

How to Communicate with an iButton

Instructions on how to install the software, start the data logger, and read data.

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[Wine Supply Chain Council](#)
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This document is to support a project of the Wine Supply Chain Council to measure variability in transit times and temperatures along global supply chains for wine. To learn more about the Wine Supply Chain Council and this project, please visit our web page <http://www.scl.gatech.edu/wsc>.

We distribute these instructions with an accompanying CD that contains additional documentation as well as most of the software you will need. If you do not have the CD, you download the software via the links within this document.

Setup Hardware

Begin by putting together the hardware: Connect the “Blue Dot Receptor” to the blue plastic USB adaptor. Snap an “iButton” into either slot of the Blue Dot Receptor. Put the hardware aside while you install the software.

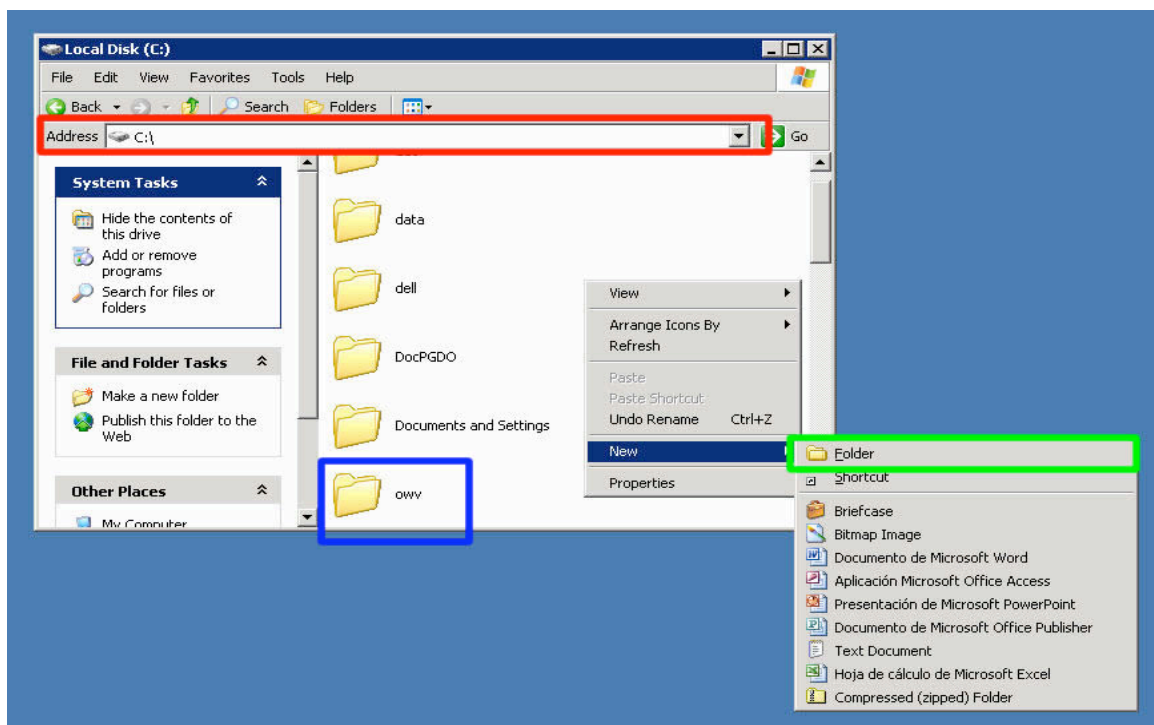


Install Software

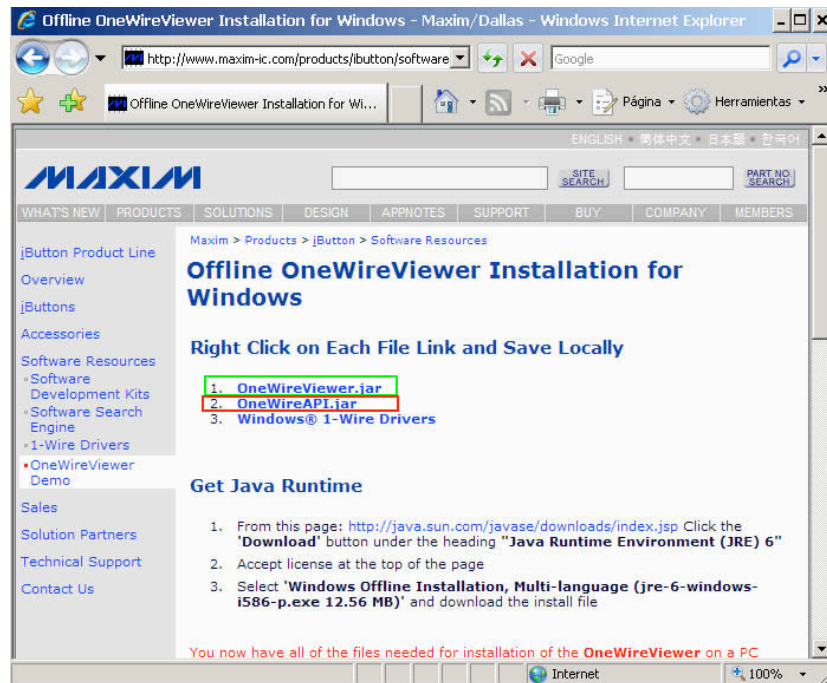
Here you will find the first steps in installing “OneWireViewer”, the software necessary to initialize the iButton and to read data from it.

1. Install the JAVA™ Runtime Environment, which is freely available [here](#).
2. Install the Windows 1-Wire Driver, which can be found either in the CD in the directory named “drivers” or by clicking [here](#).
 - 2.1. If you get a Security Warning dialog box, click on “Allow”.
 - 2.2. When the dialog box “install_one_wire_drivers_v400.msi” appears, choose “Save File”. The location to which it is downloaded may vary based upon how your browser is configured. Make sure you know where it has been saved. Choose “Desktop” as the location.
 - 2.3. Start the installation by double-clicking on the icon or file named “install_1_wire_drivers_v400.msi”.
 - 2.4. Follow the instructions on the installation program. When the Custom Installation Choices dialog box appears, **de**-select the choices “1-Wire API for .Net” and “OWCOM API”.

- 2.5. At the Select Installation Folder, select the default. Click on “Everyone” if you want all users of this computer to be able to access OneWireViewer or select “Just Me” if you want your user ID to be the only one with that capability.
- 2.6. When the USB Instructions dialog box appears, plug the Blue Dot Receptor into a USB port on your computer.
- 2.7. Select “Next” when the USB instructions are displayed. This will bring up the “1-Wire .Net Port Selection” dialog box, probably in conjunction with the Windows “Found New Hardware” Wizard. Complete the Wizard before completing the 1-Wire .Net Port Selection dialog box.
- 2.8. Select the option “Install the software automatically”. You should see “Please wait while the wizard searches”, which may take several minutes. Your computer should then tell you that your new hardware is installed and ready to use.
- 2.9. Once the hardware is ready to use, complete the “1-Wire .Net Port Selection” dialog box. Make sure the DS9490 tab is highlighted, and click “Next” to accept the default selection. Then the installation program will complete.
3. Create a folder in the root of your drive “My Local Drive (C:)” named “owv”, as follows:
 - 3.1. Go to the desktop and double click on “My Computer”. A window will open; within it, double-click on “Local Disk”, as shown in the red box below.
 - 3.2. Place the mouse pointer on the window and right-click. A pull-down menu will appear, as shown below; go to “New” and select “Folder”, as shown in the green box below. A new folder will appear on the window. Rename this folder “owv”, as shown in the blue box below.



4. Download the two files OneWireViewer.jar and OneWireAPI.jar. You can do this by either copying them from the subdirectory owv of the CD or else by clicking [here](#), from which you can download the files – marked green and red in the screen image below – by right clicking over them and selecting “Save link as...”. (If you get a Security Warning dialog box, click on “Allow”.) Save the files under the newly created folder C:\owv.



5. Create a Shortcut to the OneWireViewer software:
 - 5.1. Right click on your desktop. A list of menu options will appear; select “New” and then “Shortcut”.
 - 5.2. When the “Create Shortcut” dialog box appears, insert the following in the field labeled Target¹:
`C:\Windows\system32\java.exe -classpath "OneWireViewer.jar;OneWireAPI.jar" OneWireViewer`
 - 5.3. Then click “Next”.
 - 5.4. Now give your shortcut a name, such as “OneWireViewer”. Click on “Finish”.
 - 5.5. Right-click on the icon that has been created on your desktop and select “Properties”. In the field labeled “Start in:”, type “C:\owv”.
 - 5.6. Click the “Accept” button.
6. Now run the OneWireViewer by double clicking the newly created shortcut.

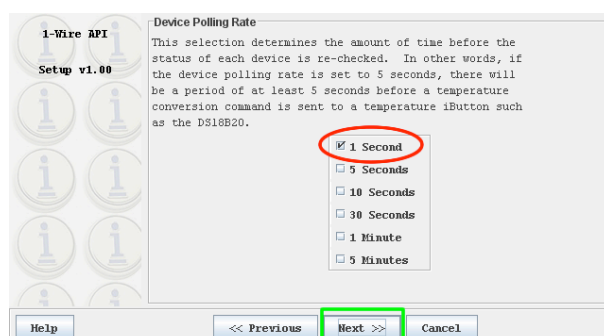
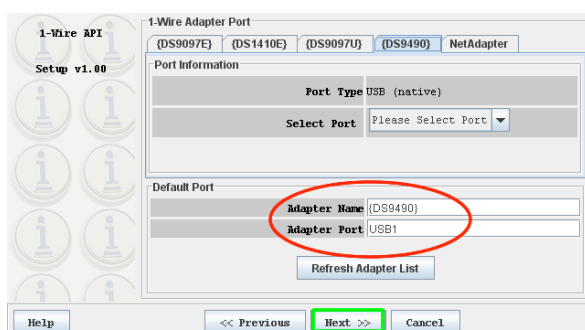
¹ Be careful to get this right! If you see a “classpath error” when trying to run the program, it is probably because this has not been copied correctly.

Using the OneWireViewer Software

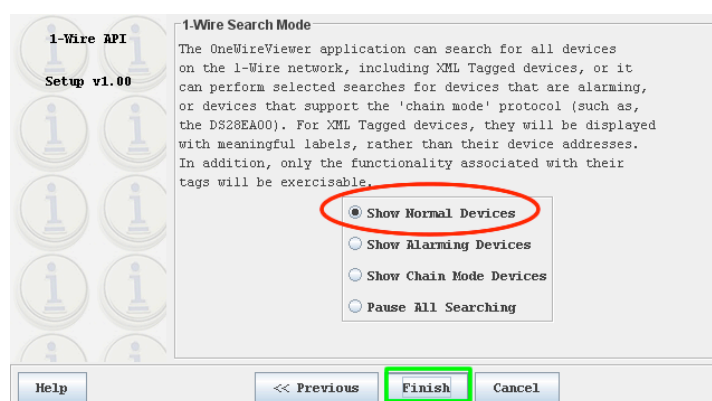
Configure the iButton Reader

Once you have successfully installed the software, you must configure the iButton Reader Interface.

1. Start the software by double-clicking on the Desktop shortcut. A command window will open and then, after a short delay, the OneWireViewer will appear.
2. Make sure you see the “Adapter port selection setup window”, as shown below left. Set the adaptor name to “DS9490”, which represents the Blue Dot Receptor, and the default port to “USB1”, as shown in the red oval; then click on “Next”. You will be prompted for a “polling rate”, as shown below right; set it to the default of 1 and click “Next”.



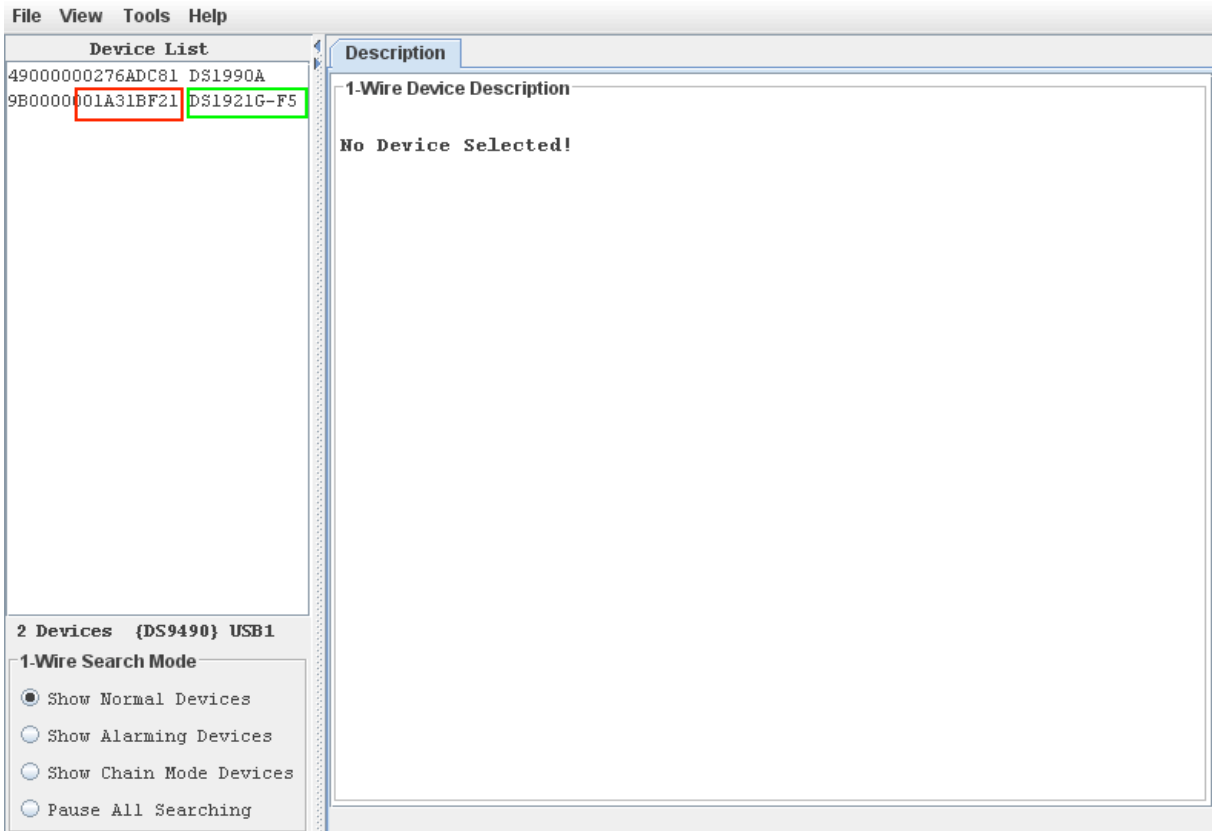
3. Finally you will be asked which devices to show. Select “Show Normal Devices”, as in the screen image below.



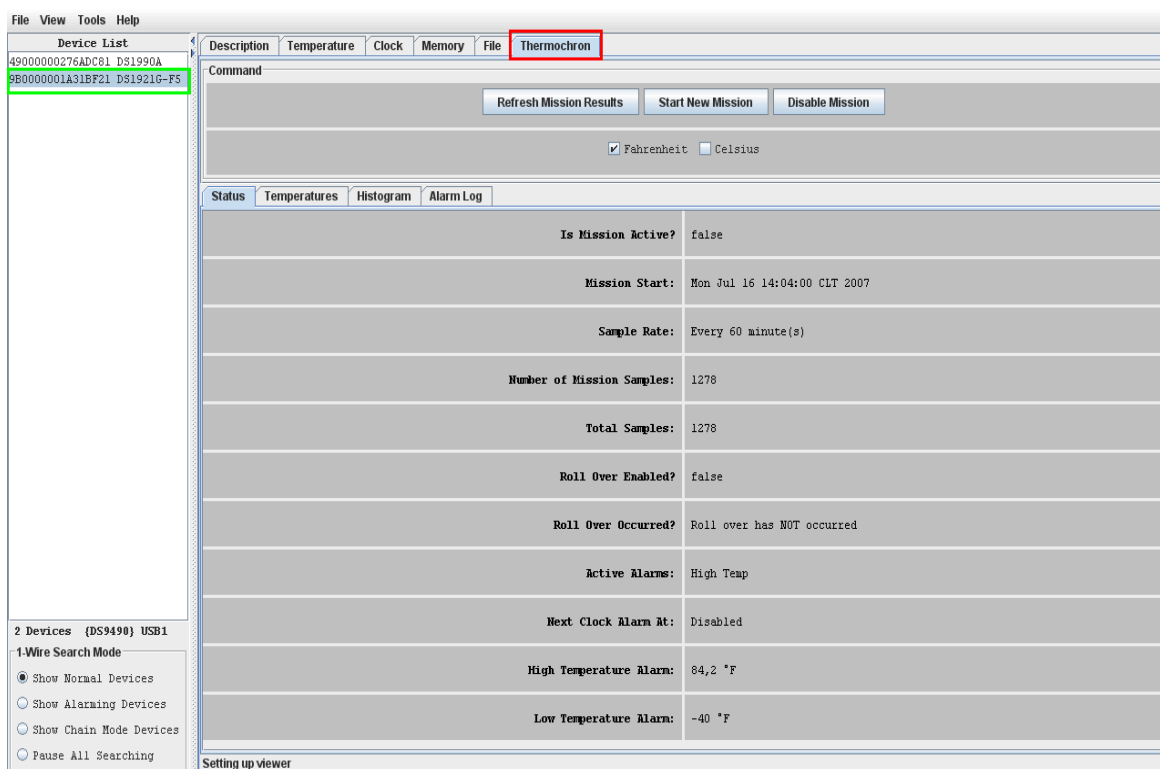
You are now ready to begin recording times and temperatures.

Activate an iButton for recording

After configuring the interface, you will be presented with the main window, as shown below. On the left pane, the window presents a list of detected devices: If it is plugged into a USB port, you should see the iButton Interface Reader (“Blue Dot Receptor”) (indicated with a long number followed by “DS1990A”). If you have inserted an iButton in the Interface Reader, you will see a number with letters like “9B000000xxxxxx” followed by “DS1921G-F5” (where an “x” represents a number or letter indicating the serial number of the device).



1. From the Device List on the leftmost pane, select the iButton, as shown in the green box below. From the tab list select “Thermochron”, as shown in the red box below.

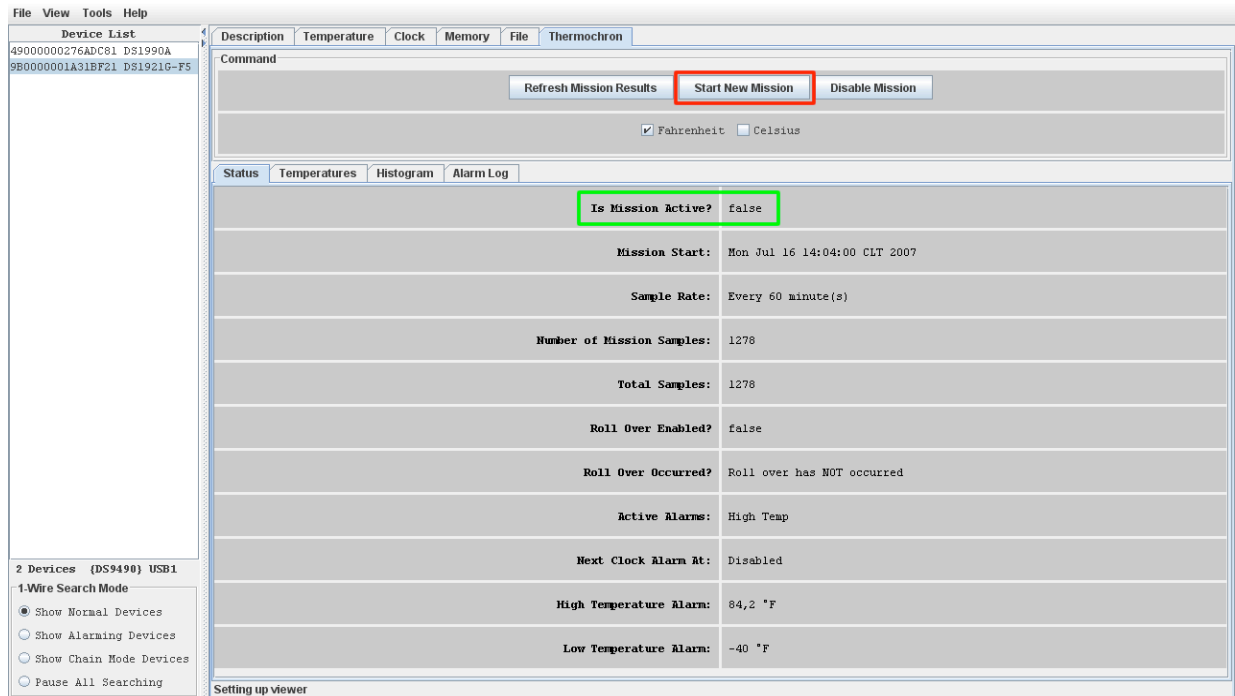


2. The Thermochron tab is used to initialize iButtons, check current status, obtain data, and check the alarm log. At the top of the Thermochron tab are options to refresh mission results, start a new mission, or disable the current mission. The option to refresh the mission results just updates the data that has been collected since the program was opened. (Data is always being recorded if there is an open mission, but the program will not show the most up-to-date information if the mission has not been refreshed.) The option to disable the mission stops the current mission and causes the iButton to cease recording temperatures. The option to start a new mission will be described in more detail shortly.
3. Select “Celsius”.
4. The first sub-tab is named “Status” and, as in the preceding figure, it shows all the settings for the current mission.

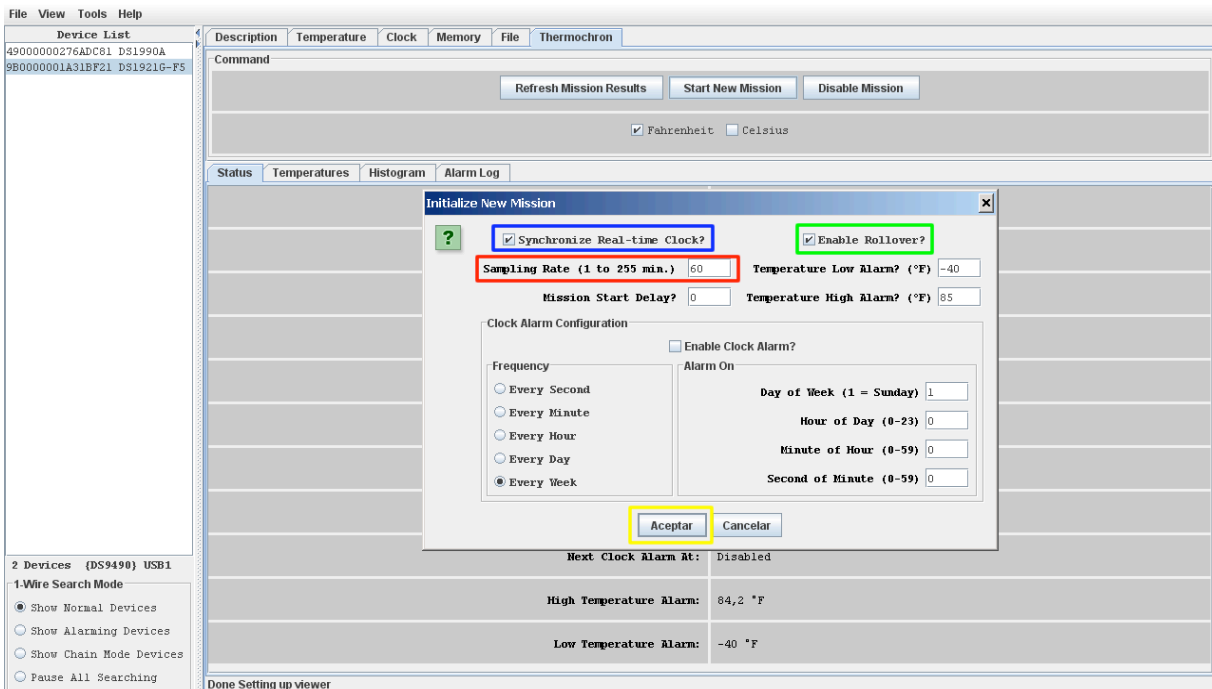
How to start recording

Go to the Status sub-tab under the Thermochron tab. If a mission is currently active (so that the iButton is recording), the “Is Mission Active?” field, shown in the green box following, will read “True”; otherwise it will indicate “False”.

1. To start or reset an iButton, click on the “Start New Mission” button, indicated in red in the following screen image.



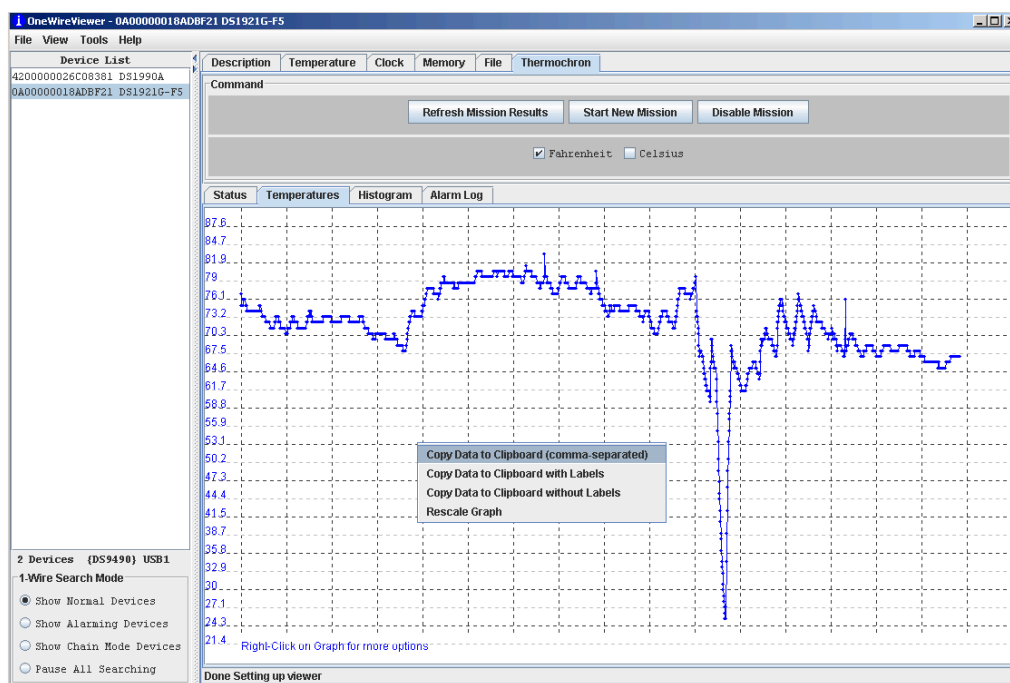
The following window will pop-up.



2. Select “Synchronize Real-time Clock”, as shown in the blue box of the preceding screen image, which will cause the iButton to synchronize its clock with that of the computer. **(Make sure your computer has the correct local date and time!)**
3. **DE**-select “Enable Rollover” (otherwise the iButton might overwrite data from early in the mission).
4. Type “120” in the field for Sampling Rate (Red box) to set the sampling interval to two hours.
5. Click on “Acceptar”. The iButton is now recording!
6. Confirm that everything is correct by looking at the status window to check that the “Is Mission Active?” box shows “True” and that the “Mission Start Date” is the correct date.
7. Remove the iButton from the Blue Dot Receptor, insert another, click on the entry “DS1921G-F5” when it appears in the device list, and repeat the previous steps to initialize it.

Collecting Data

Data can be collected from the Thermochron tab by clicking on the sub-tab labeled “Temperatures”, which displays a history of temperatures, as shown in the screen image below. By right-clicking on the graph, you can access options for copying the temperature history.

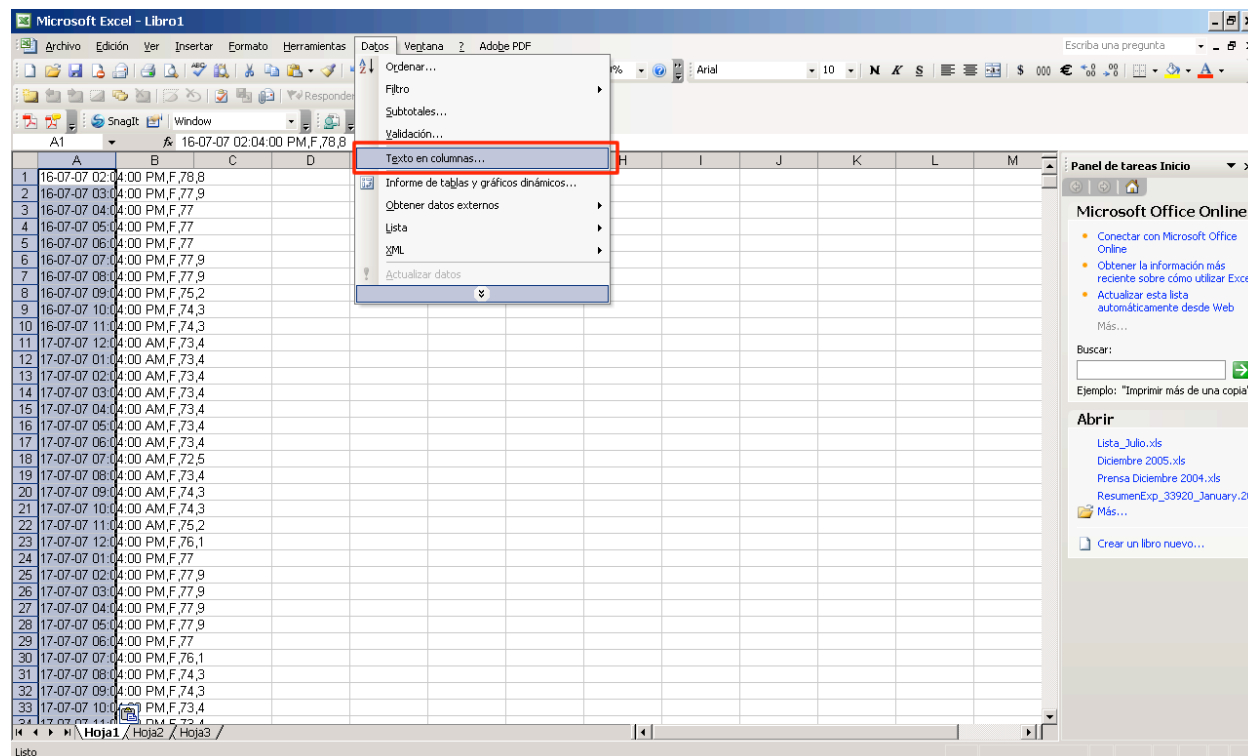


The options offered are:

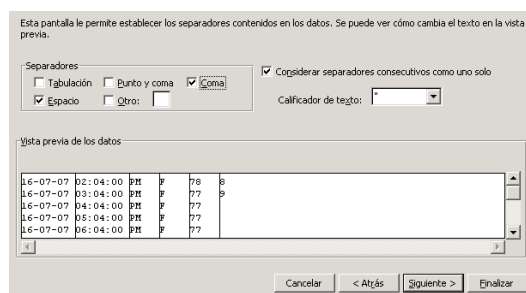
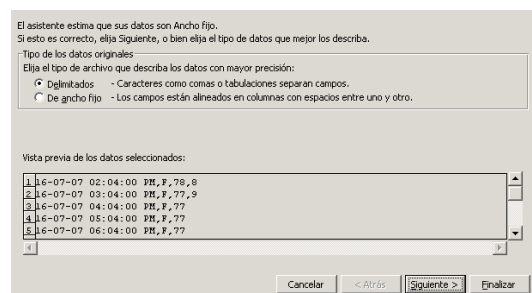
- Copy Data to Clipboard (comma-separated): This provides a list of all the temperature samples, with successive entries separated by a comma.
- Copy Data to Clipboard with Labels: This provides a list in which each row contains date and time, Fahrenheit/Celsius, and temperature. Example: “11/10/06 2:35:00 PM,F,77”
- Copy Data to Clipboard without Labels: This provides a list of all the temperature samples taken with each reading its own line.
- Rescale Graph: This option rescales the graph based on the temperature samples displayed.

Each of the first three options allow you to paste the data into a text file, which can then loaded into other programs, such as a spreadsheet, for further analysis.

If you prefer to copy the data into MS Excel, copy the data by choosing the second option (“Copy Data to Clipboard With Labels”) and paste it into an Excel workbook. Select all of the data thus entered. In the toolbar select “Data” menu and the option “Text in columns...”, as shown in the screen image below.



In the menu that pops-up, select “Delimited”, as shown below left, and press the button labeled “Next”. Then select “Space” and “Comma” to separate the data fields, as shown below right.



Acknowledgements

Thanks to Pete Viehweg and Kate Abercrombie for helpful suggestions.