

Note that this guide refers to Vicon ProEclipse 1.0, Vicon Nexus 1.# and early versions of Nexus 2. For the latest information, please see Data Management in the most recent Vicon Nexus documentation.

Vicon ProEclipse QuickStart Guide

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Introduction

This document describes Vicon ProEclipse. ProEclipse is an upgraded replacement component for Vicon's Eclipse data manager that adds new functionality in the form of: improved Data Navigation, Customization, and Data Search capabilities.

This document provides essential product information that you need to start using Vicon ProEclipse.

Product description

Vicon Eclipse is the common data manager component for Vicon's Life Sciences suite of applications including Vicon Nexus, Vicon Polygon, and Vicon Bodybuilder. The data manager component enables you to create Vicon databases (DBs) for storing and retrieving trial data, the individual files associated with a trial and data reports. This component also enables you to browse and connect to databases as well as to navigate within a database structure to find and open trials or reports of interest. ProEclipse offers all of these functions and adds improved data navigation, easier database customization and data search capabilities.

Requirements

Vicon ProEclipse is compatible with and fully supported under the Windows 7 operating system. Installation and software operations are tested under the 64bit Windows 7 operating system. Although Vicon Polygon may install and function under other Microsoft Windows operating systems, running ProEclipse under these operating systems is not officially supported or recommended by Vicon.

ProEclipse is compatible with Vicon Nexus 1.x, Vicon Polygon 4.x and Vicon Bodybuilder 3.x.

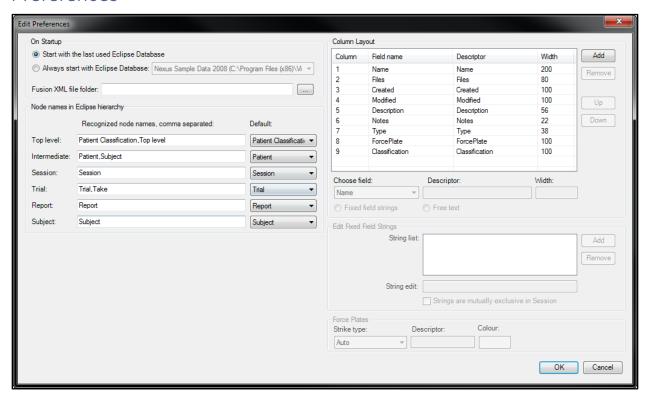


Customize

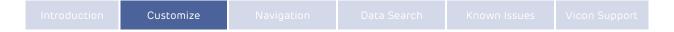
Vicon Eclipse offered you the choice of several database templates (*.ENF files). These files defined a basic naming structure for the database with *pre-set* columns headings. These column heading are referred to as metadata and included such fields as **Notes** and **Description** which enabled you to add pertinent information about trials to the database. However, the ability to customize *how* data was imported and *what* metadata column the database held was limited.

ProEclipse introduces the ability to customize the database structure via the Edit Preferences window. To access the Edit Preferences window, in the Data Management window, click the Eclipse button . and then click Preferences.

Preferences





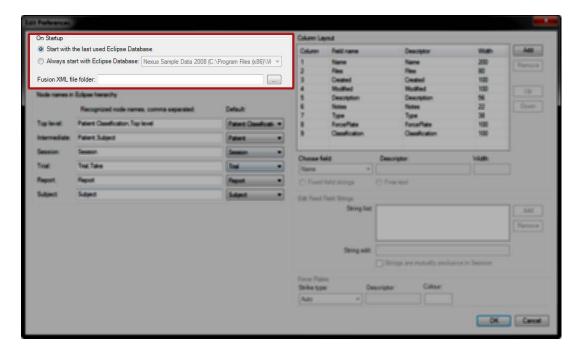


The Edit Preferences window consists of three main areas:

- On Startup preferences
- Data import preferences
- Database column customization (including force plate settings)

StartUp preferences

The On StartUp preferences section is located at the top left of the Preferences window.



Each time ProEclipse launches, you can choose which database will be actively selected (the current database). The options are:

- Start with the last used Eclipse Database The database that was last active when ProEclipse was closed will be launched (default setting)
- Always start with Eclipse Database: Specific database This option enables you to point to a specific database path. When this option is selected the specific database will always be opened regardless of which database was open at last close.



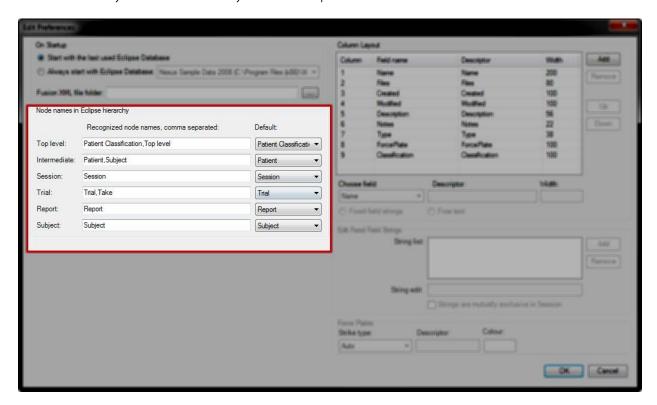
Database import settings

ProEclipse is compatible with and can import all Nexus-based, Eclipse-created databases. By default ProEclipse will automatically recognize the structure of and can import all standard Eclipse database template types including:

- Clinical Template 2FP.eni
- Clinical Template.eni
- Generic Template.eni

These are the generic database templates that are preinstalled with Vicon Nexus.

Although ProEclipse will handle the importation of these data structures automatically, with a little more input from you, it can also handle custom database structures. These are created if you have manually edited Eclipse ENI files.





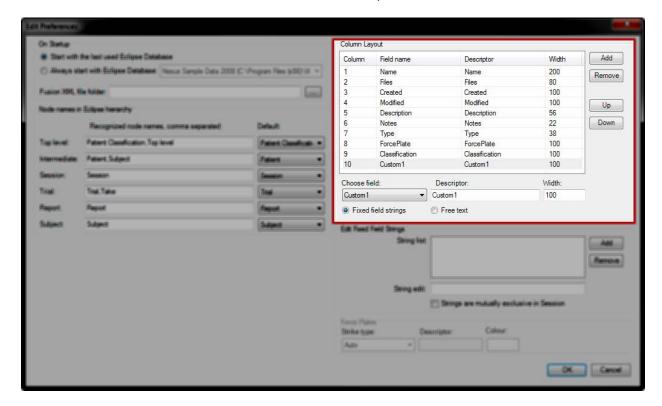
You can define/add the node names for custom database structures to the list under **Node names in Eclipse hierarchy**. This enables ProEclipse to automatically recognize these structures during database import.

During the database import process, if ProEclipse finds a custom field name that does not exist within the **Node names in Eclipse hierarchy**, it will prompt you to define this field and automatically add this to the definition list.

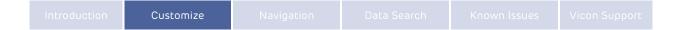
Creating custom columns (metadata fields)

The **Column Layout** menu on the **Preferences** tab enables you to control which columns will be present within your database structure. The items that can be defined include:

- Column descriptor
- Column width
- Order of columns
- Choice between fixed field text or free text entry

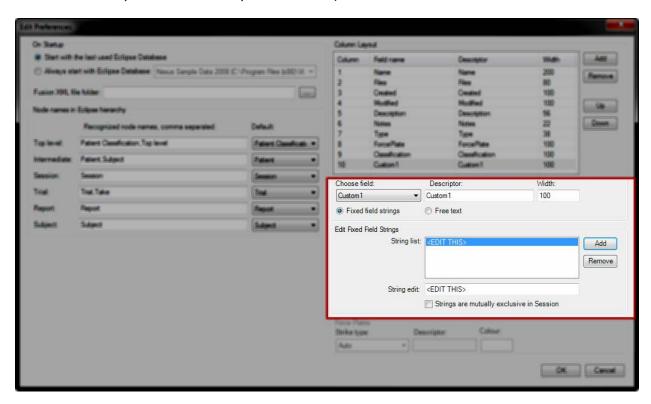






Adding fixed field strings

Fixed field strings enable you to define a series of predefined field conditions. In this mode, you can use only one of these conditions as an entry (as opposed to **Free text** mode, in which you can enter any custom text).

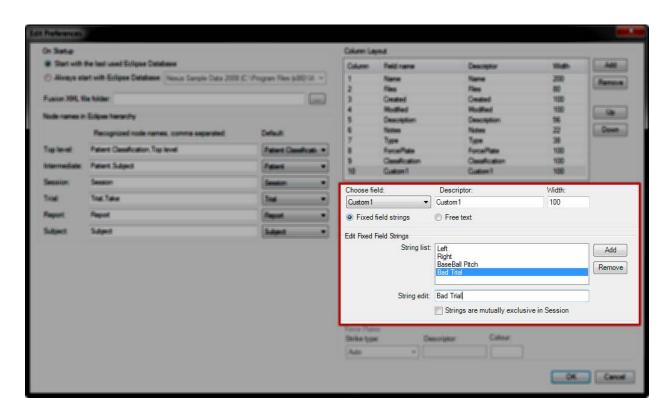


The following example shows a field that has been set to **Fixed field string** mode. Four condition strings have been added to the **String list**: **Left**, **Right**, **Baseball Pitch**, and **Bad Trial**.

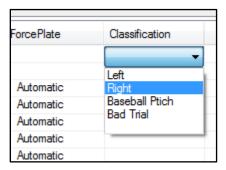
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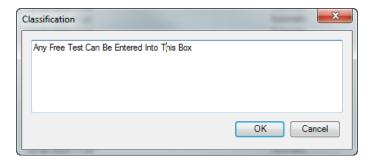
When a field is defined as **Fixed field string** mode, double-clicking on the field displays a dropdown menu containing only the entries you have defined. You can select only these options.







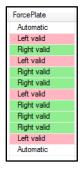
When a field is set to **Free text** mode, double-clicking on the field opens a free text entry box where you can add custom text.



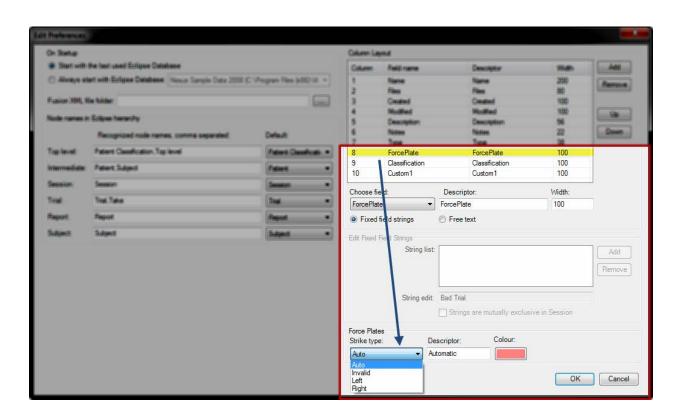
ForcePlate field customization

The **ForcePlate** field type is a special case within the **Column Layout** area. When you select this field type, the **ForcePlate** sub menu becomes active. This enables you to define:

- Strike type
- Descriptor
- Color







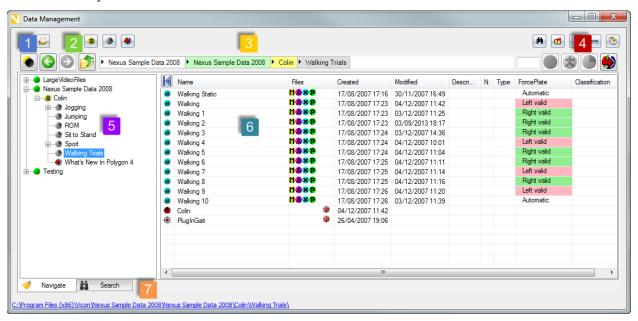




Navigation

The **Navigate** tab in ProEclipse is the main window where databases can be created, opened, viewed, and navigated. This fundamental functionality is the same as that available in Vicon Eclipse, but the data layout and controls have been updated to a more modern and efficient scheme.

General layout



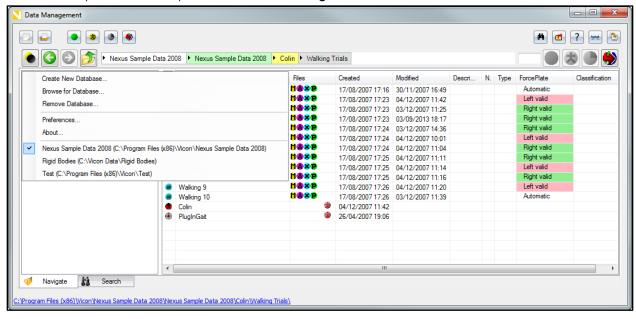
The ProEclipse navigation window consists of seven main areas. These are:

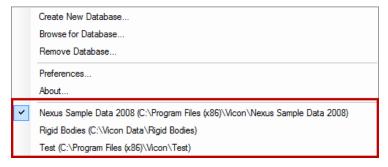
- The ProEclipse database management button
- Data navigation controls
- 3 Data path display / control
- Quick filter & add new data level controls
- Data tree viewer
- Trial file and metadata viewer
- Navigate / Search tabs



ProEclipse / Database menu 1

The ProEclipse icon opens the Data Management window.





The top three options in this menu enable you to create, browse for, and remove databases. You can also access the ProEclipse **Preferences** menu and the application's **About** menu.

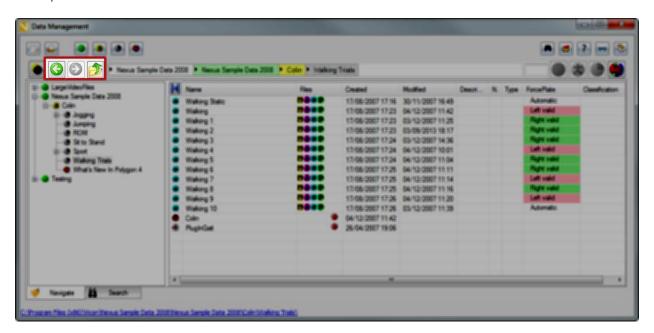
The red highlighted area in the above image shows the list of recent databases. The list is ordered with most recently opened database at the top. A check mark indicates the currently active database. The recent databases list is the fastest way to quickly switch between different databases that you have already accessed.



Navigation controls

The navigation controls are three icons in the top left of the ProEclipse main navigation window. They enable you to navigate through a data structure. These icons work in common web browser style:

- Back to the previous location/level
- Forward a level in location/level
- Up one level



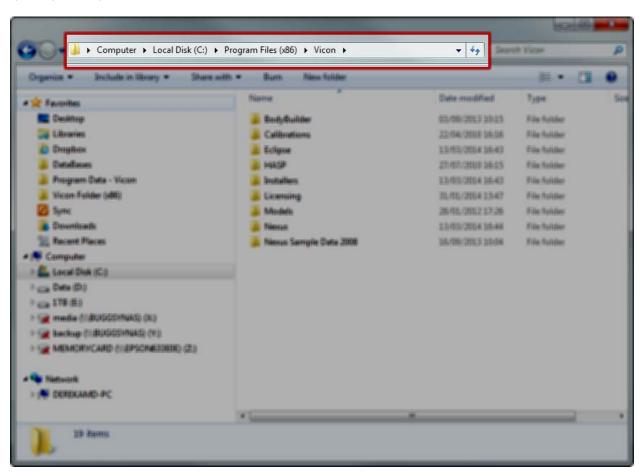
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Active path 3

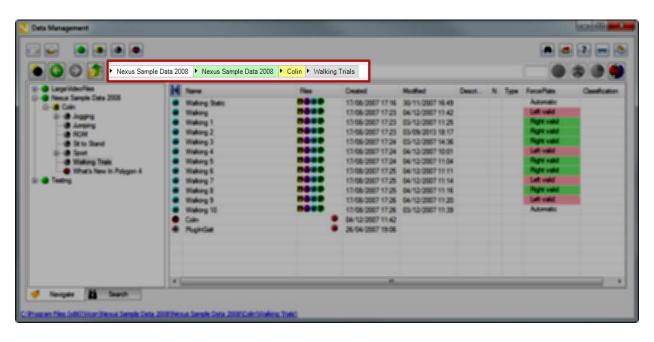
The active path area, at the center top of the ProEclipse navigation window, acts as both a display of current data location and as a quick navigation control.

When inside a database, the active path indicator works in the same way as the Windows Explorer path, by both displaying the data path location and enabling you to navigate quickly to any level.

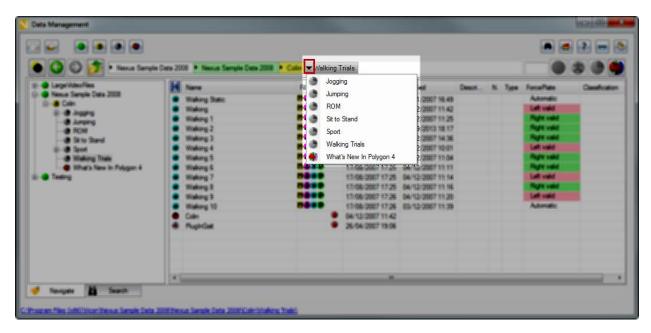


The levels displayed correspond to: Database, Patient Classification, Patient, and Session.





Clicking on any of these levels within the path jumps you to this level. Alternatively, you can click on the small triangle that is located to the left of each path level. This displays all child locations within that level, so that you can select one of these locations directly.





Navigation

Quick filter and add data level 4





The quick filter and add data level control buttons are located in the top right corner of ProEclipse. The four add data level icons are common to and function in the same way as the icons in Eclipse.



Add patient classification level to the current database



Add patient level to the current database



Add session level to the current database



Add report (Polygon) to the current database

Legacy add data level buttons



Legacy Add data level icons are located at the top left of ProEclipse.

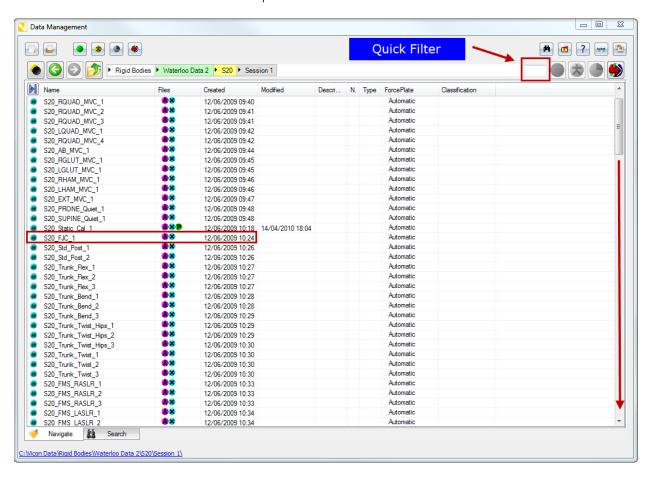
Caution: These buttons enable you to add any data level to the current location, regardless whether this fits a logical structure (i.e. you could add a top-level Patient Classification level inside a Session folder).

These icons exist for specific back-compatibility issues only. It is recommended that you click the new icons in the top right corner for adding data levels as these have logical controls that help to prevent the creation of data level mismatches.



Quick filter

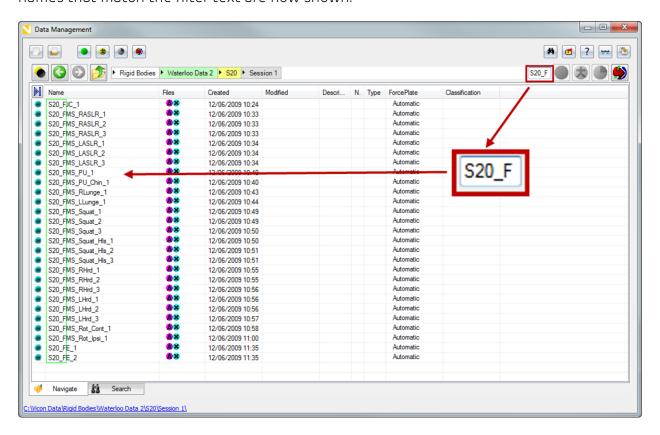
The quick filter box can be used to filter large data views to show only trials of interest. In the following example, a large number of trials are visible in the current main data view window. To find a specific trial (in this example, the trial S20_FJC_1), you can type one or several letters or numbers into the quick filter box.



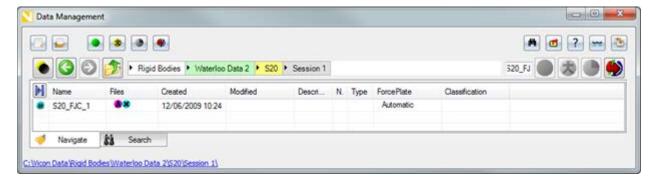




The following image shows the result of adding S20_F to the quick filter box. Only trial names that match the filter text are now shown.



If the filter text is extended from S20_F to S20_FJ then only one trial fully matches the filter and this is the only trial that is made visible.

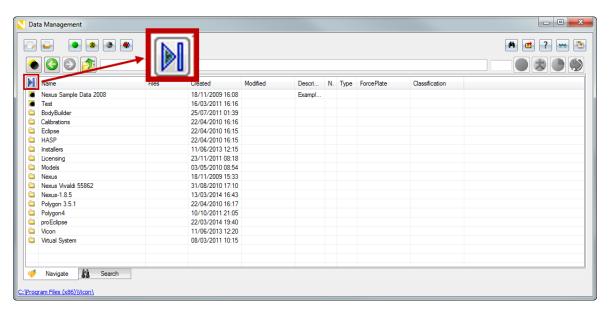


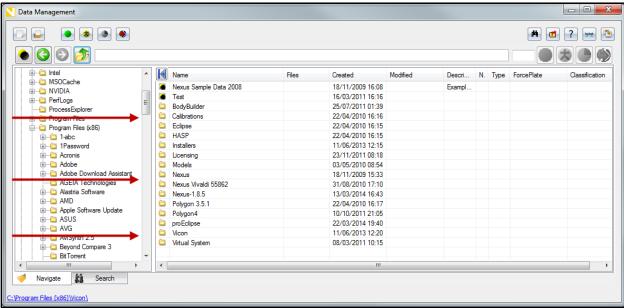
To returen the view to all trials, you delete the text from the filter control.



Tree view 5

The **tree view** icon is show below. When you click on this icon, a second data view pane opens to the left of the main data view pane. This is modeled on the Window Explorer navigation window and enables you to move more quickly around large data areas.

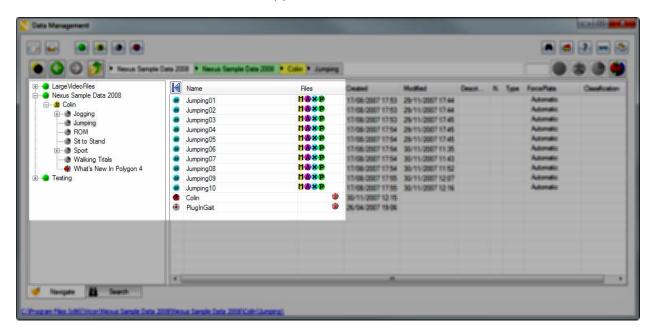








You can navigate both within databases and also at higher levels within *My Computer*. Navigating to higher levels (see image above) is a convenient way to locate unregistered databases on the hard drive or on mapped network drives.



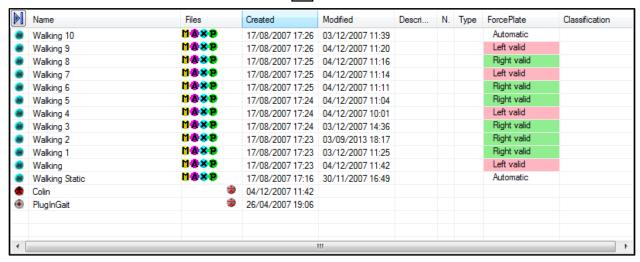
When you use tree view within a database, the tree structure provides a convenient way to move quickly between levels in a database, which is reflected in the main data view window.





Trial file and metadata viewer





The trial file and metadata viewer window fulfils the same function as the main window within Eclipse. This window enables you to view all files associated with trial:



- Movie files (*.AV)
- Analog files (*.X1D)
- 2DCamera Data files (*.X2D)
- 3D Processed Data files (*. C3D)

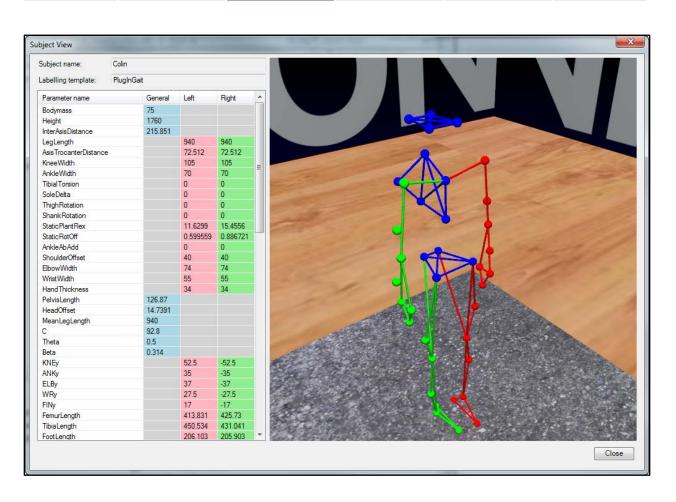
Viewing marker file and subject model file information

Marker files (*.MKR) and Subject model files (*.VSK) associated with a trial are represented by the following icons:



When you double-click a subject model icon, the Subject View window opens and displays model and model parameter information specific to the subject.







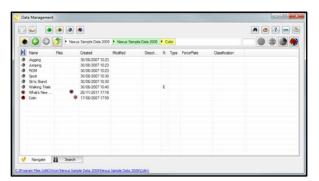


Navigate / Search tabs

Two tabs at the bottom of the ProEclipse window enable you to move between the navigation window and the data search window.



For information about the data search window; its layout and functions, see Data search on page 25.





When you switch between the **Navigate** and **Search** windows, notice that the current data locations area is maintained between the windows.

Example:

If, in the Navigate window, you navigate to Nexus Sample Data | Colin (a patient level containing session folders), this will be the active data level when you switch to the Search tab.

If, in the **Search** window, you click on the active path control and select the **Nexus Sample Data** level, this is the level that will be active when you return to the **Navigate** tab.

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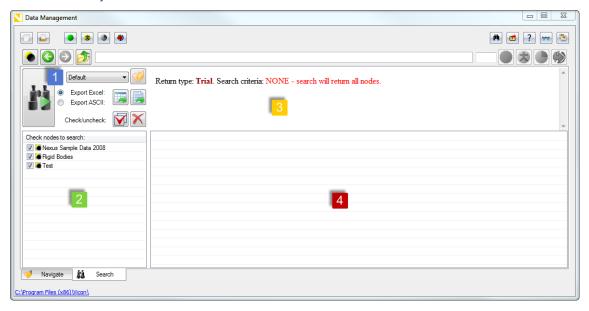
Data search

The ability to search for data within a Vicon database is new functionality that was not available in Vicon Eclipse. This searching capability enables you to find, sort, open, and export data within a database that matches a set of chosen criteria. Information contained within either the database metadata or the C3D files (or both) can be searched. These searches can be within a single database or across multiple databases. The databases can be located on the local PC or available on network drives.

Important: To search on network drives, the drives must be mapped, and you must have full Windows access permissions.

The data search function can be tremendously valuable for finding a single trial or for gathering multiple trials together for comparison or batch processing purposes.

General layout

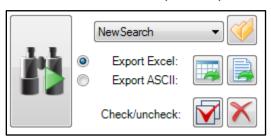


- Select, run, and export options for search queries
- Database(s) to search selection window
- Search query definition window
- Search returns window

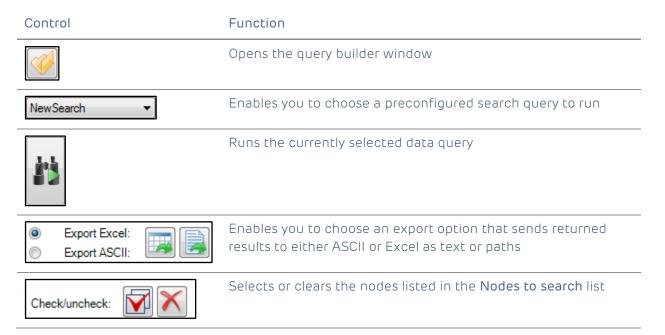
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Select, run and export options for search queries

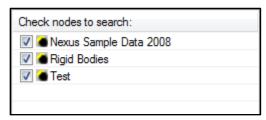


The set of controls in the top left hand side of the **Search** tab enable you to open the query builder window, choose a preconfigured query, run the currently selected query and access the results export options.



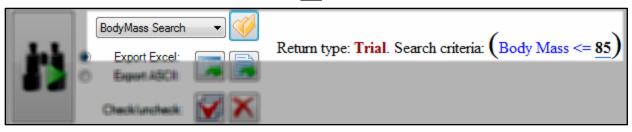


Database(s) to search selection window

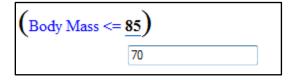


The Check nodes to search list box shows all the nodes that will be searched when the current data query is run. In the image above, three databases are selected. All data contained within these three databases will be searched for matches to the data query criteria.

Search query definition window



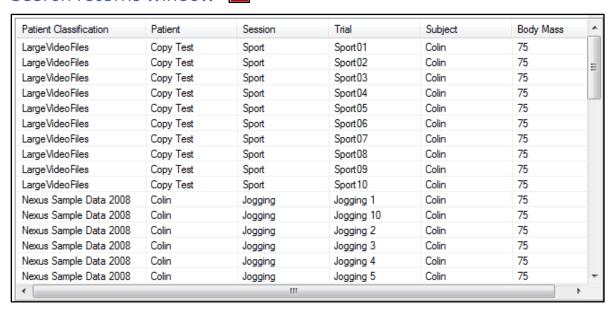
The search criterion for the currently selected search (BodyMass Search in the above example) is displayed in the search query definition window. You can adjust search values, such as the 85Kg in the above example, by clicking on them. All values that are editable in the search query definition window are <u>underlined</u>.





Search returns window





When a data query is run, all trials (or chosen data type) that meet the search criteria are returned and displayed in this window.



To sort data numerically or alphabetically (depending on data return type), you click a column heading.

Example: Clicking on the Body Mass column heading sorts the returns by Body Mass highest to lowest. Clicking a second time results in lowest to highest.



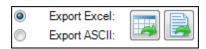
If you double-click on any of the returned values, the data level or data trial opens.

Example: Double-clicking on Copy Test would open the Copy Test Patient data level; double-clicking on SportO2 (a trial) would result in that trial being loaded.





Data export options



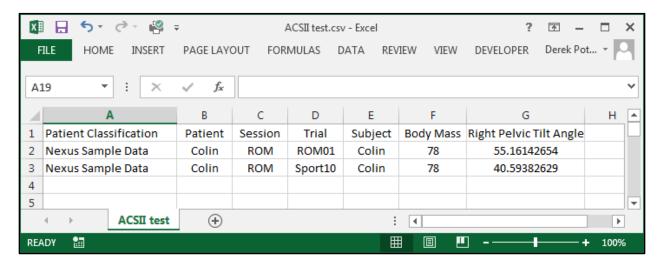
You can export data returned from a query in ProEclipse to either Excel or ASCII, with a data format choice of either Table or Path:

- Table format useful when you are presenting data
- Path format can facilitate further external data processing steps

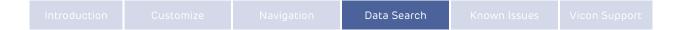
The following example is of a query return yielding two results:



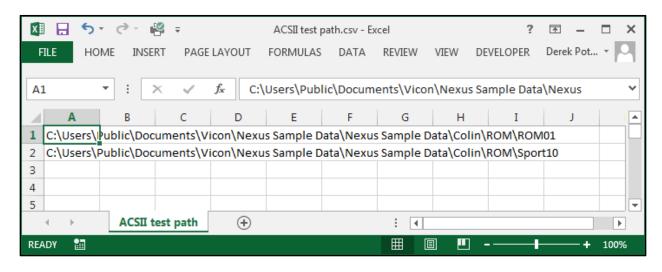
Data exported to Excel in Table format:







Data exported to Excel in Path format:



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Query builder

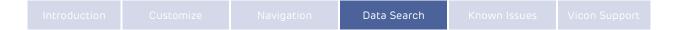
To open the query builder window, you click the **Open search queries for editing** button on the **Search** tab. Within this window you create, define and modify data search queries.

General layout

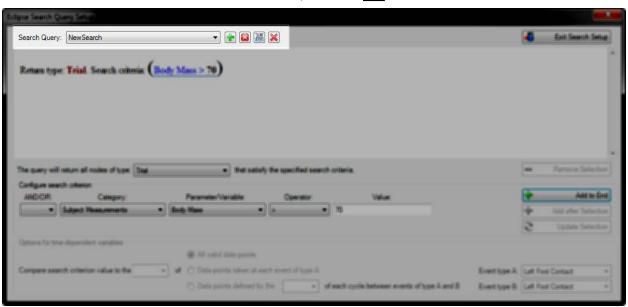


- Add, edit, delete and save data search queries
- Current data query display window
- Search criterion builder wizard
- Criterion build, update, and remove controls
- Time-dependent variable options





Add, edit, delete and save data search queries

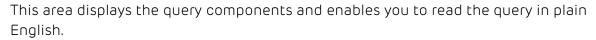


Control Function BodyMass Search Select a pre-configured data query Add a new blank query Edit the active query / exit edit mode Save the query Delete the active query

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Current data query display window





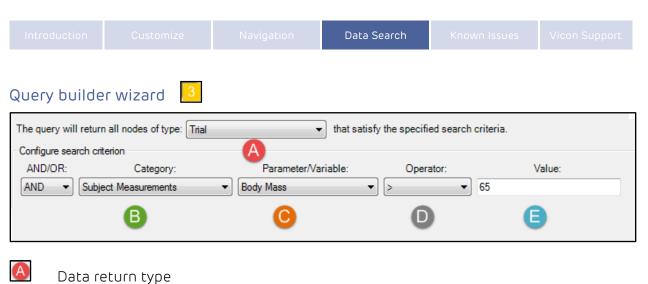
When you click on any of the current query components within the data query display window, the component becomes active or selected. When selected, a query component is highlighted in yellow.

```
Return type: Trial. Search criteria: (Right Knee Flex/Ext Angle(Avg)<= 70 OR Left Knee Flex/Ext Angle(Avg)<= 70 AND (Body Mass > 65) AND (Body Mass > 100)
```

```
Return type: Trial. Search criteria: (Right Knee Flex/Ext Angle(Avg)<= 70 OR Left Knee Flex/Ext Angle(Avg)<= 70 AND (Body Mass > 65) AND (Body Mass < 100)
```

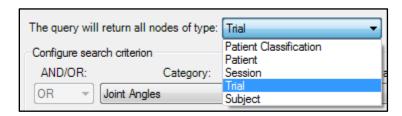
When you select a component, you can update/change or remove the component. Selecting a component also enables you to add new components in the correct sequence.





Category
Parameter/Variable
Operator
Value definition box

The **Data return type** drop down menu enables you to choose what data type will be returned with the search.



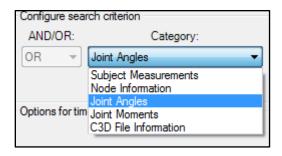
Trial (C3D files) is the default return type; however, you can also select Patient Classification, Patient, Session, or Subject as a return type.

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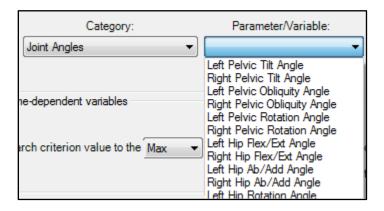


The Category drop down menu enables you to select metadata-based (database column data) or C3D-based data categories.



The five categories that can be selected include: Subject Measurements, Node Information, Joint Angles, Join Moments, and C3D File Information.

The Parameter/Variable drop down menu enables you to choose the specific parameter of variable of interest within the chosen category.

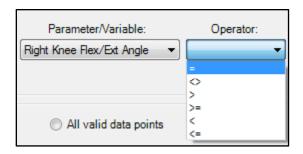


This drop down menu updates/changes based on which Category type is selected.

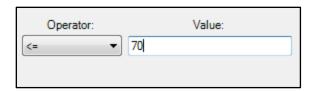




The **Operator** drop down menu contains a series of operators. The operators vary and update depending on the parameter or variable that is selected.

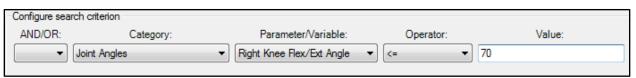


The Value box enables you to enter the value that is of interest.



The value is always in the units of the selected parameter/variable. In this example, because an angle is the variable of interest, the value of 70 represents 70 degrees.





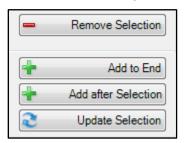
The data query display area shows that this example query will return trials (C3D files) whenever the Right Knee Flex/Ext Angle is less than or equal to 70 degrees.

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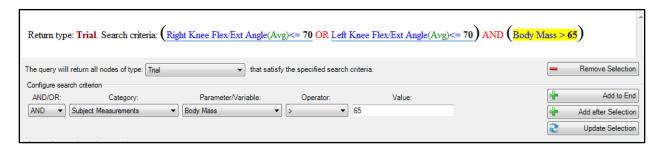


Criterion build, update, and remove controls



Selecting a component enables you to update/change or remove the component. Selecting a component also enables you to add new components in the correct sequence. These functions are accomplished by using the set of four controls on the right of the query builder window (see image above).

When an existing component is selected in the data query display window, its selections, settings, and values are reflected in the query building wizard.



Updating and removing components

In the example above the component Body Mass > 65 is selected.

- Clicking the Remove Selection button will delete this component.
- The value of 65Kg can be changed to another value and clicking the **Update Selection** button



Adding new components - Add to End, After Selection

To add a new component to an existing query, start by selecting and existing component. You can use either of the options Add to End or Add after Selection.

Add to End – Adds a new query component after the selected component as a *separate* component.

Return type: Trial. Search criteria:
$$\left(\frac{\text{Body Mass} > 65}{\text{AND}}\right)$$
 AND $\left(\frac{\text{Body Mass} > 65}{\text{AND}}\right)$

Add after Selection – Adds a new query component and *joins* this to the selected component as a conjoined component within a set of brackets.

Return type: **Trial**. Search criteria: (Body Mass > 65 AND Body Mass > 65)

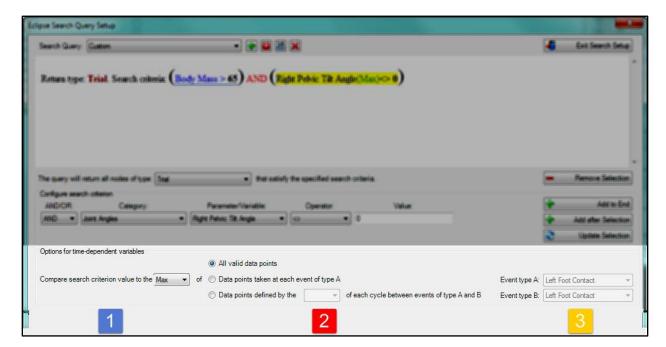
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Time-dependent variable options

The bottom section the Query builder window displays the options for time-dependent variables that are added to a query. This section is only available when a time-dependent component is selected (i.e. Joint angle, Joint Moment) and is disabled when non-time-dependent components (i.e. Body mass) are active.



- 1 Value to compare
- Timing for value of interest
- Events selection



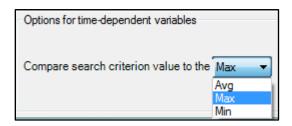
Value to compare



Time-dependent variables have differing values across a trial, depending on which time point in the trial you look at. A joint angle such as Knee Flext/Ext is an example.



The above is an example of a query designed to return trials when the Knee Flex/Ext angle is greater than 60 degrees.



Because time-dependent variables have many values across a trial, the search query needs to know what particular value to use for the comparison. The controls above enable you to specify whether the comparison value should be the **Average**, **Maximum**, or **Minimum** of all the values in the trial. The default option is always the Maximum.

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ProEclipse also enables you to specify a subset of values to feed into the Maximum, Minimum or Average function described in Value to compare on page 40. The subset is always defined by looking at events found in the trial and using these to define the subset. The options are:

- All valid data points are searched (the default option) as illustrated above; or
- Looking at data points found at specific events, eg, at Left Foot Strike events ; or
- Looking at data points found between pair of events, eg, between Right Foot Off and Right Foot Strike (i.e. in swing event).



Additionally, when considering data points between two events, you can select which value to use from these, and the choices are – as before – Maximum, Minimum, and Average.

For example, the search query can compare a value, eg 60 degrees, to the Average of the Maximum Knee Flex/Ext angle between Left Foot Off and Left Foot Strike (i.e. during swing). Put another way, the search will return a trial where, if you look at the peak knee flexion during each defined gait cycle, the average of these peak values is higher than 60 degrees.

Events selection 3

If you choose one of the two time constraint options for the timing of value of interest then the event selection control becomes active, enabling you to select events in the data that the search will be confined to.





Known issues

Eclipse archive trial options not supported

Vicon Eclipse supported a feature that enabled you to archive (compress) trials or groups of trials into an Eclipse archive file. These files could also be uncompressed within Eclipse. ProEclipse 1.0 does not support this files type.

It is recommended that before you import databases into ProEclipse, you use Eclipse to uncompress any archived data files.

Note: Importing a database with archived (compressed) trials does not cause any issues. The file is simply not recognized and cannot be uncompressed by ProEclipse.

Opening a ProEclipse-created database inside Eclipse

This topic covers forward compatibility and the ability to open a new format ProEclipse database in the older Eclipse component.

You can open a database that was created in ProEclipse within Eclipse. Eclipse does not support some of the new data structures that are customizable in ProEclipse and these columns of values *are* not visible in Eclipse.

For Eclipse to recognize and open a database, it needs to have two definition files.

- A database definition file (*.enf)
- A database template file (*.*eni*)

ProEclipse does create a blank, holding ENF file, but does not use ENI files.

Making a ProEclipse database usable in Eclipse

In this example, the ProEclipse database is called **NewData** and is located inside *C:\MyData*.

- 1. In Windows, navigate to the root folder of your database (*C:\MyData*).
- 2. Find the ProEclipse ENF file NewData.ENF.
- 3. Find an old Eclipse ENF file, for example, Nexus Sample Data. ENF.

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- 4. Find an old ENI file, for example, Clinical Template 1FP.ENI.
- 5. Copy the ENF and ENI files into the C:\MyData folder.
- 6. Delete the NewData.ENF file (which is blank inside anyway).
- 7. Rename the Nexus Sample Data. ENF to NewData. ENF.
- 8. Launch Eclipse and browse to this ENF.

The database will now open in Eclipse.

Navigating to a network drive with no user access causes the application to hang

The left tree view navigation pane enables you to see mapped network drives. If ProEclipse is pointed to a mapped network location where the current user does not have full access rights then the application can hang, resulting in you having to force the application to close via the Task Manager.

To avoid this, ensure that you do not click on a network location to which you do not have full Read/Write access permissions.

Double clicking on a trial name in Vicon Polygon opens Nexus

If you double-click on a trial name in Vicon Polygon, the trial is opened in Vicon Nexus. To import a trial into a Polygon Report, double-click the green picon.

Right-click video file import does not work

If you select **Open Video File (*.avi)** from the context (right-click) menu, the video file is not imported. To import .avi video files, double-click the yellow occur.



Vicon Online Support

If you are a licensed Vicon user and have a valid Vicon System Maintenance Agreement, you can access the Vicon Online Support knowledge base at www.vicon.com/support.

Tip: To access Vicon Online Support on the web, you must have a Vicon Online Support User ID and password. If you do not have this information or need assistance with logging in to Vicon Online Support, contact Vicon Support at support@vicon.com, or click the Register link on the Vicon Online Support page and complete the application to have a username and password emailed to you.

This section describes the support resources available from the Vicon Online Support knowledge base:

- Downloads. Obtain latest firmware and other software patches, models and scripts, and product documentation.
- FAQs. Locate topics providing answers to frequently asked questions about Vicon hardware, software, plug-ins, and licensing as well as third-party software.
- Cases. Submit your own question or report a problem if you cannot locate the information you need in the FAQs, then track responses to your questions and updates to your problems.

To log in to Vicon Online Support:

- From a web browser, enter the URL for Vicon Online Support: www.vicon.com/support. The Vicon Support + Services page is displayed.
- 2. In the **Log in** area, enter your Vicon Online Support **Username** and **Password**, agree to the Terms and Conditions by checking the **Agree to terms and conditions** box, and then click **Enter**. The Online Support page is displayed with your account information below the available Vicon Online Support sections on the left side of the page.
- 3. When you are ready to exit Vicon Online Support, click the Logout link.



Further resources

Vicon 3D motion capture and analysis systems have been applied to technologies in the fields of human movement sciences, clinical analysis, computer animation, and engineering around the world.

You can use these resources to keep up to date with Vicon developments:

- Vicon newsletters. Register to receive Vicon newsletters via email for your field of interest:
 - Online: Complete the form on the Contact page of our web site: www.vicon.com/contact/
 - Email: Send a request to: info@vicon.com
- The Standard. You can view the latest issue of The Standard online or subscribe to receive a printed copy from the web site: www.viconstandard.org/. This publication contains articles on motion analysis in science and engineering research and application projects. Articles are contributed by practicing experts and leading authorities in laboratories throughout the world.
- Visit Vicon on Facebook, Twitter, and YouTube:





