

Getting started with OrigaMaster 5

ElectroChem
OrigaLys

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1. Welcome

The OrigMaster 5 is a Windows® based PC program dedicated for use with the electrochemical units from Origalyr.

With its USB interface, the OrigMaster 5 PC software benefits from improved data-computing, and is compatible with Windows XP, Vista, 7 and 8.

In addition to the usual methods it also features graphic programming of the sequences, the possibility of running conditional loops, cycle tests, and insertion of a mathematical equation, of starting a peripheral, and receiving start/stop commands from external units.

OrigaStat with its logical inputs combined with OrigMaster 5 and its start/stop instructions, provides a complete automation for electrochemical applications.

OrigMaster 5 automatically records all data obtained on unit interfaced via a standard USB port. OrigMaster 5 is a powerful data archiving tool, which enables you to access your stored results and curves in a flash.

With OrigMaster 5, you never lose or miss a single record thanks to automatic uploading and archiving of all results and curve data points obtained from your connected electrochemical unit.

2. System requirements

Your PC must fit the recommended requirements for Windows operating system installed: XP Pro (SP2), Vista, 7 or 8.

3. Installing OrigMaster 5

This topic explains how to install OrigMaster 5 in the proposed default directories and how to update OrigMaster 5.



Refer to paragraph 2 System requirements and make sure that your PC complies with the minimum configuration recommended.

- Close all applications and disable your antivirus application.
- Insert the USB key into an appropriate USB port.
- Start Windows Explorer, locate the Setup.exe program then run it.
- Select the language of the installation software.
- Installation starts with the Welcome dialogue box.
- Click the **Next** button.
- Accept the License agreement and click the **Next** button.
- In the "Customer information" dialogue box, enter your name, the name of your company.
- Review your installation settings. Accept the installation directory proposed by default clicking **Install**.
- The setup program creates the destination directory (C:\Program Files\Origalyr Electrochem\OrigMaster 5 by default), transfers the files into the directory and to the C:\Windows\System directory and creates an Origalyr program group for starting the OrigMaster 5 in the **Start - All programs** folder.
- Click the **Finish** button at the end of installation.



OrigMaster 5 is installed in English and is running in English.



Make sure that you have downloaded the latest version of the OrigaStat Electrochemical unit embedded software.

Please contact us at www.origalys.com for more information.

4. Setting up the devices

Please refer to your "Getting started..." manual.

5. Starting OrigMaster 5 For the first time

To start OrigMaster 5:



Click the OrigMaster 5 icon in the PC Desktop or select Start > All programs > Origalyr > OrigMaster 5 > OrigMaster 5.



You can also pin the OrigMaster 5 execution file to your taskbar or Start menu.

The OrigMaster 5 name and software version are displayed for a short time then the OrigMaster 5 Main window appears. You are now ready to start your first analysis!

6. The OrigMaster 5 Main window

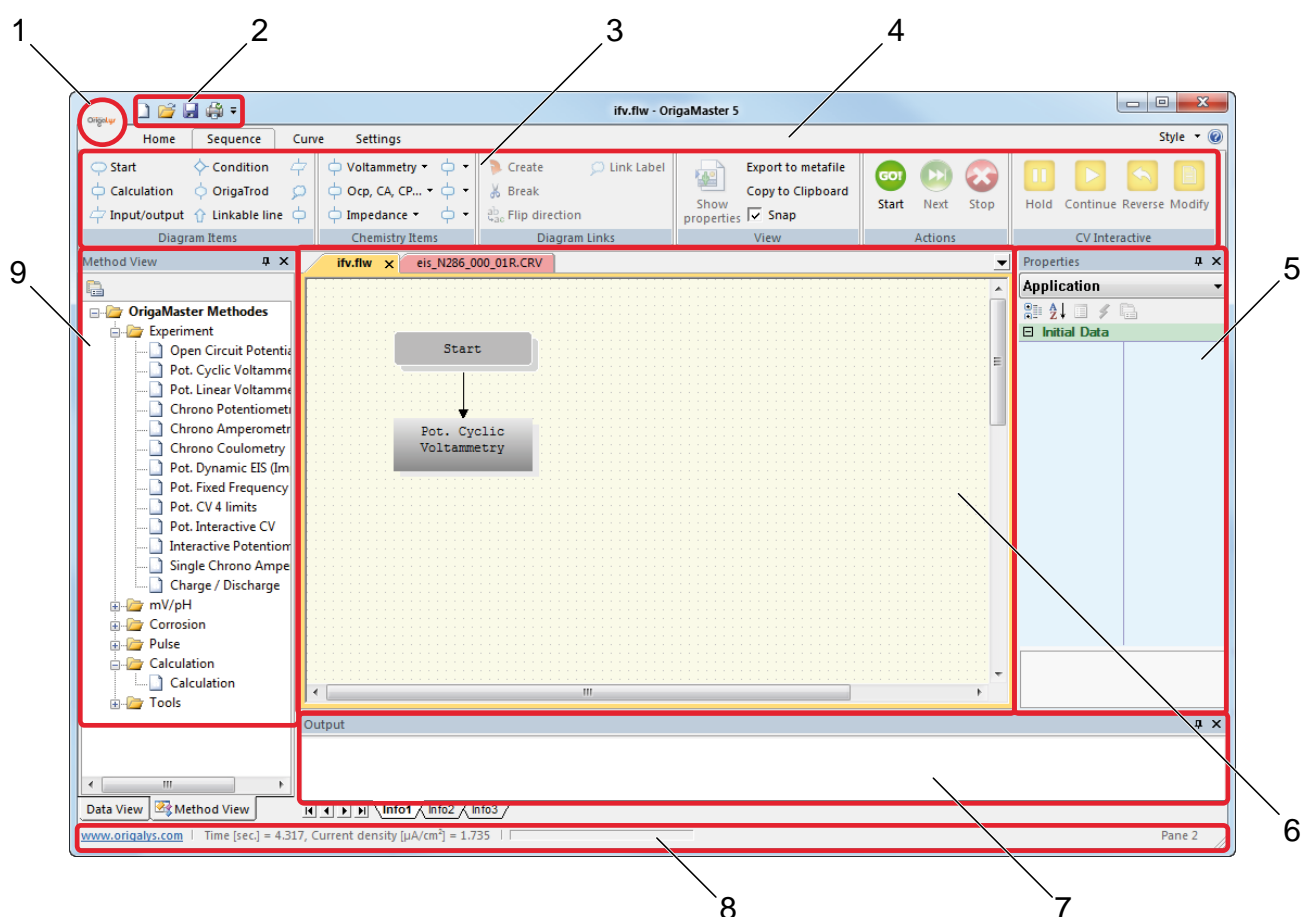


Figure 1: Main window

6.1 ORIGMASTER 5 BUTTON (REF. 1)



Click this button to create, to open, to save or to print a new OrigMaster 5 file (experiment or curve file).

6.2 QUICK ACCESS TOOLBAR (REF. 2)

The OrigMaster 5 Quick Access Toolbar is a customizable toolbar that contains a set of commands. You can display the Quick Access Toolbar below or above the ribbon, and you can add buttons that represent commands to the Quick Access Toolbar.


a. Moving the Quick Access Toolbar

The Quick Access Toolbar can be located in one of two places:

- Upper-left corner next to the OrigMaster 5 Button (default location),
- Below the Ribbon, which is part of the Microsoft Office Fluent user interface.

If you don't want the Quick Access Toolbar to be displayed in its current location, you can move it to the other location. If you find that default location next to the OrigMaster 5 Button is too far from your work area to be convenient, you may want to move it closer to your work area. The location below the Ribbon encroaches on the work area.

Therefore, if you want to maximize the work area, you may want to keep the Quick Access Toolbar in its default location.

- Click Customize Quick Access Toolbar Button image .
- In the list, click "Show Below the Ribbon" or "Show Above the Ribbon".

b. Adding a command to the Quick Access Toolbar

You can add a command to the Quick Access Toolbar directly from commands that are displayed on the OrigMaster 5 Fluent Ribbon.

On the Ribbon, click the appropriate tab or group to display the command that you want to add to the Quick Access Toolbar.

Right-click the command, and then click Add to Quick Access Toolbar on the shortcut menu.

6.3 TITLE BAR (REF. 3)

It displays the name of the software and the name of the active OrigMaster 5 document file (flw experiment file or crv curve file).

6.4 RIBBON (REF. 4)

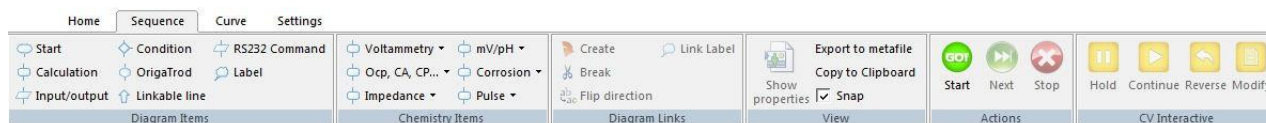



Figure 2: Ribbon

The Ribbon is designed to help you quickly find the commands that you need to complete a task. Commands are organized in logical groups, which are collected together under tabs. Each tab relates to a type of activity, such as:

- **Home tab:** Clipboard, view and new window commands
- **Sequence:** all the tools that are required to edit and run an experiment
- **Curve:** all the tools that are required to process a curve and calculate results in deferred time
- **Settings:** direct access to the setup parameters of your hardware system

a. Always keep the Ribbon minimized

You can minimize the Ribbon to make more space available on your screen.

1. Click Customize Quick Access Toolbar Button image .
2. In the list, click "Minimize the Ribbon".

To use the Ribbon while it is minimized, click the tab you want to use, and then click the option or command you want to use.


For example, with the Ribbon minimized, you can start an experiment by clicking the Sequence tab, and then in the Action group, clicking the Start command. After you click the Start command, the Ribbon goes back to being minimized.

- b. Keep the Ribbon minimized for a short time

To quickly minimize the Ribbon:

1. Double-click the name of the active tab.
2. Double-click a tab again to restore the Ribbon.

- c. Restore the Ribbon to its original size

1. Click Customize Quick Access Toolbar Button image .
2. In the list, click "Minimize the Ribbon".



Keyboard shortcut: To minimize or restore the Ribbon, press CTRL+F1.

6.5 PROPERTIES TOOLBOX (REF. 5)

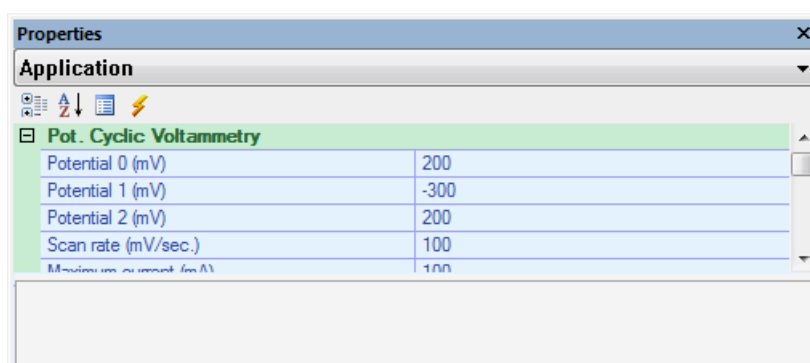




Figure 3: Properties Toolbox

The Properties toolbox is originally placed below the ribbon of the OrigMaster 5 window.

It shows the operating parameters of the method selected in the Main frame. These parameters can therefore be edited as for a Pot (Cyclic Voltammetry in the above example).

The Properties toolbox offers an information box that describes shortly the parameter being edited.

A set of icons is available:

-  for showing or hiding the menu tree of parameters
-  for sorting the parameters in alphabetical order


6.5.1 Operations on Properties toolboxes



To move the toolbox: Drag the toolbox by the top bar.

To replace the toolbox to its original place: Double click the top bar.

- To hide the toolbox: Click the Auto hide button  in the top bar.



When the Auto hide function is activated, the toolbox is minimized to a button  Properties. Move the mouse pointer over this button to display the toolbox for a while.

- To disable the Auto hide function and display the toolbox permanently: Move the mouse pointer over the Properties button (see above) then click the Auto hide button  in the top bar.
- To close (or permanently hide) the toolbox: Click the close button  in the top bar.

To open (or permanently display) a closed toolbox: Click the Home tab, and then in the View group, click the Properties command.

6.6 MAIN FRAME (REF. 6)

The Main frame is organized in tabs with 2 categories of tabs:

- The experiment tabs named "xxx.flw". This category of tab is used to create and edit sequences. In this area, the experiment is displayed as a sequence of methods.
- The curve tabs named "xxx.crv". This category of tab is used to display and process curves.
- The OriginaMaster 5 can house several Main frames. In the example below, two frames (two experiment tabs in the first frame and one curve tab in the second frame).

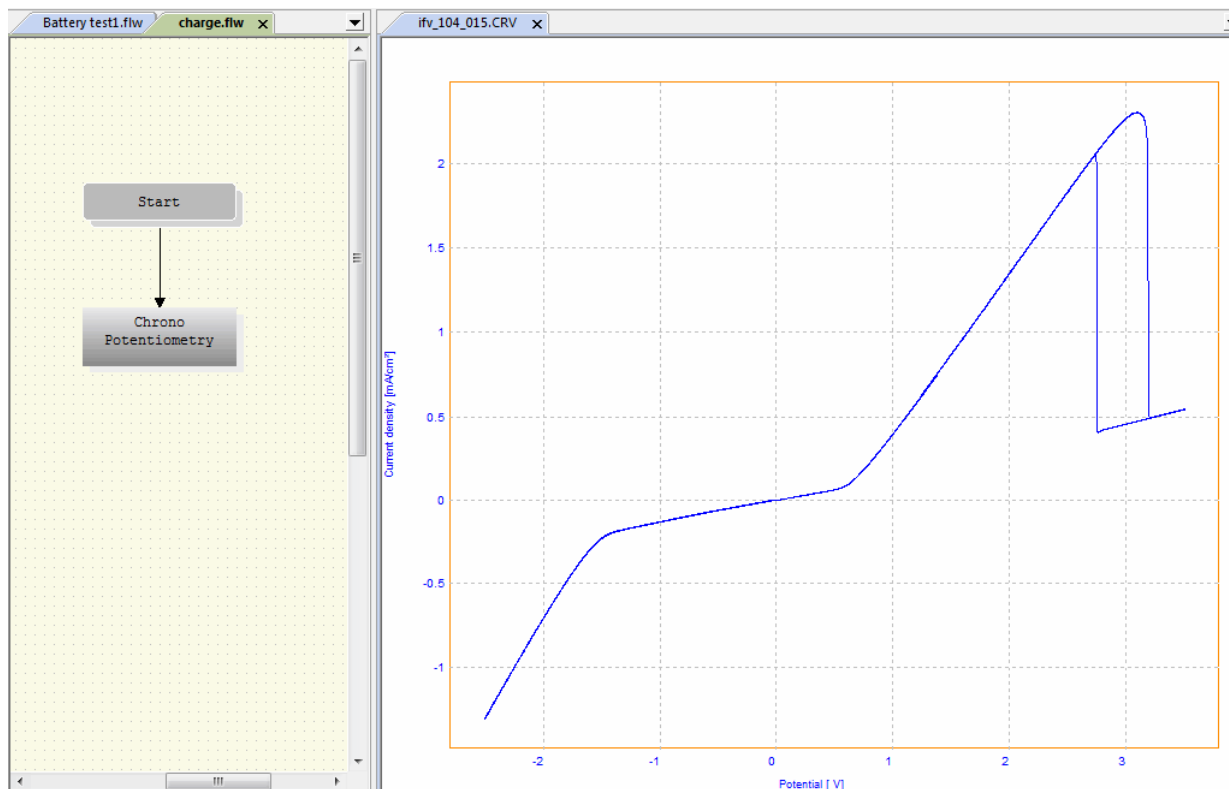


Figure 4: Main frame

To move a tab from a frame to a new one:

1. Point to the tab name.
2. When the pointer becomes an arrowed document, drag the tab name outside the tab area.

To merge tabs coming from different frames:

1. Point to the tab name.
2. When the pointer becomes an arrowed document, drag the tab name inside the tab area of the target frame.

6.7 OUTPUT TOOLBOX (REF. 7)

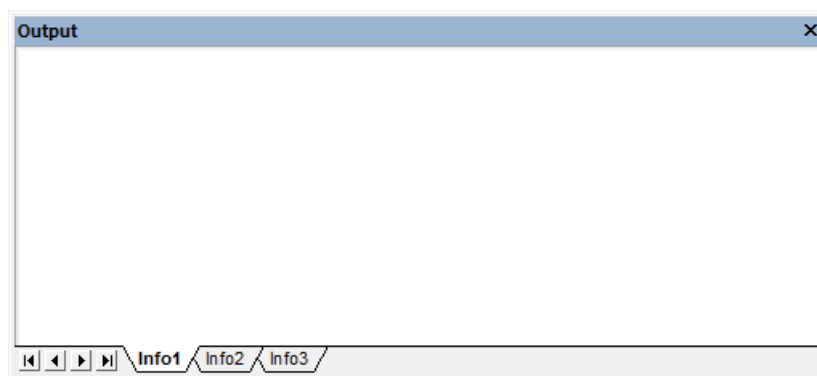


Figure 5: Ouput box

The Output toolbox is originally placed at the bottom above the status bar of the OrigMaster 5 window.

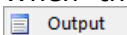
6.7.1 Operations on Output toolboxes

To move the toolbox: Drag the toolbox by the top bar.

To replace the toolbox to its original place: Double click the top bar.

To hide the toolbox: Click the Auto hide button in the top bar.



When the Auto hide function is activated, the toolbox is minimized to a button . Move the mouse pointer over this button to display the toolbox for a while.

To disable the Auto hide function and display the toolbox permanently: Move the mouse pointer over the Output button (see above) then click the Auto hide button in the top bar.

To close (or permanently hide) the toolbox: Click the close button in the top bar.

To open (or permanently display) a closed toolbox: click the Home tab, and then in the View group, click the Output command.

6.8 STATUS BAR (REF. 8)

The Status bar displays the OrigMaster 5 working status and a progress bar while an experiment is running and the current date and time.

To display or hide the status bar, click the Home tab in the Ribbon then click the Status Bar command in the View group.

6.9 METHOD VIEW TOOLBOX (REF. 9)

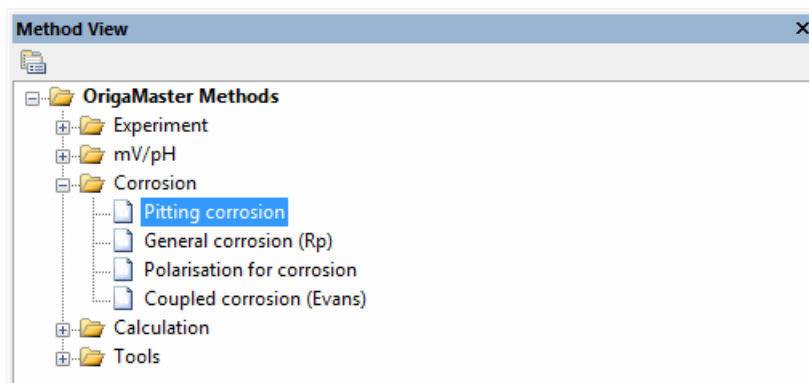


Figure 6: Method view box

The Method view toolbox is originally placed on the left side of the OrigMaster 5 window. This box lists all OrigMaster 5 methods that are available to build up an experiment.

These methods are classified in groups of interest: Experimental methods, mV/pH measurement methods, Corrosion study methods, calculation methods and practical tools.

6.9.1 To select a method for edition in a sequence

- Double click the group then double click the name of the method,



The pointer of the mouse is changed to a cross.


- Move the cross above the experiment frame and click.


6.9.2 Operations on Method view toolboxes

To move the toolbox: Drag the toolbox by the top bar.

To replace the toolbox to its original place: Double click the top bar.

To hide the toolbox: Click the Auto hide button  in the top bar.

To disable the Auto hide function and display the toolbox permanently: Move the mouse pointer over the Method view button (see above) then click the Auto hide button  in the top bar.

To close (or permanently hide) the toolbox: Click the close button  in the top bar.

To open (or permanently display) a closed toolbox: click the Home tab, and then in the View group, click the Method view command.

7. Editing and running my first experiment

7.1 CHECKING THE COMMUNICATION WITH ORIGASTAT SYSTEM

The OrigaStat system is connected to the PC USB port and powered on.

In the menu bar of the OrigaMaster 5 main window, select **Settings** then click the **Information** icon.

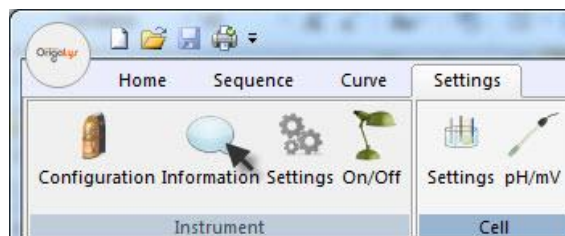


Figure 7: Information

OrigaMaster 5 reports if the communication is well established and displays the name of the potentiostat connected. If a message **Unable to communicate with xxx** is displayed, check USB connection and cable between potentiostat and PC and check if the potentiostat is powered (On/Off power switch set to On).

7.2 CREATING AN EXPERIMENT FILE

In the Quick access toolbar of the OrigaMaster 5 Main window, click the  icon.

A new window named "New1" is created. You have created a new experiment.

7.3 DEFINING THE EXPERIMENT

An experiment is a chain of methods (or items). An experiment must be initiated with the Start item then you can add every kind of methods depending on your needs.

Do not forget to insert a **Start** item at the first step of your experiment. If not, the potentiostat will not be able to run the experiment because OrigaMaster 5 has no information about the electrode system used.

7.3.1 Inserting a Start item in your experiment

1. In the **Diagram items** group of the **Sequence** ribbon, click on **Start**.

The pointer of the mouse is changed to a cross.

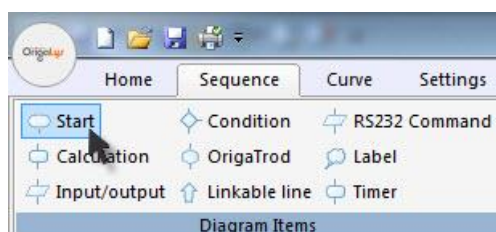


Figure 8: Start item (1/2)

2. Move the cross above the experiment frame and click.
The Start item is displayed in the experiment frame as shown below.

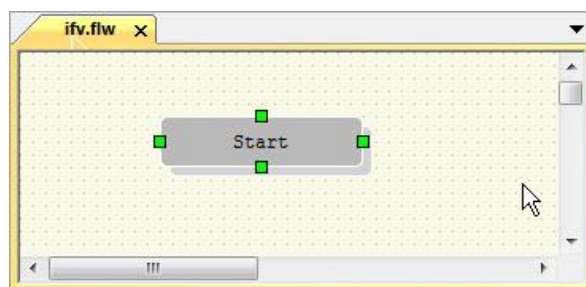


Figure 9: Start item (2/2)

7.3.2 Inserting a second item to your experiment, for example "Pot Cyclic Voltammetry"

1. In the **Chemistry Items** group of the Sequence ribbon, click on the arrow at end of line Voltammetry.
2. In the list displayed, click on **Pot. Cyclic Voltammetry**.
The pointer of the mouse is changed to a cross.

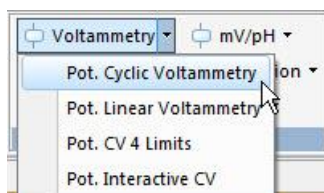


Figure 10: Second item (1/2)

3. Move the cross above the experiment frame and click.
The **Pot. Cyclic Voltammetry** item is displayed in the experiment frame as shown below. Now, the experiment is made of 2 items (**Start** and **Pot. Cyclic Voltammetry**).

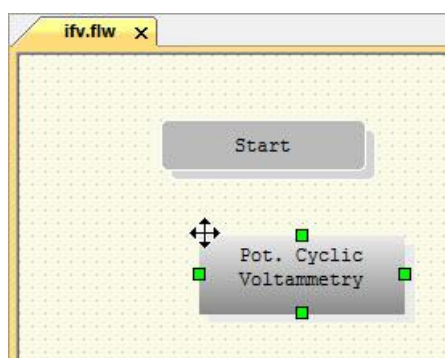


Figure 11: Second item (2/2)

4. Repeat steps 1 to 3 to add other items to the sequence. You can pick up items from both **Diagram Items** or **Chemistry Items** groups.

7.3.3 Linking the items together

The next step is to inform OrigMaster 5 in which order the methods are being executed. Links must be created between items.

For example, if the **Pot. Cyclic Voltammetry** is to be run right after the **Start**, proceed as follows:

1. Select both methods (**Pot. Cyclic Voltammetry** and **Start**):

To select multiple items, do one of the following:

- With the selection tool, drag a marquee over all of the items.
- With an item selected, Shift-drag a marquee over other items to select.
- With the mouse, select an object and then Shift-click to select additional objects.

Green square handles indicate that the method is selected. After selection of the 2 items, the screen must be as follows:

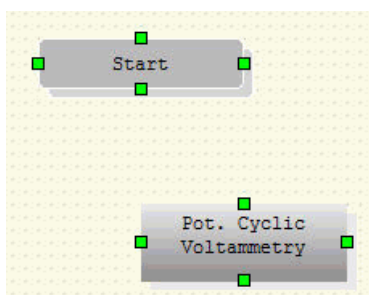


Figure 12: Select methods

2. In the **Diagram links** group of the Sequence ribbon, click on **Create**.

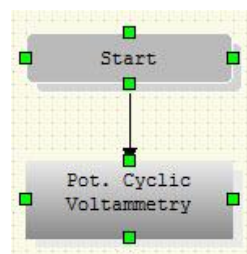


Figure 13: Link

3. The link is created. An arrowed line indicated that the Pot. Cyclic Voltammetry follows the Start method.
4. Define the other links in the same way. Any items of the experiment must be linked with another item.

Now, the experiment is a chain of items linked together and started with the **Start** item.

7.3.4 Renaming items and links

On inserting an item in the sequence, OrigMaster 5 assigns a default name that you can easily change. You can also label links. Proceed as follows:

1. Right -click the method you want to rename ("Start" for example).
2. Select **Properties**.

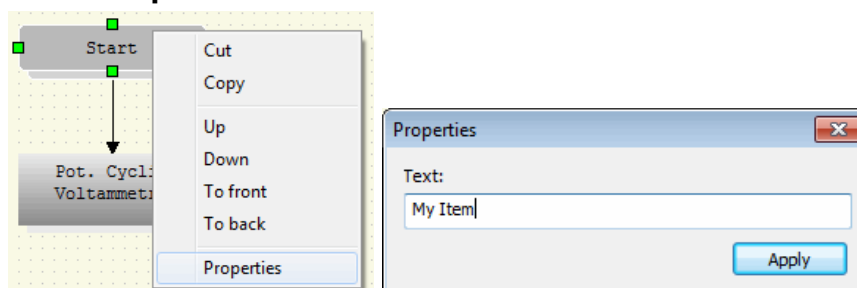


Figure 14: Renaming items

3. In the **Properties** box, enter the new item name.
 4. Click **Apply**. The new name is displayed.
 5. Now, proceed as follows to label the link between the 2 items ("My item" and "Pot. Cyclic Voltammetry"):
- Select the 2 items ("My item" and "Pot. Cyclic Voltammetry") as described above (see Link the items together).
 - Right-click with the mouse then select **Link label**.

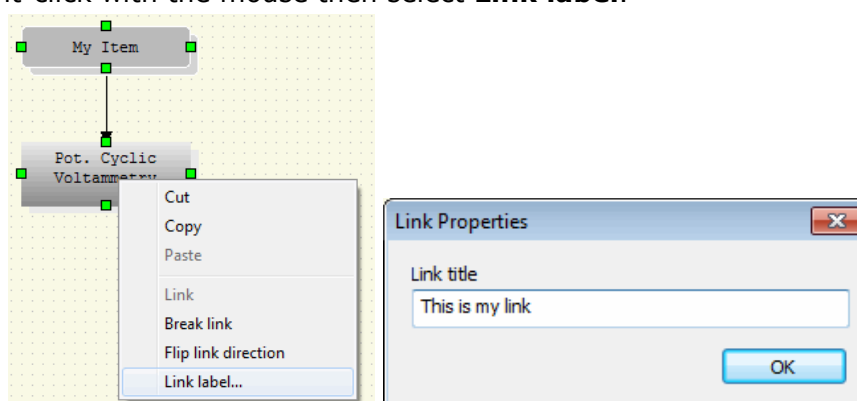


Figure 15: Renaming links (1/2)

- In the **Link Properties** box, enter the link title.
- Click **Apply**. The link label is displayed

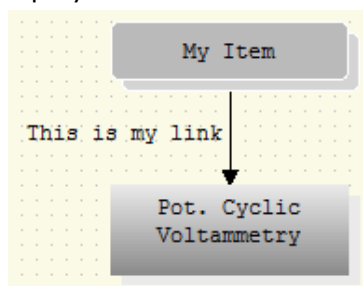


Figure 16: Renaming links (2/2)



To rename or erase a link label, repeat step 5 entering a new name or clearing it.

7.3.5 Creating a conditional loop sequence

Conditional loop sequence are used to force OrigMaster 5 to repeat one or more methods depending on conditions set in a dedicated method so-called "Condition"

1. Create a sequence including a Condition method. The condition is based on a calculation formula set in another method (Calculation method). With this 5-method sequence, Pot. Cyclic Voltammeteries will be carried out at increasing Origatrod rotation speeds (from 100 rpm up to 1000 rpm in steps of 100 rpm).

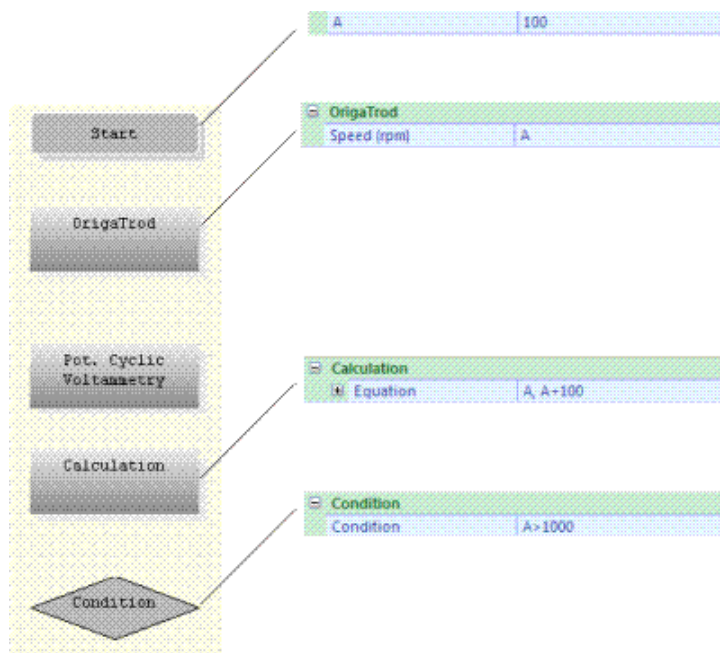


Figure 17: Condition

2. Link together the 5 methods. See "Link the items together".

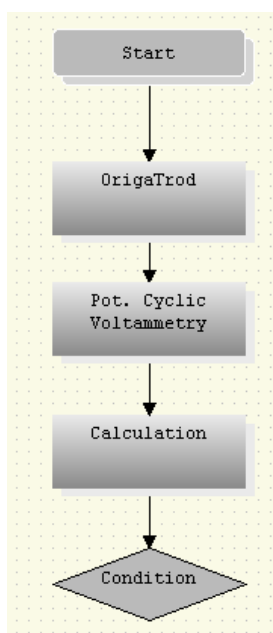


Figure 18: Link 1

- In the **Diagram Items** of the **Sequence** ribbon, click the **Linkable line** command.

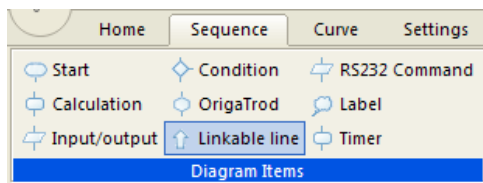


Figure 19: Linkable line command

- Draw a vertical line as shown below.

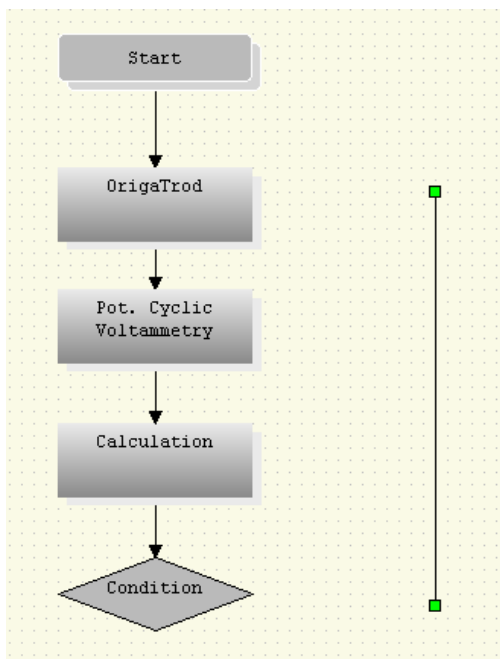


Figure 20: Link 2

- Select both vertical line and the OrigaTrod methods (click the vertical item, hold on the Ctrl key depressed then select the OrigaTrod item).

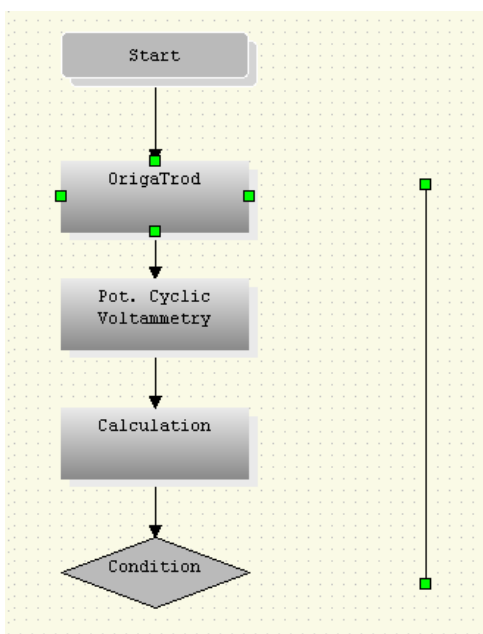


Figure 21: Link 3

- In the **Diagram links** of the **Sequence** ribbon, click on **Create**.



Figure 22: Create command

- Reverse the direction of the link clicking **Flip direction** in the **Diagram links** of the **Sequence** ribbon.
- Select both vertical line and the Condition methods (click the vertical item, hold on the Ctrl key depressed then select the Condition item).

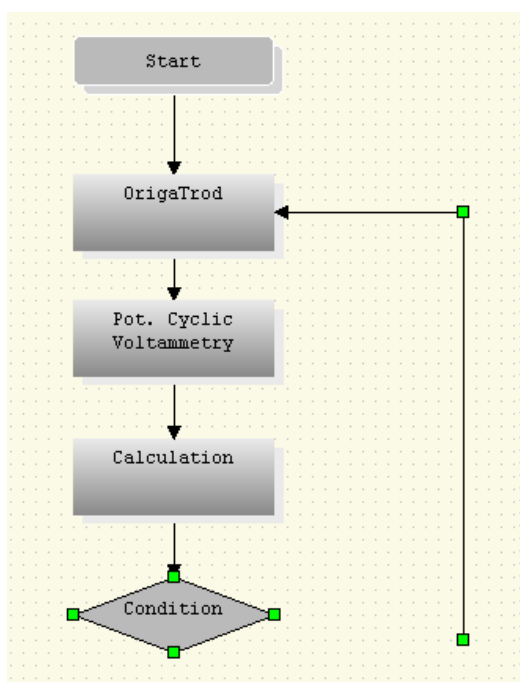


Figure 23: Link 4

9. In the **Diagram links** of the **Sequence** ribbon, click on **Create**. Now, the conditional loop is programmed and the experiment ends when the OrigaTrod will reach the 1000 rpm rotation speed.

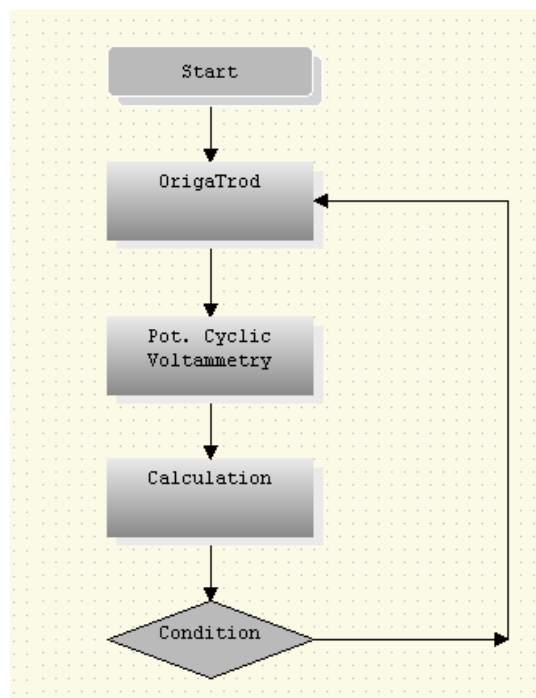


Figure 24: Link 5

7.4 EDIT EACH METHOD OF THE EXPERIMENT

1. Select the item (method) you want to edit.
The current parameters of the method selected are displayed in the Properties dialog box on the right side of the OrigMaster 5 window.
2. Enter the parameters of this method in the Properties dialog box.
Example of the **Start** and **Pot. Cyclic Voltammetry** Properties dialog boxes:

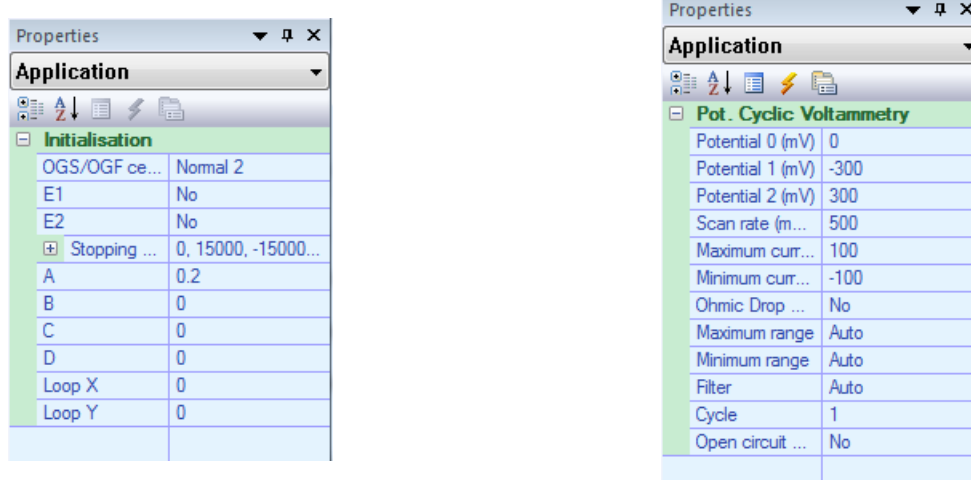


Figure 25: Properties

3. Repeat steps 1 and 2 for all the methods of the experiment.
4. **Important:** To save the new parameter:



In particular, pay attention to the Cell configuration parameter of the **Start** method: select the cell configuration (Normal 2, Normal 3, Normal 4, Inverted 2 or Inverted 3) corresponding to your electrode setup. See **Connecting the electrodes** of your Getting started Electrode manual.

7.5 SAVING AND RENAMING THE EXPERIMENT

1. In the Quick access toolbar, click the icon.
2. In the **Save As** dialogue box, the following options allow you to specify the name and location of the experiment file you're about to save:
 - **Save in**
Select the folder in which you want to save the file. You can also double-click a folder or a file in that box to select it.
 - **File name**
Type a new file name to save the sequence with a different name. The FLW extension is added by OrigMaster 5. The default extension .FLW must be kept so that OrigMaster 5 can read the sequence name on loading this sequence later on.
 - **Save as type**
Keep the OrigMaster 5 extension file (.FLW) displayed in that box.
3. Select the OK button to save the sequence with the name and the location selected.

7.6 RUNNING THE EXPERIMENT

1. In the **Actions** group of the Sequence ribbon, click the **Start** icon.

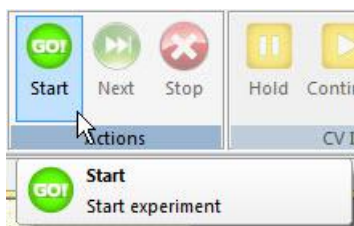


Figure 26: Start button



The Start icon is not available (icon greyed) if no experiment is loaded.

2. The experiment starts. The methods are chained one after the other. If a method generates a curve, the curve is displayed live and automatically saved as a ".CRV" in the Result folder of the OrigMaster 5 installation directory.



While an experiment is running, 2 other action icons are available.

- The Next icon: stops the method in progress and jumps to the next method of the sequence.
- The Stop icon: stops definitely the experiment. The methods coming next are not executed.

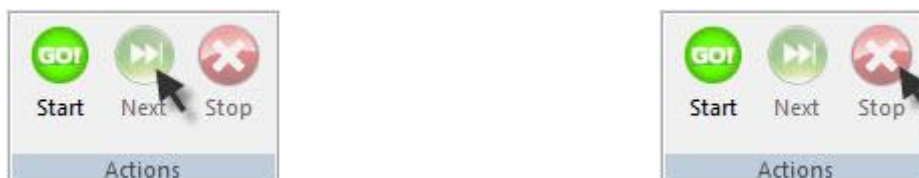


Figure 27: Next & Stop buttons

7.7 GETTING HELP

To call up the OrigMaster 5 on-line help, press the **F1** function key.