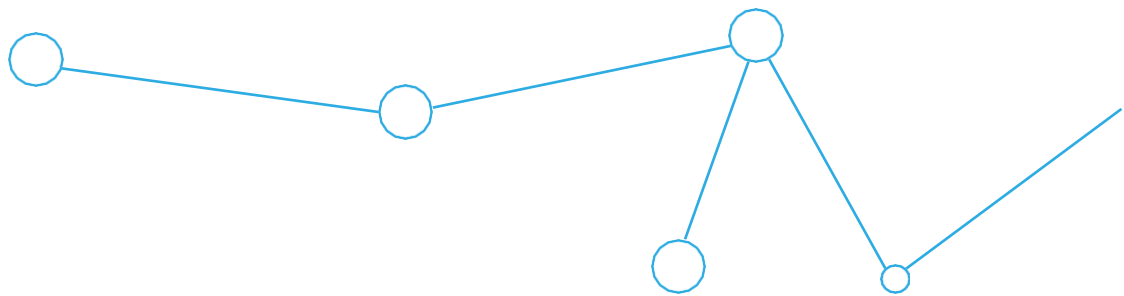


- *Continuous Calibration improvements for large tracking volumes.*
- *Added the ability to toggle whether a camera is participating in continuous calibration*
- *Improved the speed of the point cloud while using "Passive" or "Active" modes (not "Passive + Active")*
- *Units for Properties; added the corresponding unit for each property that has them*
- *Implemented cylindrical, spherical, and ellipsoidal reconstruction bounding volumes*
- *It is now possible to move the centre of the reconstruction bounds, so it is not locked to the origin*
- *Improved the wand sample visualization in the 2D view to show all wand samples instead of subsampling after some number of frames*
- *Significantly decreased the amount of time it takes to finish recording a long take with a large number of markers*
- *Added focal length as a read-only camera property*
- *Added an "Is Calibrated" property for cameras that are set automatically by the system*
- *Cleaned up the "No External Lock ..." warning message in the 3D view when Motive has bad synchronization settings*

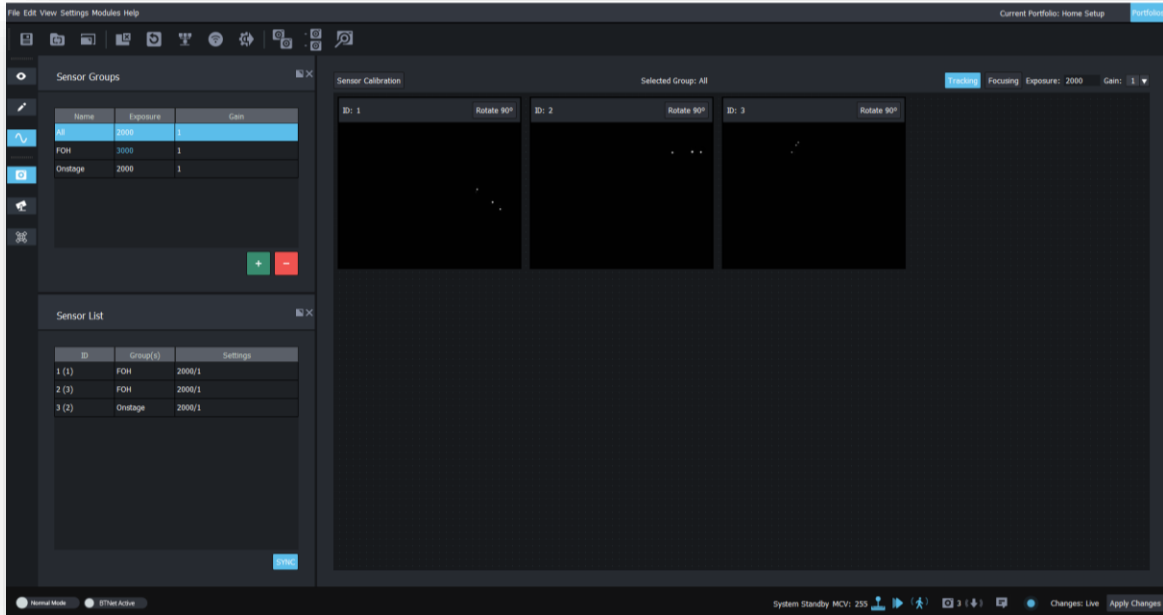


- *Changed the "Show Camera Field of View" property from an application setting to a per camera setting*

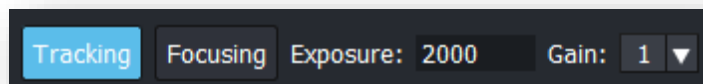




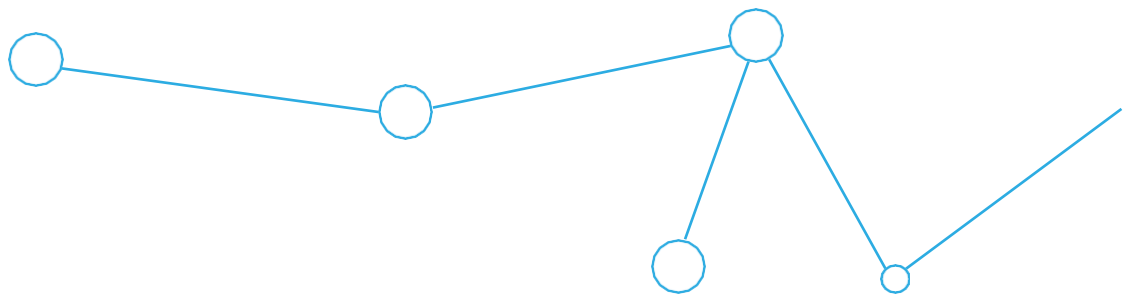
- *Motive API (Phase 1) – Integration of core Motive features directly inside BlackTrax*



- *Phase 1 brings basic functionality to BlackTrax from Motive with additional features being ported over in future releases*
- *Inside BlackTrax, there is a new Sub-View under Calibration View called Sensor Calibration View (accessible via CTRL+3)*
  - **Note:** *The other sub-views have had their keyboard shortcuts updated to be:*
    - *CTRL+4 = Fixture Calibration View*
    - *CTRL+5 = Frame Calibration View*
- *This view allows the monitoring of all connected sensors*
- *The goal was to improve the experience of using Motive, rather than just duplicating it, as such it is possible to control the following settings*
  - *Exposure and Gain (via Sensor Groups, more below)*
  - *Tracking/Focusing modes*

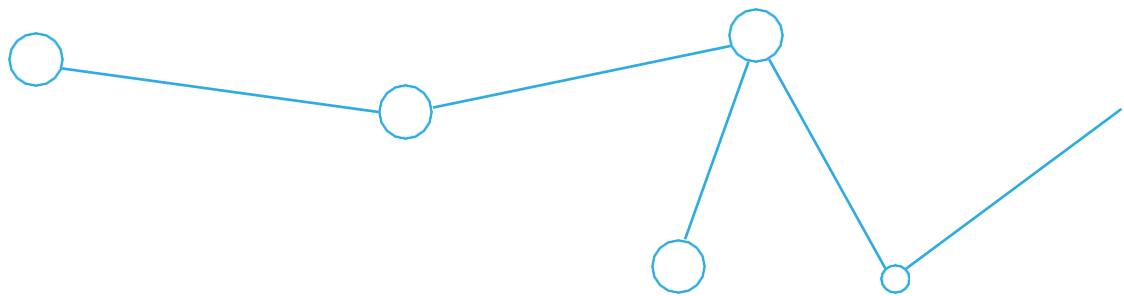


- *This improves on needing to set several settings in Motive*
- *Tracking mode presets the sensors to Object mode with IR Filter enabled*
- *Focus mode presets the sensors to MJPEG Mode Low Quality and IR Filter disabled*



- Focus mode will also turn the active motion indicator in the status bar red, to indicate not all sensors are ready to receive motion
- Each mode stores its unique exposure and gain settings, so it is easy to switch back and forth without fiddling with settings
- Syncing Sensors with the TimeKeeper is now a single button
  - Under the sensor list, a button called 'SYNC' is selectable
  - When selected (blue), sensors are automatically configured to sync to the TimeKeeper, on the Reserved port of the eSync, at a sync offset of 5000 us
    - When syncing the maximum exposure is 8,000 us
    - Sync status is displayed in the status bar along with the current FPS of the sensors
  - To disable sync, click the button, at which point the sensors will reset to 30FPS with a maximum exposure of 30,000 us
    - This is useful for focusing sensors
  - When sync is missing (or frames are dropping), in addition to warning signs in the Sensor List, error messages are displayed in the sensor views themselves
  - If for whatever reason BlackTrax is not receiving FPS from the Sensors, `FPS Missing` or FPS (Sync) Missing` will be displayed in the status bar
  - It will not be possible to start syncing if the eSync and TimeKeeper are not connected
- To improve large collections of sensors, sensor groups are now possible

Name	Exposure	Gain
All	2000	1
FOH	3000	1
Onstage	2000	1

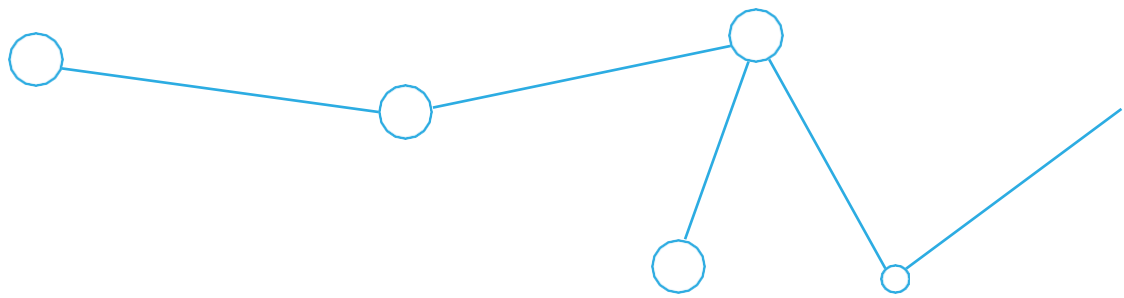


- A widget called Sensor Groups has been added to manage these
- By default, all Sensors are added to the All Group
  - This group cannot be edited, renamed, or deleted
- Create a group by selecting which Sensors should be included, and click the plus icon
  - Remove a group by clicking the minus icon
  - To remove a sensor, enter the group, select the sensors to remove, right-click and select `Remove from Group`
  - To add sensors to another group, select the sensors to add, right-click, select `Assign to Group...` and select a group from the pop-up menu
  - **Note:** When a group is created, the default exposure and gain will be what the selected sensors are set to; if not all sensors are the same the exposure and/or gain will be set to 250 and/or 4 depending on which settings do not match
- Each group can have a name and can be edited by double-clicking its name
- Each group stores its tracking/focusing settings, so it is easy to save presets

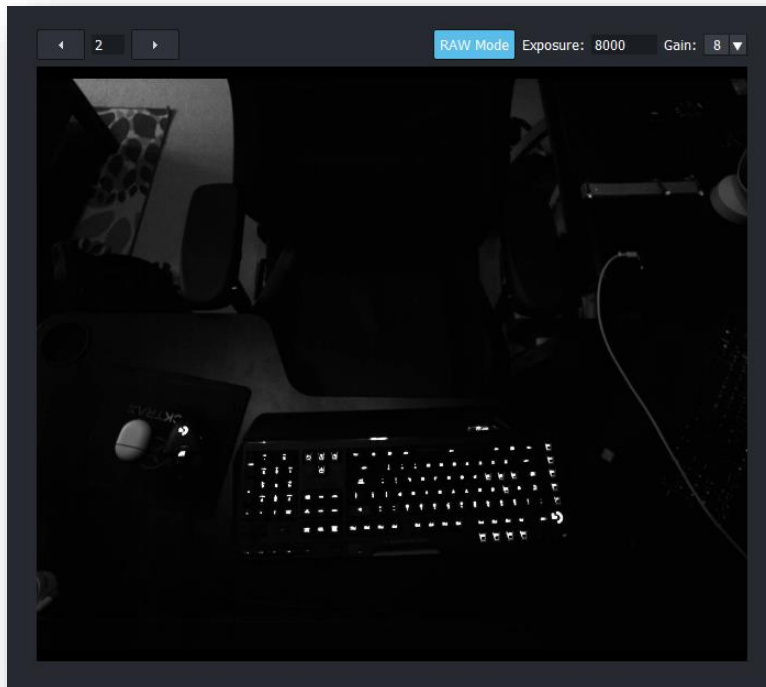
Sensor List

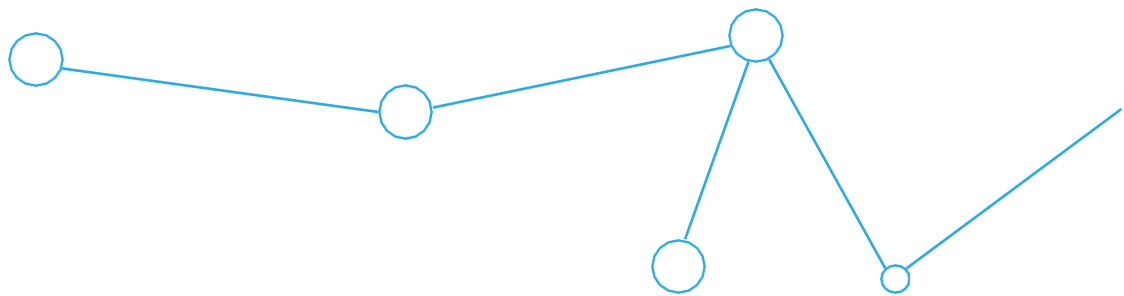
ID	Group(s)	Settings
1 (1)	FOH	3000/1
2 (3)	FOH, SR	3000/1
3 (2)	Onstage, SR	2000/4

SYNC



- *In the Sensor List widget, the `Group(s)` column will display all groups the Sensors are in*
- *When selecting a group, only sensors in that group are displayed in the centre area*
- *Exposure and Gain are set through the group instead of individual sensors*
  - *From feedback and observation, most users do not adjust individual sensor values and instead change all or at most a group of sensors at once*
    - *It is still possible to edit a single sensor's values by creating a group with just that sensor in it though*
  - *As such, Sensor Groups are where exposure and gain settings are changed, either in the Sensor Groups widget or the centre area*
  - *When the group's settings are changed, all sensors in that group are updated as well*
  - *As a sensor can be in several groups at once, an LTP (Latest Takes Precedence) rule is applied; the last group to change the sensor's settings is applied*
  - *Each sensor displays its active values in the Sensor List widget*
  - *If a sensor group contains sensors that don't match its current settings, the exposure and/or gain are highlighted in blue (like Fixture Settings mismatching) to indicate some Sensors aren't following the group*
- *RAW Mode within the Sensor View widget*

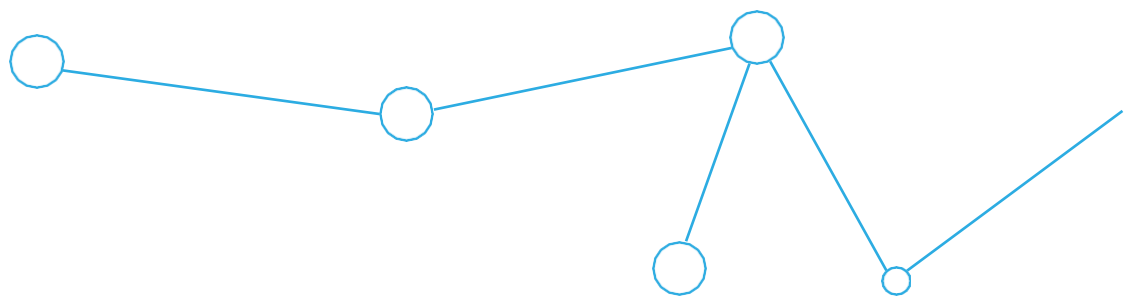




- RAW Mode overrides Tracking or Focusing mode by setting a single sensor to RAW Greyscale, IR Filter disabled
- RAW Mode has its own set of exposure and gain controls, so while in RAW mode the sensor will have custom exposure and gain
  - When the sensor exits RAW Mode, it returns to its pre-RAW settings
- It is possible to toggle through each sensor one by one; the previous sensor will revert to its previous mode while the new sensor enters RAW mode
  - This is to prevent overloading the switch with too many sensors being left in RAW greyscale
- The current sensor that is in RAW greyscale is highlighted in the Sensor List widget in red
- RAW mode will also turn the active motion indicator in the status bar red, to indicate not all sensors are ready to receive motion
- Sensor calibration must happen directly inside Motive as it is not supported via the API; as such there are several things that BlackTrax does to now automate that process



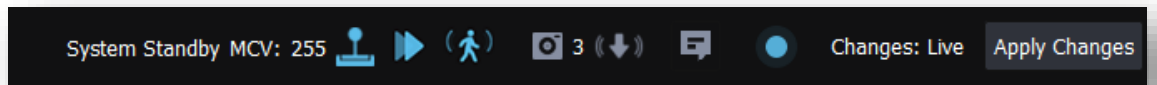
- A button called Sensor Calibration is in the centre area of the Sensor Calibration view
- When pressed, BlackTrax disconnects from the sensors, prepares Motive for calibration with the proper layouts and sensor settings (Object Mode with IR Filter, and Active Marker Labeling disabled), and then launches Motive
- Once calibration is complete in Motive, close Motive and BlackTrax will automatically load in the new calibration file and re-connect to the sensors
- After every sensor calibration process, BlackTrax will automatically back up the calibration file to `portfolio\_name\Motive\Calibration Archive`
  - In a future release, these archives will be restored with the Revert Portfolio feature
  - For now, however, it is possible to manually re-import them from the File -> Import -> Sensor Calibration and browse for the file
- All Motive recordings will default to `portfolio\_name\Motive\Recordings` for easy reference
- It is possible to set specific numbers for each sensor by editing the ID field in the Sensor List widget
  - As it is not possible via the API to change what number appears on the sensor itself, the 'displayed ID' will appear in brackets (for example 1 (2) means BT ID 1, Display ID 2)



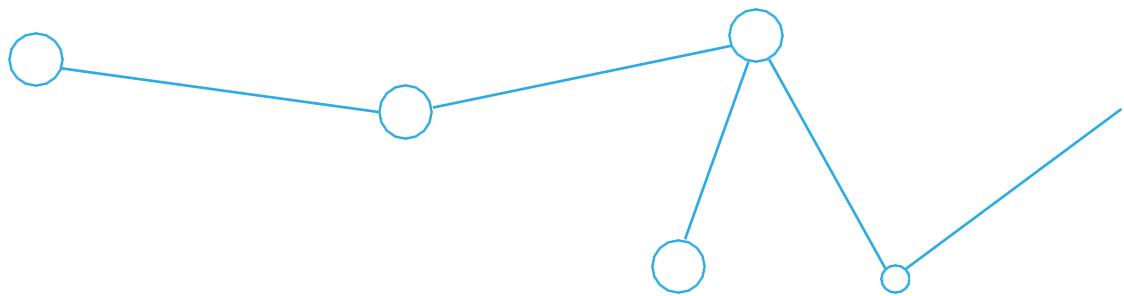
- *Easily rotate sensors by clicking 'Rotate 90 °' instead of using a slider bar*



- *Improved reporting of dropped sensors*



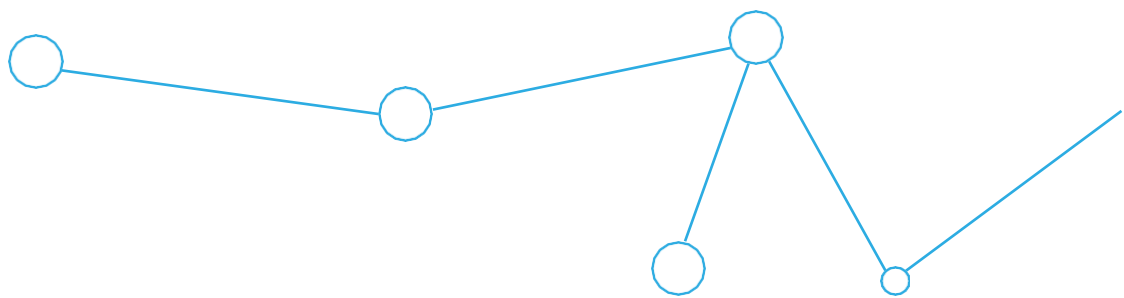
- *BlackTrax will store what it is expecting the number of sensors to be*
- *Every time a sensor is plugged in, BlackTrax will save the total number of sensors it should look for*
- *A new icon in the status bar will inform the user of how many sensors are currently connected*
- *If sensors are dropping frames, this icon will turn red, and the affected sensors will display a message in the sensor view as well as an icon in the Sensor List*
  - *When no dropped frames are happening, the icon will return to normal*
- *If a sensor drops out, the sensor that is missing will display 'Missing' in its name, disappear from the centre area, and the number in the status bar will turn red*
  - *When the sensor comes back, the missing label will disappear, it will return to the centre area, and the status bar's number will return to white*



- *If the desire is to remove that sensor from the project, right-click on the missing sensor and select `Remove from project`*
- *A new BTEngine module named Stage has been created that is responsible for the connection to the API; this will boot up with BTEngine and be visible from Module Status and the task tray*
- *To connect to the API once Stage is running, a new status bar slider has been added for `BTNet` to be able to connect and disconnect from the sensor network*
  - **Note:** *Changing Portfolios or re-loading calibration data will require Apply Changes to be pressed for the new data to be used but other actions like changing Sensor exposure does not require Apply Changes and will be applied instantly*
  - **Note:** *When changing Portfolios and Applying Changes, tracking data will be paused momentarily as the Sensors re-connect*

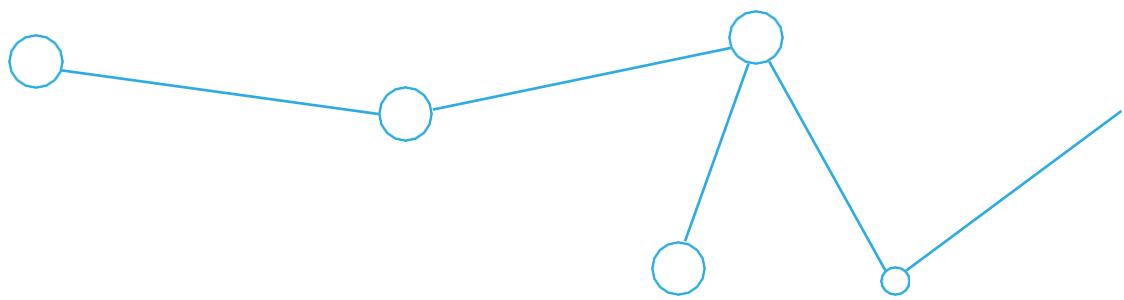


- *As not all features of Motive have been ported over, the API will be off by default and must be enabled in this release*
  - *To enable it, go to Settings -> System Configuration -> Sensors (previously called Noise Filter) and disable Legacy Mode*
  - *Once complete, BlackTrax will need to be rebooted, and then access to the Sensor Calibration view and widgets will be available*
- *When Legacy Mode is disabled, new Portfolios will have a Motive folder created, along with a default profile and calibration file*
  - *When enabled on existing Portfolios, once BlackTrax is rebooted, those project files will be created*
    - *These files will be stored in `portfolio\_name\Motive` and will be updated with Motive's settings (motive file) and Motive's calibration (cal file) as you make changes to your portfolio*
    - *BlackTrax will alert via Messages if the profile or calibration data is missing; if a message like this appears it is advised to correct the issue before continuing with further system changes*
    - *Also, Motive's layout files will be updated to only include the Calibration layout and not the other layouts*
    - **Note:** *When entering legacy mode again, layouts and the default profile is restored*
- *Using the Update File(s) feature to update project files in a Portfolio now support Motive calibration files so existing calibration data can be used*
  - *Likewise, creating a new Portfolio via Import File(s) now support Motive calibration files*



- *Within the new Sensor settings, Pixel Threshold is a new option, which controls the threshold setting from Motive (a range from 0-255 within a single byte) – this setting control how 'white' a pixel needs to be to be considered valid (255 being pure white, and 0 being pure black)*
- *When a sensor is connected via BlackTrax, the LED ring is automatically set to 0*
- *As only one instance of Motive can be connected to a sensor at one time, it is not possible to connect to the API from BlackTrax while running Motive (or vice versa)*
- *It is possible to reset Stage's profile and calibration information back to defaults from Settings -> Reset Settings -> Stage*
  - *This will reset the All group to an exposure of 2000 and a gain 4, reset sync, residual information, active marker labelling, and set the sensors back to Tracking Mode*
  - *This may remove all calibration data so ensure backups are saved before doing this*
- *If the BlackTrax license file is invalid or missing, it will not be possible to connect to BTNet as the option will be disabled*
- *If the Motive license file is invalid or missing, it will not be possible to connect to BTNet and an error will be presented when attempting to do so*
- **BTWYG R45**
  - *64-bit conversion*
    - *As with the rest of the BlackTrax software, BTWYG has been converted to 64 bit and is now able to access more memory*
    - *BTWYG is now installed at C:\Program Files\CAST Software\BlackTrax WYSIWYG*
  - *GUI performance improvements*
  - *Relocate and clone fixtures between different hang structures*
  - *Shaded View updates*
    - *Native Shaded View Recording*
      - *The new Shaded View Output tool can be used to record your shaded view in real-time and save the file as a .mp4*
      - *The tool allows the user to specify quality, frames-per-second, duration, and the output path*
      - *The tool can also be used to stream the shaded view using the NDI protocol*
    - *Sketch view style for Shaded View*
    - *NDI Output of Shaded View*
    - *Set a maximum resolution for Shaded View*
    - *Shaded View has new Profiles (High Performance with Volumetric or Enhanced Beams, and High Quality)*
    - *Shaded View now has a quality setting when the Beam Quality is set to High or Medium*
    - *Custom tab Window Layouts are now available in Design and Live modes*
    - *Display camera models in Shaded View*
    - *Right-clicking a camera allows you to now switch to it*
    - *Display fixture attribute details in Shaded View*

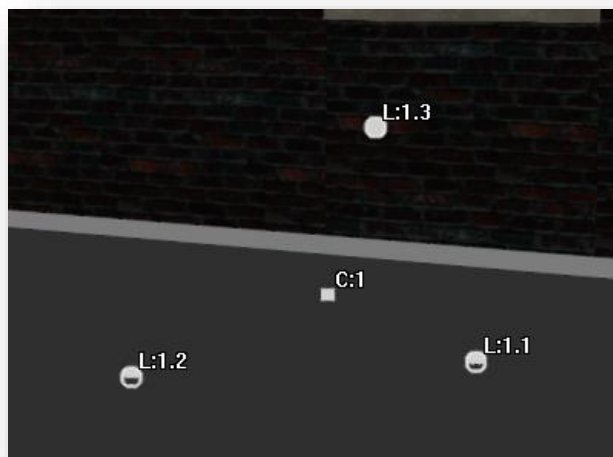


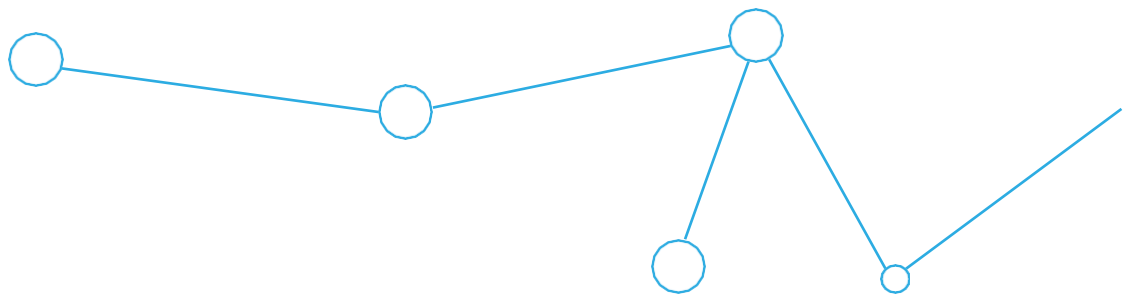


- *Draw hang structures option in Shaded View*
- *Light Emission Glow can be enabled for individual objects/elements*
- *Updates to naming in Fixture Attribute Details windows*
- *SketchUp 2017-2019 files can now be imported*
- *Reduced memory usage for DWG/DXF imports*
- *GL Transmission Format (.gltf) files can now be imported*
- *Default dimensions layer colour is now orange*
- *PSN support and ETCNet2 is no longer supported*
- *Internal Rendering Wizard no longer supported*
- *The maximum number of universes that can be simulated has increased to 256 from 200*
- *Library additions and bug fixes from R43, R44, and R45*
- *For a full list of additions please refer to WYSIWYG's release notes*

### **Improvement**

- *When duplicating a Portfolio, a message prompts the user that archived files and project history will not be duplicated*
- *Rigid Body's using Set Home now aligns the centroid to be the centre of the Frame instead of the first LED*
- *Calibration Mode is no longer able to be entered until Apply Changes is activated at least once since opening a project; this is to prevent some rare issues where a user can get stuck in calibration mode if their Chapters are not ready*
- *An Unassign Beacon button has been added to Fixture Calibration view for convenience*
- *A new search filter for Fixtures for Fixture Type is now available in the Libraries widget allowing searching of Moving Lights vs Conventionals for example*
- *System Status widget is now dockable per request*
- *The System Status widget displays the currently loaded Profile and Calibration file for the Motive API (when not in Legacy Mode)*
- *Labels for LEDs and Centroids are now more pronounced with a border so they are easier to read; they will also no longer be lost behind other objects*





- *BTWYG now assigns and unassigns universes in Device Manager faster*
- *The BlackTrax System Update installer now uses the currently installed BTWYG's installer to uninstall itself (this creates a cleaner uninstall process and removes the registry error message)*

### **Design Review**

- *In Live View's Table View, the radio column will not contain a square if the patched Beacon doesn't have radio (a Mini Beacon or a Frame containing only Mini Beacons for example); this is to be more consistent with Icon View*
- *Zone settings and Offset settings in the Fixture Settings widget will no longer show until the feature itself is enabled for the current selection*
- *Removed unused context menu items in Fixture Settings*
- *Added a warning when a conventional fixture is assigned a static zone via Beam Collision as the fixture will either never or always interact with the Zone as neither are moving*
- *Zone shapes now reflect the same name as what is shown in BTWYG (Cube instead of riser for example)*
- *Patent links added to the splash screen and About dialogue*