

## Chapter 21 Licensed Functionality: Workflow

Workflow functionality is available through an optional license available with *AcqKnowledge 5*. The license must be authorized to access Workflow functionality, which runs on and automatically includes BIOPAC Scripting. To add a Workflow license to an existing MP System, please contact BIOPAC.

### Using Workflow to Create Automated Analysis

*AcqKnowledge* Workflow is a licensed feature that allows users to create automated analysis routines or macros without any prior scripting knowledge. Workflow uses a simple and intuitive drag-and-drop interface to string together a series of Actions. This feature requires *AcqKnowledge 5.0.8* or later.

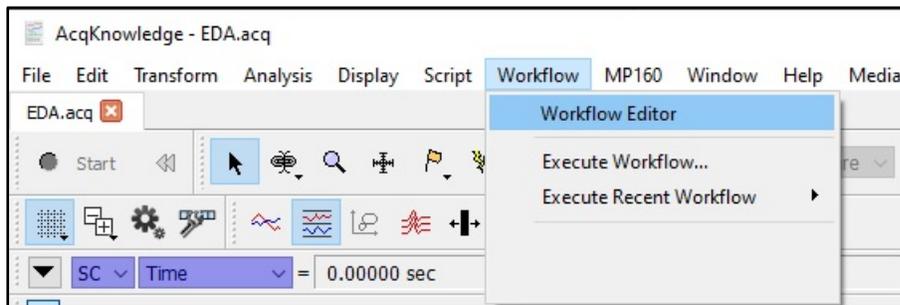
The Workflow license for *AcqKnowledge*

- enables the Workflow menu with drag-and-drop interface

Workflow runs on and automatically includes BIOPAC Scripting (see Chapter 22: Scripting), which enables the Workflow menu, links the BIOPAC Basic Reference under Help, adds Preferences for Scripting, and adds the “Run Macro” Calculation channel Preset.

### Getting Started with Workflow

- To create a new Workflow, choose the menu item Workflow > Workflow Editor from the menu bar in any graph file. Note that the **Transform** and **Analysis** tabs are greyed out and unavailable when in Workflow Editor.

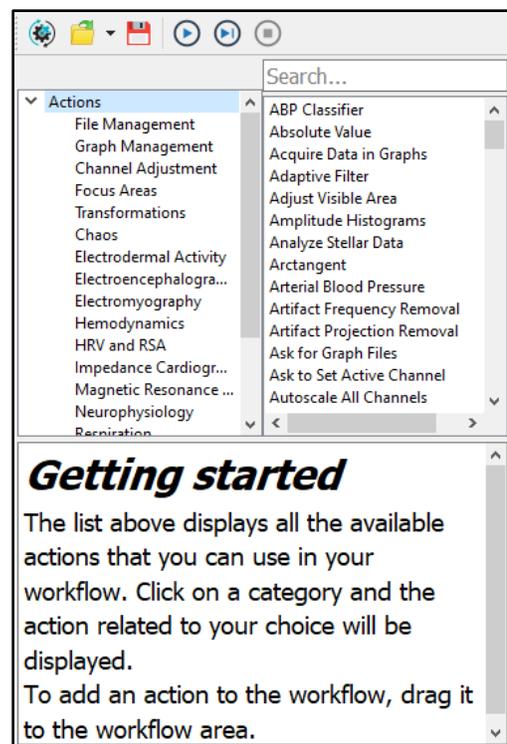


- Three windows will be displayed on the left side of the screen. The upper left window lists Actions

Categories under the heading **Actions**. Clicking the **Actions** heading will display a comprehensive list of possible Actions that can be performed in the window to the immediate right (beneath the **Search** window). Clicking a category filters the Actions in that category, and only those filtered Actions appear in the right window. Actions can also be located by entering key words into the **Search** window.

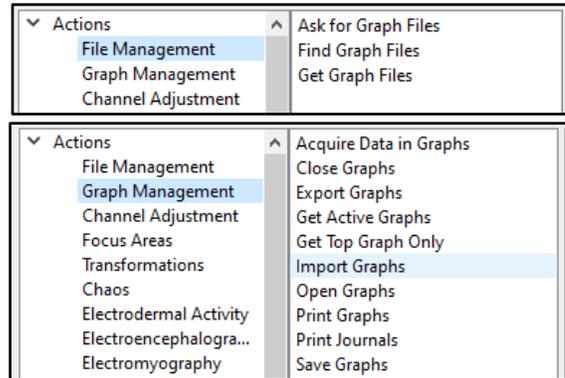
The information window in the bottom left side of the Editor screen displays a description of what each Action does. If no specific Action is selected, it will display the “Getting started” dialog. This dialog provides basic instructions on how to select Actions and add them to your Workflow.

- Six control icons are located on the tool bar above the Action windows. The Actions these icon buttons control are (from left to right) **New Workflow**, **Open Workflow**, **Save Workflow**, **Run Workflow**, **Run Workflow Step by Step**, and **Stop Workflow**.



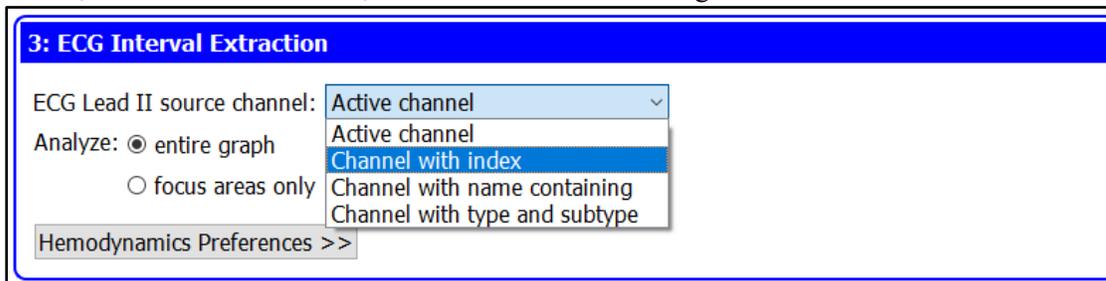
### Creating a New Workflow by Adding Graphs

1. Workflows operate on graph windows selected via the **Graph Management** Actions category. Graph windows may be opened either through the user interface (e.g., via “File > Open...”) or via **File Management** Actions.
2. Select a graph or graphs via Actions in the **Graph Management** category. If no such Actions are selected, the Workflow will not perform any useful function. Drag and drop the Action into the **Workflow** window.



### Selecting and Adding Actions to Workflow

1. Once one or more graphs have been added to the Workflow, additional Actions can be added by simply dragging and dropping them into the **Workflow** window.
2. Once an Action has been dropped into the Workflow window, it will be displayed as a numbered step in the Workflow. After an Action has been added to the Workflow, it cannot be dragged to a new position. If a user wishes to change the order of Actions or remove the Action from the Workflow, click the “x” in the upper right corner of the Action in the Workflow window to delete the Action. Actions can then be readded to the Workflow in the desired location or a new Action can also be added to any position in the Workflow order.
3. Many Actions have options and variables for the user to select and/or define, which are displayed once the Action has been dropped into the Workflow window. These user-defined options may be shown as pull-down menus, check boxes or buttons, or text windows for entering numerical values.



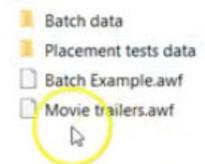
As an example, the above image shows the **ECG Interval Extraction** Action with options shown in both pulldown menus and buttons, as well as a **Hemodynamics Preferences** tab (closed), which when opened allows the user to select an additional range of options.

4. Once Actions have been added to a Workflow and options have been selected for those that require them, the completed Workflow can be saved by clicking the **Save** icon and naming the Workflow file, which will be saved with the .awf file extension.



### Running a Workflow in AcqKnowledge

1. Once a Workflow has been saved it can be run in conjunction with an *AcqKnowledge* .acq file. Begin by opening the associated .acq file (in *AcqKnowledge* 5.0.8 or later) with which you would like to run an existing Workflow. Make sure the Workflow contains the Actions to select the correct graph or graphs from the Graph Management category (see **Creating a New Workflow by Adding Graphs**).
2. With the *AcqKnowledge* file open, select the Workflow tab and open the Workflow Editor. With Workflow Editor open, select the Open File icon from the Workflow toolbar and navigate to the *AcqKnowledge* Workflow file (.awf) you wish to open.
3. Once the Workflow is open, the list of Actions will be displayed in the Workflow window.
4. To execute the Workflow, simply click the **Run Workflow** icon from the toolbar.
5. Optionally, users can run the Workflow so that it pauses after each step.



To do this, click the **Run Workflow Step by Step** icon and continue clicking it to progress the Workflow through each Action. Click the **Stop Workflow** if you need to halt the Workflow's progress mid-run.

6. The Workflow will stop automatically once all Actions have been completed.