VICON

What's new in Vicon Nexus 2.5

Contents

About Vicon Nexus 2.5

Vicon Nexus 2.5 is a point release that provides features and enhancements in addition to those that were included since Nexus 2.0.

For links to descriptions of the features and enhancements that are specific to Nexus 2.5, see Vicon Nexus 2.5 new features and functions on page 10.

For a description of the other features and enhancements that have been released since Nexus 2.0, see the PDF *What's New in Nexus 2.4.*

For information about requirements and systems supported for this version of Nexus, see:

❚ Requirements for Nexus 2.5 on page 4

❚ Systems supported in Nexus 2 on page 5

❚ Upgrading Nexus on page 6

❚ Regulatory information on page 9

> ⓘ **Note**
>
> The Vicon motion capture system and the Nexus software, manufactured by Vicon Motion Systems Limited, have been tested prior to shipment and meet the metrological requirements as detailed in the Medical devices directive. (See *Regulatory information* in the Nexus documentation area of the Vicon documentation website, docs.vicon.com/.)

Requirements for Nexus 2.5

Nexus 2.5 is compatible with and fully supported under the Microsoft Windows 7 operating system. Installation, software operation and required third-party drivers have been tested under this operating system. Vicon recommends the Windows 7, 64-bit operating system for use with Nexus 2.5. Nexus 2.5 has also undergone limited testing under the Windows 10 operating system. Although Vicon Nexus may install and function under other Microsoft Windows operating systems, this is not officially supported or recommended by Vicon.

Basler video cameras and Nexus 2.5

If Basler digital cameras will be connected to Nexus 2.5, ensure you have updated to the Basler Pylon5 SDK and drivers (v5.0.0), which are available from the Vicon website.

If you are using an Intel i340, i350 or i210 network card, when you install the drivers, select the option for **Filter drivers**, not **Performance drivers**.

> ⚠ Important
>
> The Pylon5 driver supports:
>
> ▍ Basler GigE cameras under both Windows 10 and Windows 7.
>
> ▍ Basler FireWire cameras (A600 series) under Windows 7 only.

MATLAB and Nexus 2.5

If you are planning to use MATLAB with Nexus 2.5, ensure that, in addition to installing MATLAB, you install the .Net Framework version 4.5.

Systems supported in Nexus 2

Before you install Vicon Nexus 2.5, note the following limitations on supported systems:

▌ Nexus captures data only from Vicon systems (including Vicon Vero, Vicon Vue, Vicon Vantage, T-Series, F-Series, MX+, MX, Bonita cameras, and units).

▌ Nexus 2.5 does not support connection to the Reference Video System (Nexus Slave application).

Upgrading Nexus

This section describes functionality that is dependent upon the version of Vicon Nexus that is being upgraded:

Upgrading from Vicon Nexus 1.x

> ⓘ **Note**
>
> This section applies only to versions of Nexus that are earlier than 2.0.

Nexus 2.5 installs into its own folder, called Nexus2.5. If you already have Nexus 1.x installed, it will remain installed alongside the new Nexus installation.

On installation, Nexus 2.5 automatically scans for Nexus 1.x files, displays a list of any older files that it finds, and provides an automated system for importing these into Nexus 2.5.
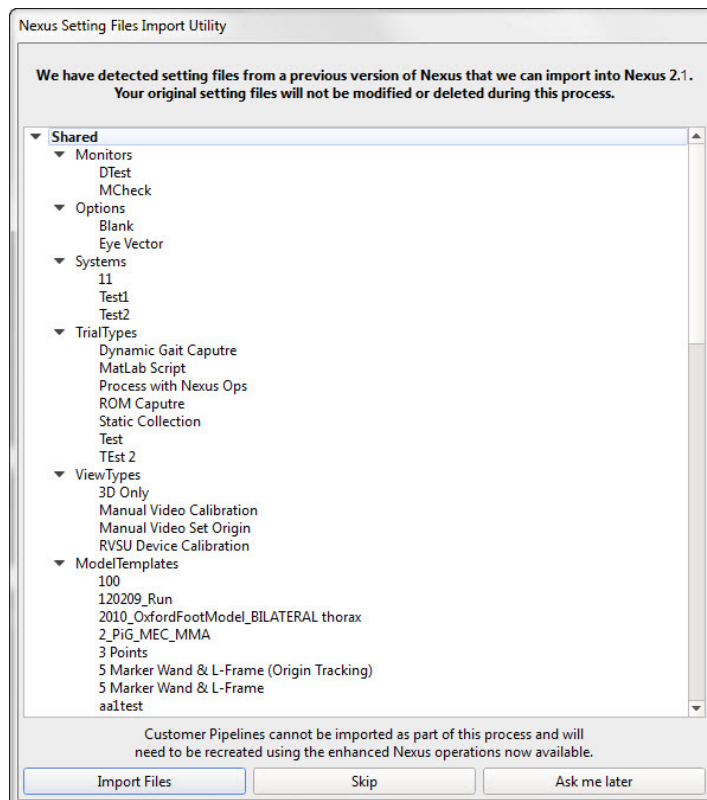
This process copies all the old files and converts the copies, ensuring that original files are not moved, altered, or destroyed.

> ⚠️ **Important**
>
> Custom pipelines are not copied from earlier versions of Nexus, so if you want to use your old pipelines, copy them from the following Vicon product installation folder (by default in C:\Program Files (x86)\Vicon or C:\Program Files\Vicon):
>
> \Nexus\WorkstationPlugins
>
> and paste them to the following location in the Vicon production installation folder (by default in C:\Program Files (x86)\Vicon or C:\Program Files\Vicon):
>
> \Nexus2.#\LegacyPlugins.
>
> They will then be available in the **Legacy** pipeline operations in Nexus 2.5.

For more information on the installation and licensing process, see Installing and licensing Vicon Nexus.

Upgrading from earlier versions of Nexus 2

If you are upgrading from a previous version of Nexus 2, during installation you are given the option of adding the **Auto Intelligent Gap Fill** button to your Nexus toolbar. For more information on this feature, see Automated gap-filling.

When you install Nexus 2.5, a dialog box similar to the following is displayed.
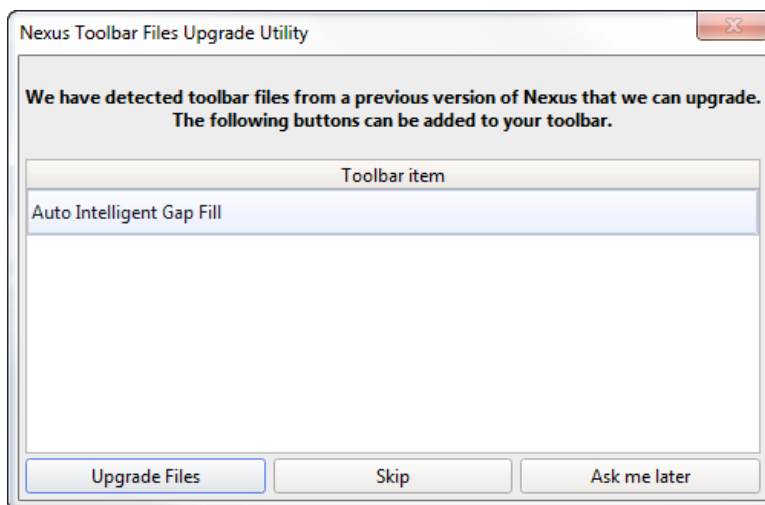
To add the **Auto Intelligent Gap Fill** button to your toolbar, click **Upgrade Files**.

On first launch, Nexus 2.5 scans the installation directories of earlier versions of Nexus 2 and offers to automatically transfer custom objects that it finds.
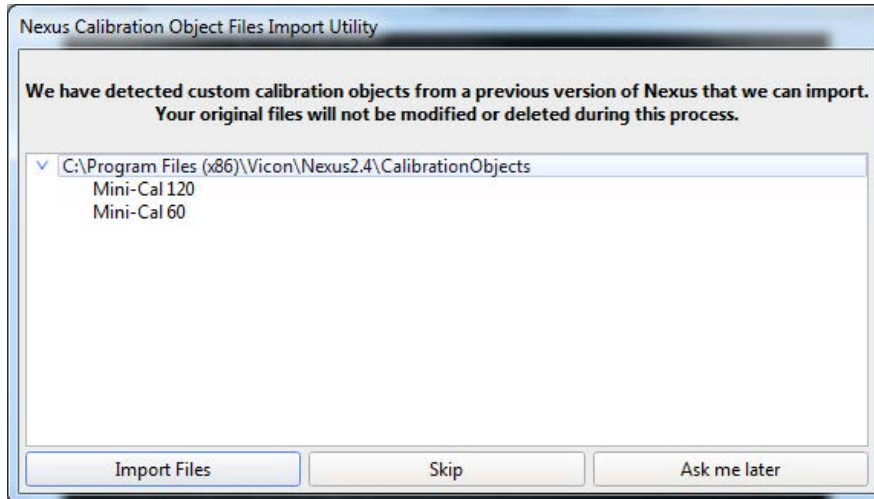
If you click **Import Files**, Nexus 2.5 copies custom calibration objects from earlier versions of Nexus (2.0 and later) to the **Public Documents** folder (eg C:\Users\Public\Documents\Vicon\Nexus2.x\CalibrationObjects).

> ⚠ **Important**
>
> When you create new custom calibration objects, ensure you save them into this folder (not to the Nexus installation folder), so that they are available to future versions of Nexus.

Regulatory information

For Vicon Nexus regulatory information, see Vicon Nexus regulatory information in the Nexus documentation area of the Vicon documentation website (docs.vicon.com/).

Vicon Nexus 2.5 new features and functions

For information on the new features and enhancements provided by Nexus 2.5, see the following topics:

Create custom timebar events

Location: Time bar > **Enter event identification** mode > UP or DOWN ARROW key > ENTER

Nexus has always supported three standard timebar events: Foot Strike, Foot Off and General. You can now create and name your own custom events in the Nexus timebar.

To create custom events:

1. Load the required trial and display a view that enables you to easily identify the action for which you want to create a custom event.

2. Enter event identification mode in your preferred way (either click the **Enter event identification mode** button or press CTRL+E).

3. Lock the event context (Left, Right, or General) by pressing the UP or DOWN ARROW key and moving the mouse pointer to the required frame.

4. Set a new event in the current context on the selected frame by pressing ENTER, and then clicking **Create Custom Event**.
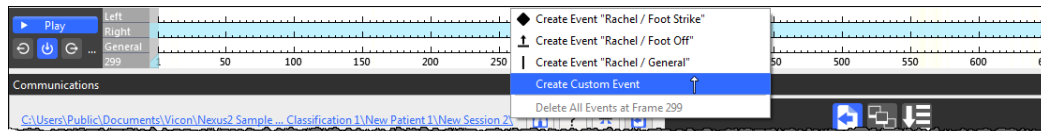
5. In the **Create Custom Event** dialog box, enter a name for your new event.
   The new custom event is indicated by '?' on the time bar.
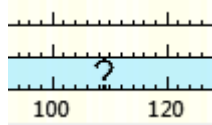
6. Your custom event type is added to the event creation menu, so that you can quickly create other events of the same type.
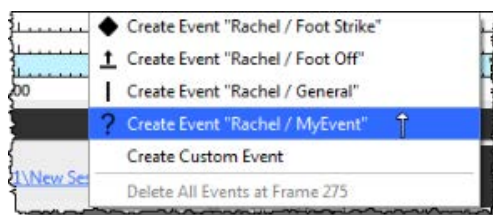
Subject Viewer pane

Location: View pane > View pane menu > **Subject Viewer** option
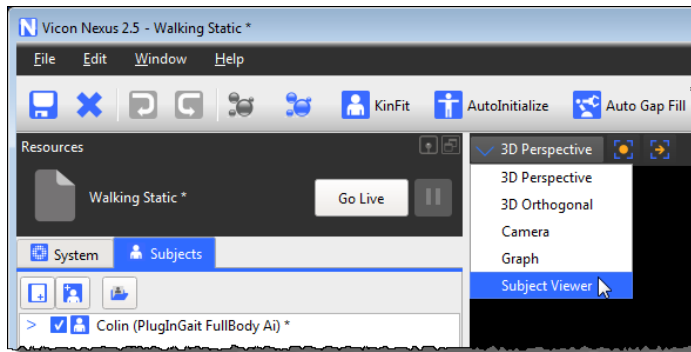
To help you ensure that your subjects adopt the correct base (neutral) pose for a labeling skeleton calibration that uses the **Auto Initialize Labeling** pipeline, a new type of view enables you to display the base pose for the labeling skeleton template (VST) of the currently selected subject.
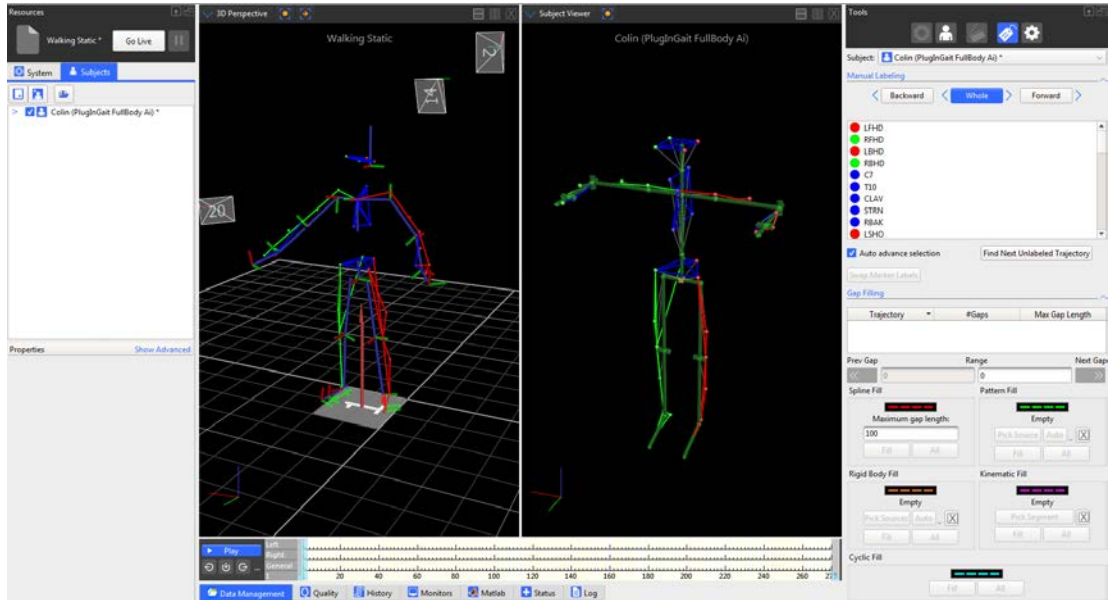
You can also use the **Subject Viewer** to assist with manual labeling by making it easy to correlate reconstructions with the appropriate marker. To do this:

1. Ensure the **Label/Edit Tools** pane is displayed and that the view pane displays both a 3D view of the subject whose markers you are labeling and the **Subject Viewer**, as shown above.

2. Select a marker in the **Subject Viewer**.
   Nexus switches to labeling mode. The mouse pointer changes to display the name of the currently selected marker and the marker is highlighted in the **Manual Labeling** list.
   This works both ways - selecting a marker in the **Manual Labeling** list highlights the marker in the **Subject Viewer**.
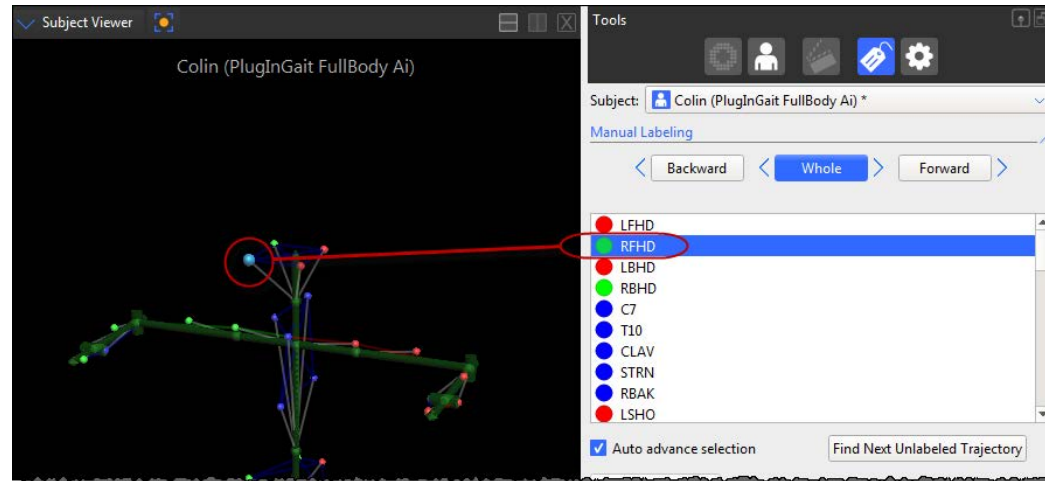
3. In the 3D view, click on the marker that is the equivalent of that highlighted in the **Subject Viewer** and the **Manual Labeling** list.
   The next marker is automatically highlighted, ready for you to continue labeling.

Enhanced feedback on data quality

Location: **Communications** window > **Quality** tab

New features in the **Quality** pane in the Communications window provide additional feedback on the quality of your trials.
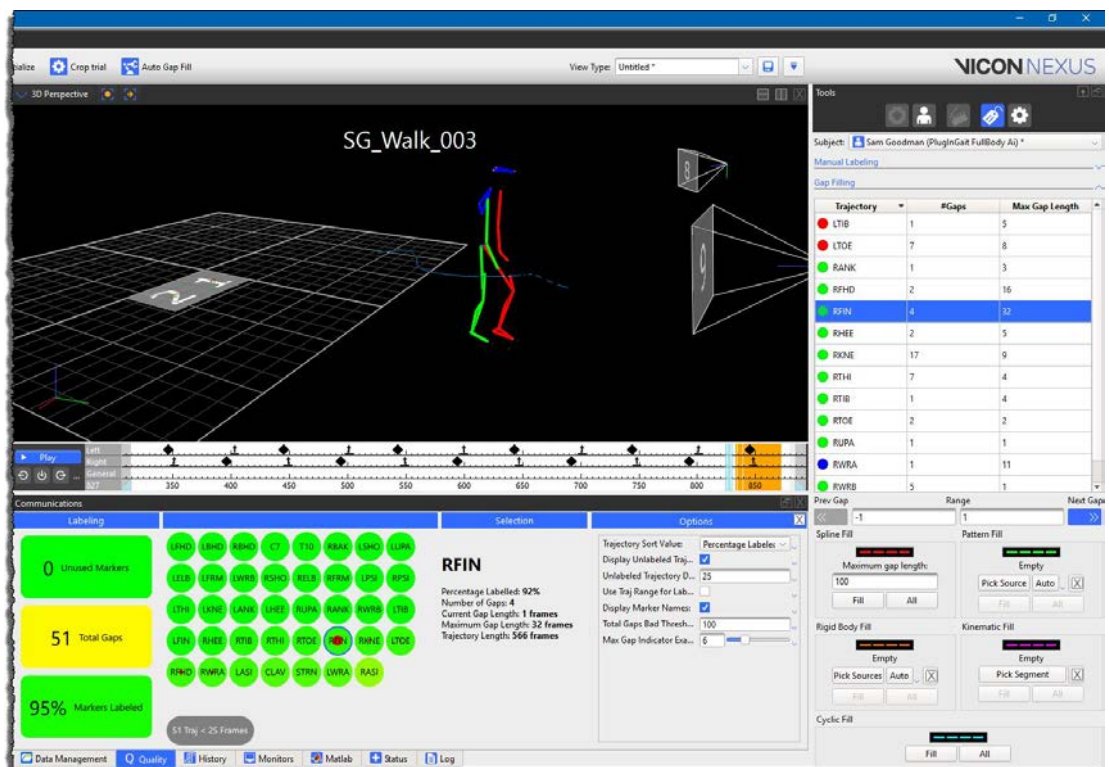
A menu in the **Options** column enables you to choose the order in which to display the blobs that represent the trajectories:
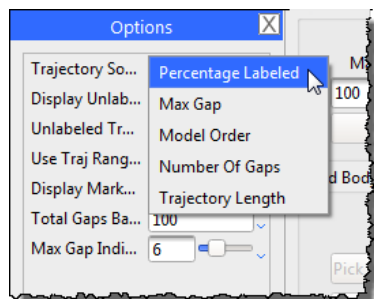
The menu options are:

▌**Percentage Labeled** Orders blobs with the highest labeling percentage first (from top left), as shown above.

▌**Max Gap** Orders blobs with the trajectories containing the longest gaps first (see the **Max Gap Length** column of the **Gap Filling** section in the **Label/Edit Tools**), in this case RFIN, shown selected above.
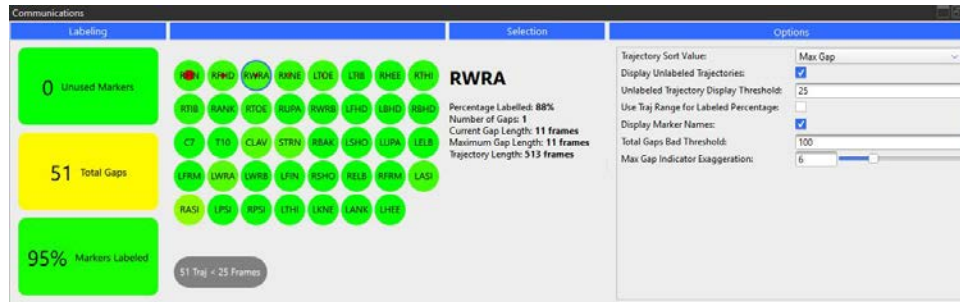
▌**Model Order** Displays blobs in the same order as the markers are listed under the **Markers** node in the **Subjects Resources** tree.
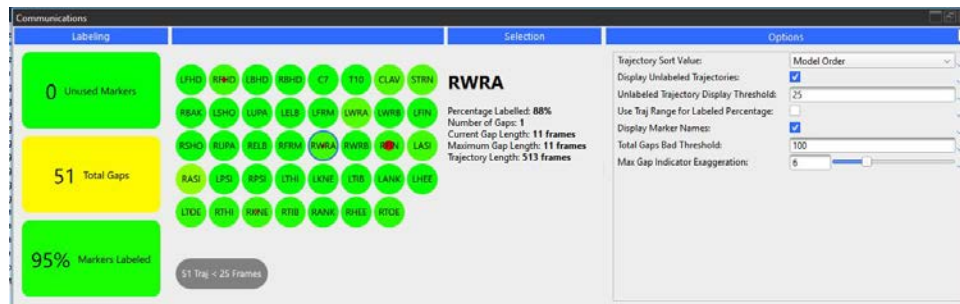
▌**Number Of Gaps** Orders blobs with the trajectories with the highest number of gaps first (see the **#Gaps** column of the **Gap Filling** section in the **Label/Edit Tools**).
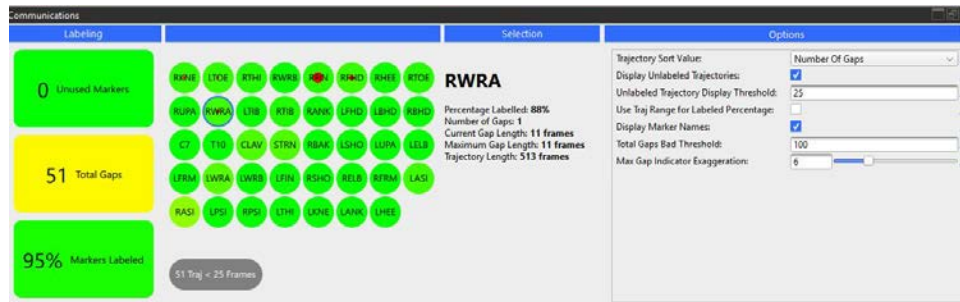
❚ **Trajectory Length** Orders blobs with the longest trajectories first.
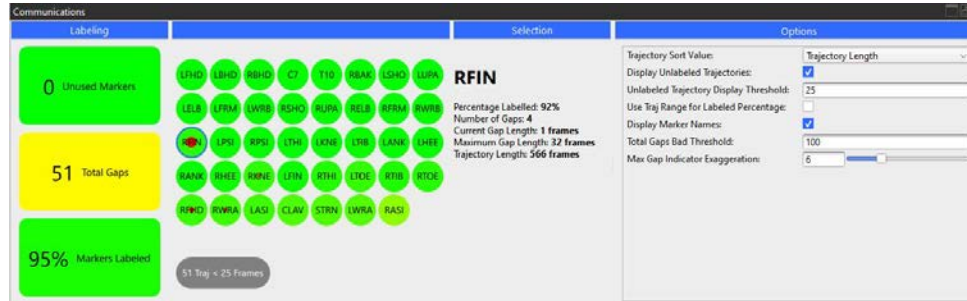
When you hover the mouse pointer over a blob, the additional information displayed now includes the number of gaps, in addition to the maximum gap length of the relevant trajectory and the labeling percentage:
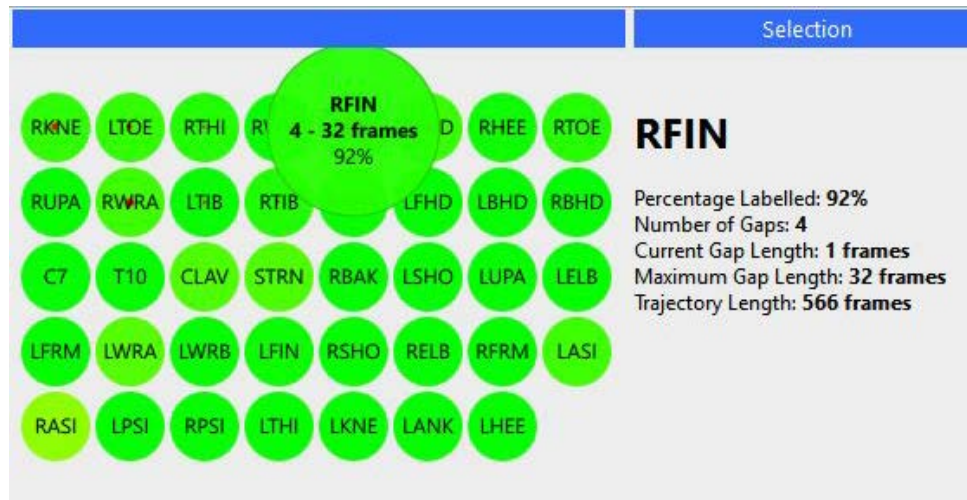
You can also select other options to tailor the display to your requirements:
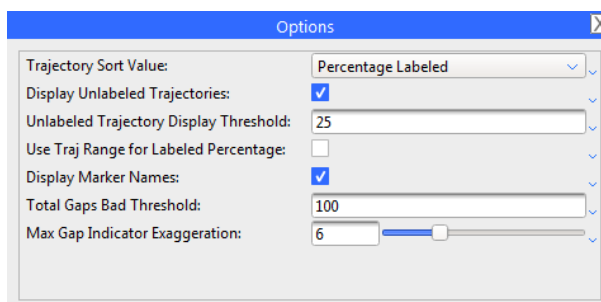
Gait Deviation Index (GDI) score now available

Location: **Pipeline Tools** pane > **Available Operations** list > **Data Processing** > **Calculate Gait Deviation Index** operation

The Gait Deviation Index (GDI) is "a multivariate measure of overall gait pathology..." formed from "...a set of mutually independent joint rotation patterns that efficiently describe gait" (Schwartz and Rozumalski, 2008, see *References* below).

Nexus now provides a new pipeline operation that produces a GDI score for the subject of the current trial.

For summary information on the **Advanced Properties** for this operation, view the tooltips by hovering the mouse pointer over the relevant field. As these properties are derived from the original publication referenced below, for more detailed information, see the original publication.

When you run the **Calculate Gait Deviation Index** operation on a trial, two GDI values (left and right), are output to the log and saved as subject parameters.

You can output these values when you run the **Export ASCII** pipeline operation by selecting the **Export Gait Cycle Parameters** option.

References

The following research publication provides supporting information on the scientific basis and validation of Vicon's implementation of the calculation of the GDI score:

- SCHWARTZ, M. H., and ROZUMALSKI, A., *The gait deviation index: A new comprehensive index of gait pathology*, Gait & Posture 28 (2008), p351–357.

Display of additional gap filling information

Location: **Tools** pane > **Label/Edit** tab > **Gap Filling** list

To make it easier to identify gaps by their length, the **Gap Filling** list now has an additional column. The **Max Gap Length** column shows the largest gap in each trajectory.

To jump to the largest gap, double-click in the **Max Gap Length** column.

To sort the columns in the **Gap Filling** lists, click the column headings. Trajectories can be sorted by name, number of gaps, or the largest gap.

New video file transcode pipeline operation

Location: **Tools** pane > **Pipeline** tab > **Available Operations** list > **System** list > **Transcode Video for Trial**

A new video file transfer pipeline operation now enables you to automate the process of transcoding the raw video files associated with a trial.

To select the required codec, click the **Codec** list in the **Properties** pane.

Manage Vicon Control authorizations

Location: Nexus menu bar > **Window** menu > **Manage Control Authorizations** option; or

Location: **Resources** pane > **System** tree > **Control Devices** > right-click device

Vicon Nexus 2.5 enables you to view and manage authorization of any instances of the Vicon Control app that are connected with your system. You can manage authorizations for all connected devices or for a single selected device:

Manage all Vicon Control authorizations

To view and manage all connected instances of Vicon Control:

1. On the Nexus menu bar, click **WIndow** and then click **Manage Control Authorizations**.
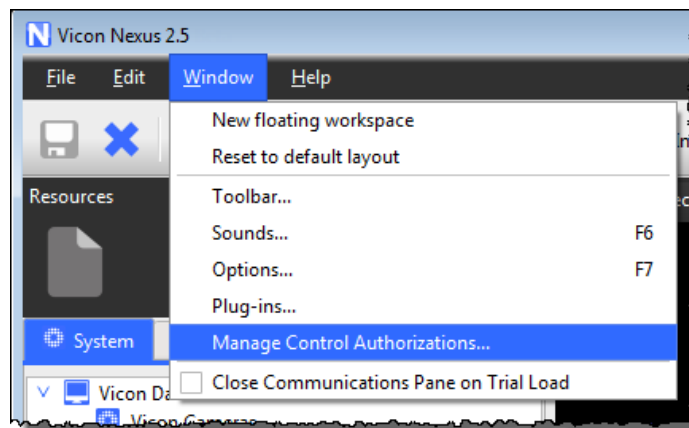
2. In the **Vicon Control** dialog box, select the required option:
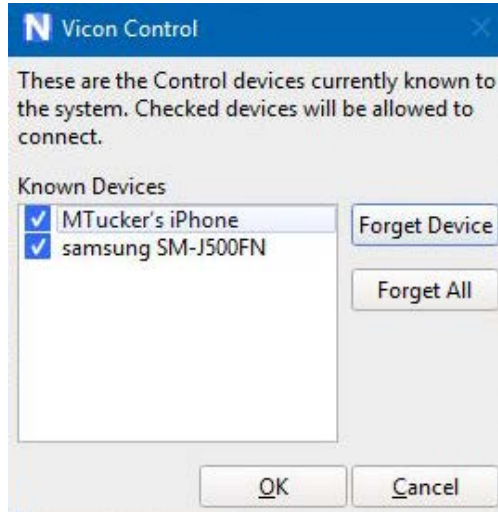
- To grant unprompted access in future, ensure the relevant device's check box is selected in the **Known Devices** list.
  In future, the device will be able to connect without having to be re-authorized.

- To permanently revoke access, clear the device's check box in the **Known Devices** list.
  The device is disconnected and in future, it will not be able to connect. This is useful if you accidentally authorized a device, or if you need to remove an authorized device from the system, for example, if it is lost or sold.

- To remove a connected device from the **Known Devices** list and force re-authorization on the next attempt to connect, select the device and then click **Forget Device**.
  To reconnect, the device will have to send an authorization request and be re-authorized.

- To remove all connected devices from the **Known Devices** list and force re-authorization on the next attempt to connect by any of the listed devices, click **Forget All**.

3. To save your changes and close the dialog box, click OK.

Manage Vicon Control authorization for a selected device

To disconnect or forget authorization for a single device:

1. In the **System** tree, right-click the relevant **Control Devices** icon:
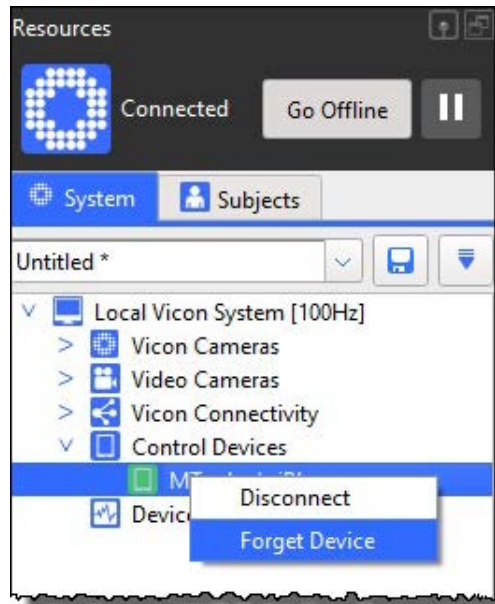
2. Click the required option

   ❙ **Disconnect** Immediately disconnects the selected device, ensuring that the PC operator has control of the Vicon system (if no other instances of Vicon Control are connected).

   ❙ **Forget Device** The device is disconnected and forced to request authorization again if it attempts to connect in future.

Ability to delete model outputs

Location: **Pipeline Tools** pane > **Available Operations** > **Data Processing** > **Delete Model Outputs** or

Subjects Resources tree > right-click **Model Outputs** or a sub-node or an individual output

A new pipeline operation and context menu option enables you to delete from the current trial the selected model output(s), all model outputs, or to specify a comma-separated list of model output names.

You can delete at each level: single or multiple outputs within a group, single or multiple groups, or all model outputs.

Update custom VST values

Location: **Pipeline Tools** pane > **Subject Calibration** section > **Update Skeleton Parameters** pipeline operation

The standard workflow for creating a custom VST uses a static trial, which, for this workflow, is easier to work with than a movement or ROM trial. However, a static trial does not provide skeleton parameters that are likely to be representative of a movement trial, so are unlikely to produce the best initial label booting. This initial label booting can be improved by providing more representative data from a movement or ROM trial. The **Update Skeleton Parameters** operation enables you to do this by updating the default values of a selected skeleton with movement or ROM trial data contained in the current calibrated labeling skeleton (VSK).

To initialize a custom VST from a VSK:

1. Ensure a calibrated VSK from a subject who performed a movement or ROM trial is active.

2. In the **Pipeline Tools** pane, expand **Subject Calibration** and double-click the **Update Skeleton Parameters** pipeline operation to add it to the current pipeline.

3. In the **Properties** pane, select the parameters that are to be updated:

   Update Marker Covariances Marker covariance is used by the labeler to account for skin motion, so the default for this option is Selected.

   Update Parameters If you have calibrated a skeleton from the **Labeling Template Builder**, select this check box.

   Update Joint Mean & Covariance Joint covariance is used in booting the labeling. If you have a very flexible subject, a larger covariance will help, so select this check box.

   Update Joint Ranges Joint ranges can be enforced to detect infeasible joint angles. If you have a very flexible subject, larger joint ranges are needed, so select this check box.

4. Run the pipeline or the individual operation as required.
   The selected parameters are updated with the values from the calibrated VSK.

5. Create a labeling skeleton template (VST) from the active labeling skeleton (in the **Subjects Resources** pane, right-click the subject and then click **Save Labeling Skeleton As Template**).

6. Use the newly created VST to label the movement trials of the subject.

Auto-hide the Communications pane

Location: **Window** menu > **Close Communications Pane on Trial Load**

A new option on the **Window** menu, **Close Communications Pane on Trial Load**, enables you to choose whether to show or hide the **Communications** pane when you load a trial.

If you select the option, the **Communications** pane is minimized at the bottom of the Nexus window the next time you load a trial. The **Communications** pane remains hidden until you choose to reveal it by double-clicking one of the tabs at the bottom of the **Communications** pane.

Your chosen setting for this option is retained when you exit and restart Nexus. It can be set as required by each user of Nexus.

Other enhancements in Nexus 2.5

The following additional enhancements were added to Nexus 2.5:

▮ **New and enhanced export formats** The following additions and improvements have been made to the export functionality of Vicon Nexus:
Location: **Tools** pane > **Pipeline** tab > **Available Operations** list > **File Export**

  ▮ **Export MOT** Nexus can now export files in .mot format for use in OpenSim.

  ▮ **Export MOX** Nexus can now export files in .mox format for MoXie Viewer (http://moxie.smalll.eu/), a third-party application, not supplied by Vicon. Note that MoXie export can contain video cameras, EMGs and one forceplate.

  ▮ **Export 3D Overlay Video** now enables you to specify the range of frames to export. This enables you to export only the section of trial that you're interested in.

▮ When exporting a workspace to AVI (using the **Export Workspace to AVI** button in the **3D** and **Camera** views), you can now specify the resolution (**Image Width** and **Image Height**, in pixels) of the exported AVI, as well as the codec and the relevant frames.

▌ Clearer camera temperature icons

Location: **Resources** pane > **System** tree > selected camera(s) > **Properties** pane > **Hardware** section > **Camera Body Temp 1** , **Camera Body Temp 2** and (Vicon Vantage cameras only) **Strobe Temp.**

Camera sensor data is displayed in the **Hardware** section. In the latest version of Nexus, the camera temperature and for Vicon Vantage cameras only, the strobe temperature, as shown below, is indicated by the following icons:
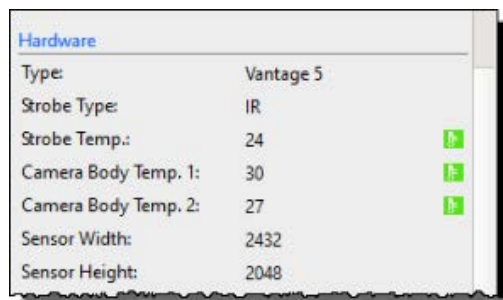
> ⊘ Tip
>
> In the **Options** dialog box (F7), you can change the upper and lower bounds of the **Camera Temperature Range** to values that are representative of your laboratory environment.

▌ **Availability of custom calibration objects** Nexus 2.5 automatically copies custom calibration objects from earlier versions of Nexus (2.0 and later) to the Public Documents folder (eg C:\Users\Public\Documents\Vicon\Nexus2.x\CalibrationObjects). For more information, see

▌ Improvements to footstrike counter functionality:

    ▌ **Hot key to reset footstrike counter** A new hot key for resetting the footstrike counter : CTRL+SHIFT+R

    ▌ **New footstrike counter options** that enable you to change the onscreen appearance of the counters. To access the new options for font size, opacity and background color, open the **Options** dialog box (press F7) and click **Footstrikes**.

▌ **Delete unwanted events** If you crop a trial after you have added events to it, events may be retained in the discarded (cropped) region. To remove these events, you can now do either of the following:

▐ Click the **Enter Event Identification Mode** button (or press CTRL+E), right-click on the time bar and click **Delete Events Outside Region of Interest** before saving the trial.

▐ In the **Pipeline Tools** pane, from the **Events & Timebar** operations, select **Delete Timebar Events** and in the (Advanced) **Properties** pane, select whether to delete events inside or outside the specified region.

▌ **Adjustable cone sizes** New view options enable you to adjust the size of the cones that indicate the range selected for editing in the selected trajectory. To do this, open the **Options** dialog box (press F7) and click **Trajectory Editor**. Adjust the value of **Radius** as required (the default is 10 pixels).

▌ **SCoRE and SARA output residuals** When you run SCoRE and SARA operations, Nexus now provides more information, including residual values, to the log.

▌ **Drag and drop to open Nexus files** To open files in Nexus, you can now drag and drop Nexus files onto the main Nexus window. File types that you can load in this way include:

▐ C3D

▐ ENF

▐ VSK/VST

▐ X1D

▐ X2D

▐ XCP

Addressed issues

The following issues have been addressed in Vicon Nexus 2.5:

▌ The **Minimum Cameras To Continue Trajectory** setting is now respected.

▌ View types now restore correctly.

▌ Reprogramming window now automatically sizes properly on a 4k monitor.

▌ Reconstruction no longer considers uncalibrated cameras.

▌ Having two selected VSTs when running SCoRE and SARA no longer adds regular markers to the VST rather than the modeled markers.

▌ When multiple subjects are present, the active subject can no longer be changed when creating segments.

▌ The **Export 3D Overlay Video** operation now reliably exports the correct number of frames.

▌ **Transcode Video** operation now more reliably provides progress feedback.

▌ Maximum temperature popup warnings have been improved

▌ A new context menu option in Event Identification mode and an option in the **Delete Timebar Events** pipeline operation enable you to delete events outside of the ROI so that they are not saved to C3D.

▌ The reset force plate offsets feature no longer fails if the force plate has different frame period and samples are selected near the end of the trial.

▌ Nexus SDK **SetTrialRegionOfInterest()** now correctly traps the error when the start frame is larger than the end frame.

▌ The selected L-Frame for **Set Origin** now persists on relaunches.

▌ Running dynamic Plug-in Gait on a single frame no longer causes a crash.

▌ Exporting invalid devices no longer causes a crash.

▌ The Nexus Python command **GetEvents** no longer returns unexpected frame numbers and offsets.

- Naming a subject with a period (.) in the name no longer automatically deselects that subject on trial reload.

- You can now delete events regardless of the order in which they were created.

- **Labeling Template Builder** - new subject now reliably labels on Go Live.

- **Export 3D Workspace as AVI** files are now exported as *Trialname*.workspace.avi.

- Split window on secondary monitor no longer causes Nexus to crash.

- Nexus no longer crashes when filling SSD/s with single long video capture.

- Toolbar buttons that run pipelines are now disabled in Live mode.

- If a trial file fails to load Nexus logs the error and updates the trial info.

- Nexus no longer allows multiple Vicon Control application connections simultaneously.

- Systems with more than 255 analog channels are now prevented from producing a corrupt C3D file.

- Linking segments no longer collapses the **Subjects** tree after you select Parent then Child.

- Nexus Graph labeling corrected for high channel count.

- Graph measurement displays correct value for current frame.

- Imported AVI files are no longer displayed as ?s instead of their names.

- Running Butterworth filter on an analog force plate no longer creates noise on the CoP.

- UDP Network Start/Stop - Nexus no longer silently overwrites a trial on the slave if the same trial name is requested on the master.

- UDP Network Start/Stop - correction for active port numbering during capture.

- Offline clip rate no longer differs from write clip rate when optical cameras are not captured.

Known issues

The following issues are known to exist in this release of Vicon Nexus.

Description	Workaround
A crash can occur if any Noraxon EMG error messages are not dismissed before shutting down Nexus.	Dismiss all Noraxon EMG error messages before exiting Nexus.
The Load Trial command in the Python SDK is not able to load a trial.	Run the Python script from IDE or command line.
Some of the latest versions of the FFDShow video encoder fail to work properly.	Vicon recommends the use of ffdshow_rev3562_20100907.
Vue video 3D overlay shows a small offset when calibrated in 1080p but displayed in 720p	Vue video cameras should be calibrated in the same video mode at which data is to be recorded.
If a system contains legacy Vicon MX Controls with two ADCs, the second ADC is not read/recognized by Nexus.	Contact Vicon Support.
Running a legacy VPI operation removes non-standard model outputs.	Use the equivalent native operations.

Description	Workaround
AMTI digital device plugins missing required dependencies.	For AMTI Digital Device V1_00.vdd, download Microsoft Visual C++ 2008 SP1 Redistributable Package (x86) from https://www.microsoft.com/en-gb/download/details.aspx?id=5582 For AMTI Digital Device V1_10.vdd, download Microsoft Visual C++ 2010 Redistributable Package (x86) from https://www.microsoft.com/en-gb/download/details.aspx?id=5555
Basler cameras do not work under Windows 10 with Pylon drivers earlier than Pylon5.	If Basler cameras will be connected to Nexus 2.5, update to the Basler Pylon5 SDK and drivers (v5.0.0), which are available from the Vicon website.
Cometa/Aurion ZeroWire/Wave do not work under Windows 10.	Device drivers are not available for Windows 10. Use Windows 7 instead.
When the system frame rate is set above 80Hz, if you enable Preview mode, no preview is displayed for Vicon Vantage cameras (the **Camera** view is blank).	To use Preview mode with Vantage cameras, select a system frame rate below 80Hz.
When you right-click the **Devices** node on the **System Resources** pane, Noraxon is not available in the **Add Digital Device** menu.	When you install the Noraxon plug-in (ViconInterfaceForNoraxon - v1.0.2.1.msi), change the installation path to C:\Users\Public\Documents\Vicon\Nexus2.x\DigitalDevices\

Description	Workaround
.NET is turned off by default on Microsoft Windows 8, which stops ProEclipse running.	Enable .NET framework 3.5 on Windows 8 machines. To do this, open the **Control Panel**, click **Programs** and then click **Programs and Features**. Click **Turn Windows features on or off** and select the Microsoft .NET Framework 3.5.1 check the box. You can do this before or after installing Nexus.

MATLAB/Nexus integration will not operate on Windows 7 unless the .NET framework 4.5 is installed. Attempting to run MATLAB pipeline operations reports:
 	
`Error Run MatLab Operation`
`Error using NET.addAssembly`
	Install .NET framework 4.5 from http://www.microsoft.com/en-gb/download/details.aspx?id=30653.

Noraxon Telymyo DTS device halts camera and analog data delivery when Noraxon devices are housed/not charged.	Digital devices now have an **Enabled** parameter in their **Properties** pane. To prevent a given manufacturer's plugin from holding up the rest of Nexus, clear **Enabled** for ALL devices from that manufacturer.
Unable to run legacy Static Gait Model under Japanese Windows. Log entry reads: No parameter file found	The legacy Plug in Gait model does not support international character sets. Instead of using the legacy Plug-in Gait model, use the native Nexus 2 replacement gait model (found under **Data Processing** pipeline operations: **Process Static Plug-in Gait Model** and **Process Dynamic Plug-in Gait Model**).

Description	Workaround
Export c3d at the end of a pipeline does not clear the trial and leaves the trial with a dirty flag (*).	The **Export C3D** operation does not write out the subjects associated with the trial. To remove the dirty flag on a trial, save the entire trial, which saves all associated files (x2d, xcp, etc), using the **Save Trial - C3D + VSK** operation.
Video capture duration can be limited directly after deletion from SSD storage.	After deleting your video files, wait a few seconds before starting your next capture. This is because some Solid State Drives require a few seconds to recover full Write speed after file deletion.
Spaces in variable names can cause BodyLanguage to fail.	When creating subject parameters for use in BodyLanguage modeling, use underscores instead of spaces.
Nexus can suffer many problems if Eclipse databases are created in locations that are Read-only. These problems range from data silently failing to save to crashes.	NEVER create Eclipse databases in locations that require administrator privileges to read or write.
Starting a capture very soon after a change to the system frame rate, or a resynchronization, can result in erratic capture behavior (failure or dropped frames).	Avoid starting captures soon after changing the hardware setup.
PAL or NTSC camcorders are included in Active Wand camera calibration if the MX system is set to run at the same standard (i.e. PAL or NTSC).	Before performing active wand camera calibration, disable the camcorders.