



WHAT'S NEW IN VICON NEXUS 2.13?

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About Vicon Nexus 2.13

Vicon Nexus 2.13 is a point release that provides features and enhancements in addition to those that were included in earlier releases of Nexus 2. For more information, see [Nexus 2.13 new features and improvements, page 3](#).



Important

Nexus 2.13 does not support the use of Basler video cameras. To use Basler video cameras with Nexus, use Nexus 2.12.1 or earlier.

Nexus 2.13 new features and changes

Nexus 2.13 provides the following new and changed features:

- [Support for FLIR video cameras, page 4](#)
- [64-bit Nexus only, page 5](#)
- [Codec changes, page 6](#)

Support for FLIR video cameras

To meet the demand for high quality video in Nexus, support for video cameras has been extended to include FLIR Blackfly S video cameras.

For more information on selecting, setting up, and using FLIR cameras with Nexus, see the [FLIR Video Cameras Setup Guide](#).

64-bit Nexus only

Nexus 2.13 is 64-bit only. In most cases, you should upgrade to this version to benefit from the latest functionality. However, in the following circumstances, you may want to continue using Nexus versions 2.12.#:

- If you need to run legacy VPI operations, (for example, proEMG), you must use a 32-bit version of Nexus, so ensure you use 2.12.# for post-processing.
- If you use a VDD (Vicon digital device file) that does not have a 64-bit version, continue to use Nexus 2.12.# until the vendor of your VDD releases a 64-bit version of the VDD. For information about the availability of the 64-bit version of the VDD, please contact the vendor.

When you install the plug-in for your device, ensure that the 64-bit version of the VDD is correctly installed to the folder:

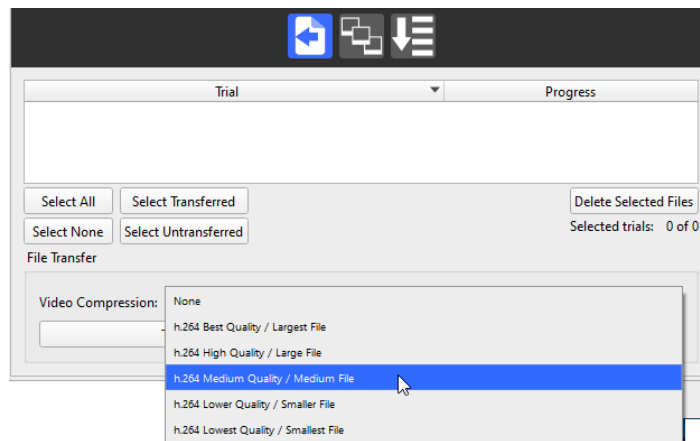
`C:\Users\Public\Documents\Vicon\Nexus2.x\DigitalDevices64\`

- If you want to continue to use Basler cameras with Nexus, use Nexus 2.12.# or earlier.
- If you want to use the OpenGL solution for non-NVIDIA graphics processors, note that this is not supported for Nexus 2.13 and you should continue to use Nexus 2.12.# or earlier.

Codec changes

In Nexus 2.13, you can select only the H.264 codec when you transcode captured video files. Video data captured by Nexus (.vvid) that has been transcoded using H.264 encoding in Nexus 2.13 can be loaded, played, and stepped.

You can choose from five quality options, ranging from Best Quality/Largest File to Lowest Quality/Smallest File. Choose the option most suited to your application.



The H.264 codec is compatible with Theia.

To load and play back offline existing Nexus sample data .avi files that were encoded with ffdshow, ensure you have installed the 64-bit version of the ffdshow codec (DirectShow filters only, not the VFW drivers). This also applies to any codecs that were used for transcoding in previous versions of Nexus: to decode and display the relevant video, the 64-bit DirectShow filters must be installed.

The following functionality continues to work as it did in previous versions of Nexus:

- You can transcode video data captured by Nexus that is stored in `.wid` files, using the **File Transfer/Batch Processing interface** (see *Transfer and transcode digital video files* in the *Vicon Nexus User Guide*) or the **Transcode Video for Trial** pipeline operation. This produces `.avi` files that are readable by Nexus without installing any codecs in addition to H.264.
- You can create overlay `.avi` files using the pipeline operation **Export 3D Overlay Video**.
- Workspace overlay `.avi` files can be created using the **Export Workspace to AVI** button in the workspace window.
- Existing `.avi` files associated with a video camera view can be recompressed using the pipeline operation **Apply Codec to Video**.

Requirements and upgrading

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

- [Requirements for Nexus 2.13, page 9](#)
- [Systems supported for Nexus 2, page 11](#)
- [Upgrading Nexus, page 12](#)

 **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 website, docs.vicon.com/¹.)

¹ <http://docs.vicon.com/>

Requirements for Nexus 2.13

Note the following requirements for Nexus 2.13.

- [Operating systems for Nexus 2.13, page 9](#)
- [Basler video cameras and Nexus 2.13, page 9](#)
- [MATLAB and Nexus 2.13, page 9](#)
- [ProCalc and Nexus 2.13, page 10](#)
- [Vicon IMUs and Nexus 2.13, page 10](#)

For information on graphics cards, see [Graphics processors for Nexus, page 16](#).

For information on optimizing performance for AMD CPUs, see [Improving system performance on AMD CPUs²](#).

Operating systems for Nexus 2.13

Nexus 2.13 is supported under the following operating system:

- **Microsoft Windows 10, 64-bit** (this is the Vicon-recommended OS):
Compatible with and fully supported. Installation, software operation and required third-party drivers tested.

Although Nexus may install and function under other Microsoft Windows operating systems, Vicon does not support or recommend this.

Basler video cameras and Nexus 2.13

Nexus 2.13 does not support the use of Basler video cameras. To use Basler video cameras with Nexus, use Nexus 2.12.1 or earlier.

MATLAB and Nexus 2.13

If you are planning to use MATLAB with Nexus 2.13, ensure that, in addition to installing MATLAB, you install the [.Net Framework version 4.5³](#) or later.

² <https://docs.vicon.com/display/Connect/Improving+system+performance+on+AMD+CPUs>

³ <https://www.microsoft.com/en-gb/download/details.aspx?id=30653>

ProCalc and Nexus 2.13

To run ProCalc with Vicon Nexus 2.13, you must install ProCalc 1.2.1 or later.

Vicon IMUs and Nexus 2.13

To update IMU firmware for Nexus 2.13, use Vicon Capture.U Desktop. For information, see the [Vicon Capture.U User Guide](#)⁴.

⁴ <https://docs.vicon.com/display/IMU>

Systems supported for Nexus 2

Before you install Vicon Nexus 2.13, note the following limitations on supported systems:

- Nexus captures data only from Vicon systems (including Vicon Vero and Vicon Vue, Vicon Vantage, Vicon Bonita, and Vicon T-Series cameras and units).
- Nexus 2.13 does not support connection to the Reference Video System.

Upgrading Nexus

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

- [Upgrading from Nexus 2.7 and earlier, page 12](#)
- [Upgrading from earlier versions of Nexus 2, page 13](#)
- [Upgrading from Nexus 1.x, page 14](#)

Note

Although data collected in Nexus 2.13 (ie, .c3d files) can be viewed in earlier releases of Nexus, you cannot reprocess this data (ie, .x2d with .xcp files) in releases earlier than 2.7.

Upgrading from Nexus 2.7 and earlier

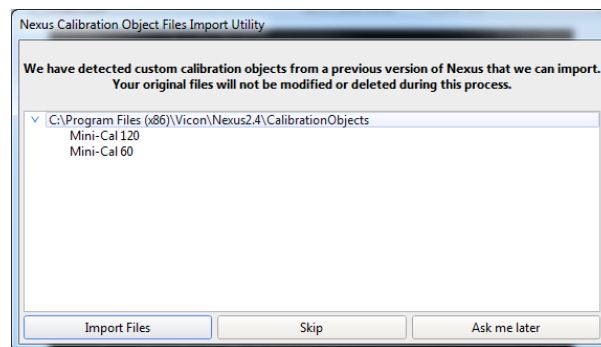
Improvements to camera calibration that were provided by Nexus 2.7 have the following effects on compatibility of data between releases:

- Data collected in earlier releases of Nexus can be reprocessed in Nexus 2.13 because calibration (.xcp) files that were created in earlier releases are fully compatible with Nexus 2.13. Note that if you load a calibration (.xcp) file that was created in an earlier release of Nexus into Nexus 2.13 and save it, Nexus maintains its compatibility with earlier releases.
- You can use earlier releases of Nexus to view data that was collected in Nexus 2.13 (that is, you can open Nexus 2.13 .c3d files in Nexus 2.7 and earlier).
- However, calibration (.xcp) files that are created in Nexus 2.13 are not backward-compatible, that is, they cannot be read by releases of Nexus earlier than 2.7, and loading will fail if attempted.

Upgrading from earlier versions of Nexus 2

If you are upgrading from a previous version of Nexus 2, during installation a dialog box gives you the option of adding the **Auto Intelligent Gap Fill** button and/or the **Add to Quick Report** button to your Nexus toolbar. For more information on these features, see *Automatically fill gaps in trial data* in the *Vicon Nexus User Guide* and *Quick Reports* in the *Vicon Nexus Reference Guide*. To add the additional button(s) to your toolbar, click **Upgrade Files**.

On first launch, Nexus 2.13 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 2.13 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.

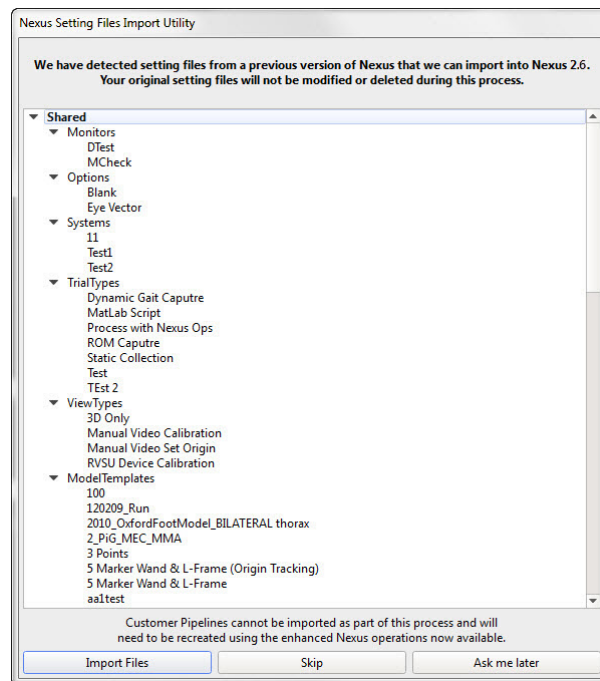
Upgrading from Nexus 1.x

Note

This section applies only to versions of Nexus that are earlier than 2.0.

Nexus 2.13 installs into its own folder, called *Nexus2.13*. If you already have Nexus 1.x installed, it will remain installed alongside the new Nexus installation.

On installation, Nexus 2.13 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 2.13.



This process copies all the old files and converts the copies, ensuring that original files are not moved, altered, or destroyed.

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

Regulatory information

For Vicon Nexus regulatory details, see *Vicon Nexus regulatory information* in the Nexus documentation area of the [Vicon website](#)⁵.

⁵ <https://docs.vicon.com>

Graphics processors for Nexus

Nexus is tested and fully supported with NVIDIA graphics processors. This is the Vicon-recommended graphics processor for PCs that are to run your Vicon system and Nexus software.

Using other graphics processors is not recommended and may affect the performance of the software.

If you experience issues with the software and you have been informed by Vicon Support that this is due to the graphics processor, note these points:

- Issues can occur when you first start the software, or may be due to a driver or Windows update.
- If you previously had a working configuration, consider rolling back the driver version or restoring Windows to a working restore point.
- Some laptops have both a dedicated graphics processor and an integrated processor. You can select the processor for use by an application. You can usually find the option for this by right-clicking the application's shortcut. You can find further general controls in the NVIDIA control panel.

Addressed issues

The following issues have been addressed in the latest release of Nexus:

- Improved video transcoding of AVI file export.
- Manual labeling of C3D is prevented when VSK is not present.
- No duplication in contextualized parameters when the MP and VSK files use different naming conventions.
- Subject calibration status is unaffected by session folder navigation.
- The kinematic labeler is reset when calibration changes occur due to a SetOrigin operation.
- Update to improve labeling of the Tobii Pro Glasses 2 VST.
- Tobii Pro Glasses 3 is recognized when saving configurations.
- Undefined data values are filtered when calculating graph data scales in the Graph view.
- Single component device outputs are read properly from C3D.
- OCST subject parameters are updated when OCST pipeline operations are reprocessed.


Known issues

The following issues are known to exist in this release.

(For information on CGM2 issues, see Known issues for CGM2 in the *Vicon Nexus Reference Guide*.)

Issue	Workaround
<p>If you run the Autolabel Static pipeline operation on a trial that contains multiple subjects, only one of the marker sets is labeled, and the labeling ignores which subject is selected.</p>	<p>Use manual labeling instead of the Autolabel Static pipeline operation.</p>
<p>If you directly connect a Tobii recorder to the network card on the PC using an Ethernet network cable, start Nexus and add Tobii Pro Glasses 3 as a digital device, and then unplug the Ethernet cable from the recording unit and plug it back in, Tobii Pro Glasses 3 don't reconnect to Nexus and an error is displayed: Source data unavailable. This issue may also occur when you initially connect a Tobii recorder directly via Ethernet, if the Tobii Pro recorder is turned on before you start Nexus.</p>	<p>If, after you've started Nexus, you need to disconnect a Tobii recorder that is connected via Ethernet to the network card on the PC, after reconnecting the Tobii recorder, turn the recorder off and then turn it on again.</p>
<p>If USB3 cameras are physically connected (ie, plugged in) when you start up the PC, some cameras may only work at 16 Hz max.</p>	<p>Unplug the affected cameras and plug them back in.</p>

Issue	Workaround
<p>If you are using a FLIR camera, when you start masking or calibrating, and also when masking or calibration ends, a warning may be briefly displayed informing you that the DV camera is not set to a valid frame rate.</p>	<p>None. This is expected behavior: masking and calibrating are unaffected and the warning quickly disappears.</p>
<p>If your trial contains a subject that uses a Plug-in Gait template and another that uses a non Plug-in Gait template, and both subjects are selected, when you try to run the Process Static Plug-in Gait Model or Process Dynamic Plug-in Gait Model pipelines, they fail to run successfully.</p>	<p>Before running the pipeline(s), ensure that the subject that uses the non Plug-in Gait template is NOT selected.</p>
<p>The example scripts that are supplied with Nexus are compatible with Python 2 only.</p>	<p>None. Use Python 2 to run the scripts.</p>
<p>If you have opened Theia outside of Nexus, and then try to run Theia processing through Nexus, the trials are not processed.</p>	<p>Before running Theia processing from Nexus, close any other instances of Theia that are currently running.</p>
<p>When you're using Tobii Pro Glasses 3, if the glasses are disconnected from an Ethernet connection and then reconnected, in Nexus, the device continues to be displayed as not contributing (with a gray Play icon) and it stops sending data.</p>	<p>To return the device to full functionality, perform a manual resync. To do this: In the Nexus System tree, right-click Local Vicon System and then click Resynchronize.</p>

Issue	Workaround
<p>The sample rate value for AMTI Force Plates displayed in the System tree doesn't match the Acquisition rate that is selected in the Properties of the AMTI Devices Controller. Except in the case of the initial value, the sample rate that is displayed in the System tree is the last selected Acquisition rate, not the current rate.</p>	<p>In the Properties of the AMTI Devices Controller, temporarily change the value (up or down) for Fz Threshold. The sample rate for the force plates in the System tree changes to match the selected Acquisition rate of the AMTI Devices Controller.</p>
<p>When you select a connected Delsys Trigno EMG digital device and in its Properties, set the Trigger Mode to Triggered and then configure the correct sync port, the Delsys device disconnects, and in the System tree, its icon goes gray. Devices do not reconnect until you set the Trigger Mode back to Not Triggered.</p>	<ol style="list-style-type: none"> 1. In the Nexus System tree, right-click Local Vicon System and then click Resynchronize. 2. Wait for the Delsys device icon(s) to go green and during the next 4–5 seconds (while the device icons are green), press the START Trigger push button  at the top right (below the power indicator) on the Delsys Trigger Module. Delsys devices stay connected and green, synchronized and ready to capture a trial.
<p>When you're using a Blue Trident sensor to capture movement, and have Global Angle selected, global angles are streamed, but both global angles and 9-axis raw data is captured to the sensor.</p>	<p>None</p>
<p>When you're using Vicon Blue Trident sensors, at high device counts, some sensors begin to drop packets, so some flickering may be observed in the view pane.</p>	<p>When working with a large number of sensors, reduce the Bluetooth stream rate or the number of enabled axes. This issue does not affect the data recorded to the device.</p>

Issue	Workaround
<p>If you drag the Report Options pane to outside of the Nexus Quick Reports window and release the mouse button, then try to drag it back, it does not re-attach inside the Nexus Quick Reports window.</p>	<p>To restore the Report Options pane to its previous docked location, double-click its title bar, then drag it to the required position within the Nexus Quick Reports window.</p>
<p>The Nexus Quick Reports window does not have a Close button.</p>	<p>To close the window, press F4.</p>
<p>A crash can occur if any Noraxon EMG error messages are not dismissed before shutting down Nexus.</p>	<p>Dismiss all Noraxon EMG error messages before exiting Nexus.</p>
<p>When run via the Run Python operation, the Load Trial command in the Python SDK is not able to load a trial.</p>	<p>Run the Python script from IDE or command line.</p>
<p>Device drivers for Cometa/Wave depend on your Windows version.</p>	<p>For Windows 10 device drivers, contact Cometa.</p>
<p>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).</p>	<p>To use Preview mode with Vantage cameras, select a system frame rate below 80Hz.</p>
<p>When you right-click the Devices node on the System Resources pane, the required digital device is not available in the Add Digital Device menu.</p>	<p>When you install the relevant plug-in, ensure that the VDD is correctly installed to the folder: C: \Users\Public\Documents\Vicon\Nexus2.x\DigitalDevices64\</p>
<p>Noraxon Telymyo DTS device halts camera and analog data delivery when Noraxon devices are housed/not charged.</p>	<p>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.</p>

Issue	Workaround
<p>Unable to run legacy Static Gait Model under Japanese Windows. Log entry reads: No parameter file found</p>	<p>The legacy Plug in Gait model does not support international character sets. Instead of using the legacy Plug-in Gait model, use the Nexus 2 replacement gait model (found under Data Processing pipeline operations: Process Static Plug-in Gait Model and Process Dynamic Plug-in Gait Model).</p>
<p>Export c3d at the end of a pipeline does not clear the trial and leaves the trial with a dirty flag (*).</p>	<p>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.</p>
<p>Video capture duration can be limited directly after deletion from SSD storage.</p>	<p>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.</p>
<p>Spaces in variable names can cause BodyLanguage to fail.</p>	<p>When creating subject parameters for use in BodyLanguage modeling, use underscores instead of spaces.</p>
<p>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.</p>	<p>NEVER create Eclipse databases in locations that require administrator privileges to read or write.</p>
<p>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).</p>	<p>Avoid starting captures soon after changing the hardware setup.</p>
<p>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).</p>	<p>Before performing active wand camera calibration, disable the camcorders.</p>