Work with pipelines

Pipelines enable you run one or more operations that you use frequently or on a large number of trials, from import, through reconstruction and labeling and various other types of processing, to export.

You can set up pipelines to run automatically immediately after capture or as required on one or more saved trials.

You can use any of the pipelines supplied with Vicon Nexus or create your own by grouping a particular sequence of operations to suit your particular needs. Each operation within a pipeline can have a unique set of options and parameters.

> ⊘ **Tip**
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> If you are working with large numbers of files, to further speed up your work, you can set up and run pipelines as batch processes, using **Show File Transfer/Batch Processing interface** [icon] and then the **Batch Processing** button [icon] on the **Data Management tab**.

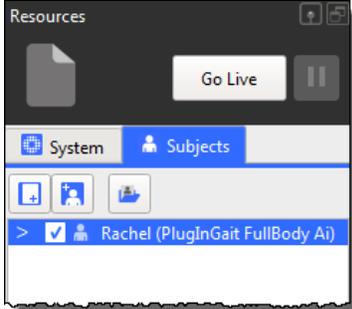The following topics describe how to:

- Run a pipeline
- Create a pipeline

Run a pipeline

This topic describes how to run a pipeline. For information on creating your own pipelines, see Create a pipeline.
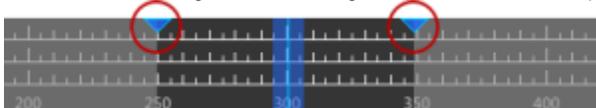
The procedure for running a pipeline is the same, whether you want to run a pipeline supplied with Vicon Nexus or your own custom pipeline.

To run a pipeline:

1. In the **Subjects Resources** pane, ensure that the subject whose trial data you want the pipeline to operate on is enabled. (When a subject is enabled, there is a check mark in the check box next to it.)
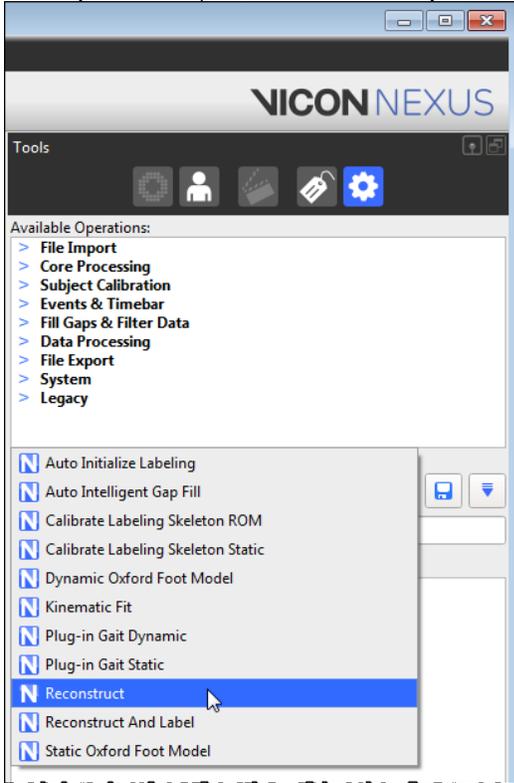

2. If you want the pipeline to operate only on a part of the trial rather than the whole trial, on the time bar, move the blue triangles that represent the start and end of a range of frames along the time line to set the required range.
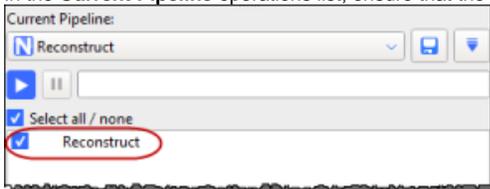

> ⊘ **Tip**
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> To change the view of the timeline so that it shows only the selected range, right-click on the timebar and then click **Zoom to Region-of-Interest**.
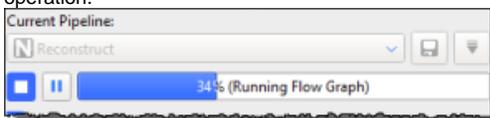
3. In the **Pipeline Tools** pane, from the **Current Pipeline** list, select a pipeline.

4. In the **Current Pipeline** operations list, ensure that the operation(s) to be run is selected.

5. Click the Run button to start the pipeline process. Each operation is run in the order it appears in the list from top to bottom.
The progress bar displays the results of the pipeline processing, and gives an indication of the percentage of processing completed for each operation.

The **Current Pipeline** operations list may contain the following information for each operation (to the right of the check box):

- **Processing** The operation is being processed.
- **Processed** The operation was completed successfully.
- **Failed** The operation was not completed successfully.
- **Stopped** The operation processing was stopped.

Create a pipeline

To save time, you can save and run sequences of frequently used processing operations using tools in the **Pipeline Tools** pane. Some pipelines can also be selected and run in the **Subject Preparation Tools** pane and the **Capture Tools** pane.

The following instructions describe how to create your own pipeline. For information on how to run an existing pipeline, see Run a pipeline.

To create a pipeline:

1. If you want to modify an existing pipeline, in the **Pipeline Tools** pane, in the **Current Pipeline** area, select an existing pipeline. If you want to create a new pipeline, go straight to the next step.
2. In the **Available Operations** list, expand ➕ or collapse ➖ the pipeline type to display or hide the operations you can use for that type of automatic processing of trial data:
    - **File Import** Operations for automating the import of trial files into Vicon Nexus from third-party software packages.

- **Core Processing** Operations for automating reconstruction, labeling, and kinematic fitting to produce 3D trajectories from raw marker data.
- **Subject Calibration** Operations for automating the processing of system and labeling skeleton calibration.
- **Events & Timebar** Operations for automating events and operations that can be carried out using the timebar.
- **Fill Gaps & Filter Data** Operations for automating the post-processing of data, such as gap-filling and data-filtering.
- **Data Processing** Operations for automating the production of model outputs (forces and moments, joint angles, etc).
- **File Export** Operations for automating the export of trial files from Vicon Nexus to third-party software packages.
- **System** Operations for automating offline camera calibration, applying a codec to video, resetting force plate offsets and setting the camera calibration origin.
- **Legacy** Operations for automating access to legacy labeling and fit motion.

For further details of each of the pipeline operations, see Pipeline tools in the *VIcon Nexus Reference Guide*.
To view a tooltip describing an operation's function, hover the pointer over its name in the list.

3. Double-click each operation that you want to include in your pipeline.
The operation is displayed in the list in the **Current Pipeline** section. The operations are run in the order they appear in the pipeline; to rearrange the order, drag operations into the required position in the list.

> ⊘ **Tip**
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> To automatically save the trial you are processing, add the **Save Trial - C3D + VSK** operation (located in the **File Export** pipeline operations) to your pipeline. As a general rule, you will want to save the trial as a last step after the other pipeline operations have been run, so position the **Save Trial - C3D + VSK** operation at the required point in the **Current Pipeline** operation list.

4. In the **Current Pipeline** list of operations, click on the operation you added in the previous step, then in the **Properties** pane at the bottom of the **Pipeline Tools** pane, view or change the settings as required.
5. To save your pipeline settings to a *.pipelines* file in the **Pipelines** folder (see Manage system configurations), click the Save button to the right of the **Current Pipeline** list.
6. In the **Save As** dialog box, supply a name for your new pipeline.
An asterisk * is displayed next to the pipeline name if there are unsaved changes.