



VICON TRACKER 4 MIGRATION GUIDE

WHAT'S INSIDE

Changes in Tracker 4.0	3
Known issues in Vicon Tracker 4.0	17
Further resources	19

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Tracker 4.0 is the fourth release of the Tracker software series, which is dedicated to tracking rigid bodies and providing highly accurate 6-DOF data with low latency. This release represents not only an improvement on performance but a re-design of the user interface (UI) and the way data is presented. If you currently use or have used Tracker 3, you will be familiar with much of the feature set of Tracker 4, but this guide aims to make the transition between releases even more seamless.

This guide covers these topics:

- **User interface:** Tracker 4 features a more flexible UI, enabling you to optimize your workflow. This section aims to help you re-establish your workflow and work towards customization and optimization.
- **Hardware:** Tracker 4 includes support for Vicon's new flagship camera, Valkyrie. This section outlines the hardware changes you can expect.
- **Settings:** Tracker 4 introduces autosave for most of its settings so the behavior of Tracker 4 differs slightly from that of Tracker 3. This section helps to explain how settings work in Tracker 4 and also outlines which file types can be migrated from Tracker 3 into Tracker 4.
- **Object customization:** Tracker 4 introduces greater control for customizing object characteristics, including orientation and origin location. This section describes the way in which object customization is handled in Tracker 4.
- **System performance:** Tracker 4 prioritizes delivering robust, accurate data at the expense of system latency. This section helps to explain how you can prioritize latency over using Tracker's monitoring and system healing tools.
- **Data review:** Tracker 4 enables you to review both live and captured data. This section provides an overview of review mechanics and outlines how to export data, based on the review type.
- **Datastream connections:** Tracker 4 features a dedicated panel to control how data is streamed out of the app. This section outlines how you can control and monitor your datastream connections.

Changes in Tracker 4.0

Changes in Tracker 4.0

Note these changes and improvements in Tracker 4.0:

- [Updated user interface on page 4](#)
- [Compatible hardware on page 9](#)
- [Settings files on page 10](#)
- [Object customization on page 12](#)
- [System performance on page 14](#)
- [Data review on page 15](#)
- [Datastream connections on page 16](#)


Changes in Tracker 4.0

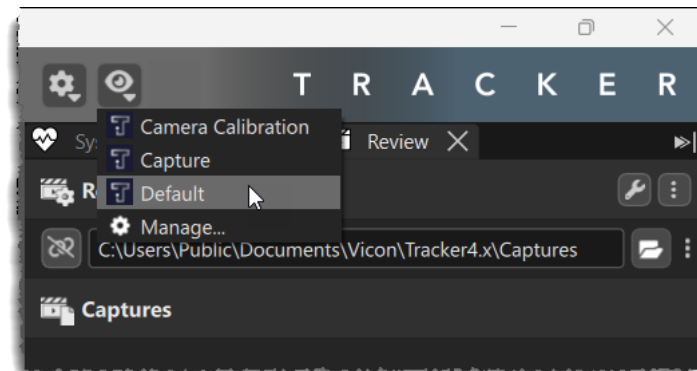
Updated user interface

Changes to the UI enable you to customize it to suit your workflow.

- [Flexible layout on page 4](#)
- [Intuitive controls on page 5](#)
- [Customizable workflow on page 7](#)

Flexible layout

Tracker 4.0 features a flexible UI, enabling you to customize the layout to fit your workflow. You can access all panels via the **View** menu and you can then re-position and re-size each panel using the dynamic docking manager. You can save current layouts by clicking the View Settings button  at the top right of the window and selecting **Manage** from the menu. This menu also provides an option to return to the default layout.





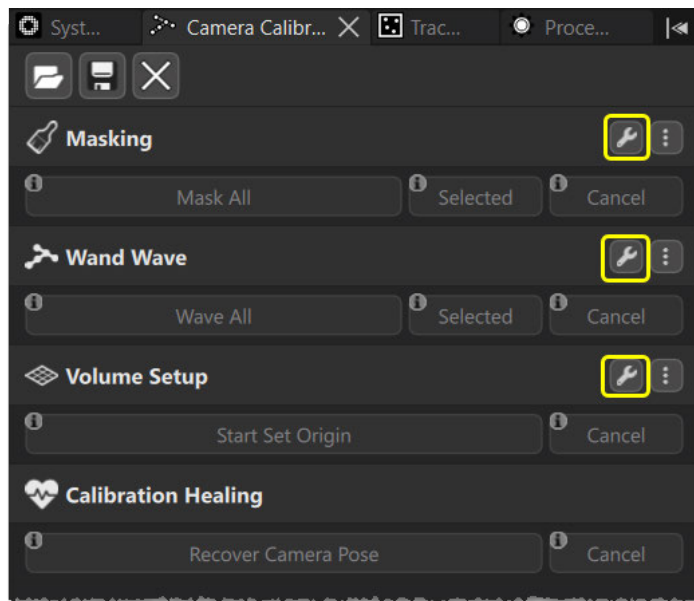
In the default layout, the panel on the right, **System Health Report**, is new to Tracker. It summarizes key information about your system so that you can analyze the overall system performance. This helps to ensure that you always get reliable, robust and highly accurate tracking.

To learn more about the Tracker 4 layout and its controls, see *Customize the Tracker user interface* in the *Vicon Tracker User Guide*. To learn more about monitoring system health, see *System Health Report* in the *Vicon Tracker User Guide*.

Changes in Tracker 4.0

Intuitive controls

In each panel, you can access the advanced settings within each section (if present) by clicking the Advanced Parameters button . You can also revert each setting within the section to its default value or state by clicking the Default Parameters button . For an example, see the **Camera Calibration** panel, which features multiple sections, each with standard and advanced settings.



In the Processing panel, any setting that is set to a non-default value is displayed in bold and italics to indicate that a change from the default has been made.

Changes in Tracker 4.0

Along with the changes in the user interface, some of the familiar controls in Tracker 3 have changed. The following table summarizes some of the more notable changes:

Feature	Description	Tracker 3 Controls	Tracker 4 Controls
View options	Enables you to control what is displayed in each view type.	Windows > Options (F7)	In 3D View, Cameras and Objects views, click View Filters .
Track selection	Enables you to center the current selection in the middle of the view.	In 3D Perspective, click Center on Selection .	In 3D View, press ALT+R-click. Context menu displays options for how to track.
Multi-select cameras	Enables you to select multiple cameras.	Multi-drag cameras in System panel Click+SHIFT first and last camera	Double-click on a camera view. If in multi-camera view, double-click highlights only that view. Same controls exist from Tracker 3.
Floor grid size	Enables you to specify the size of the floor grid.	Windows > Options (F7)	Camera Calibration > Volume Setup > Set Floor Grid

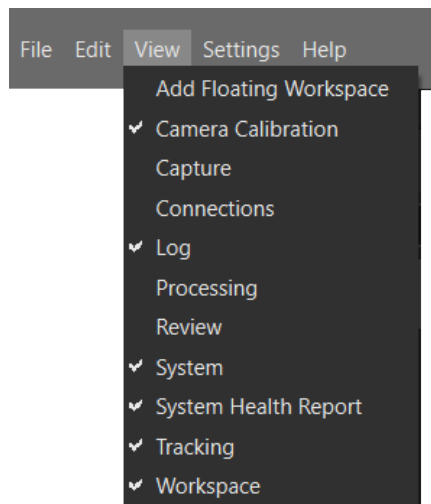
We recommend you also familiarize yourself with the hot keys in Tracker 4 (**Settings > Show Hot Keys**).

Changes in Tracker 4.0

Customizable workflow

Tracker 4.0 features multiple view panels grouped by functionality, enabling you to expose/hide the panels that best reflect your workflow. You can then save these panels into different View layouts as described in [Flexible layout on page 4](#) to streamline the controls made available during a session.

The default layout is similar to previous versions of Tracker for setting up your system, calibrating and creating objects. It comprises these panels, which are selected by default on the View menu:



- **System:** Manage individual camera and hardware (including analog) settings and change system-wide parameters such as frame rate.
- **Camera Calibration:** Mask, dynamically calibrate and set the system origin. Options for setting floor plane and large volume scaling are also included.
- **Tracking:** Create and manage your objects. Object manipulation (eg, origin location, object orientation) is controlled through the Object Manipulator tool (for more information, see *Change an object's origin and related topics in the Vicon Tracker User Guide*).
- **Workspace:** Visualize your tracking, whether it is reconstructed markers, objects or graph plots. Note that all data exported from Tracker now originates from the Graph Plots view in the Workspace.
- **System Health Report:** Increases visibility of overall system performance.
- **Log:** Monitor overall system activity.

Changes in Tracker 4.0

The remaining panels in the View menu contain controls for:

- **Capture:** Record and manage captures including capture folders or filenames, capture triggers, and data sources to capture.
- **Connections:** Displays all clients connected to Tracker and includes settings for the Datastream, Open Sound Control (OSC), UDP and VRPN.
- **Review:** All recorded captures can be accessed for playback from this panel.
- **Processing:** Settings within this panel control how objects are tracked.

For more information on these panels, see the *Vicon Tracker User Guide*.

Changes in Tracker 4.0

Compatible hardware

Tracker 4.0 supports Vicon's new flagship camera, Valkyrie, as well as all variants of Vantage, Vero, and Viper cameras. In terms of connectivity and synchronization devices, all current variants of Vicon Lock are supported. No other Vicon hardware is supported.

At present, Tracker 4.0 does not have any native third-party integrations.

For more information about compatible hardware, contact [Vicon Support](#)¹.

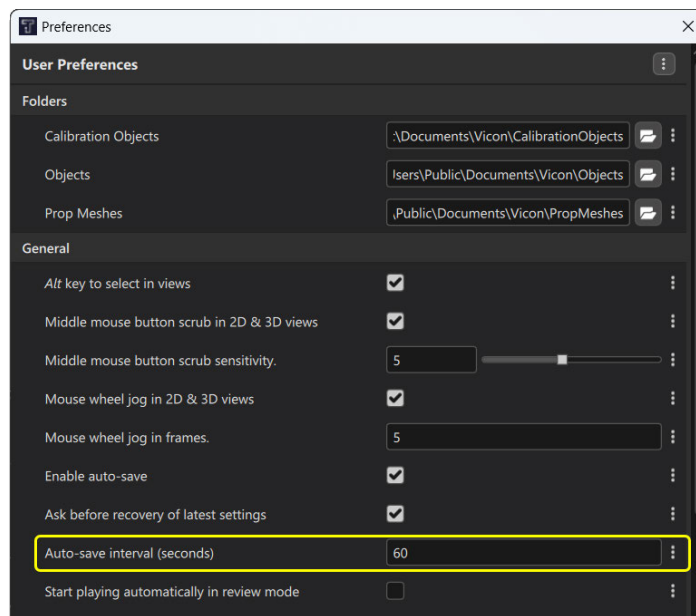
¹ <mailto:support.vicon.com>

Changes in Tracker 4.0

Settings files

Tracker 4 features two file types to help you dynamically manage your system, views, and objects settings within the app:

- **AutoSave:** As you work within the app, the settings are automatically saved according to the Auto-save interval (Settings menu > Preferences > User Preferences) into their corresponding AutoSave files (eg, *AutoSave.system*).



- **LastRun:** When Tracker is properly terminated, the Autosave settings are saved into the corresponding LastRun files (eg, *LastRun.system*) so they can be accessed when Tracker 4 is launched again. All autosaved files are located in this folder:

`C:\Users\Public\Documents\Vicon\Tracker4.#\LastRun\username`

AutoSave settings are the only settings files active when you're using Tracker 4. When you select a saved setting file, you import all settings into its corresponding AutoSave file. Any changes from this point are then automatically saved to its AutoSave file as described above. This is also true when Tracker 4 is launched: each AutoSave setting automatically imports the corresponding *LastRun* settings file.

Changes in Tracker 4.0

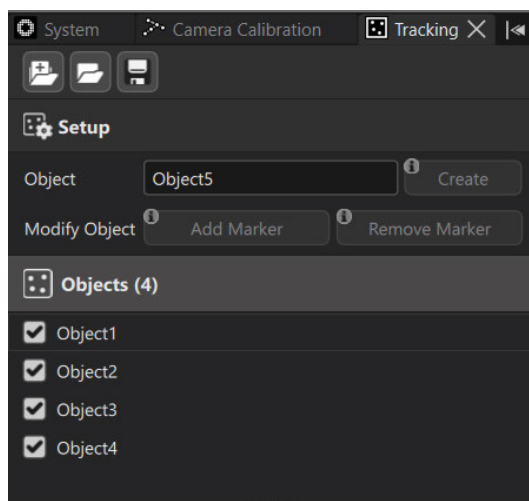
As the available system settings and layout options (including the way panels are managed using the docking manager) has changed, you cannot migrate system or view settings into Tracker 4 from Tracker 3.

For more information about how settings are managed in Tracker 4, see Tracker fundamentals in the *Vicon Tracker User Guide*.

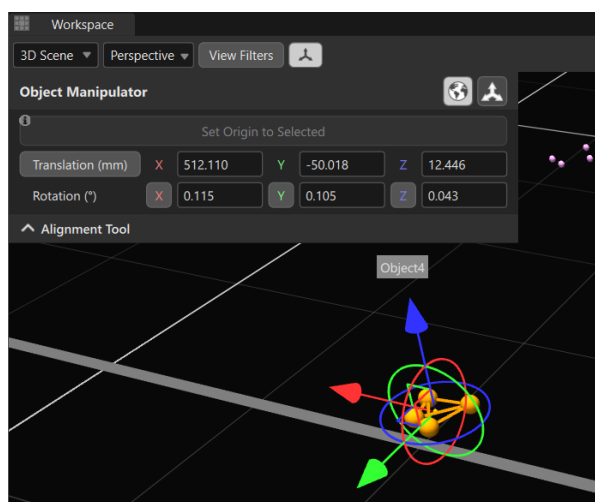
Changes in Tracker 4.0

Object customization

For the most part, you create and manage objects in the Tracking panel.



While you can still translate the object origin by dragging an object axis in Tracker 4, the main controls for object customization are found in the Object Manipulator tool in the Workspace (see [Change an object's origin and related topics in the Vicon Tracker User Guide](#)).

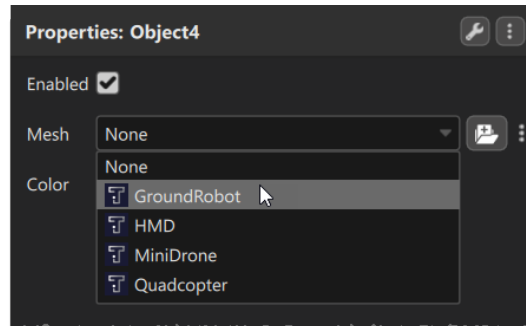


This tool is only exposed when the live stream is paused, and provides standard and advanced controls for object manipulation. These controls provide more accurate origin placement and orientation alignment and enable you to use reconstructed or object markers that aren't associated with the current object to help with either operation. In Tracker 4, you can only create objects from live

Changes in Tracker 4.0

data: you can't create objects when you're reviewing captures (for more information, see *Reviewing data in the Vicon Tracker User Guide*).

In the Tracking panel, you can also now add a mesh to your object so that you can visualize it within the workspace.



If you are using your object for volume scaling, Tracker 4 automatically aligns the object origin to the global origin. This makes it easier to use this object as the L-Frame for future volume origin setting.

For more information about objects, see *Setting up object tracking in the Vicon Tracker User Guide*.

Changes in Tracker 4.0

System performance

Tracker 4 aims to provide the most robust and accurate tracking by both monitoring system performance and dynamically adjusting its object tracking (see Maintaining system health).

However, system health monitoring comes with an inherent computational cost which can adversely affect the time of data delivery and overall latency of the system. If latency is important to you and you want to match the performance of Tracker 3, consider making the following changes to the default Tracker 4 settings.

All settings are located in the **Processing** panel (for more information, see Configure system processing parameters).

Section	Setting	Value
Camera Healing	Enable Bias Handing	False
Output	Pause Buffer Size	0.0s
Object Tracking	Enable Constant Velocity Tracker	False
	Maximum Boot Iteration Count	1
Reconstruction	Enable Unlabeled Reconstructions	False

In all instances, if you have questions on how best to configure Tracker to meet your application needs, please contact [Vicon Support](mailto:support@vicon.com)².

² <mailto:support@vicon.com>

Changes in Tracker 4.0

Data review

In Tracker 4, you can review data in one of two ways: live or offline by loading Motion Capture (MCP) files. Reviewing data enables you to not only play back data, but to export data as well.

- **To review live data**, you must first pause live tracking (click **Enter Review** in the timebar). All data that can be accessed via Graph Plots is available for review according to the duration of the **Pause Buffer**, an advanced property that is configured in the **Processing** panel. You can review live data for longer than the pause buffer, but you must add this data as an active channel in **Graph Plots**. You must also check that your **Live Data Range** is sufficient. All data exported during live review is displayed according to the range (for more information, see *Graphing your data* in the *Vicon Tracker User Guide*).
- **To save live data**, you must first pause live tracking (click **Enter Review** in the timebar). Right-click on **Exit Review** and you will have the option to **Save Buffer**. This will allow you to export all data in the buffer and currently displayed within the Live Data Range to an MCP file and it can be treated as an offline review.
- **To review data offline**, you load captures from the **Review** panel. Data displayed in a capture (MCP file) reflects the tracking fidelity that was present when streaming live; that is, captures are not (and cannot) be reprocessed. If gaps were present when tracking live, these are also present offline. In addition, if an object was not actively tracking at the time of recording, you cannot obtain this object data post capture.

In a recorded capture, you can display the full data range in **Graph Plots** and thus you can also export the full range (if data is present). When exporting data, a single export may result in multiple export files, depending on the system capture frequency or the analog device capture frequency.

For more information about topics introduced here, see the relevant sections in the *Vicon Tracker User Guide*:

- [Pause buffer](#)
- [Graphing your data](#)
- [Reviewing data](#)

Changes in Tracker 4.0

Datastream connections

The new **Connections** panel in Tracker 4 is dedicated to streaming data from Tracker into various clients. In addition to being able to set parameters for OSC, UDP, and VRPN streaming, you can view all connected clients.


To ensure that you have access to all data types for streaming, you may need to configure the settings in the **Processing** panel. For example, if you want to:

- See unlabeled reconstruction data in your datastream, ensure that **Include Unlabeled Reconstructions** is selected.
- Have object quality assessments in the datastream, ensure that **Include Object Quality** is selected.

Known issues in Vicon Tracker 4.0

Known issues in Vicon Tracker 4.0

The following issues are known to exist in Tracker 4.0:

Issue	Workaround
<p>If you want to export a CSV file from a capture, the export filename field will always default to the name of the Review. This can cause issues if you export a CSV more than once from the same Review.</p> <p>When you successfully export a csv file, the filename doesn't increment by 1.</p>	<p>Prior to saving, Tracker prompts you to confirm that you want to overwrite.</p>
<p>If a selected CSV export range contains a section where no data is present (for example, if you paused the live data shortly after the session started), instead of trimming the range to the part of the trace(s) that contains data, the output CSV file contains the whole selected range, resulting in NaN (Not a Number) entries.</p>	<p>Before export, pause the live data and select the required range.</p>
<p>When manually setting the review path, you cannot specify a network directory.</p>	<p>Download the data to a local directory and use that path for the review path</p>
<p>When reviewing a capture, you will not see any camera rays in the 3D View.</p>	<p>None</p>
<p>If you have a floating panel and dock another panel into that same floating window, you cannot dock both back into the original GUI.</p>	<p>Dock each panel individually.</p>
<p>Some settings in the Capture pane > Auto Capture section cannot be 'set to default' individually.</p>	<p>Use Default Parameters  at the top of panel, but note that this resets all parameters in the panel.</p>

Known issues in Vicon Tracker 4.0

Issue	Workaround
Pinned channels can become hidden if their original source is renamed or removed.	No workaround but try to ensure all sources are removed from channel key prior to renaming/removing objects.
View filters in the Objects view do not persist.	None
If any filename matches the current Capture Name specified in the Capture panel, the Start Capture button is unavailable.	Remove the file or rename the capture.
In Graph Plots, channels relating to the centroid count (Centroid Count and System Centroid count) are not displayed in Review mode.	None
If you select a genlock standard (eg, PAL: 25Hz) in System Settings, the frame rate changes to the nearest multiple of that standard even if the parameter is not enabled.	Set genlock standard to None.

Further resources

Further resources

If you need more information than that supplied in the documentation or on the [Vicon Support web pages](#)³, please contact Vicon:

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⁶ <mailto:support@vicon.com>