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VISION+IMAGINATION.

VICON NEXUS

Getting started

User Guide

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VICON NEXUS

Getting started

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Vicon Nexus.

Your research is complex, your software shouldn't be.

Software built for today's research
and clinical movement analysis.

Welcome to Vicon Nexus



Key Features of Nexus

Easy to Learn, Easy to Use

Nexus saves you time by offering unprecedented levels of usability. The interface has been designed according to modern UI principles and guides you through all of the stages of set up, capture, data collection, and review. The days of searching in obscure menus for the functionality you need have gone; Nexus has the buttons, menus, and controls where you expect to find them.

Native Real Time

Nexus is real time to its core so that you can view data in real time, all the time. If you add a camera to your system, there's no need to tell Nexus – it will tell you. The Health Monitors, unique to Nexus, inform you if something unexpected has occurred in real time. You can check the quality of your data as it is being measured and eliminate surprises after a capture session.

Seamless Video

Nexus is the first software application to seamlessly integrate digital reference video, significantly enhancing your experience and analysis process. You are also able to overlay 3D information on the video image, such as ground reaction force vectors or the calculated 3D marker position. We've also given you the ability to choose from a variety of digital video cameras, using both DV and DCAM standards.

Customize Everything

Another great thing about Nexus is that you can make it work the way you do – pretty much everything can be changed to suit your needs. The Protocol Builder enables you to create your own wizard-based workflows to simplify using Nexus even further and perform common tasks step by step.

Related Resources

The following resources will help you to find the information you're looking for.

Vicon Online Support

If you are a licensed user and current customer, you can access the Vicon Online Support knowledge base. If you do not have a username and password, or need assistance with logging in to Vicon Online Support, please contact **Vicon Support**.

To log in to the Vicon Support web site:

1. Go to www.vicon.com/support. The Vicon Support + Services page is displayed.
2. In the login area, enter your Vicon Online Support Username and Password.
3. After reviewing the terms and conditions, select the **Agree to terms and conditions** check box.
4. Click **Enter**. The Online Support page is displayed.

Online Tutorials

Access online tutorials to learn basic functionality that is common across all Life Science motion capture applications. Access to the tutorials is available via Vicon Online Support.

Reference Guides

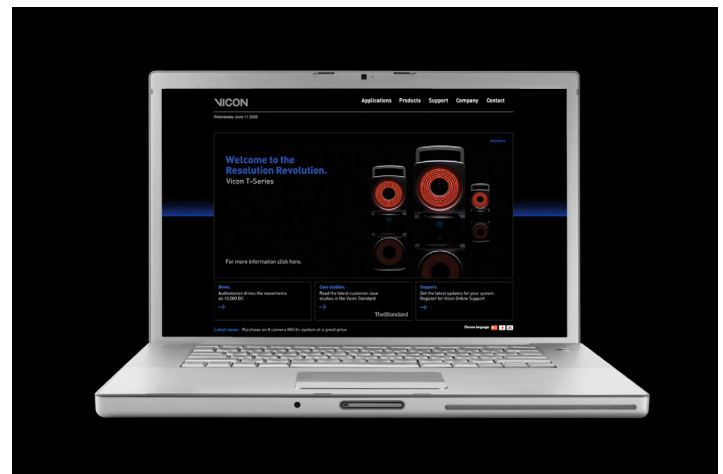
Explore the following online guides (available on the Vicon Support web site) for assistance with using the Vicon system:

- **Go Further with Vicon MX T-Series**
- **Vicon MX Hardware System Reference**

Vicon Nexus Online Help

The Vicon Nexus online help provides detailed workflow steps, descriptions of advanced features, and essential tips for using Nexus and the Vicon system.

- To access the Vicon Nexus online help, click the **Help** menu and then select **Contents**.
- To see information about the Nexus workflow, click the **Help** menu and then select **Workflow**.



About this Guide

This guide describes the initial steps for getting started with your Vicon Nexus system. At the end of this guide you'll also find a preview of the end-to-end workflow for a typical motion capture session. For further information on the Vicon system, refer to the Vicon Nexus online help or the **Related Resources** section on this page.



Check what's in the box

Hardware

✓ **MX T-Series Cameras (T160/T40/T20/T10)**

Vicon's newest optical cameras with custom-engineered sensors and lenses, high-power strobes, on-board processing, Gigabit Ethernet connectivity and a new ergonomic design. Available in high-performance resolutions up to 16 megapixels at 120 fps full-frame capture speeds.



✓ **MX Giganet**

Vicon's core unit for the MX system, connecting your T-Series cameras to the MX host PC. The MX Giganet supplies communications, synchronization, and power to the T-Series cameras as well as timecode, genlock, sync out, and interfacing to third-party devices – but at Gigabyte speeds.



✓ **MX Host PC**

A high-performance PC fine-tuned by Vicon to host the Gigabyte Ethernet ports (or one you supply), enabling communications between the Giganet and the installed Vicon application software. This is where you capture, view, and process the data from the T-Series cameras and any supported third-party devices integrated into your MX system.



Tell Me More

See your shipment Bill of Materials for a list of components supplied with your specific Vicon system. Your Vicon Nexus application on the MX host PC is dedicated to collecting and processing data from the T-Series cameras. You can also install Nexus on a remote PC on the same MX system network to process real-time data. You can install third-party software on another remote PC in the same MX system network to visualize the real-time data.

Supplies

✓ **MX Gigacable**

Vicon's true-blue dedication to easy setup. A single cable with matching plugs on either end connect the T-Series cameras to the Giganet. You just need the Gigacables and any commercially available RJ45 network cable (to connect the Giganet to the MX host PC) for the T-Series system. These cables are all shipped with your system.



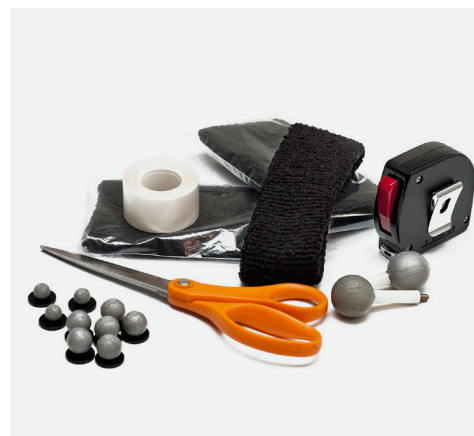
✓ **MX Calibration Device**

Vicon's single 5 Marker Wand and L-Frame calibration device that make it quick and easy to calibrate the T-Series cameras and your capture volume.



✓ **MX Accessories**

Vicon motion capture consumables include marker fixing tape, arm and head bands, anthropometric measuring tools, Micropore and gaffer tape, Velcro, unique Vicon retro reflective markers in a variety of sizes, Lycra® suits, and much more. A wide range of accessories are available for your motion capture requirements. Which consumables are provided with your system is dependent on which Vicon accessory kit(s) or individual items you've ordered with your Vicon system. See your shipment Bill of Materials for a list of components supplied with your specific Vicon system.



Product DVD

✓ **Software Installer**

Vicon's easy-to-use program for installing Nexus includes sample files and documentation for learning how to get the most out of your Vicon system.



✓ **Licensing Dongle**

At least one software licensing dongle (HASP) will arrive with your system. This USB device must be attached to any computer running Vicon Nexus or other Life Science Suite software.



✓ **Sample Data**

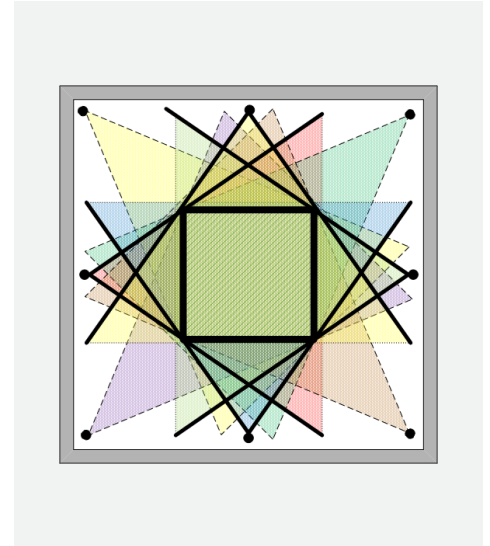
A set of sample files that you can use to get started quickly. New to Vicon? Open the sample database hierarchy in the Nexus Data Management window to get a feel for how motion capture data is organized and stored.



Set up your hardware

Position the Cameras

Roughly position the cameras around your intended capture volume. For now, just visualize the area you intend to use, and place your cameras where you think they should go to provide full coverage across the volume, as indicated in the figure on the right. Actual positions will depend on your volume size and camera lenses, but as a guideline, aim to offset cameras two to three meters from the edge of the volume and space them evenly apart. For example, in a 12mx12m studio, you can expect a 6mx6m capture volume. Remember, you'll need to include height as well as width and depth in your volume calculations! You may find it helpful to put colored tape along the intended perimeter and at the origin to help you visualize the capture volume floor (don't worry about putting any markers in the volume yet).



Connect MX Cameras to MX Giganet

- 1 Plug one end of a blue MX Gigacable into the data socket on the rear of a T-Series camera. Line up the red dot on the camera port and cable and slide straight in (do not twist).



- 2 Plug the other end of the blue MX Gigacable into one of the sockets labeled **1-10** in the Vicon Cameras group on the rear of MX Giganet.



- 3 Repeat steps 1-2 for each camera.



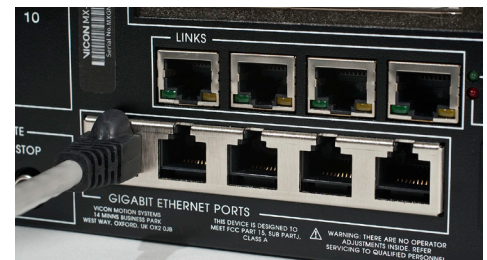


Need More Cameras?

You can increase the number of cameras in your system. With your T-Series cameras or Bonita, you can increase the number of cameras above 10 by connecting one to four secondary Giganets into the group of sockets on the primary Giganet labeled **Links**. Each secondary Giganet can then accept up to 10 additional cameras. If your Bonita system was supplied with Power-over-Ethernet switch (PoE) you'll need to add an additional PoE switch to increase your cameras above seven.

Connect MX Giganet to MX Host PC

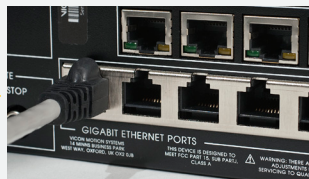
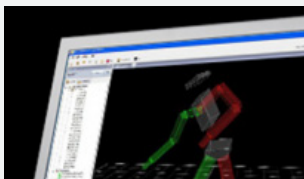
- 1 Plug one end of a standard RJ45 Ethernet cable into one of the five sockets in the Gigabit Ethernet Ports group on the rear of the Giganet.



- 2 Plug the other end of the RJ45 Ethernet cable into the Gigabit Ethernet port on the rear of the MX host PC.

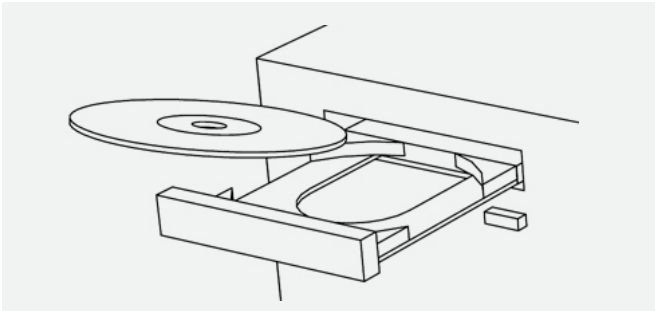


- 3 Press the power switch on the rear of the Giganet to turn the unit on. The Vicon logo on the front of the Giganet glows a dim blue, pulsates at brief intervals, and then glows a steady, bright blue when it is finished booting up. As the Giganet starts up the connected T-Series cameras, the Vicon logo on the front of each camera's strobe unit glows blue until the camera has finished booting up. The LED then switches off and the strobe unit lights are illuminated. A status light on the front of the strobe unit helps you keep an eye on each camera's operation.



Set up your software

Install Nexus



1. Insert the **Vicon Nexus DVD** into the DVD drive on the MX host PC. Alternatively, you can obtain the software installer from the **Downloads** page on the Vicon Online Support web site (<http://www.vicon.com/support/>).
2. From Windows Explorer, go to the DVD drive (or navigate to the folder in which you downloaded the installer) and double-click **Nexus_xxx.msi**.
3. On each installer screen, provide the requested details and click **Next**. On the End-User License Agreement screen, you must read and accept the terms.
4. On screens noting that components have been successfully installed, click **OK**.
5. On the final screen, click **Finish**. If you are interested in viewing the sample data included with Nexus, run the sample data installer called **Vicon Nexus Sample Data**.

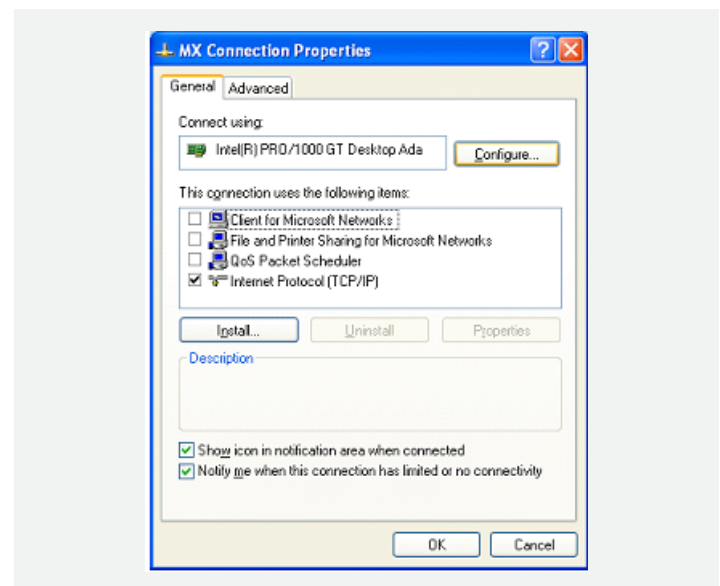
Note: If you receive a computer from Vicon as part of your system package, the software will already be installed for you.

Configure the MX System IP Address

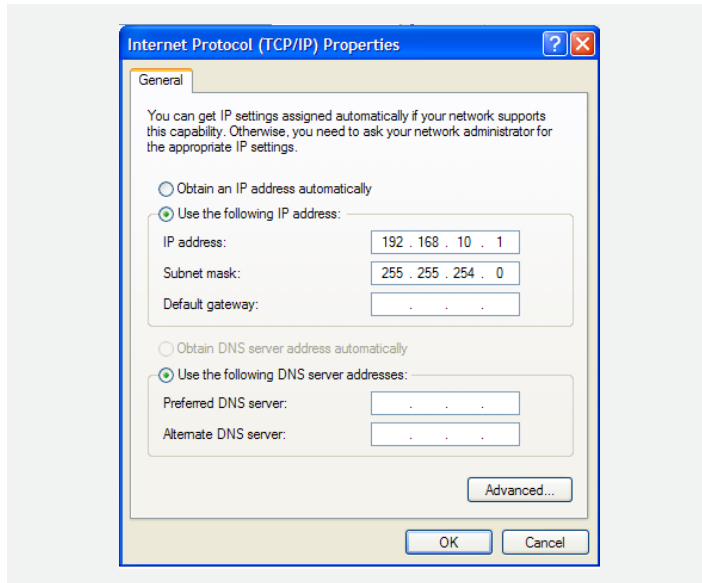
1. From Windows Network Connections, right-click the entry for the Gigabit Ethernet network card dedicated to the Vicon system and select **Properties**.

For details on accessing or using the Network Connections dialog box, refer to the Microsoft Windows documentation.

2. In the MX Connection Properties dialog box, select the **Internet Protocol (TCP/IP)** entry (ensure that no other connection options are selected). Then click the **Properties** button.



3. On the **General** tab, select **Use the following IP address** and enter the following:
 - IP address: Set to **192.168.10.1**
 - Subnet mask: Set to **255.255.254.0**
(Previous Vicon MX users – notice that the subnet mask value has changed for the T-Series)
 - Default gateway: Leave blank



4. Click **OK** to confirm the settings and close the Internet Protocol (TCP/IP) Properties dialog box. Then click **OK** to close the Connection Properties dialog box.
5. From Network Connections, turn off the firewall for this Gigabit Ethernet network card. For details on turning off the firewall, refer to the documentation for your firewall.

Set Up Your License

- Connect your USB dongle to the PC and ensure that a light turns on in the dongle.

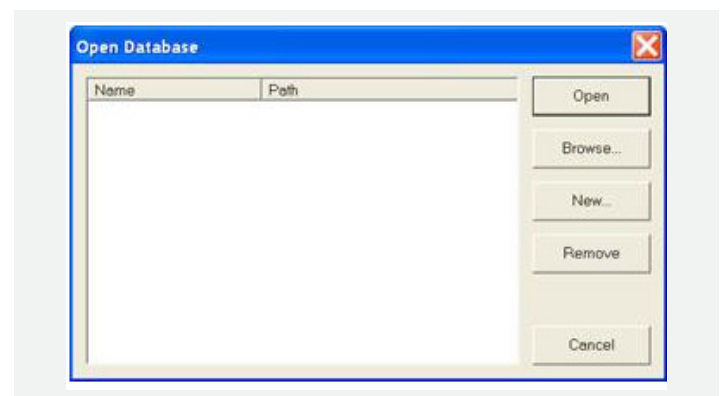
Start Nexus

1. From the Windows desktop, double-click the **Vicon Nexus icon**.



The Nexus main window is displayed.
(Please see the **Troubleshooting** section if you get an error message when opening the software.)

2. The first time you open Nexus on this computer you will see the Open Database dialog box.



- To locate the .eni file for the sample Nexus data, click the **Browse** button.
- To create your first database on the computer, click the **New** button.

Note: A database is just a folder where your Nexus files will be saved. You can create a database in any location. For now, just use the file named **Generic Template.eni** to create a new database.

Get to Know the User Interface

The Nexus user interface is designed so that you can access the tools you need quickly and easily. Within the primary panes (Resources, View, Tools, and Communications), use the tabs and buttons to open secondary panes containing tools and options for a specific portion of the motion capture workflow. Tool tips indicate the secondary pane that will be displayed when you click that button on a primary pane.

Resources Pane: Manage the different components of your Vicon system architecture and the subjects whose motion is to be captured.

View Pane: Set up the way you want to visualize the capture data from one or more cameras (or supported

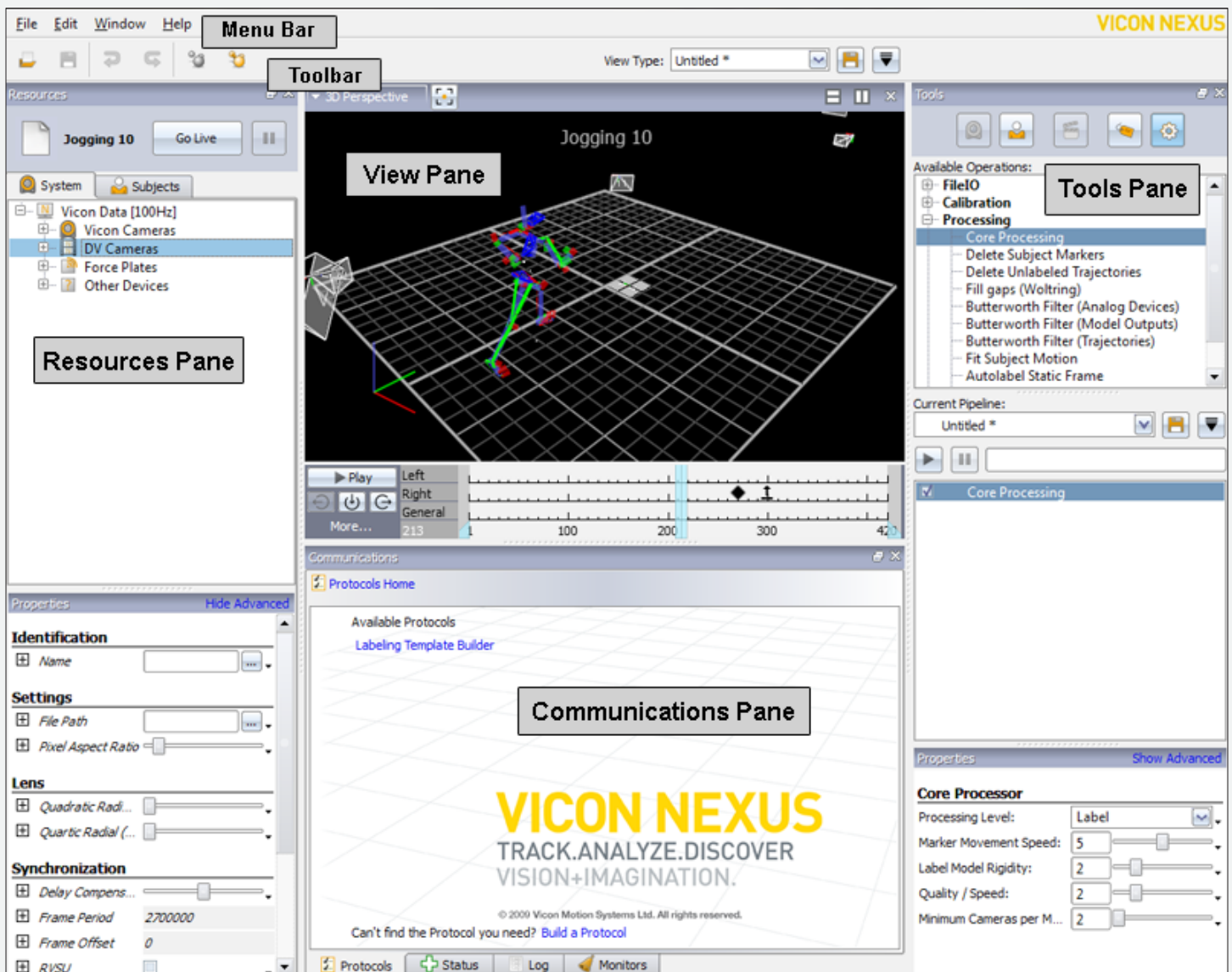
third-party devices) either live in real time or from file for post processing.

Tools Pane: Manage each step of the motion capture workflow through preparation, acquisition, and review.

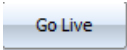
Communications Pane: Run customized workflows, check system status, view log information, and monitor trials.

Menu Bar: Access common commands from whatever stage of the workflow you are in.

Toolbar: Access frequently used commands from whatever stage of the workflow you are in.

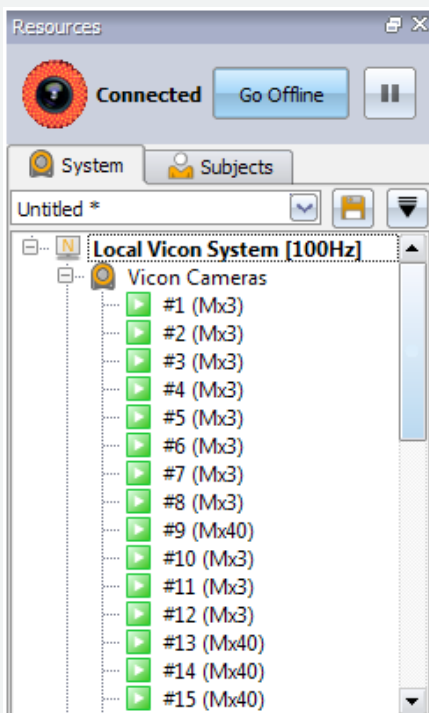
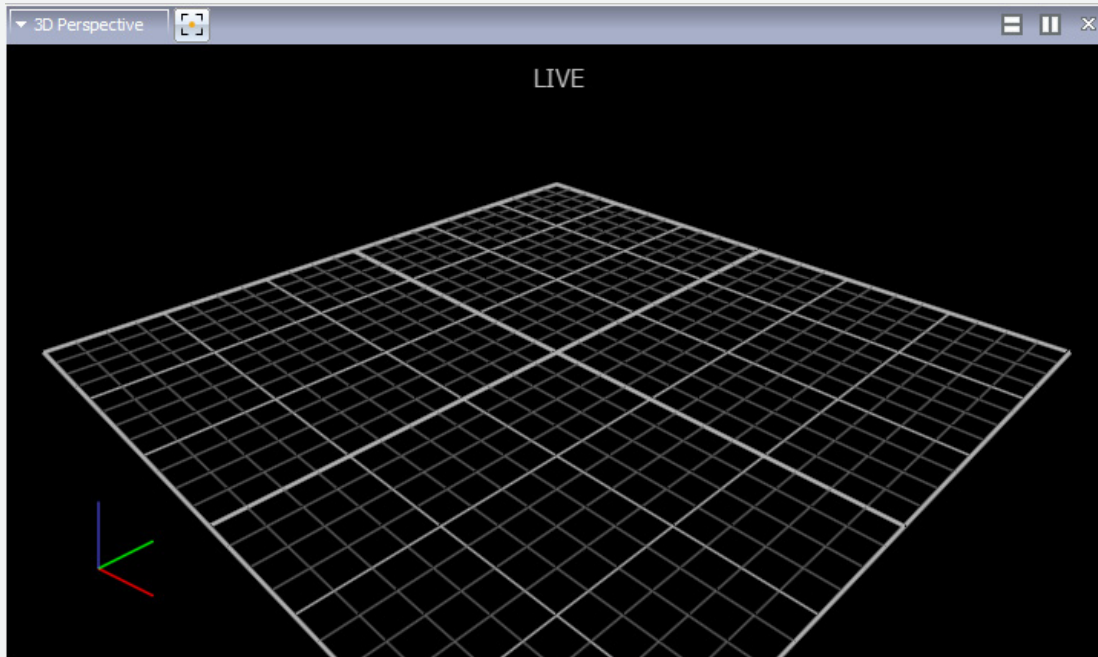


Connect Nexus to the MX System

- At the top of the Resources pane, click the **Go Live** button  to access Live mode.
- At the top of the View pane, click the drop-down menu and select **3D Perspective**. Notice that the

word **LIVE** appears across the top of the workspace confirming you are in the Live mode.

- Don't worry that the cameras do not appear in the correct positions in the workspace. The cameras do not reflect their correct positions until they have been calibrated.



- In the Resources pane, notice the hierarchical tree structure with **Local Vicon System** in the top node. Your Vicon Nexus system will auto connect to any live system (MX Giganets/MX cameras/Bonita cameras) that it finds. Expand this node to view the hardware components connected to the system. Expand the **Vicon Cameras** node and ensure that the correct number of cameras is shown.

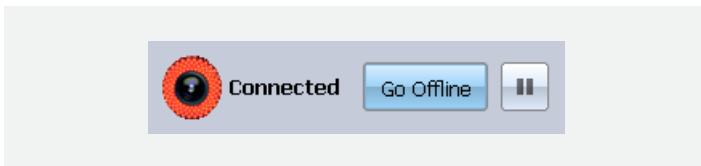
Test the Connection

The system status indicators at the top of the Resources pane make it easy for you to immediately identify (1) the current operating mode and (2) the hardware connection status.

Live Mode displays a real-time streaming view of Nexus.

Offline Mode stops real-time data streaming. Previously captured and saved data can be played back offline.

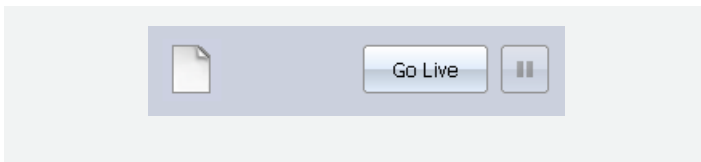
When a connection is established with the Vicon hardware in Live mode, the Resources pane looks like this:



When a connection is not established with the Vicon hardware in Live mode, the Resources pane looks like this:



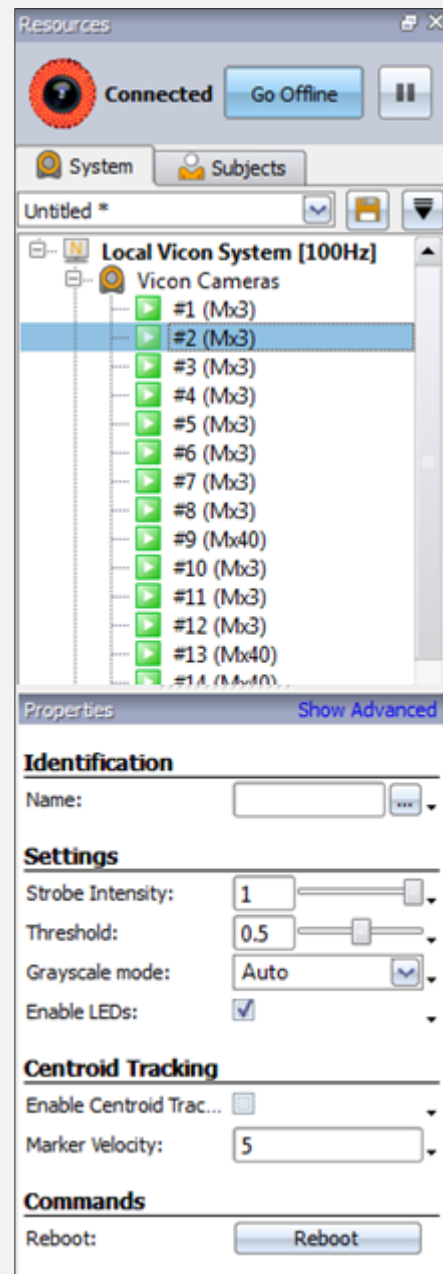
When the system is in Offline mode, the Resources pane looks like this:



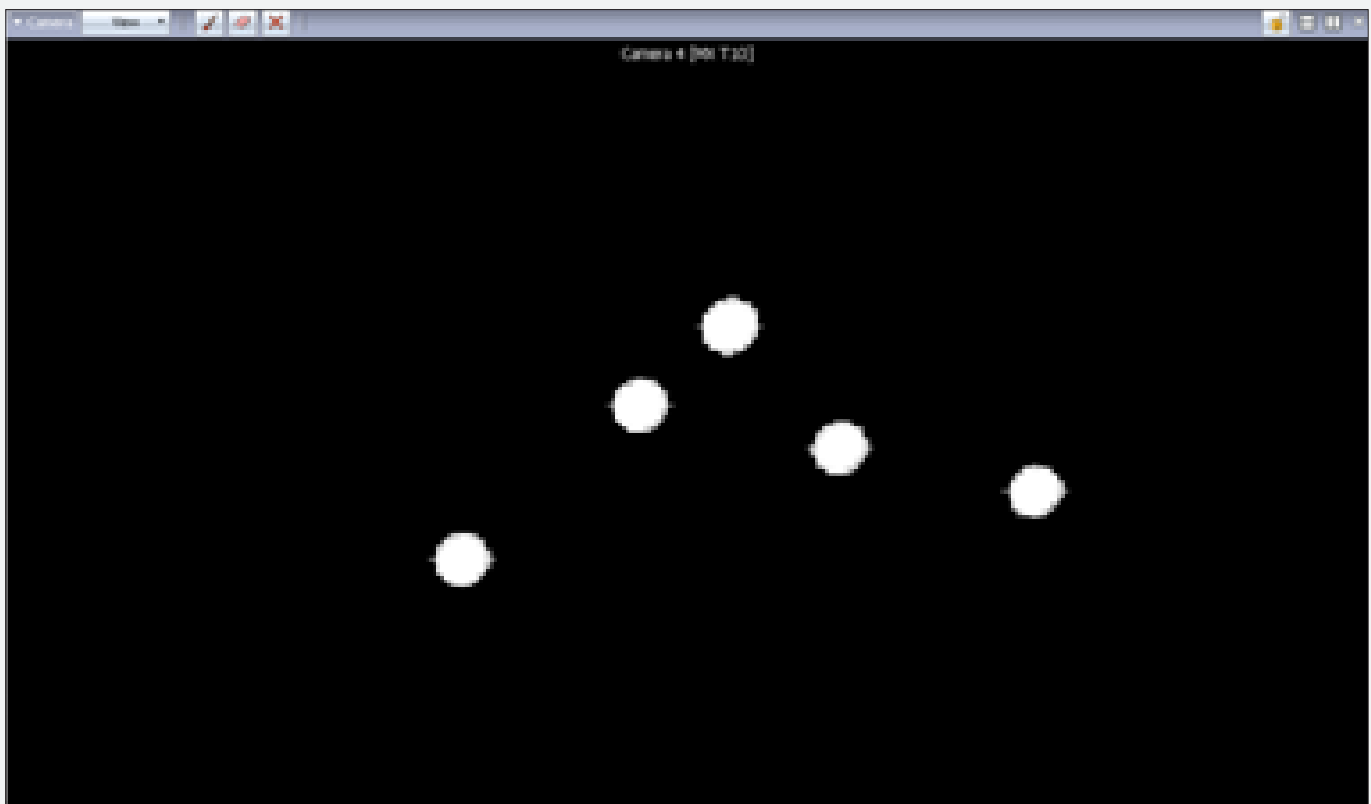
Configure your system

Adjust Camera Settings

1. Make sure you are still in Live mode and that Camera view is displayed in the workspace (select **Camera** from the **View** pane drop-down menu).
2. In the Resources System pane, select just one camera and notice that the **Properties** for this camera are listed at the bottom of the pane.
3. Have someone wave the calibration wand in the capture volume and ensure that you can see marker images moving in Camera view.
4. Notice the **Grayscale Mode** property. The default setting is **Auto**. This mode instructs the cameras to send Nexus all the centroid data for grayscale blobs it is able to circle fit. If any grayscale blobs cannot be circle fit, the grayscale data will be sent to Nexus so it can attempt to circle fit the blobs. Circle fit markers appear as crosshairs in the workspace.
5. Next, look at the **Strobe Intensity** setting. The default value is **1**, which tells the cameras to send as much light as possible into the volume (similar to a dimmer switch). Zoom in to a marker by right-clicking and dragging the mouse. Notice how the pixels change as you lower the light (to view pictures from a grayscale blob, **Grayscale Mode** must be set to **All**).



6. Finally, notice the **Threshold** property. This property tells the camera how bright a pixel must be to be accepted by the camera. Zoom in to a marker in Camera view and notice how the pixels change as you adjust the property.
7. Adjust the **Strobe** and **Threshold** settings so that you see only the 2D circular-shaped markers in your volume. Adjust the strobe setting only as low and the threshold only as high as needed.

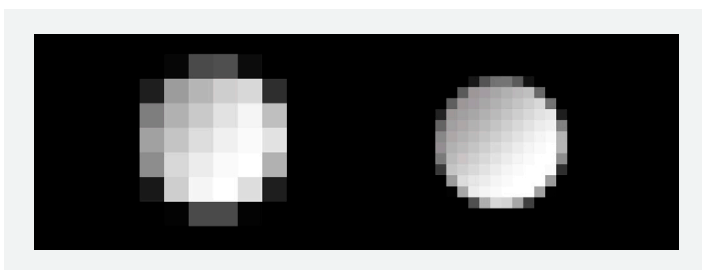


Set Camera Focus and Aperture

1. Place three markers in the middle and on the far side of the capture volume.
2. For each camera, ensure that the aperture is fully open by adjusting the aperture ring (the ring with the f-stops). By default, the aperture is set to f2.8. Turn the ring to reduce the f-stop, which opens the aperture. Later on you will turn the ring back, increasing the f-stop number and closing the aperture.




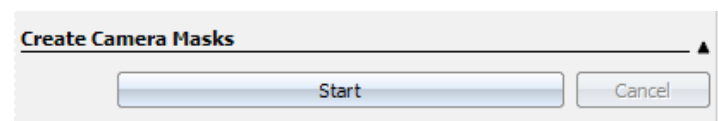
3. In the Resources System pane, select all the cameras by left-clicking while holding down the **Shift** key. In the **Properties** section at the bottom of the window, change **Grayscale Mode** to **All**.
4. Select a camera in the Resources System pane and do the following for each marker:
 - a. In Camera view, zoom in to the center marker.
 - b. Turn the camera focus ring until the 2D image of the marker in Camera view is clear, bright, and sharp like the marker on the right side in the figure below. As you rotate the focus ring, notice that the marker images get smaller and then at some point begin to get larger again. Good focus is when the marker is at its smallest size.



- c. When you are happy with the focus, adjust the aperture ring on the lens to close the aperture and obtain good, clear images of markers even when they are close together. The markers should not be too small, and the center should be just off-white (not fully saturated) when viewed from the middle of the volume.
5. Repeat Step 4 for each camera.
 6. Select all of the cameras in the Resources System pane and change the **Grayscale Mode** property back to **Auto**.

Mask Out Unwanted Reflections

1. Ensure that your camera settings are as recommended in the [Adjust Camera Settings](#) section of this guide.
2. From the capture volume, remove any unnecessary objects, such as the calibration device or markers. For best results, the capture volume should be entirely free from objects likely to cause reflections.
3. Make sure Camera view is displayed in the workspace. In the Resources pane, select all of the cameras.
4. In the Tools pane, click the **System Preparation** button. 
5. In the **Create Camera Masks** section, click the **Start** button.



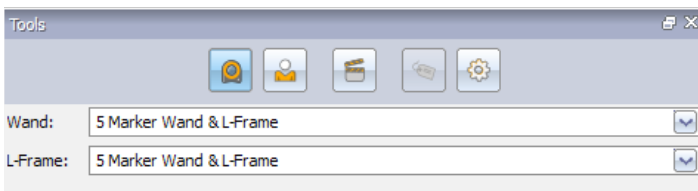
The button toggles to its **Stop** setting. Notice that all reflections in each Camera view are covered with a blue shade.

6. After a few seconds, when it appears that all reflections have been covered, click the **Stop** button.
 7. If you still see unwanted reflections, you can start and stop the **Create Camera Masks** option again until you are satisfied.
- a. Set the **Refinement Frames** option between 1000 and 3000 (typical values). This setting will determine how many frames of data each camera must capture for a complete calibration.
 - b. Make sure the **Auto Stop** option is selected.

Calibrate the System

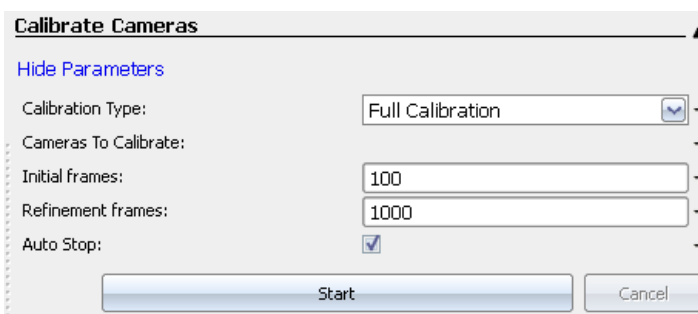
Next, calibrate the system to enable the cameras to capture subject movements throughout the volume. Set the volume origin and axes so that the virtual cameras and volume in Nexus reflect the actual positions of the cameras in relation to the capture volume and to one another.

1. At the top of the Tools System Preparation pane, click the drop-down boxes to select the Wand and L-Frame you will be using. If you are using the new **5 Marker Wand and L-Frame**, select this option in both places.

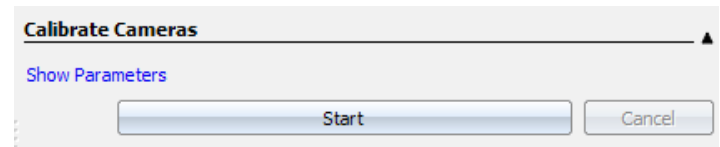


2. In the **Calibrate Cameras** section, select the **Show Parameters** option highlighted in blue.

The option toggles to its **Hide Parameters** setting.



3. Click the **Start** button in the **Calibrate Cameras** section.

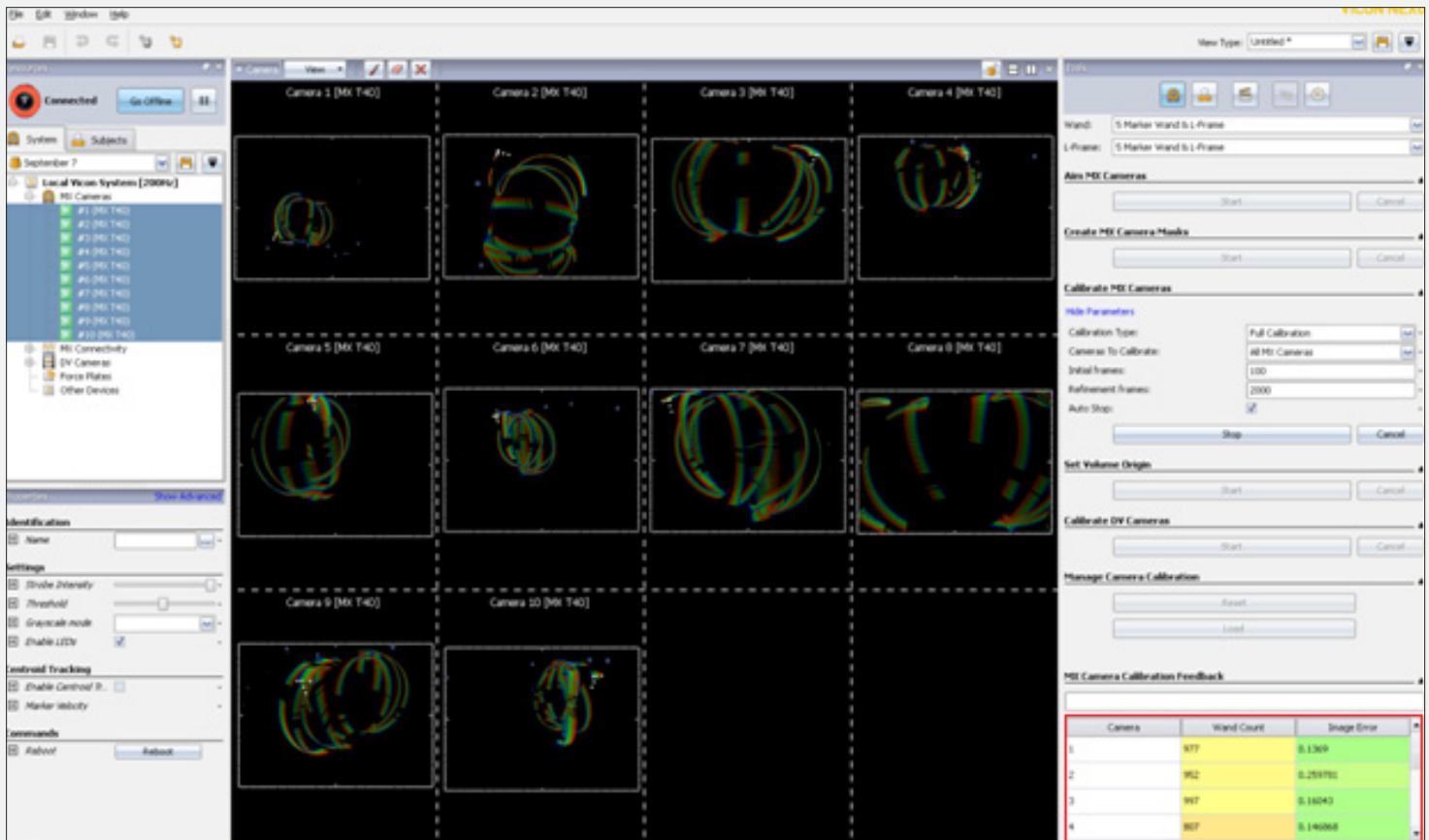


The button toggles to its **Stop** setting.

4. Walk into the volume with the wand and begin to move it to cover the target volume area.

- When all cameras have captured the number of frames set by the **Refinement Frames** option, the calibration will stop and the **Image Error Calculation** will begin. A blue progress bar shows the calculation at the bottom of the screen, moving left to right directly under **MX Camera Calibration Feedback** (see figure below).

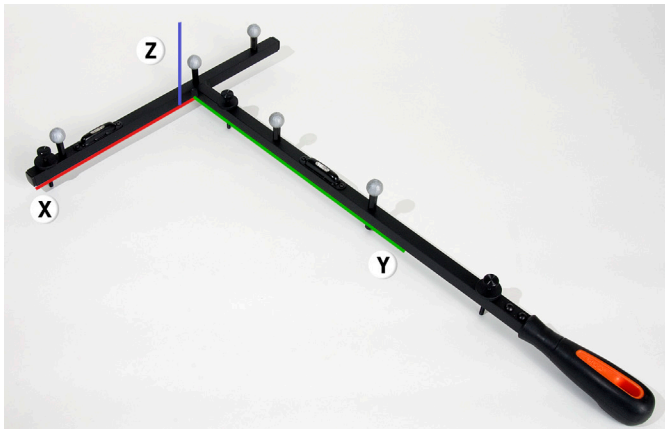
The results of the image error data are displayed in the bottom-right pane of Nexus. A color scheme is used to define the overall quality of the camera calibration. The color scheme ranges from dark red to bright green, with bright green indicating the better calibration.



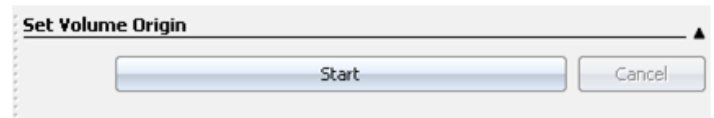
Set Volume Origin and Axes

1. Place the calibration device at the origin in the desired position and axes orientation. The axes orientation is reflected at the bottom left of the 3D Perspective pane as follows:

- **X:** Red line
- **Y:** Green line
- **Z:** Blue line

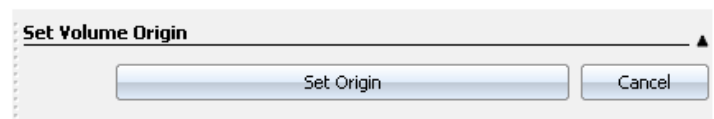


2. In the **Set Volume Origin** section of the Tools System Preparation pane, click the **Start** button.

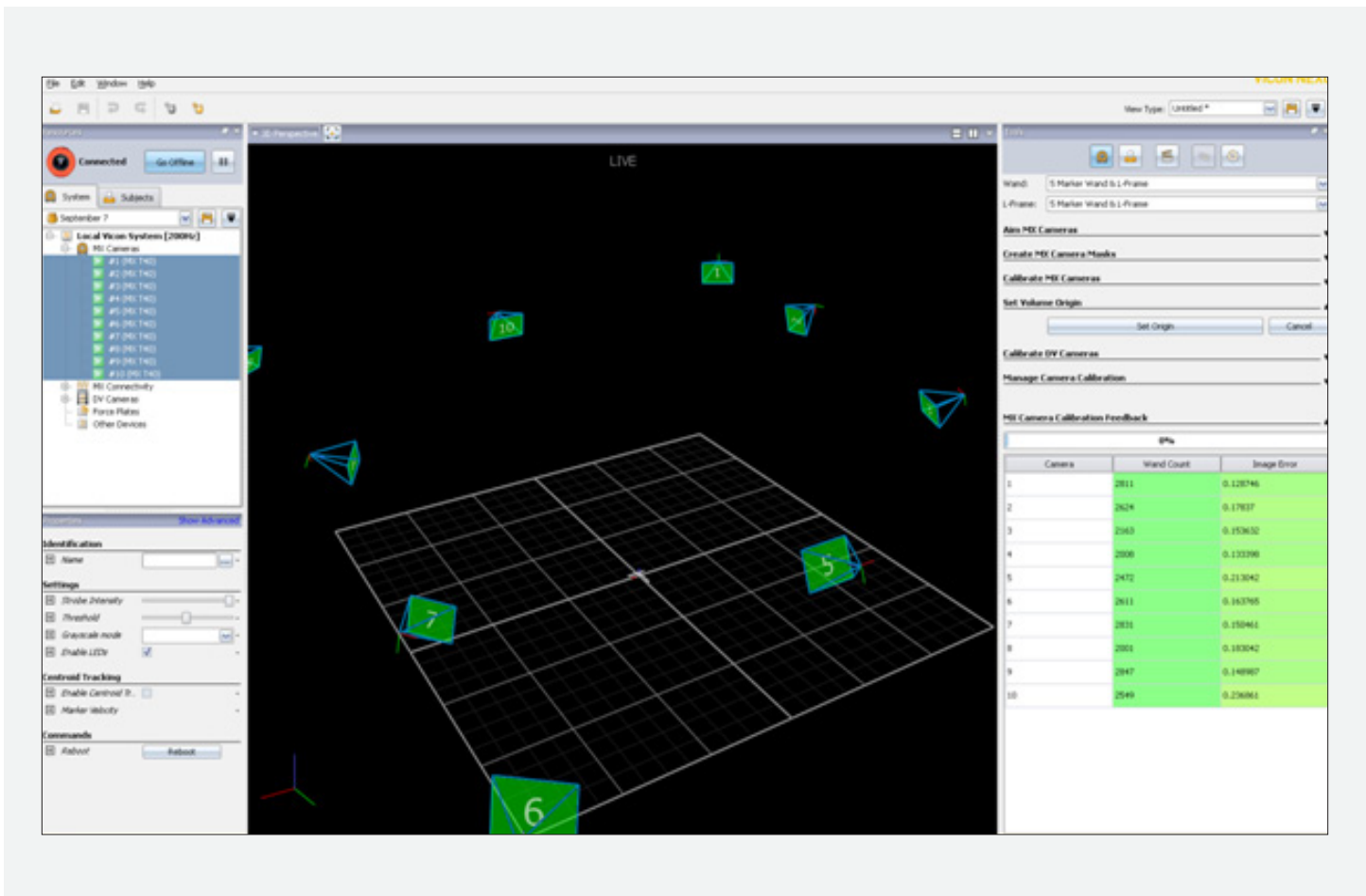


The button toggles to its **Set Origin** setting.

3. Wait a few moments and then click the **Set Origin** button.




In the 3D Perspective pane you should now see that all of your cameras are shown in the correct positions arranged around the origin set by the L-Frame.

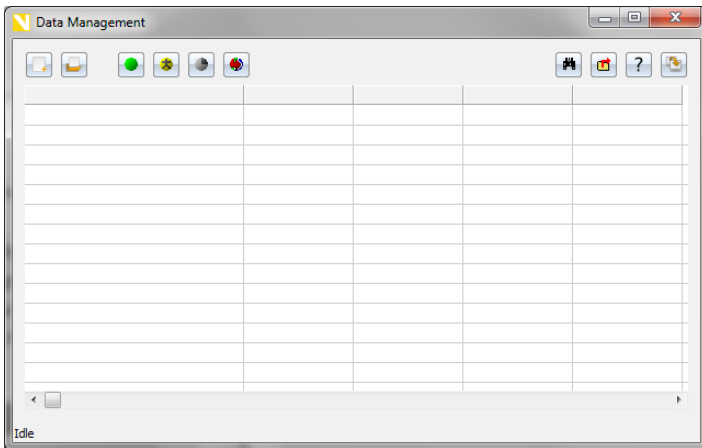


Capture your initial trial


Set Up the Data Management Hierarchy

Before you capture and process your first trial you need to create a hierarchical structure for storing your data.

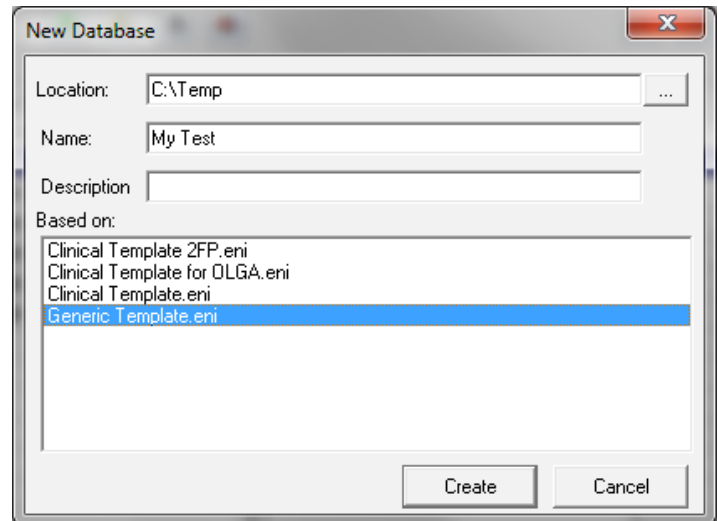
1. Click the **Data Management** button  on the Nexus toolbar or go to the **File** menu and select Data Management. The **Data Management** window opens.



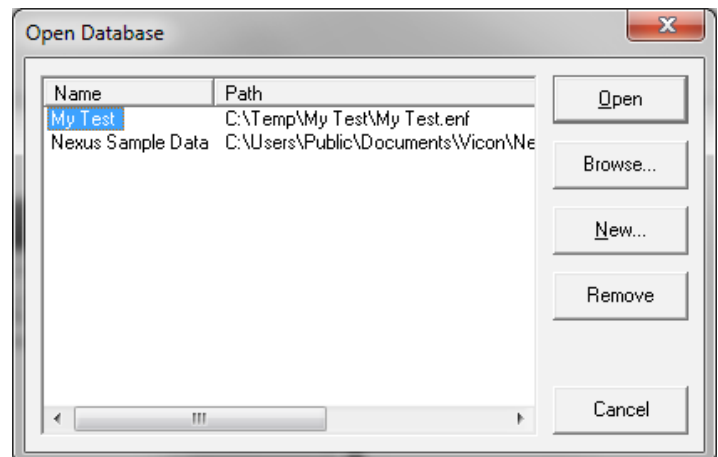
Your database may currently be the Nexus Sample Data, some other default location, or it may be empty. Let's practice creating a new database.

2. Click the **New Database** button  on the toolbar.
3. Select a location on your local hard disk for the database folder, enter a name for the database folder, and enter a description (optional). Then click **Create**.

Note: A database is just a folder where your Nexus files will be saved. You can create a database in any location. For now, just use the file named **Generic Template.eni** to create a new database.



4. In the **Open Database** window that is displayed, select the name of the database you just created. Then click **Open**.



- Now create a hierarchy of data folders in which to store your data. A good practice is to make sure all your data goes into a session folder (the folder created in Step 5c. below).

a. Click the green **New Patient Classification** button to add a top-level folder. Generally, this classifies a group of subjects such as Men/Women, Old/Young, or Target Population/Controls.



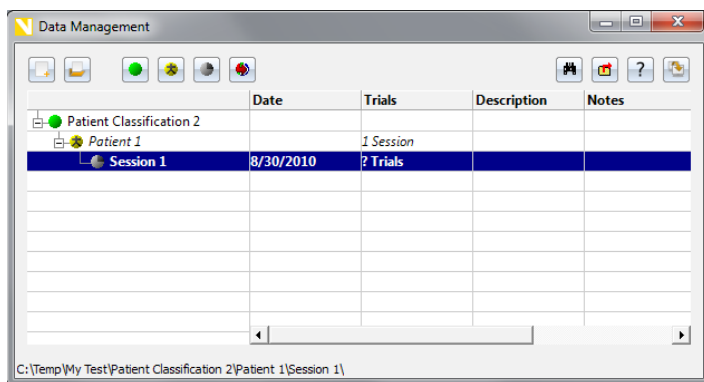
b. Click the yellow **New Patient** button to add a patient folder to the top-level folder.



c. Click the grey **New Session** button to add a session folder to the patient folder.



- Before closing the Data Management window, be sure to double-click and completely highlight the new session folder.



You now have an active session, ready to store your preliminary capture. You can learn more about database creation in the Vicon Nexus online help.

Prepare for Capture

Your system is now calibrated. Now it's time to prepare for data capture.

- Switch to **3D Perspective** view (if not there already).
- In the capture volume area, wave the wand. If you see markers in Nexus' **Live** mode, your system is ready for capture.

Capture a Trial

- In the Resources System pane, ensure that Nexus is in **Live** mode.
- In the Tools Capture pane, in the **Next Trial Setup** section, provide the information for saving your capture data to the database you created on page 23.

Next Trial Setup

Session: [Patient 1\Session 1](#)

Trial Name:

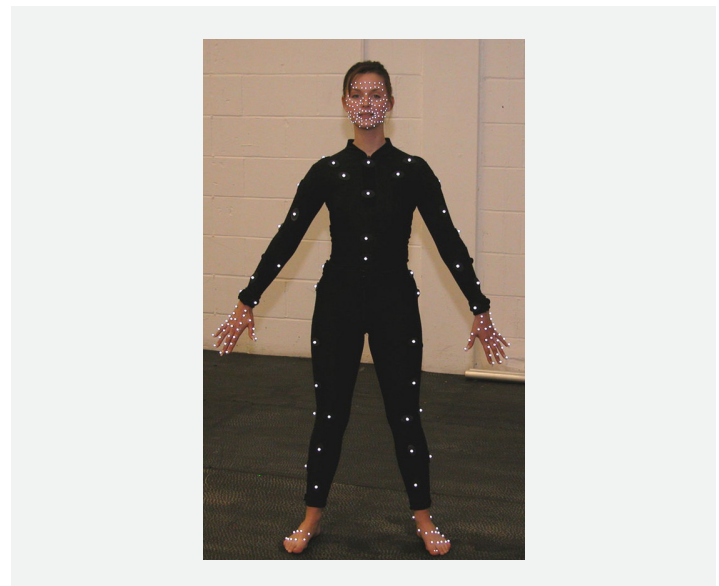
Description:

Notes:

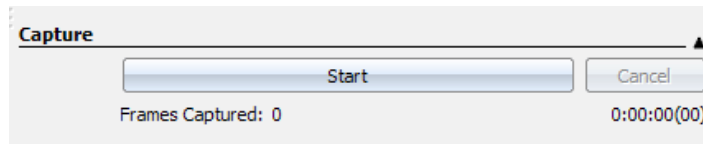
☒ Auto increment trial number

☐ Permit overwrite of existing files

- Place markers on the subject or object you want to track.

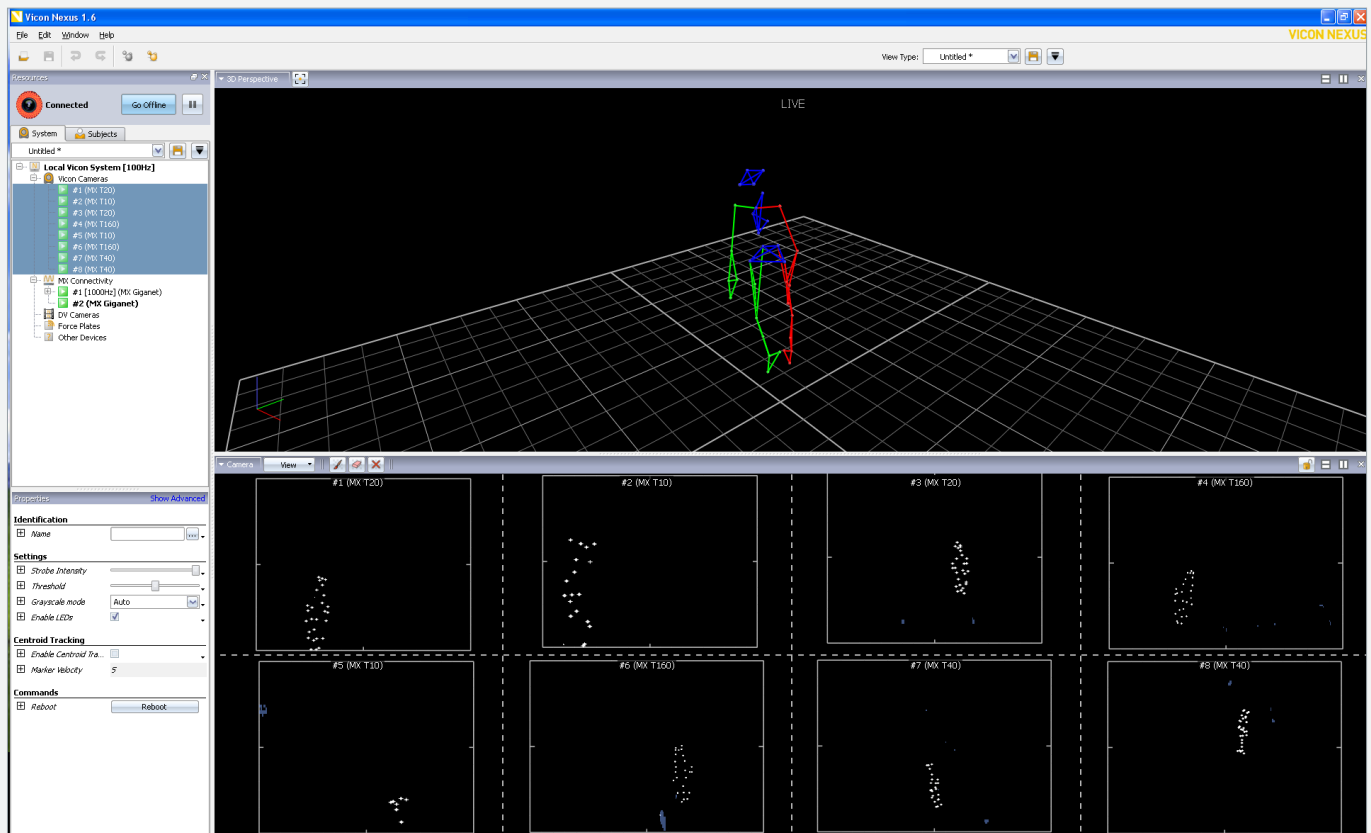


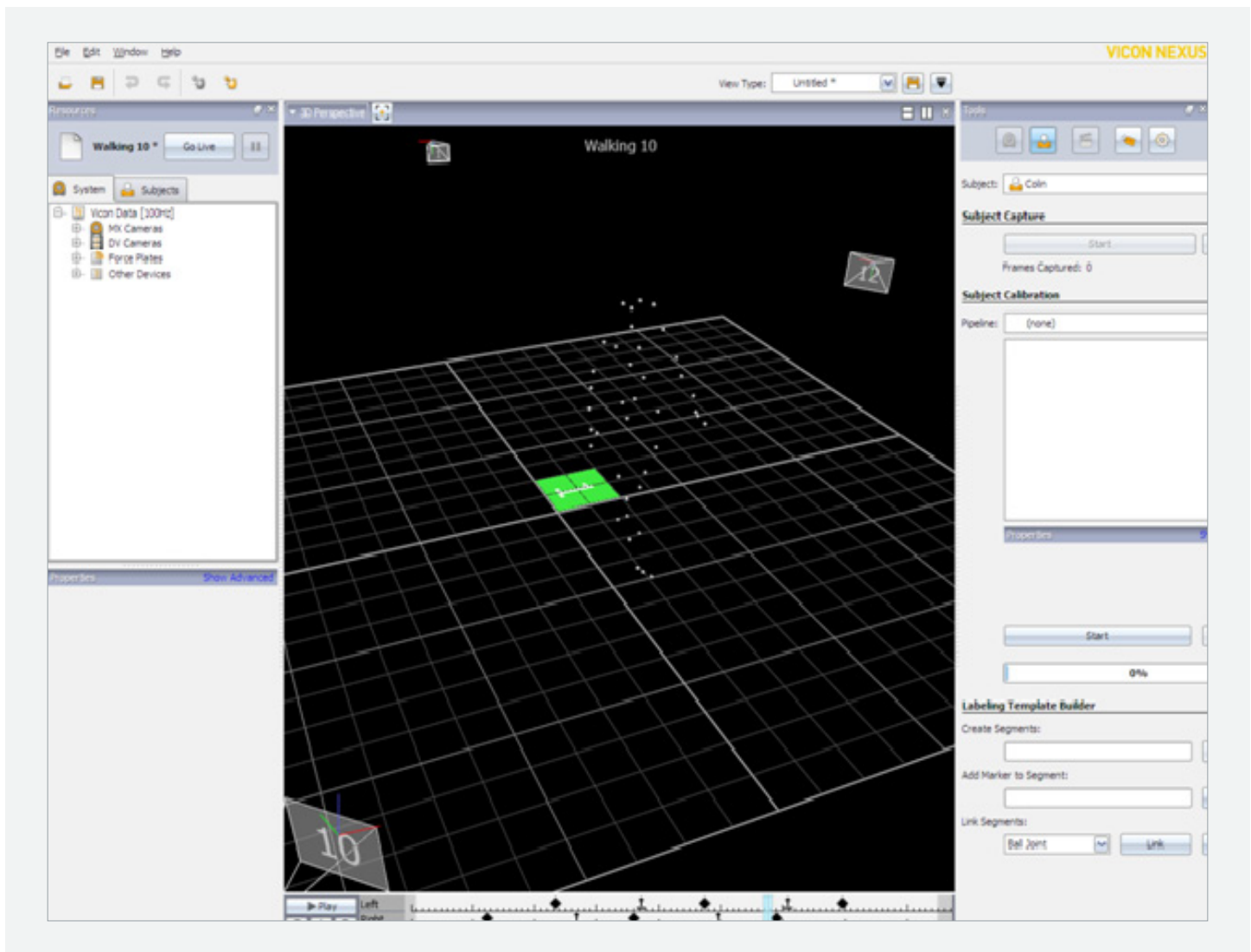
4. In the **Tools Capture** pane, in the **Capture** section, click the **Start** button.



The button toggles to its **Stop** setting.

5. While the subject or object is moving in the volume, confirm that you can see the markers in Nexus. You should see moving 2D marker images in Camera view for each camera (bottom pane in the figure below) and moving 3D marker images in the 3D Perspective pane (top pane).





6. In the Tools Capture pane, click **Stop**. Nexus saves the captured 2D marker data to an .x2d file using the name and location specified in the Data Management window. If you want to capture multiple trials in succession, you can click the **Start** button as soon as you are ready and click **Stop** when the trial is finished. The trial name's number will automatically increment.

There are many other options you can change to customize your capture. You can learn more about these options in the Vicon Nexus online help.

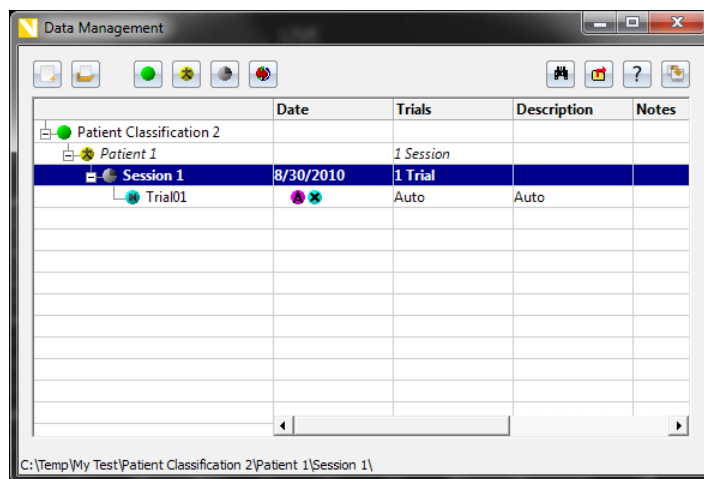
Check the Trial

Now that you have captured some data, let's take a quick look at how to view it. For much more information on data editing and using the advanced Pipeline operations, refer to the Vicon Nexus online help.

1. Click the **Show/Hide Data Management** button on the toolbar. The Data Management window opens.



2. In the session you created earlier you should see the trial(s) you captured.

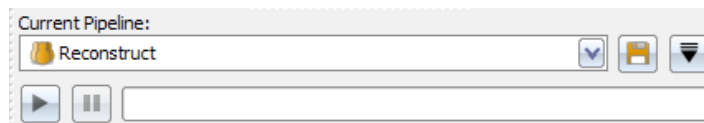


3. Double-click the first trial to load it in Camera view. Notice that you do not see any markers at this time. You need to reconstruct your data first.

4. On the Tools pane, click the **Pipeline** button.



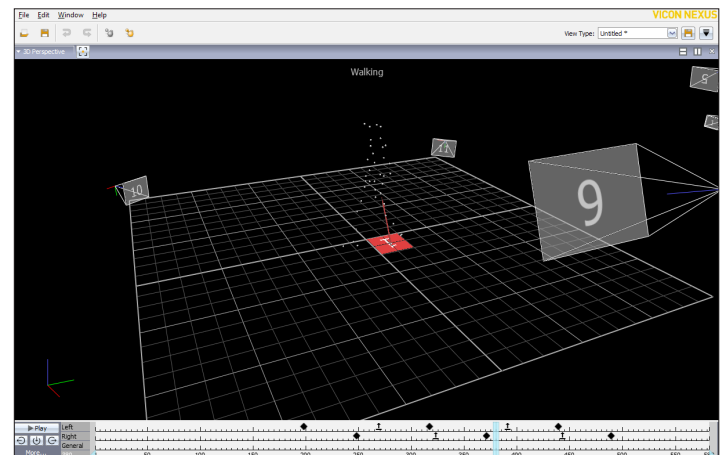
5. In the middle of the pane, click the **Current Pipeline** drop-down box and select **Reconstruct**.



6. Click the **Play** button to run this operation.



7. Click the **Play** button on the **Time Bar** at the bottom of the View pane to play your trial.



What's next?

Congratulations!

You have performed the initial motion capture steps and produced your first data files.

There is still more to learn, but you're now well prepared for your Installation and Training. Next, take a look at the overall motion capture process that you'll perform on a day-to-day basis.

For further information on the Vicon system, refer to the Vicon Nexus online help or the [Related Resources](#) section in this guide.

Preview the Motion Capture Workflow

Now that you've completed the initial steps of the motion capture workflow, let's review the end-to-end process for a typical capture session.

Prepare the System

1. Ensure that your cameras are appropriately aimed and seeing a clean view without extra reflections.
2. Calibrate the MX cameras with a dynamic wand wave.
3. Set the volume origin in the Nexus Tools System Preparation pane.
4. Ensure that you have selected an appropriate session in the Data Management window.

Prepare the Subject

1. Prepare the subject template and settings in the Resources pane.
2. Capture a static trial using the System Preparation tools.
3. Label the subject markers with the template labels using the Label/Edit tools.
4. Run the Static Subject Calibration using the Processing operations in the Tools pane.

Capture a Trial

1. Select the desired parameters in the Tools Capture pane.
2. Click the **Start/Stop** button to collect your trials.

View/Edit Trials

1. Load a trial in the Data Management window.
2. Reconstruct the trial using the Core Processor in the Tools Pipeline pane.
3. Play through the trial using the Time Bar.
4. Refer to the Vicon Nexus online help for more editing tools.

Troubleshooting

Something not quite right? Try these quick tips to get things going again.

What's in the Box

"I am missing some equipment." / "Some equipment appears damaged from shipment."

- Please contact Vicon Support - support@vicon.com

Connecting

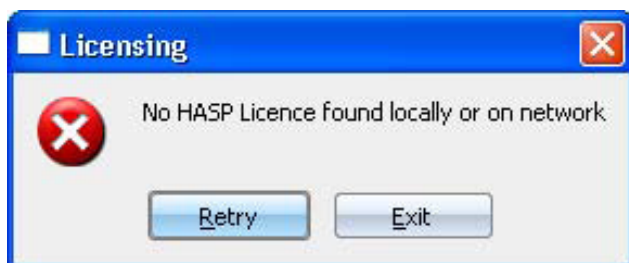
"My hardware isn't connecting to the computer."

- Confirm that the IP address settings are correct following the instructions in the [Configure the MX System IP Address](#) section of this guide.
- Disable any firewall on the network card you are using.
- Confirm that the Ethernet cable is firmly seated.
- Make sure you are an administrator on the computer.

Licensing

"I received the error message, 'No HASP License Found.'"

If you receive this error message, follow the steps below.



1. Try moving the USB dongle to another USB port and confirm that the light turns on.
2. If you have tried multiple ports, you may need to reinstall the driver. It is very important that you only install the correct driver. To reinstall the driver, log in to Vicon Online Support and go to the [Downloads page](#).

Camera Hardware

"I don't see an image from the camera."

- Confirm that the lens cap has been removed from the lens.
- Make sure the aperture is open on the lens – between 1.4 and 2.8 for most applications.
- Confirm that the strobe intensity is set at 1 and the threshold is below 0.5.

Calibrating

"After calibrating, I don't see any markers in the 3D Perspective view."

- Ensure that the Pipeline Core Processor property is set to **Reconstruct** and not **Circle Fit**.

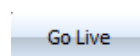
"The image errors for my calibration are very high."

- Ensure that you cover the entire volume during the dynamic calibration wand wave.
- Ensure that the camera aim and focus are correct, and ensure that the camera properties in the Resources pane are adjusted appropriately.

Capturing

"The Start button in Capture mode is grayed out."

- Ensure you are in **Live** mode and have an active session selected before capturing a trial (click the **Go Live** button to enter Live mode).



- If you connect Basler cameras, you must set the file path before you can capture.

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