Exporting and Importing Data for **Spreadsheets**

In addition to uploading data sets from the RCX, the Upload Area can be used to import or export data in spreadsheet format. This is useful if you wish to use another software package such as Excel, or Lotus to plot the data, or if you generated data from another source and would like to import it into ROBOLAB 2.0 in order to compare it to RCX data.

Exporting

**Exporting a single set of data**
In the Upload Area, select the Upload Page that has the data set you would like to export.

From the Menu above the Upload Area working window select Page from the Export Options under File. This will save the single set of data in a file with a name that you assign.

As an example, this is the Temperature Upload page from the Overnight example project.
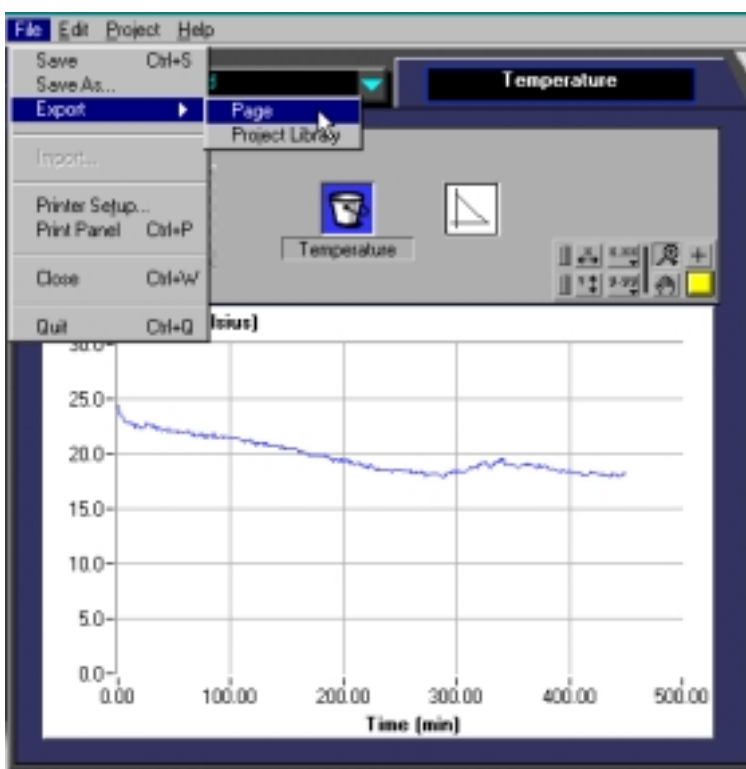
Selecting Page will open a new window in which you assign the name and location of the data file.
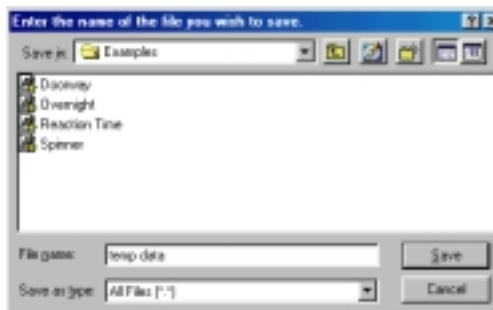
Opening the file saved data file in a text editor shows that the information is tab delimited in columns.

This shows the first 24 entries (points 0 through 23) of the 449 entries in the Temperature data file from the Overnight project.

```
#   →   Time· (min) → Temperature· (Celsius) ¶
0   →   1.666667E-3→2.440000E+1¶
1   →   1.001667E+0→2.370000E+1¶
2   →   2.001667E+0→2.350000E+1¶
3   →   3.001667E+0→2.360000E+1¶
4   →   4.001667E+0→2.330000E+1¶
5   →   5.001667E+0→2.320000E+1¶
6   →   6.001667E+0→2.300000E+1¶
7   →   7.001667E+0→2.290000E+1¶
8   →   8.001667E+0→2.280000E+1¶
9   →   9.001667E+0→2.280000E+1¶
10  →   1.000167E+1→2.290000E+1¶
11  →   1.100167E+1→2.280000E+1¶
12  →   1.200167E+1→2.270000E+1¶
13  →   1.300167E+1→2.280000E+1¶
14  →   1.400167E+1→2.260000E+1¶
15  →   1.500167E+1→2.240000E+1¶
16  →   1.600167E+1→2.270000E+1¶
17  →   1.700167E+1→2.270000E+1¶
18  →   1.800167E+1→2.260000E+1¶
19  →   1.900167E+1→2.230000E+1¶
20  →   2.000167E+1→2.240000E+1¶
21  →   2.100167E+1→2.230000E+1¶
22  →   2.200167E+1→2.230000E+1¶
23  →   2.300167E+1→2.240000E+1¶
```

Format
The first column has the point number,
the second column has the time,
and the third column is the value of the sensor.

Knowing the format, the data set can be imported into any spreadsheet software.

Exporting multiple sets of data
If you want to export more than a single set of data so that it can be used in a spreadsheet, you must select the data sets you want in the View and Compare Area. Select the View and Compare Page from which you would like the data.

From the Menu above the View and Compare Area working window select Page from the Export Options under File. This will save the displayed data sets in a file with a name that you assign. The format of the exported data is tab delimited column entries. The first column is the point number, the second column is the time for the first data set, the third column is the value of the first data set, the fourth column is the time for the second data set, and the fifth column is the value of the second data set. This pattern of time and value continues for all the data sets.

As an example, the light&temp data page from the Overnight example project was exported, and the first 23 entries are shown in the figure to the right.

```
#   →   Time· (min) → Light· (percent| → Time· (min) → Temperature· (Celsius) ¶
0   →   1.666667E-3→2.400000E+1→1.666667E-3→2.440000E+1¶
1   →   1.001667E+0→2.400000E+1→1.001667E+0→2.370000E+1¶
2   →   2.001667E+0→2.400000E+1→2.001667E+0→2.350000E+1¶
3   →   3.001667E+0→2.400000E+1→3.001667E+0→2.360000E+1¶
4   →   4.001667E+0→2.400000E+1→4.001667E+0→2.330000E+1¶
5   →   5.001667E+0→2.400000E+1→5.001667E+0→2.320000E+1¶
6   →   6.001667E+0→2.500000E+1→6.001667E+0→2.300000E+1¶
7   →   7.001667E+0→2.400000E+1→7.001667E+0→2.290000E+1¶
8   →   8.001667E+0→2.500000E+1→8.001667E+0→2.280000E+1¶
9   →   9.001667E+0→2.500000E+1→9.001667E+0→2.280000E+1¶
10  →   1.000167E+1→2.500000E+1→1.000167E+1→2.290000E+1¶
11  →   1.100167E+1→2.400000E+1→1.100167E+1→2.280000E+1¶
12  →   1.200167E+1→2.400000E+1→1.200167E+1→2.270000E+1¶
13  →   1.300167E+1→2.400000E+1→1.300167E+1→2.280000E+1¶
14  →   1.400167E+1→2.500000E+1→1.400167E+1→2.260000E+1¶
15  →   1.500167E+1→2.500000E+1→1.500167E+1→2.240000E+1¶
16  →   1.600167E+1→2.500000E+1→1.600167E+1→2.270000E+1¶
17  →   1.700167E+1→2.500000E+1→1.700167E+1→2.270000E+1¶
18  →   1.800167E+1→2.500000E+1→1.800167E+1→2.260000E+1¶
19  →   1.900167E+1→2.500000E+1→1.900167E+1→2.230000E+1¶
20  →   2.000167E+1→2.500000E+1→2.000167E+1→2.240000E+1¶
21  →   2.100167E+1→2.500000E+1→2.100167E+1→2.230000E+1¶
22  →   2.200167E+1→2.500000E+1→2.200167E+1→2.230000E+1¶
```

INVENT &
INVESTIGATE

Exporting the Project Library
The Project Library is a LabVIEW file that contains all the information contained in your project, all programs, data, plots, computations, and journal pages. Selecting Project Library from the Export Options under File on the menu bar will save your entire project to a new file with the name you assign. This file includes all templates used and is useful for sharing with other investigator users. This file can be saved to a floppy disk for transporting to be opened in another ROBOLAB 2.0 Investigator.

Importing

Importing data from a spreadsheet into a ROBOLAB 2.0 Investigator project is useful for
- comparing RCX data that is stored on non-networked computers
- comparing RCX data to analytic solutions

To Import data from a spreadsheet you must start with a new Upload Page. Start a new project or click on the Add Page button to create a new page in an existing project.

Select Import from the File Menu above the Upload Area working window.
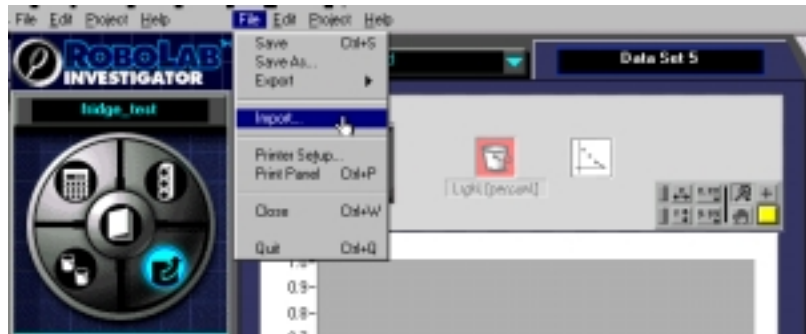
Note: If you select File from the Menu above the Navigator, Import does not appear as an option.
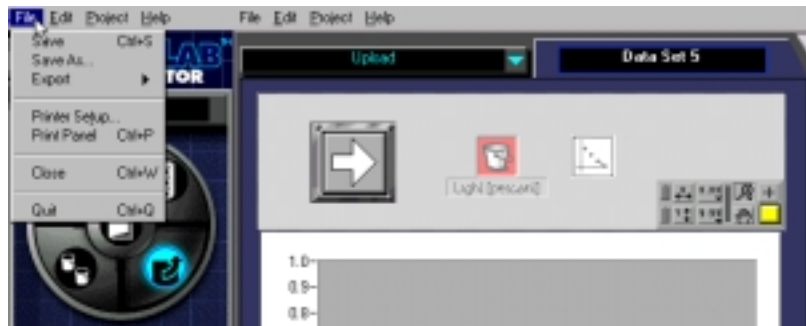
The file you are importing **MUST** be in tab delimited columns. The items in the first row are used to label the axes on the graph. The values in the following rows must only be numeric values.
If you want to try importing pre-existing data, download the following files from the ROBOLAB website to your computer:
LightData (a single set of data)
OvernightData (a double set of data – light and temperature)

Example, Single Data Set   LightData:

```
#   →   Time·(min)·→·Light·(percent)¶
0   →   0.000000E+0→3.700000E+1¶
1   →   1.000000E+0→3.400000E+1¶
2   →   2.000000E+0→3.300000E+1¶
3   →   3.000000E+0→3.300000E+1¶
4   →   4.000000E+0→3.300000E+1¶
5   →   5.000000E+0→3.300000E+1¶
6   →   6.000000E+0→3.300000E+1¶
7   →   7.000000E+0→3.200000E+1¶
8   →   8.000000E+0→3.200000E+1¶
9   →   9.000000E+0→3.100000E+1¶
10  →   1.000000E+1→3.000000E+1¶
11  →   1.100000E+1→3.000000E+1¶
12  →   1.200000E+1→3.000000E+1¶
13  →   1.300000E+1→2.900000E+1¶
14  →   1.400000E+1→2.900000E+1¶
15  →   1.500000E+1→2.900000E+1¶
16  →   1.600000E+1→2.800000E+1¶
17  →   1.700000E+1→2.800000E+1¶
18  →   1.800000E+1→2.700000E+1¶
19  →   1.900000E+1→2.700000E+1¶
20  →   2.000000E+1→2.600000E+1¶
21  →   2.100000E+1→2.600000E+1¶
```

Note: The scientific notation was created by ROBOLAB 2.0 when the data was saved to the file.

Example, Multiple Data Sets   OvernightData:

```
#   →   Time·(min)·→·Light·(percent)·→·Time·(min)·→·Temperature·(Celsius)¶
0   →   0.000000E+0→3.700000E+1→0.000000E+0→2.170000E+1¶
1   →   1.000000E+0→3.400000E+1→1.000000E+0→2.120000E+1¶
2   →   2.000000E+0→3.300000E+1→2.000000E+0→2.070000E+1¶
3   →   3.000000E+0→3.300000E+1→3.000000E+0→2.050000E+1¶
4   →   4.000000E+0→3.300000E+1→4.000000E+0→2.030000E+1¶
5   →   5.000000E+0→3.300000E+1→5.000000E+0→2.020000E+1¶
6   →   6.000000E+0→3.300000E+1→6.000000E+0→2.000000E+1¶
7   →   7.000000E+0→3.200000E+1→7.000000E+0→1.980000E+1¶
8   →   8.000000E+0→3.200000E+1→8.000000E+0→1.980000E+1¶
9   →   9.000000E+0→3.100000E+1→9.000000E+0→1.980000E+1¶
10  →   1.000000E+1→3.000000E+1→1.000000E+1→1.960000E+1¶
11  →   1.100000E+1→3.000000E+1→1.100000E+1→1.930000E+1¶
12  →   1.200000E+1→3.000000E+1→1.200000E+1→1.930000E+1¶
13  →   1.300000E+1→2.900000E+1→1.300000E+1→1.920000E+1¶
14  →   1.400000E+1→2.900000E+1→1.400000E+1→1.910000E+1¶
15  →   1.500000E+1→2.900000E+1→1.500000E+1→1.910000E+1¶
16  →   1.600000E+1→2.800000E+1→1.600000E+1→1.910000E+1¶
17  →   1.700000E+1→2.800000E+1→1.700000E+1→1.900000E+1¶
18  →   1.800000E+1→2.700000E+1→1.800000E+1→1.890000E+1¶
19  →   1.900000E+1→2.700000E+1→1.900000E+1→1.900000E+1¶
20  →   2.000000E+1→2.600000E+1→2.000000E+1→1.910000E+1¶
21  →   2.100000E+1→2.600000E+1→2.100000E+1→1.910000E+1¶
```
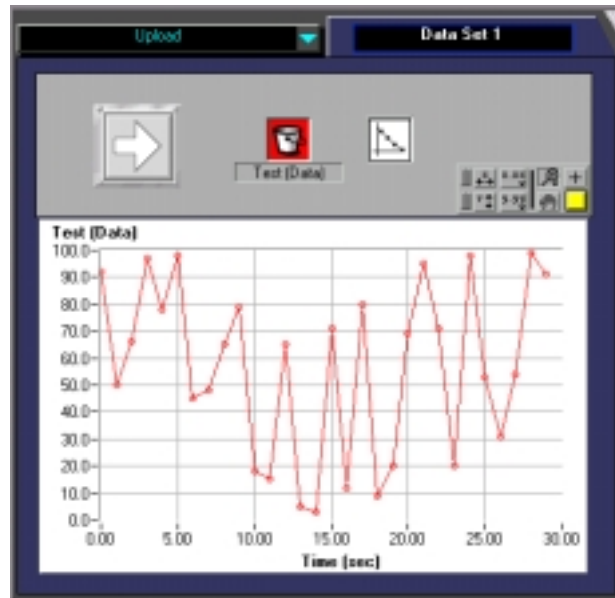
Note: if you have multiple data sets to upload, they do not have to have matching time increments, nor do they have to be the same number of data points.

If the imported data is generated in a spreadsheet such as Excel, the file must be saved as **a tab delimited text file** before it can be imported.

After importing the data file, it is part of your project. It is shown on it's own upload page and should be assigned to an appropriate bin.