

# Release Notes Evoke 1.6.0

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# 1 New Features

## 1.1 Updated User Interface

The user interface has been re-worked to improve clarity and usability in several areas.

### System

- Section collapsing button removed from headers
- Simplified section header behavior - L-click will toggle selection of all devices in the section, and scroll to the section
- Properties panel indicates the name of the selected device, or number of selected devices if more than one

### Tracking

- Removed subject filter buttons - subjects are now categorized into sections, with a warning summary on each section header
- Moved subject creation and setup controls into a separate **Tracking Setup** panel
- Properties panel indicates the name of the selected subject, or number of subjects if more than one
- Character and smart object entry layouts have been made more compact
  - Linked smart cluster devices are shown when hovering the pattern preview (the pattern preview is shown in gray if there is no linked device)
  - Character slot names are abbreviated when an object is assigned
  - Subject type icons are only shown in the Characters From Clusters section

### Camera Calibration

- Section collapsing button removed from headers
- 'Show advanced' and 'Set to defaults' controls are shown per header rather than for the whole panel

### Capture

- The **Data Capture** panel has been merged with the **Capture** panel
- The review controls have been moved to a separate **Review** panel
- The capture and review folders can now be set to different paths
- Entering review mode now highlights the title bar to make the change more obvious

### Parameters

- Text buttons 'Set to Defaults' and 'Show Advanced' changed to more compact icon buttons
- Setting a single parameter to its default value is now accessed via a button next to the parameter rather than a hidden context menu

### Preferences

- User and system preferences have been merged into one page

### Theming

- Panel title is no longer duplicated at the top and bottom, and is now shown only at the top
- Improved layout, color scheme and icons

### Performance

- Improved performance, particularly when loading large system or tracking configuration files
- Addressed several bugs that could cause slowdown or freezing in the user interface

## 1.2 System Health Report Panel

This new panel provides information about the health of the current camera calibration and the system in general. This includes:

- **Performance**
  - Plot of recent latency for data delivery (capture time on camera plus network delivery to the host PC) and processing (centroid detection and subject tracking)
  - Current average system latency - the time delay between image capture and tracked pose data output
  - Percentage of dropped frames - how many frames couldn't be processed for tracking in time to meet system frame rate
- **Calibration Details**
  - Age of current calibration (excluding any automatic camera pose recovery)
  - Number of uncalibrated cameras
- **Centroid Connectivity**
  - Plot of recent average centroid connection score (a measure of the proportion of centroids that could be connected to enabled object markers)
  - Average centroid connection score across all cameras
  - Details of cameras that drop below a threshold score
- **Image Error**
  - Plot of recent average image error (a measure of how accurately and consistently the camera calibration can project 2D points to 3D points and vice-versa)
  - Average image error across all cameras
  - Details of cameras that rise above a threshold error
- **Camera Temperatures**
  - Plot of recent average camera temperatures
  - Summary of camera temperatures during the original calibration
  - Summary of camera temperature changes since calibration
  - Summary of current camera temperatures
  - Details of current camera temperatures
- **Camera Accelerometers**
  - Plot of recent average camera accelerometer magnitude
  - Number of cameras currently registering a 'bump' notification
- **Auto Recover Camera Pose**
  - Details of cameras under consideration for auto-recovery
  - Details of previous attempts at auto-recovery
- **Auto Bias Handling**
  - Current image error threshold for connecting centroids to object markers

This information can be used to estimate the current state of the system and plan interventions as required. API access is also provided for system health data.

## 1.3 Valkyrie Camera Support

Evoke 1.6 offers full support for VK26 and VK16 cameras; VK8 camera support will follow at a later date. Valkyrie cameras can be used alongside Vantage, Vero, Vue or Viper/ViperX cameras.

Evoke will perform a more precise lens calibration when a Valkyrie camera is present in the system. In this case, any saved camera calibration file will not be loadable in previous versions of Evoke.

## 1.4 Video Preview Mode

Valkyrie cameras support a live video preview mode, intended to aid system setup and aiming. Vantage, Vero and Viper also support a more limited version of video preview (only 30-60 FPS). Note also that strobeless cameras (Viper) will need independent illumination at a wavelength of 850nm for effective use of this mode.

Video preview mode may be activated for a single camera at a time from the right-click context menu in the **System** panel device list.

## 1.5 Alternative Templates for Characters From Clusters

New templates for characters from clusters have been added, intended for use without a backpack. For these templates the spine cluster is attached to the hip bone of the solving skeleton, which improves the stability of the hip pose.

There are two variants provided, which require a different mount position for the spine cluster:

- ClusterTemplateBelt - the spine cluster should be mounted on a belt, in line with the spine
- ClusterTemplateWaist - the spine cluster should be mounted on a strap around the narrowest part of the waist, in line with the spine

When using the new character templates, the spine cluster should be created with the normal 'Pulsar' smart object template.

The original character template 'ClusterTemplate' should still be used when the spine cluster is mounted on a backpack or the Vicon-supplied backstrap accessory, in conjunction with the appropriate smart object template.

## 2 Changes

- Evoke is compatible with, supported and tested for use with Windows 11
- Added button to **Camera Calibration** panel to mask selected cameras
- Added button to **Workspace** Cameras view to erase the whole mask (only when manually masking)
- The **Camera Calibration** control 'Recover Camera Position' has been renamed to 'Recover Camera Pose', to better reflect what it does (both position and rotation are recovered)
- The **Processing** panel option 'Enable Auto Bump Heal' is now called 'Enable Auto Recover Camera Pose'
- The **Tracking** panel 'Export...' context menu option now accepts multiple selected subjects
- The **Workspace** view filters don't include solving or retarget options if '**Processing** | Characters From Clusters | Disable Solving' is checked (these options have no effect in this case)
- The **System** panel and **Cameras Workspace** view now don't show accelerometer bump notifications by default
  - There is a new preference to control the visibility of per-camera bump notifications
- The **Calibration Assessment** panel has been removed - the new **System Health Report** panel should be used instead to monitor camera calibration health
- The name used to identify the application instance in the Control app server listing can now be changed
  - By default this is 'Evoke on <hostname>'
  - There is now an option in **Preferences** called 'Control server alias' - if set, it will replace the host name, so the application instance is shown as 'Evoke on <alias>'
- Basic objects now have a parameter to control the name of the root segment
- Optical data from x2d files is now loaded by default when reviewing captured data
- Added pre-installed object presets for low, medium or high filtering

### 3 Fixes

- Fixed an issue causing progressive performance degradation when subjects are changed and proximity group template objects are in use
- Improved throughput of API commands for BasicObjectServices, CharacterFromClustersServices, ObjectEvaluationServices, SelectionServices, SmartObjectServices and SubjectServices
- Improved performance when there are a large number of cameras visible in the Workspace Cameras view, especially if camera warnings are changing frequently
- Improved camera frame receiver throughput for very high data rates (>4Gb/s)
- Fixed several intermittent crashes relating to file dialogs in Windows 11 (requires version 22H2 Build 10.0.22621 or above)
- Fixed crash that could occur if non-identical objects were used in a template group
- Fixed rare crash that could occur when loading a tracking configuration file or creating a new tracking subject (object or character)
- Fixed rare crash when rendering objects in Workspace 3D Scene
- Fixed a rare crash on capture changes that could occur when 'Broadcast Capture' is enabled
- Fixed 'missing device' warning icon not showing in Workspace Cameras view
- Fixed mouse-wheel scrolling not working on Workspace Cameras view filters panel
- Fixed scrollbar not showing when needed in the Tracking panel in review mode
- Fixed Graph Plots traces freezing while changing the time axis scale
- Fixed some cases where graph channel type would be cleared when changing derivative order
- Fixed docking overlay getting stuck on if a floating window is maximized then minimized
- Fixed a rare timing issue that could cause a character to get stuck in the calibrating state
- Fixed camera list in Camera Calibration panel getting out of sync with System panel when cameras are re-named or re-ordered
- Fixed a warning about mismatched wand and L-frame scale getting stuck on
- Warning 'Template group contains non-identical objects' is now shown if different object presets are used in the same proximity template group
- Fixed a System panel issue where multiple devices could be highlighted as the current sync source
- List of devices for Preferred Sync Source is now sorted alphanumerically
- Fixed Pulsar pairing profile not being cleared in app when the Pulsar is unpaired (so it appeared to still be paired until issuing a pairing request)
- Smart object patterns are now assigned when the preference 'Automatically manage smart object patterns' is enabled, rather than waiting for a change to tracking configuration
- Fixed failure to save tracking configuration if there is a character still calibrating
- Calibration can't be attempted for disabled characters
- Fixed various issues with cut-off or poorly scaled text
- Fixed command-line argument '--no-version-prompt' not working unless the app has been run at least once previously on the latest version

## 4 Evoke API 1.9

- Updated Python package configuration to use pyproject.toml
- Added workaround to install script for newer versions of pip (21.3 and above). This fixes an error when running the install script directly from `C:\Program Files`
- SystemHealthServices: added functions to access data presented in the new System Health Report panel, removed session-based system health report functions.
- CameraCalibrationServices: removed session-based auto healing, which is no longer supported in Evoke.
- Removed CameraHealthServices. We now recommend that camera calibration is assessed via SystemHealthServices.
- PlaybackServices: added functions to get and set the review folder. Added functions to get and set linking to the capture folder.
- Removed analog functions from CaptureServices, which are not supported in Evoke.



## 5 Retarget 1.3

- Updated user interface
- Fixed edits affecting the wrong constraint when there were more than 9 present
- Fixed issue making some constraint offset fields read-only
- Expanded weight ranges for position and rotation constraints
- Remove system file control, which is not used in Retarget