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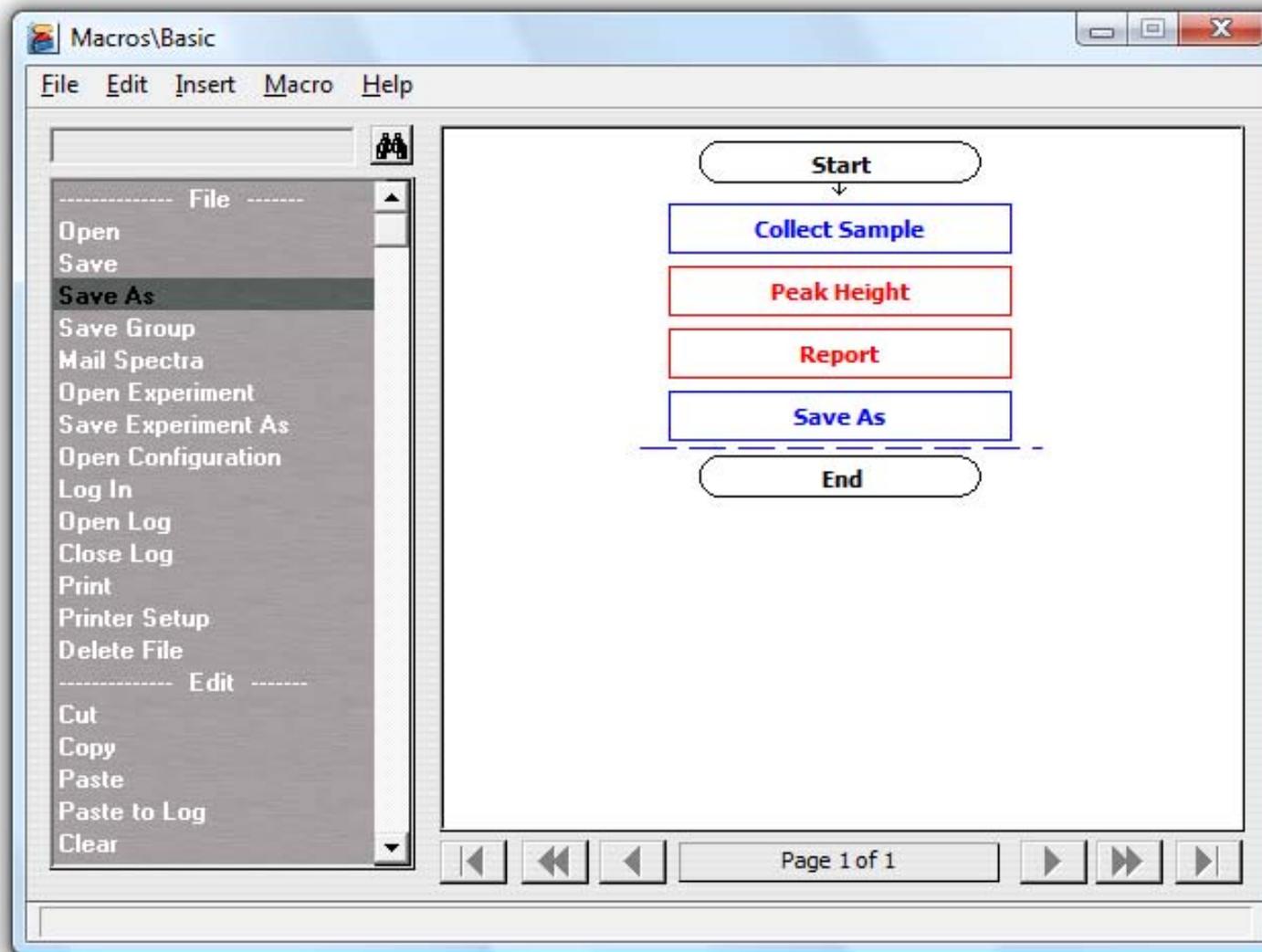
Getting Started With Macros

DXR User Training

Macros\Basic is an application working with OMNIC

The image shows a Windows desktop environment. On the left, the taskbar contains icons for OMNIC, Macros Basic (circled in red with an arrow pointing to the Macros\Basic window), TQ Analyst EZ Edition, and the Recycle Bin. The OMNIC software window is open, displaying an IR spectrum plot. The plot shows Absorbance on the y-axis (ranging from 0 to 6) and Wavenumbers (cm-1) on the x-axis (ranging from 4000 to 0). The spectrum shows characteristic peaks for polystyrene. A coordinate readout at the bottom of the plot indicates X:(3967.971) Y:(4.533). The OMNIC window title is "OMNIC - [Window1]". The Macros\Basic application window is open over the OMNIC window, showing a menu with "Open" selected. The Macros\Basic window title is "Macros\Basic". The menu items include: File, Edit, Insert, Macro, Help; File; Open; Save; Save As; Save Group; Mail Spectra; Open Experiment; Save Experiment As; Open Configuration; Log In; Open Log; Close Log; Print; Printer Setup; Delete File; Edit; Cut; Copy; Paste; Paste to Log; Clear. The Macros\Basic window also contains a "Start" button and an "End" button, and a "Page 1 of 1" indicator.

A macro is a sequence of tasks



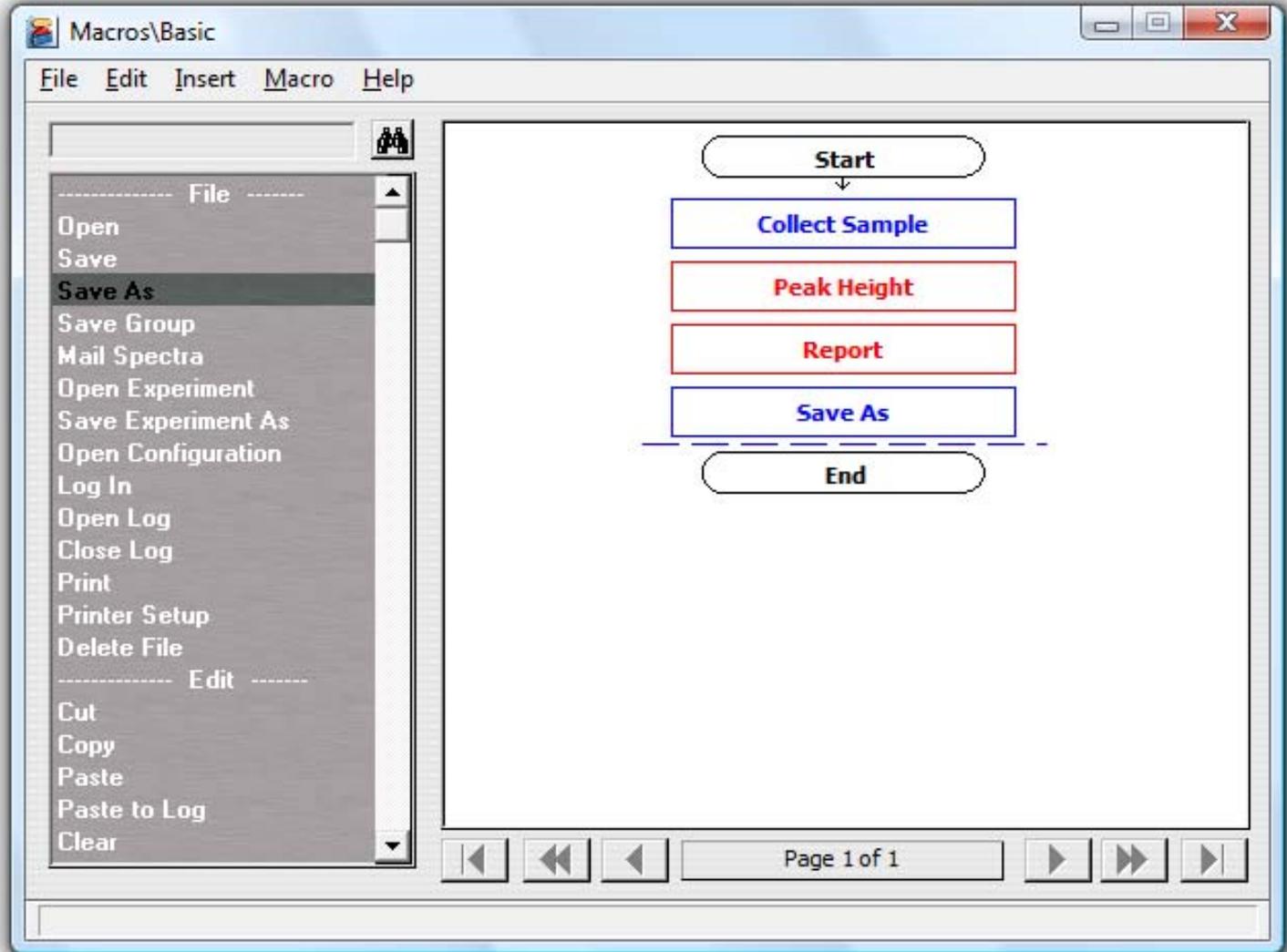
Parts of the macro editor window

Macro editor command menu

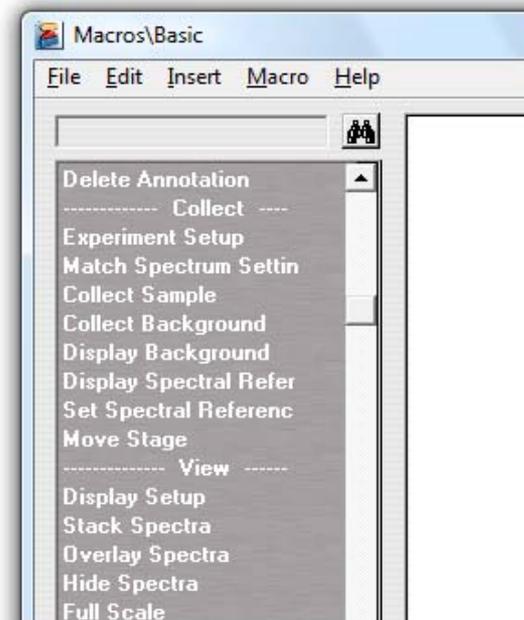
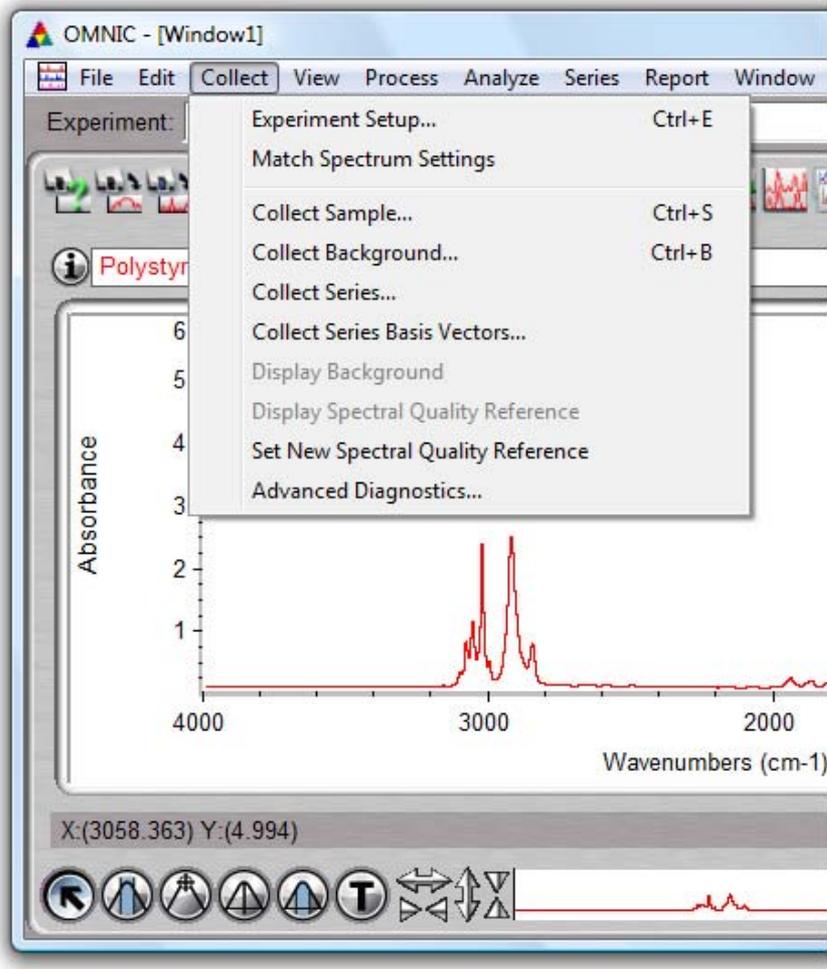
Task search box

Task list

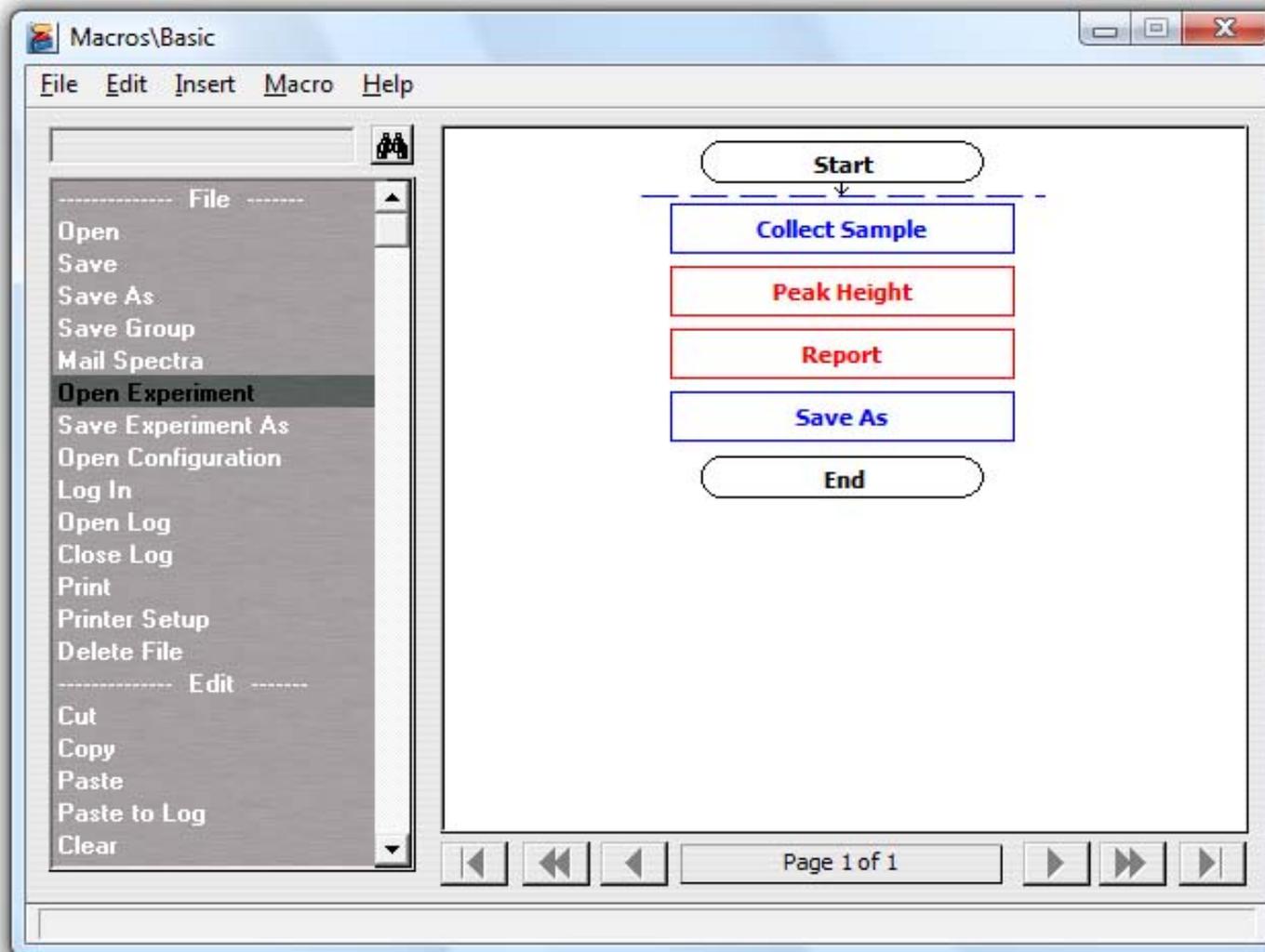
Readout or hints displayed here



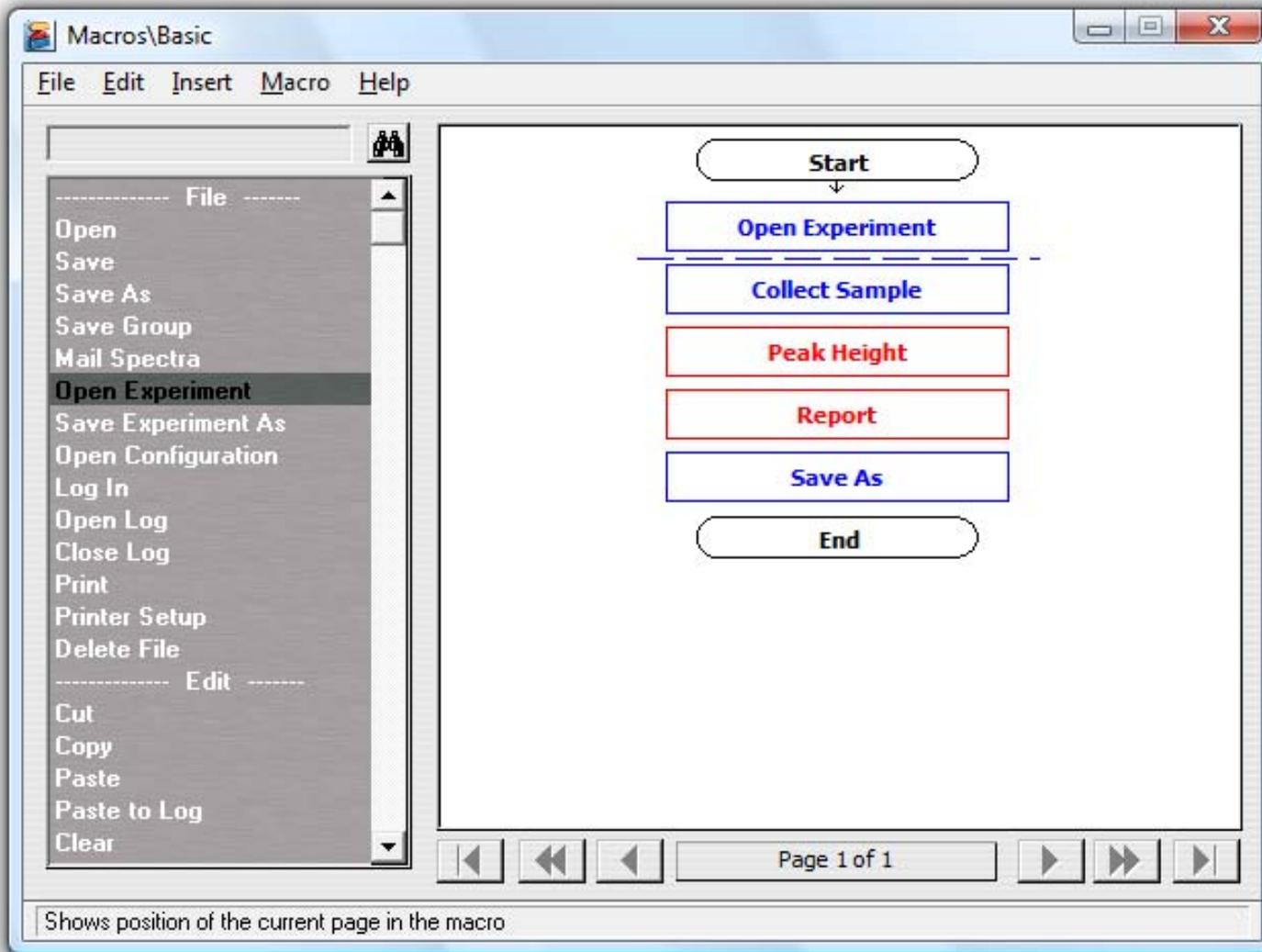
The Task list mimics the OMNIC menus



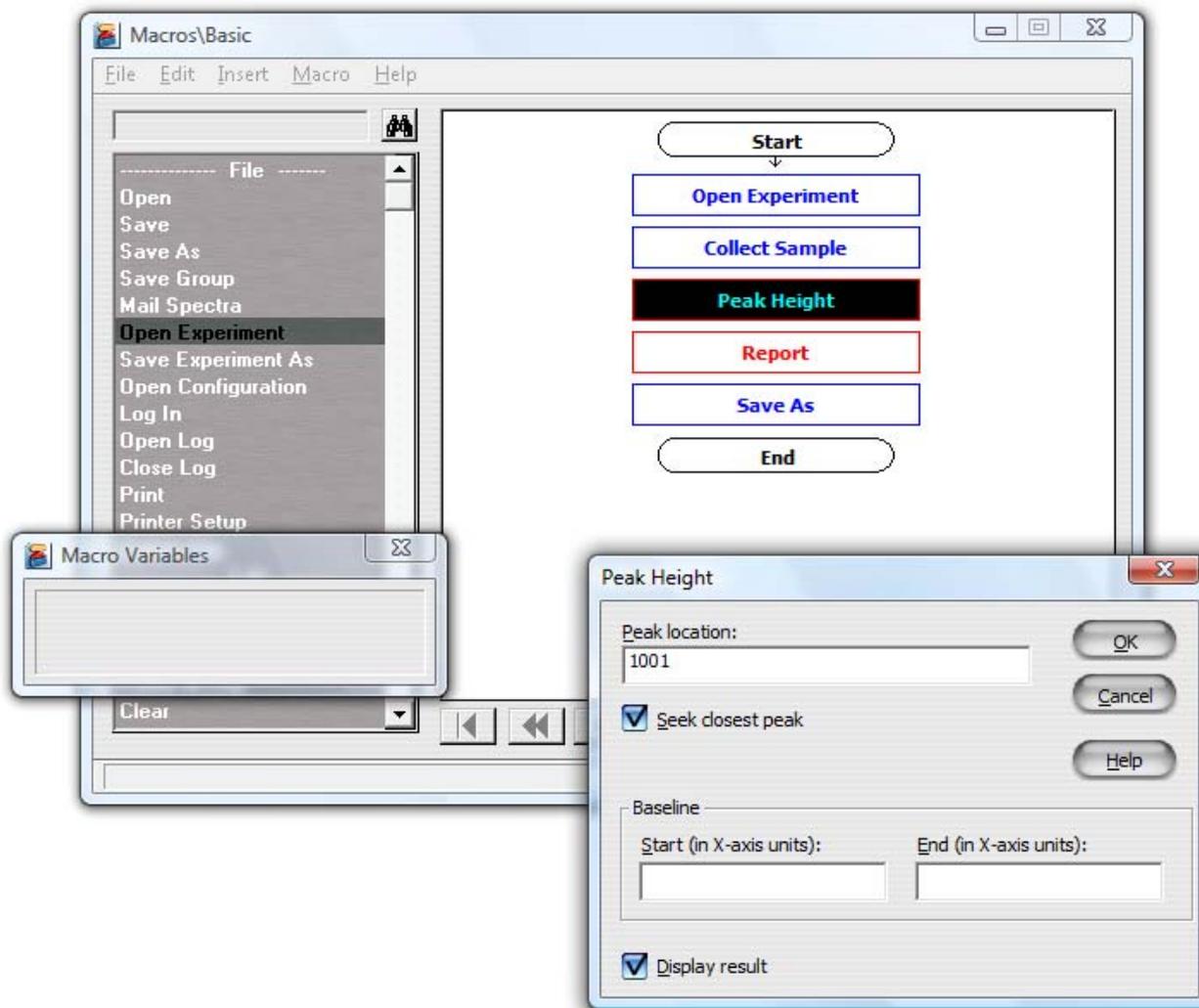
Adding a task to your macro



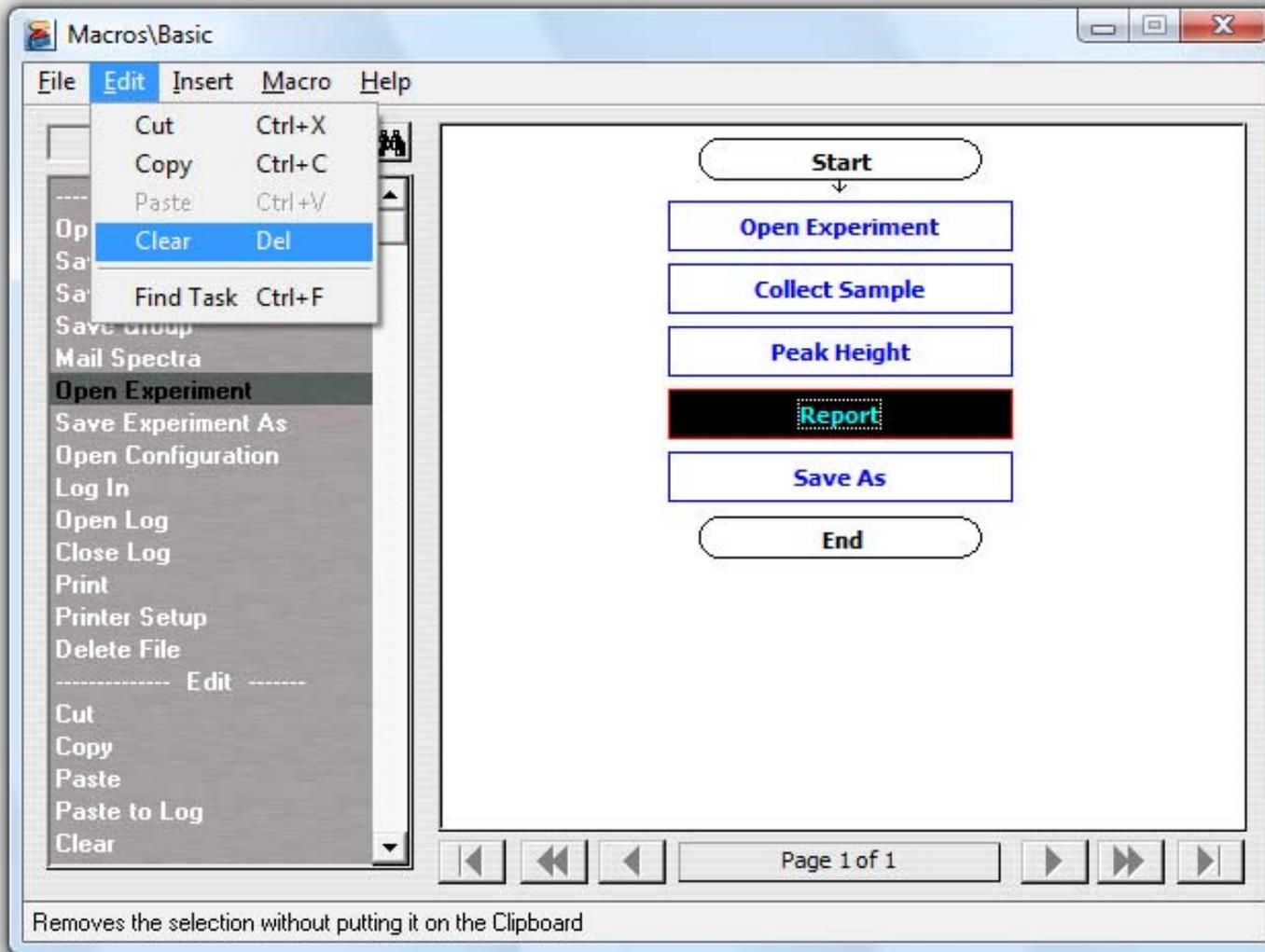
Different color tasks



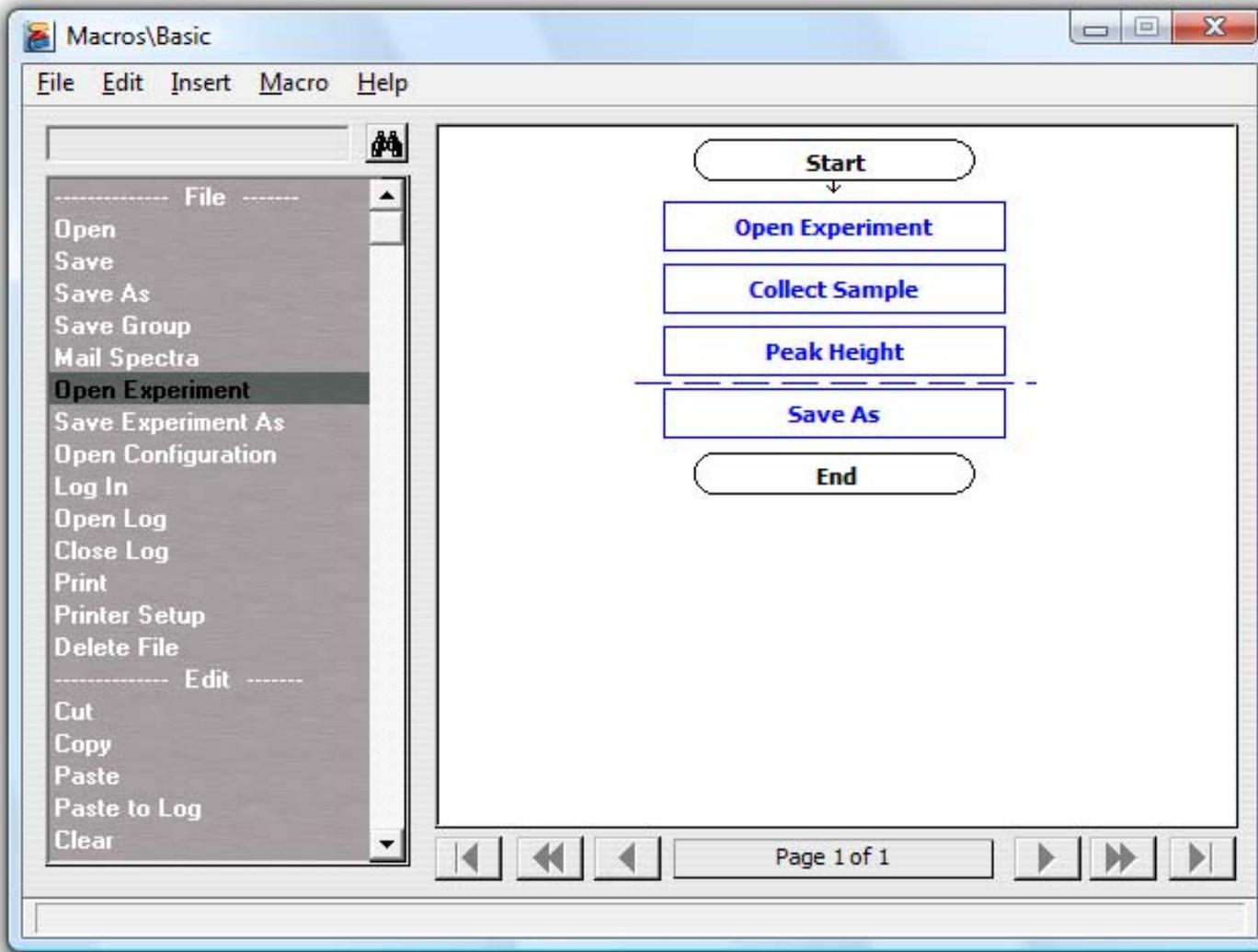
Task parameters



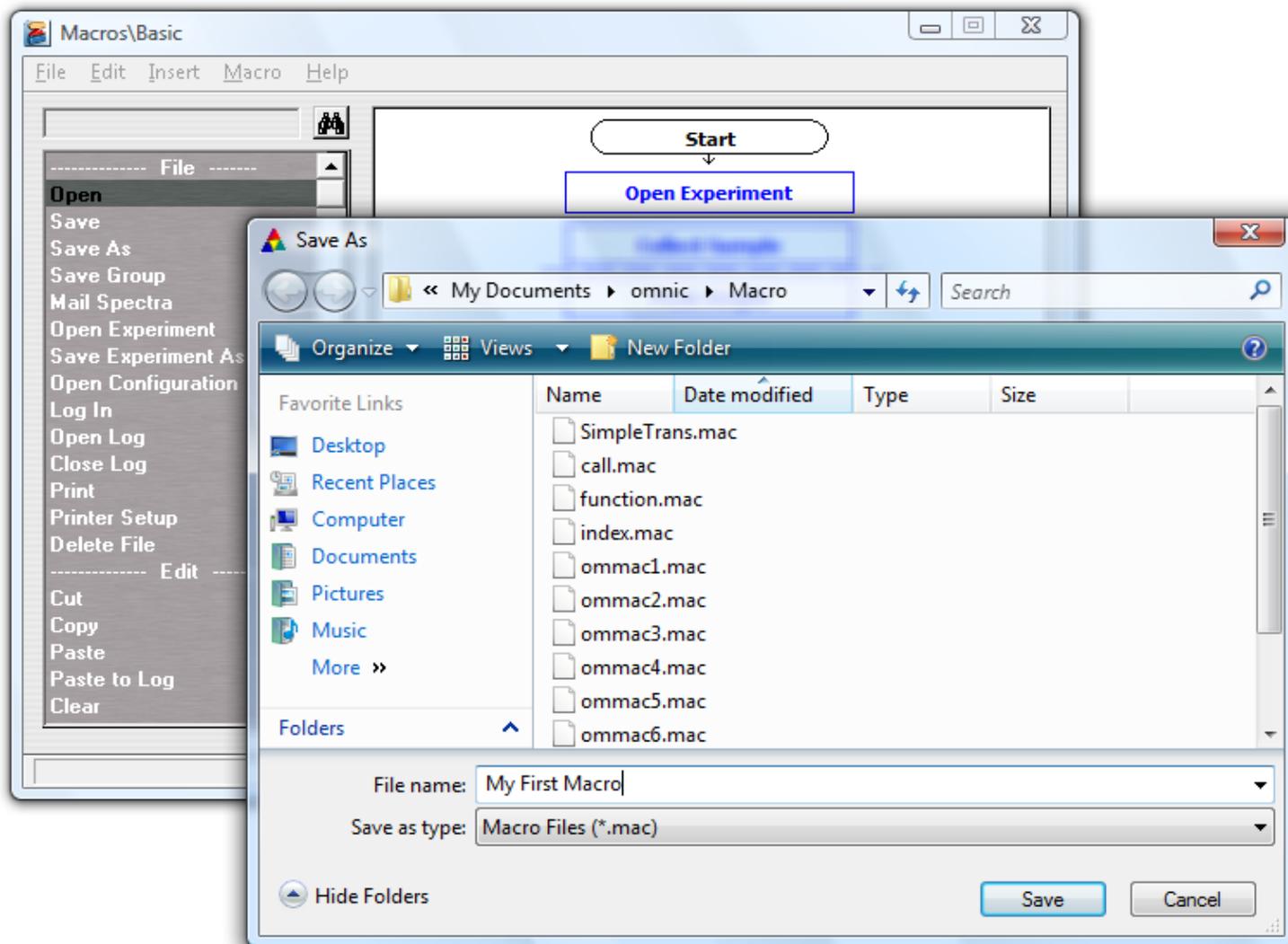
Removing a task



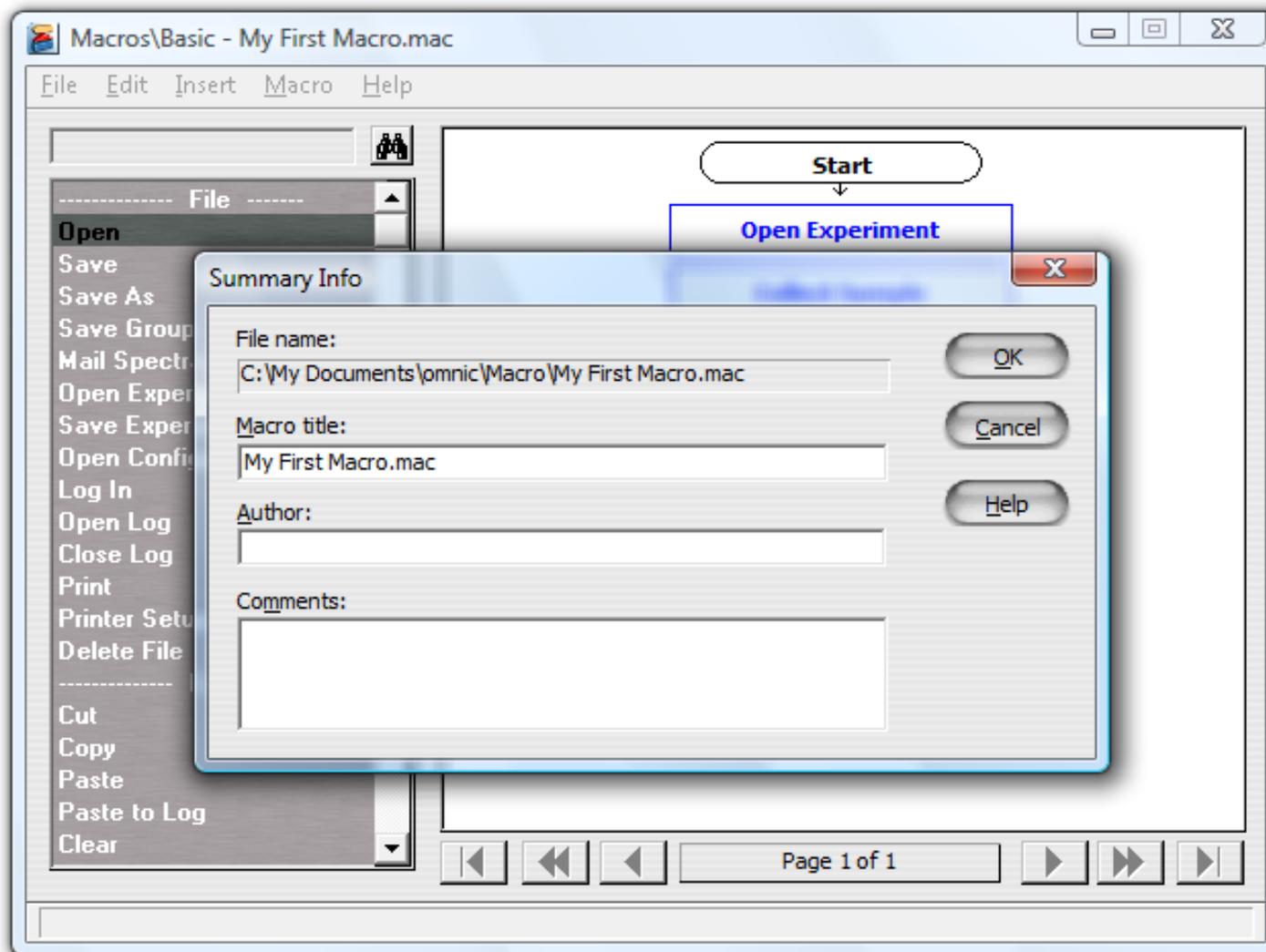
Cut, Copy, and Paste Tasks



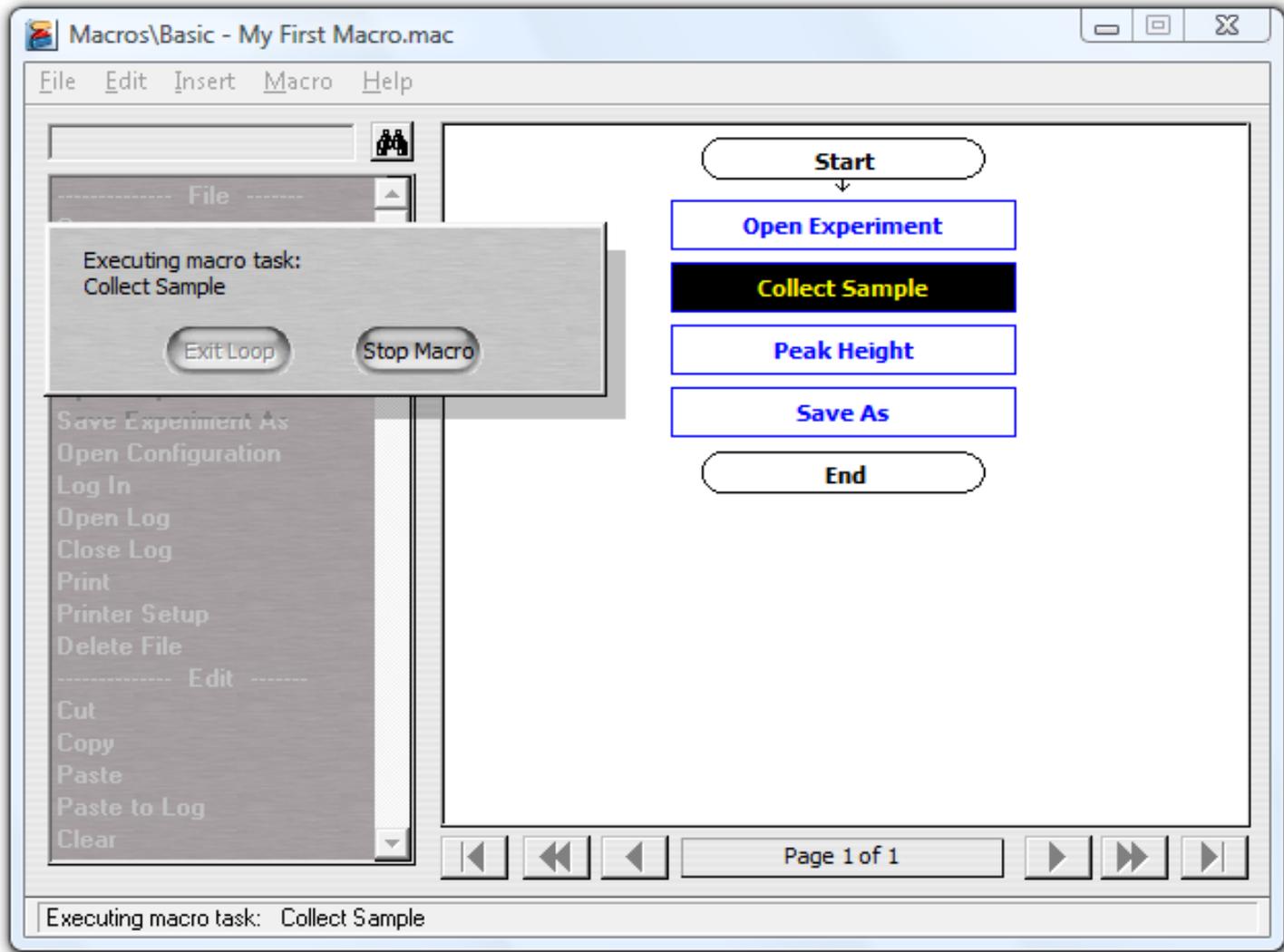
Save that macro before you go too far



Summary Info



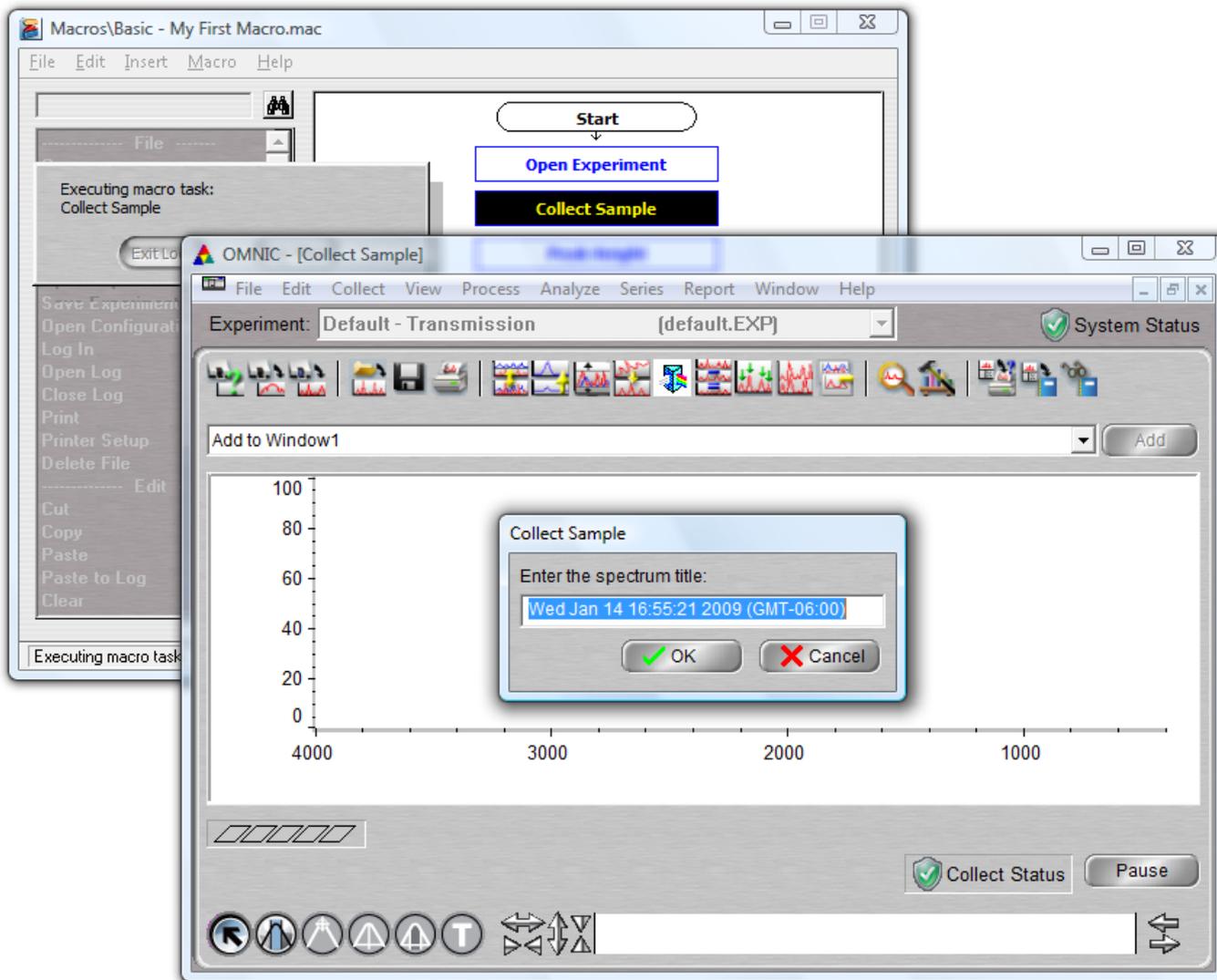
Running a macro



Status panel

Readout area

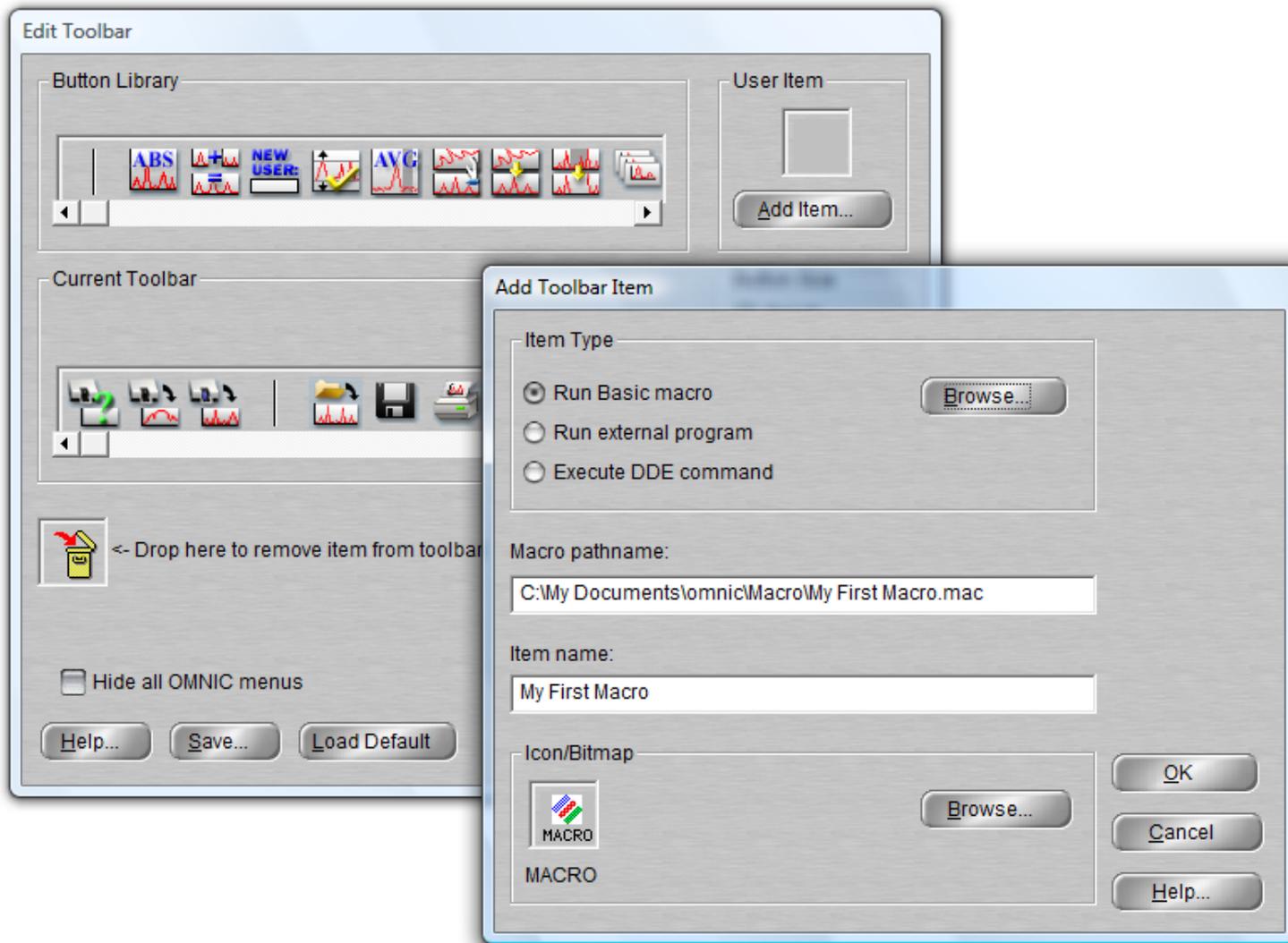
Macro tasks execute the same as OMNIC commands



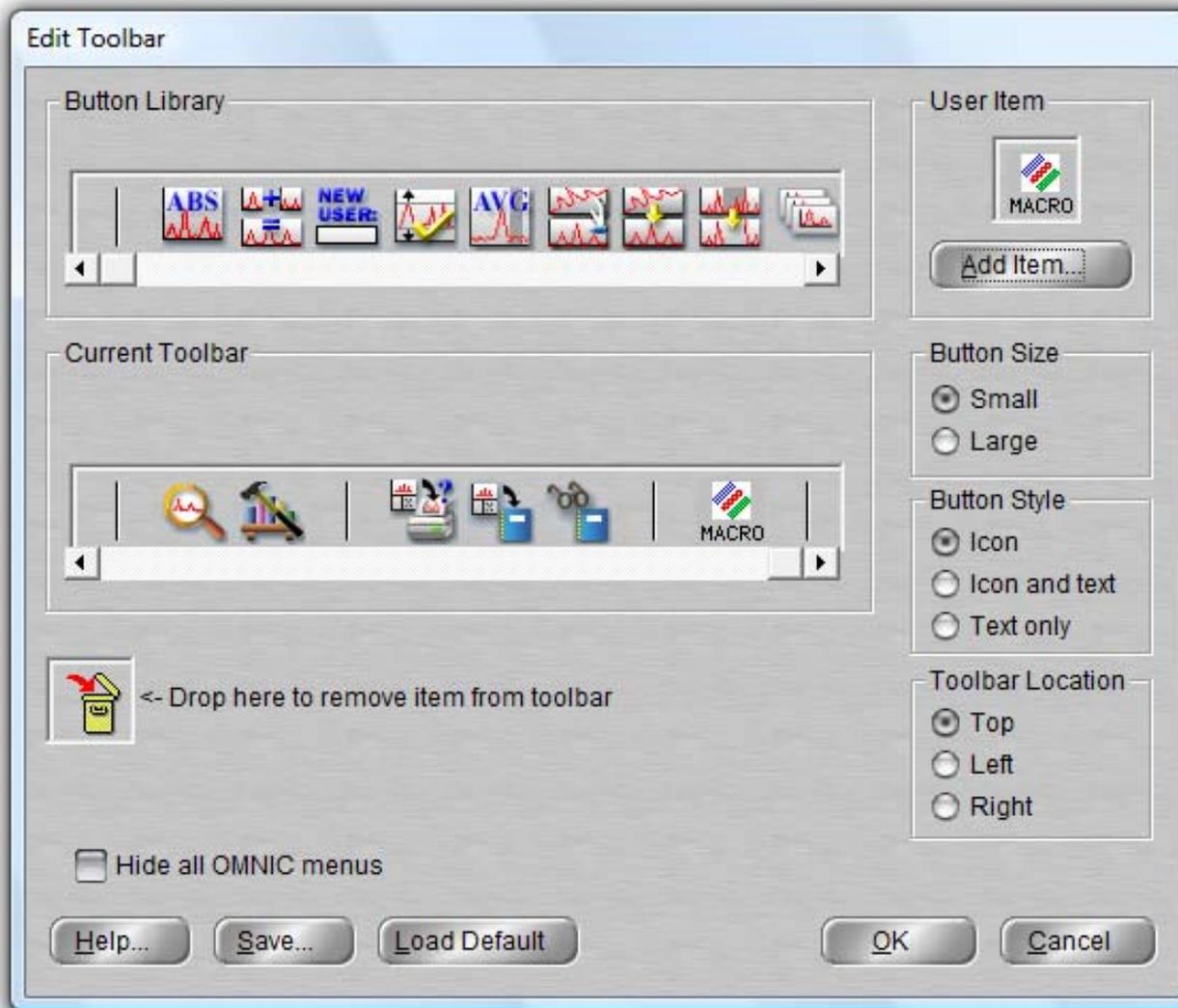
Ending macro execution

The image shows a software interface for macro execution. The main window, titled "Macros\Basic - My First Macro.mac", contains a flowchart with the following steps: Start, Open Experiment, Collect Sample (highlighted in black), Peak Height, Save As, and End. A grey dialog box is overlaid on the flowchart, displaying the message "Failure executing macro task: Collect Sample" and buttons for "Exit Loop" and "Stop Macro". In the foreground, an "Error" dialog box is open, showing a yellow warning icon and the text: "The task 'Collect Sample' failed. {executeRemote [Invoke CollectSample POLLING]}. Click 'OK' to continue macro, 'Cancel' to quit macro, or 'Help' for more information about this error." Below the error dialog, a data plot is visible with a y-axis labeled '1' and an x-axis with values 4000, 3000, 2000, and 1000. The status bar at the bottom of the main window reads "Failure executing macro task: Collect Sample".

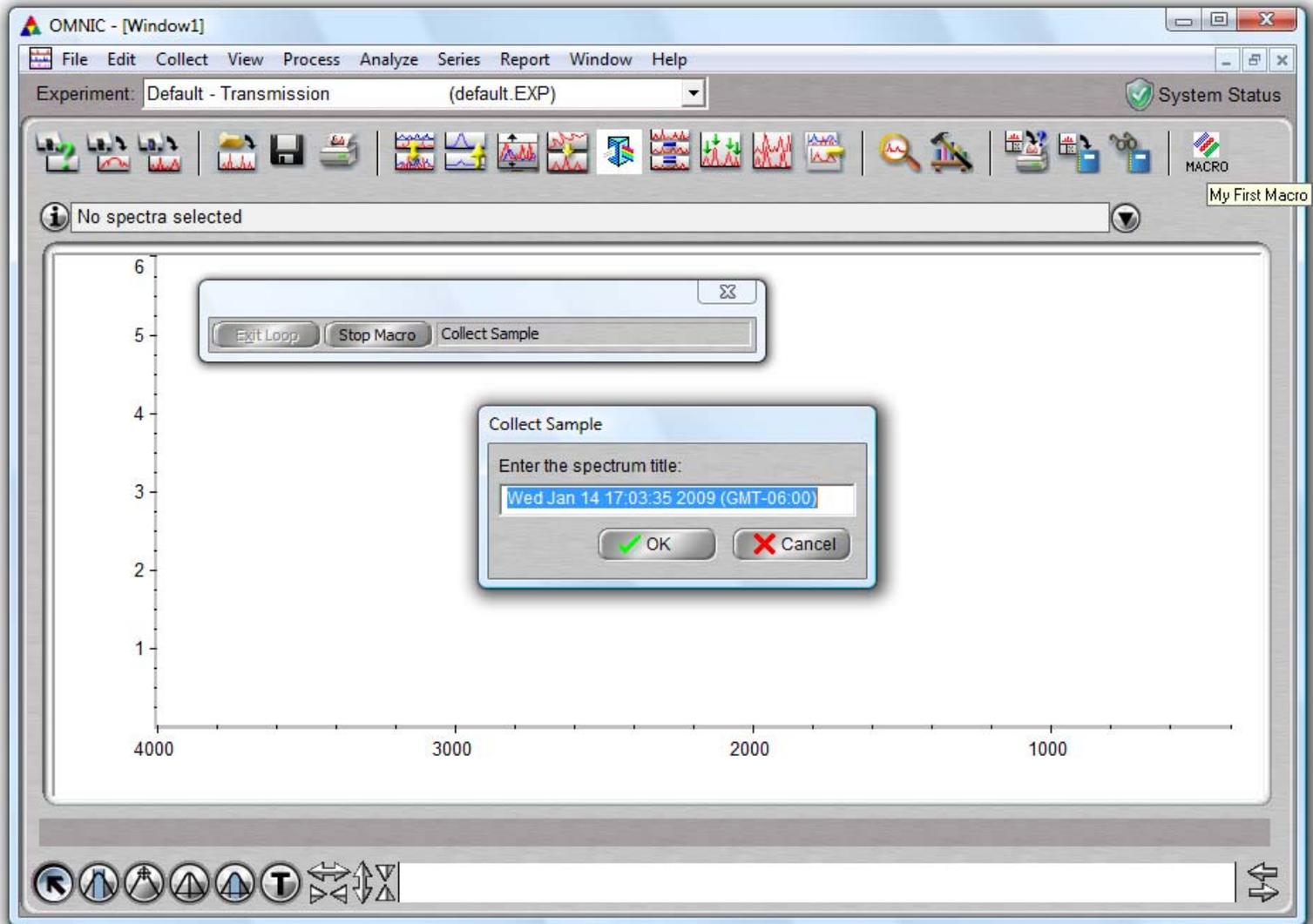
Assign a macro to the OMNIC toolbar



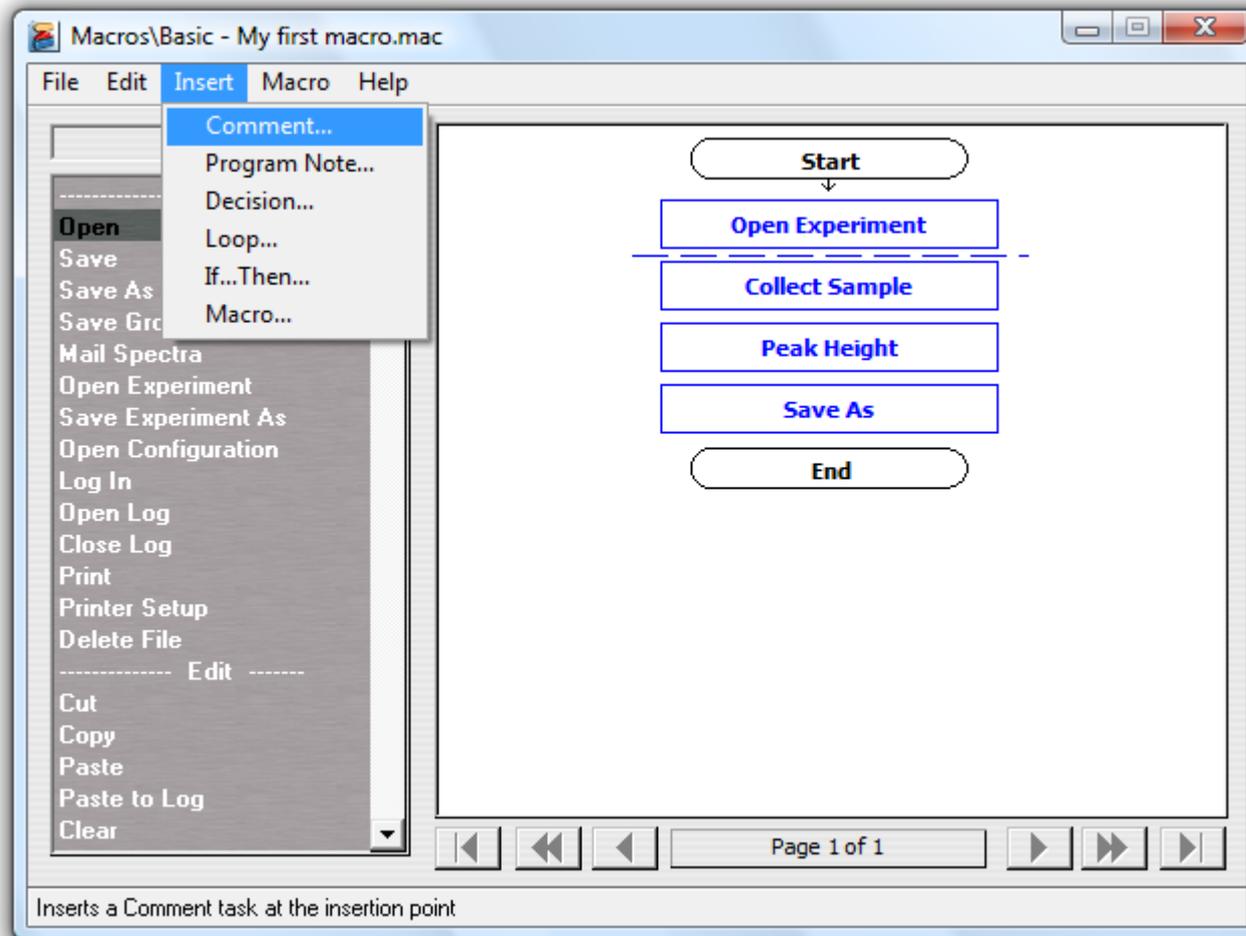
Placing the macro on the OMNIC toolbar



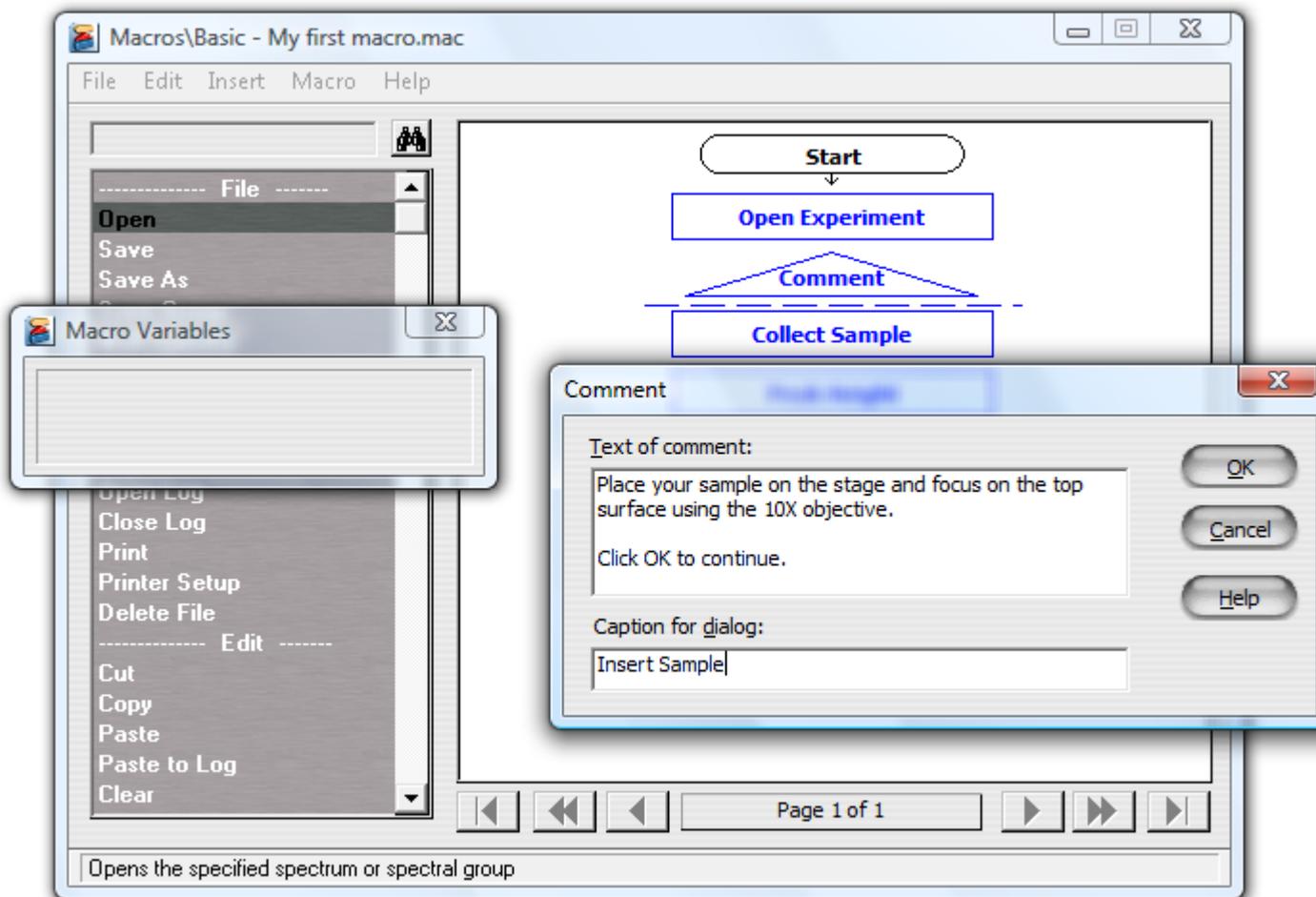
Ready to run macro from OMNIC toolbar



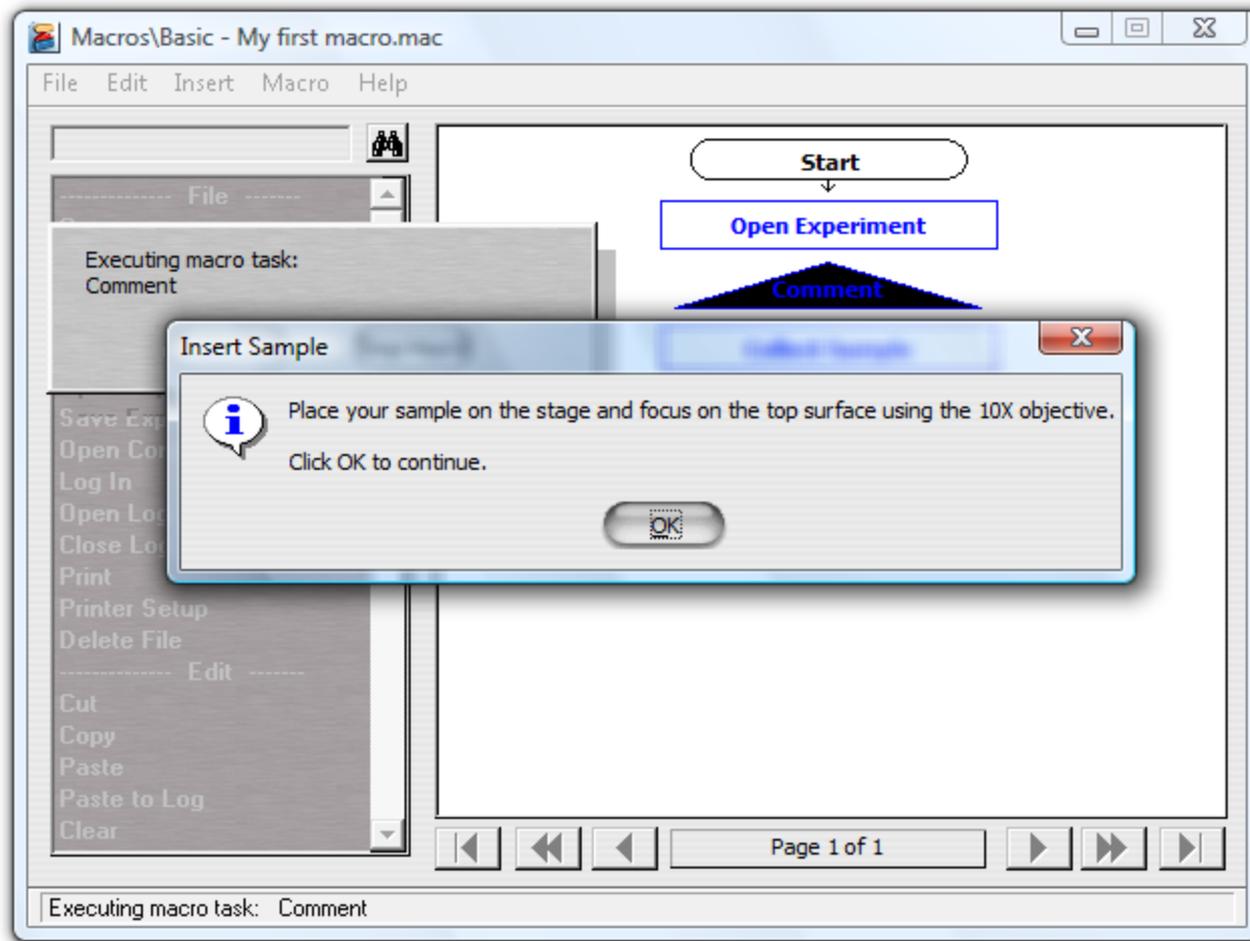
Interacting with a user



Displaying a message (Comment)



This is how a Comment task appears at run time



Decision task

The image shows a software interface for creating a macro. The main window is titled "Macros\Basic - My first macro.mac" and has a menu bar with "File", "Edit", "Insert", "Macro", and "Help". A menu is open, showing options like "New Window", "Tile Windows", "Cascade Windows", "Close Window", "Maximize Window", "Minimize Window", "Restore Window", "Utilities", "Select Spectrum", "Select Window", "Peak Height", "Peak Area", "Minimum/Maximum", "Annotate", "Edit Title", "Stop Macro", "Delay", "Store Result", "Store Quant Results", "Request", and "Math". The "Stop Macro" option is highlighted.

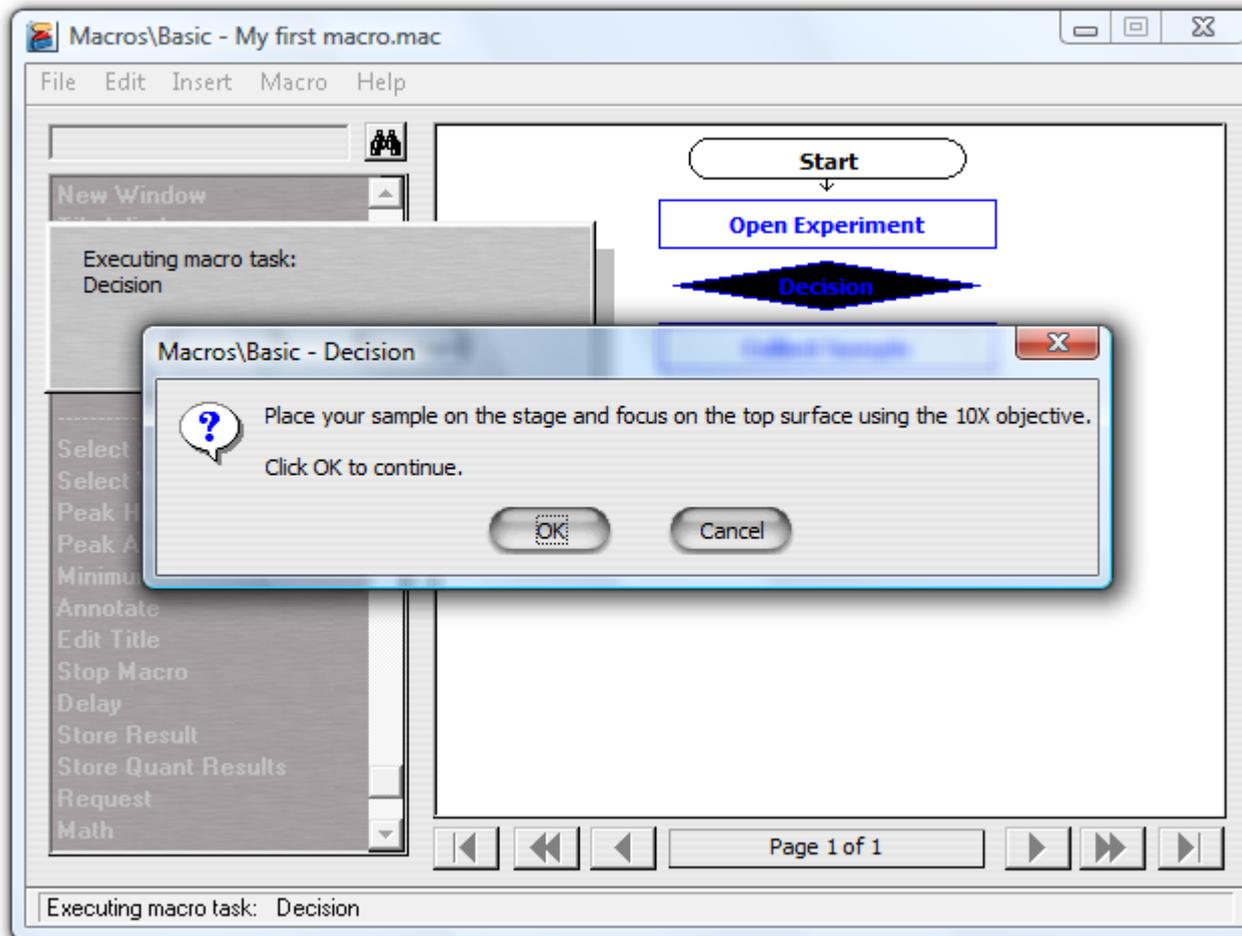
In the background, a flowchart shows the macro's logic: a "Start" oval leads to an "Open Experiment" rectangle, which leads to a "Decision" diamond. A "Decision" dialog box is overlaid on the flowchart, showing the configuration for the decision task.

The "Decision" dialog box has the following fields:

- Prompt text:** "Place your sample on the stage and focus on the top surface using the 10X objective."
- Button 1:** Label: "OK", Action: (empty)
- Button 2:** Label: "Cancel", Action: "Stop Macro" (highlighted)
- Button 3:** Label: (empty), Action: (empty)

At the bottom of the dialog box are "OK", "Cancel", and "Help" buttons. A "Macro Variables" dialog box is also visible in the bottom left corner.

Decision task at run time



Macro variables

The image displays a software interface for managing macro variables. The main window, titled "Macros\Basic", contains a menu bar (File, Edit, Insert, Macro, Help) and a flowchart with three steps: "Start", "Math", and "End". The "Math" step is highlighted with a blue dashed line. A "Macro Variables" window is open, showing the variable "mv1 = 3.14159". A "Math" dialog box is also open, showing the definition "mv 1 = 3.14159" and a format dropdown menu. The dialog box includes buttons for "Check Syntax", "Available Functions...", "OK", "Cancel", and "Help".

Macro Variables

mv1 = 3.14159

Peak Area
Minimum/Maximum
Annotate
Edit Title
Stop Macro
Delay
Store Result
Store Quant Results
Request
Math
Report
Get Library Spectrum
Store Arguments
Return Value
OMNIC DDE

Math

Definition:
mv 1 = 3.14159

Format:
?

Check Syntax
Available Functions...

OK Cancel Help

Page 1 of 1

Calculates or sets the value of a macro variable and specifies its format

Using macro variables

The screenshot illustrates the process of defining and using macro variables in a software application. The main window, titled "Macros\Basic", shows a flowchart with the following steps: Start, Math, Math, and Comment. A "Macro Variables" dialog box is open, displaying the following definitions:

```
mv1 = 3.14159  
mv2 = #mv1# * 2
```

The "Math" dialog box is also open, showing the definition of a macro variable:

```
my 2 = #mv1# * 2
```

The format is set to 0.00. The "Math" dialog box also includes buttons for "Check Syntax", "Available Functions...", "OK", "Cancel", and "Help".

More on macro variables

The screenshot displays the 'Macros\Basic' application window. The main workspace contains a flowchart with the following steps: 'Start' (in an oval), 'Math' (in a rectangle), 'Math' (in a rectangle), and 'Comment' (in a triangle). A 'Comment' dialog box is open over the 'Comment' step. The dialog box has a 'Text of comment:' field containing the text: 'The value of pi = #mv1#' and 'Two pi = #mv2#'. Below this is a 'Caption for dialog:' field containing 'Macros\Basic - Comment'. The dialog box has 'OK', 'Cancel', and 'Help' buttons. To the left, a 'Macro Variables' dialog box is also visible, showing the following code: 'mv1 = 3.14159' and 'mv2 = #mv1# * 2'. The 'Macros\Basic' window has a menu bar with 'File', 'Edit', 'Insert', 'Macro', and 'Help'. A sidebar on the left contains a list of macro actions: 'Minimize Window', 'Restore Window', 'Annotate', 'Edit Title', 'Stop Macro', 'Delay', 'Store Result', 'Store Quant Results', 'Request', 'Math' (highlighted), 'Report', 'Get Library Spectrum', 'Store Arguments', 'Return Value', and 'OMNIC DDE'. The status bar at the bottom of the window shows 'Page 1 of 1'.

The final 'Macros\Basic - Comment' dialog box shows the output of the macro. It features an information icon (i) and the text: 'The value of pi = 3.14159' and 'Two pi = 6.28'. There is an 'OK' button at the bottom.

Capturing task results

The image displays a software interface for creating a macro. The main window, titled "Macros\Basic - My first macro.mac", contains a flowchart with the following steps: Start (oval), Open Experiment (rectangle), Decision (diamond), Collect Sample (rectangle), Peak Height (rectangle), and Comment (triangle). A "Macro Variables" dialog box is open on the left, listing various actions such as "Minimize Window", "Restore Window", "Select Spectrum", "Peak Height", "Store Quant Results", "Request", "Math", "Report", "Get Library Spectrum", "Store Arguments", "Return Value", and "OMNIC DDE". A "Comment" dialog box is open in the foreground, with "Text of comment:" set to "#result#" and "Caption for dialog:" set to "Peak Height Result". To the right, a "Peak Height Result" dialog box displays the coordinates "X: 1001.446 Y: 2354.782" and an information icon.

Store Result task

The image displays a software interface for creating macros. The main window, titled "Macros\Basic - My first macro.mac", shows a flowchart with the following steps: Start, Open Experiment, Decision, Collect Sample, Peak Height, and Store Result. The "Store Result" task is highlighted in yellow. A "Macro Variables" window is open, showing the variable "mv1 = Peak Height | Corrected". A "Store Result" dialog box is also open, showing the following information:

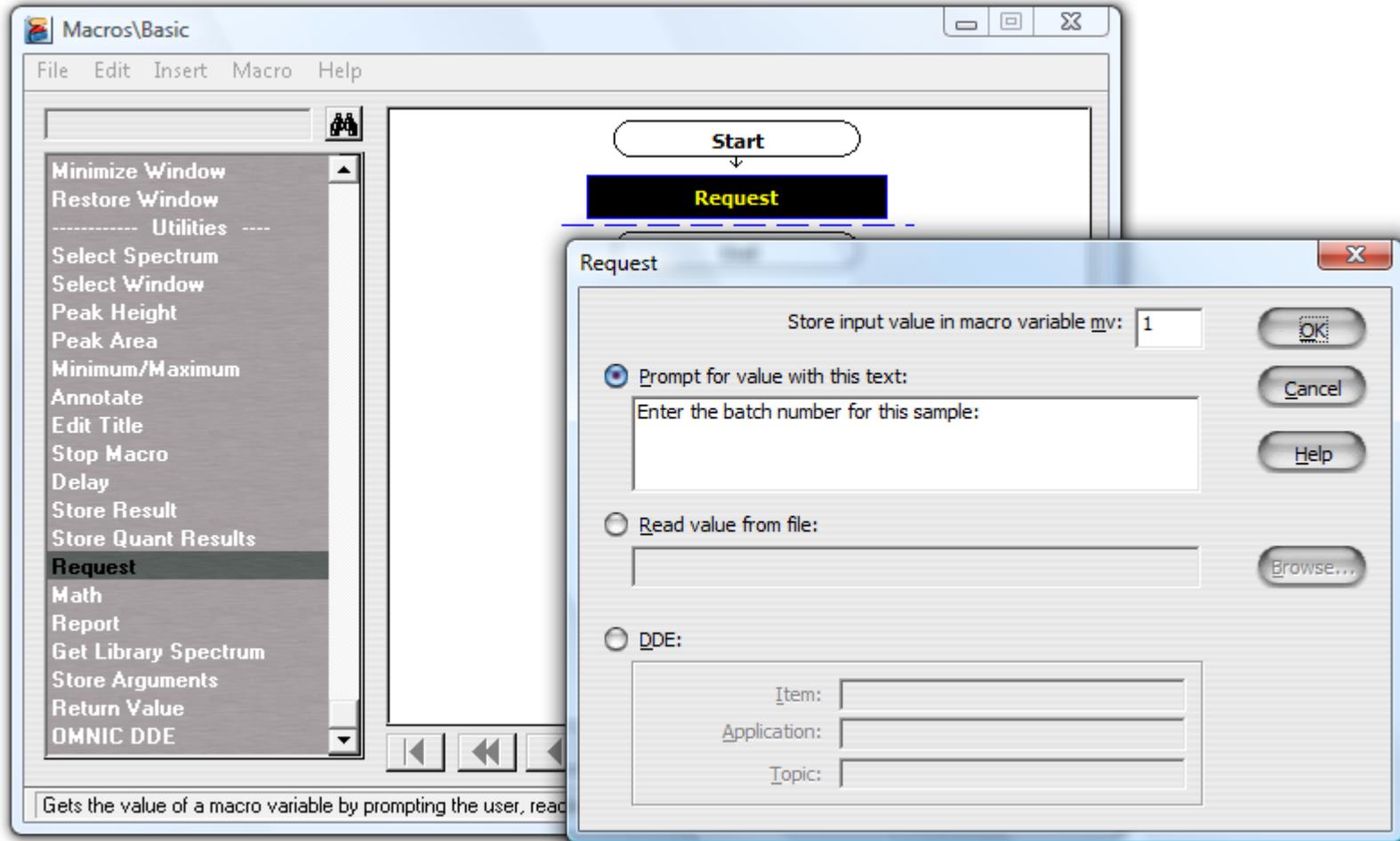
Task:	Result:
my 1 = Find Peaks	Corrected
Noise	Uncorrected
Quantify	Peak location
Peak Height	Baseline start
Peak Area	Baseline end
OMNIC DDE	
Average	
Selected Spectrum	
Minimum/Maximum	
Peak Resolve	

The dialog box also includes "OK", "Cancel", and "Help" buttons. A status bar at the bottom of the macro editor window reads: "Stores the result of a previous task in a macro variable".

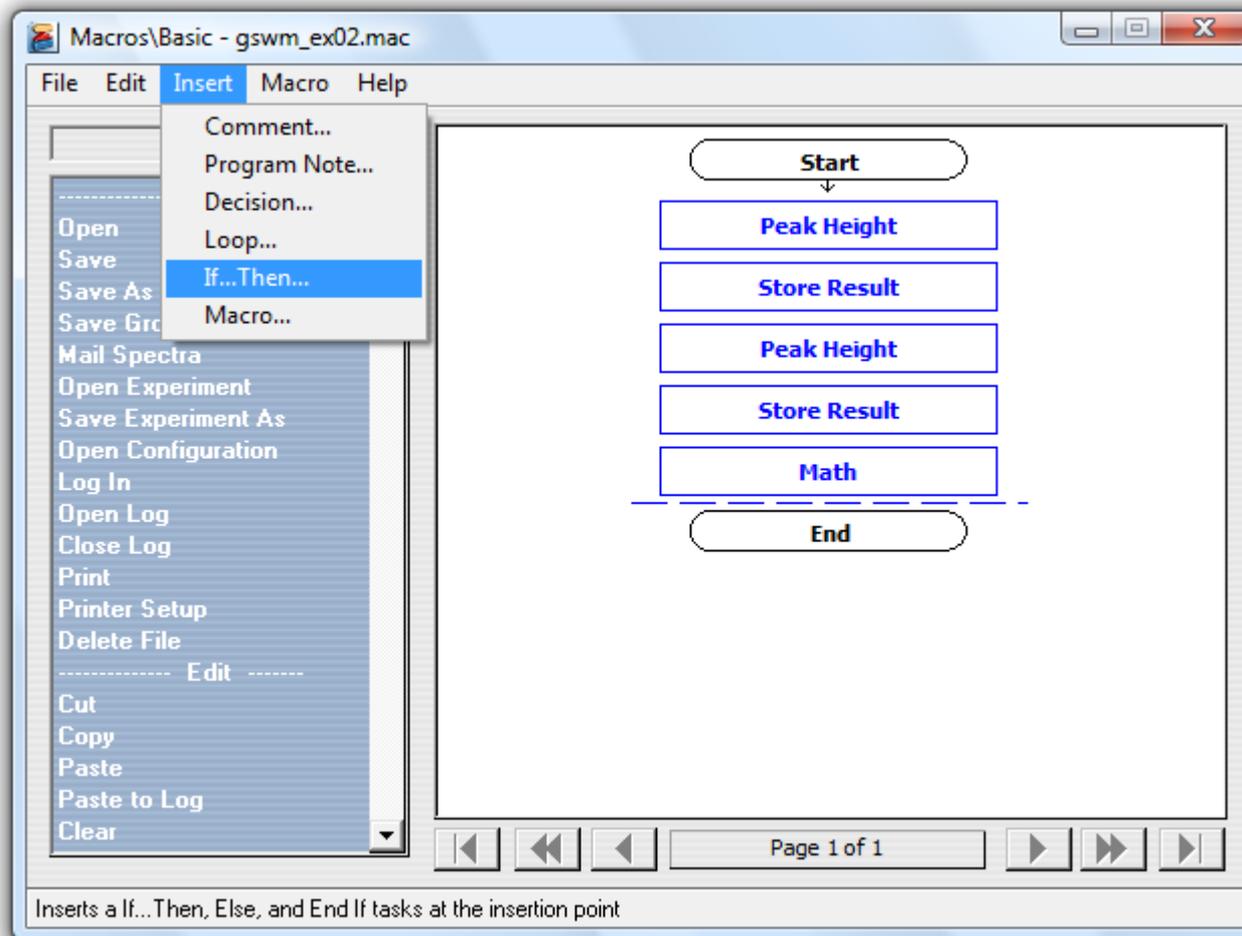
Using stored results

The screenshot illustrates a workflow in a software application. The main window, titled "Macros\Basic - My first macro.mac", has a menu bar with options like "File", "Save As", "Print", and "Edit". A "Macro Variables" dialog box is open, showing two variables: "mv1 = Peak Height | Corrected" and "mv2 = Peak Height | Peak location". A "Comment" dialog box is also open, with the text "The peak location is #mv2# (Raman shift). The peak intensity is #mv1# cps above the baseline." and a caption "Peak Height Result". A "Peak Height Result" window is shown at the bottom right, displaying the final results: "The peak location is 1001.44611 (Raman shift). The peak intensity is 2330.51563 cps above the baseline." The "Comment" dialog box is highlighted with a blue dashed border, and a blue arrow points from it to the "Peak Height Result" window. The "Peak Height Result" window has an information icon and an "OK" button.

Request task lets the user enter data



If...Then program flow tasks



Inserting an If ... Then task

The screenshot shows a macro editor window titled "Macros\Basic - gswm_ex02.mac". The main workspace contains a flowchart with the following steps: Start, Peak Height, Store Result, Peak Height, Store Result, Math, If...Then, Else, End If, and End. A "Macro Variables" dialog box is open, displaying the following code:

```
mv1 = Peak Height | Corrected  
mv2 = Peak Height | Corrected  
mv3 = #mv2#/#mv1#
```

An "If...Then" dialog box is also open, showing the configuration for the task. It contains the following text:

Enter an expression that evaluates to true or false. For example: #mv3# > 3.14

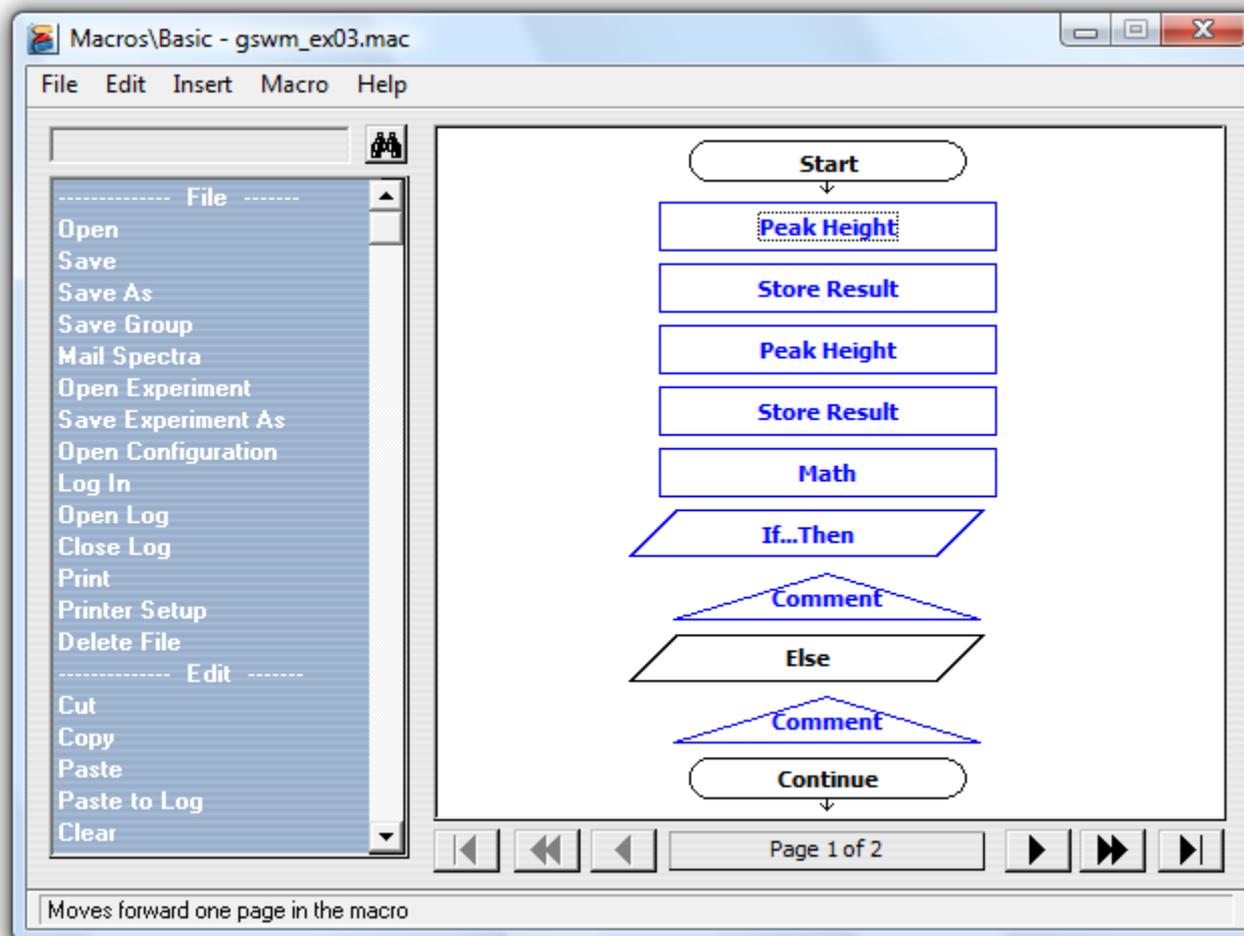
Click Help for more examples.

Execute tasks if:

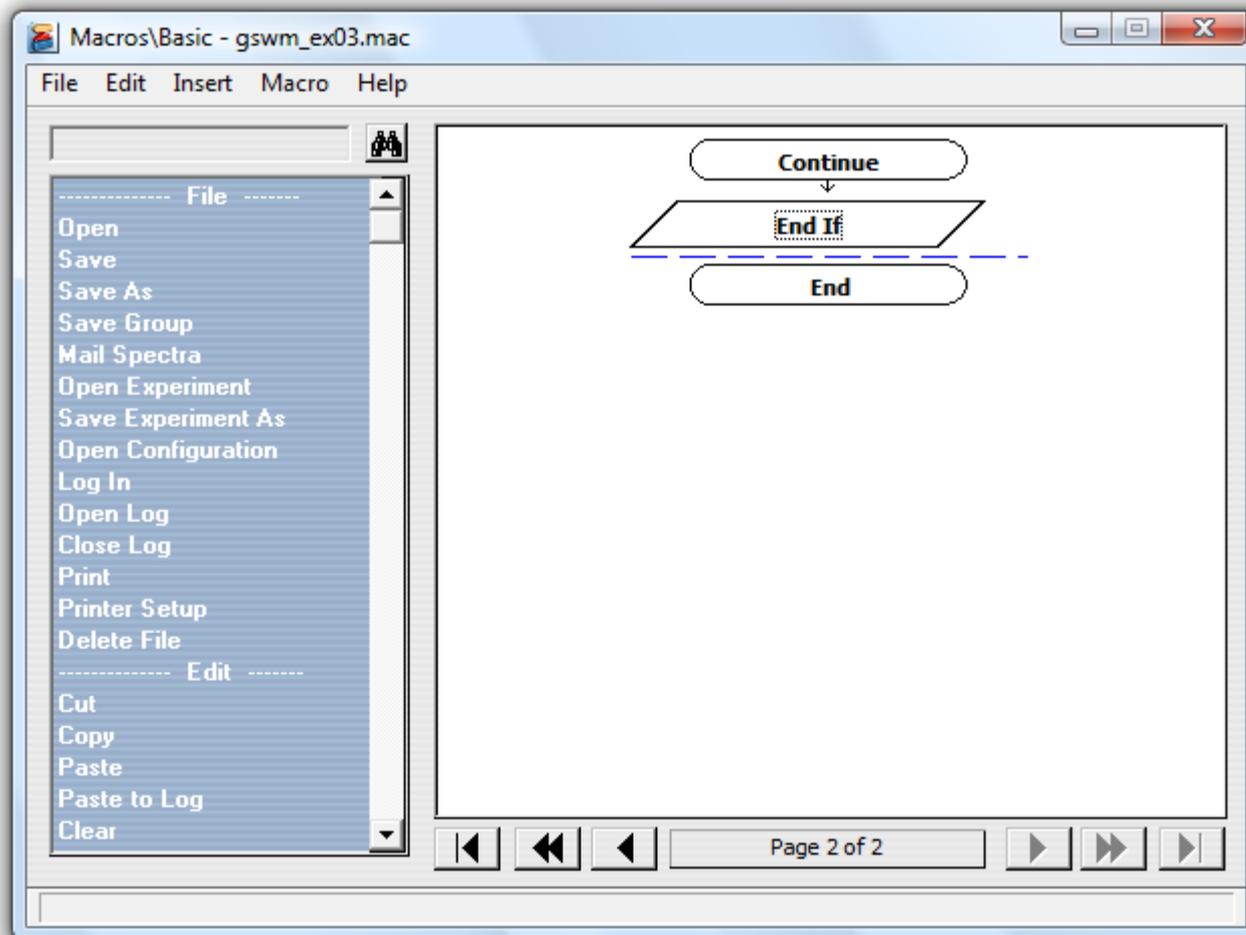
#mv3# > 0.7

The dialog box has buttons for OK, Cancel, and Help.

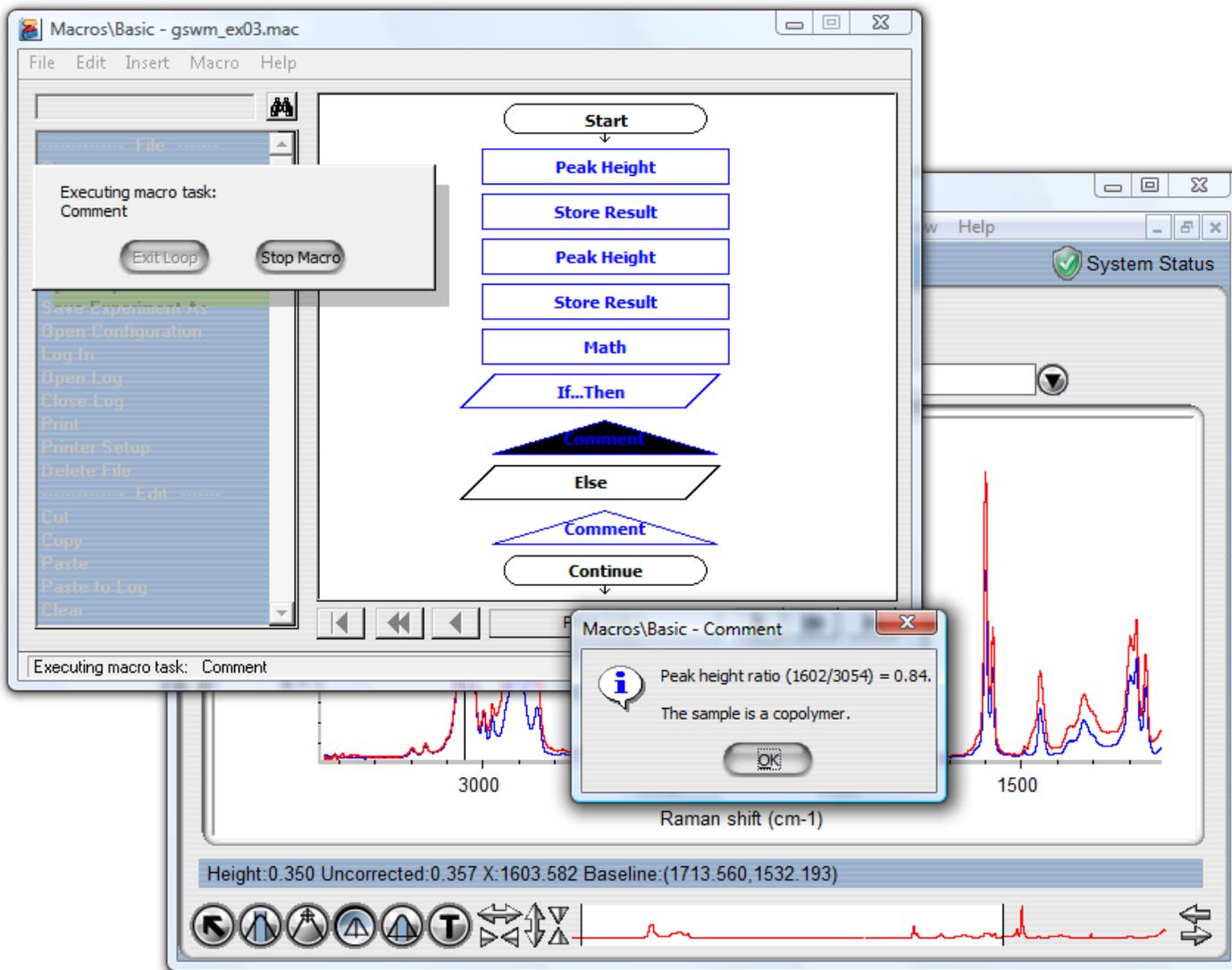
Adding tasks to the If...Then branches



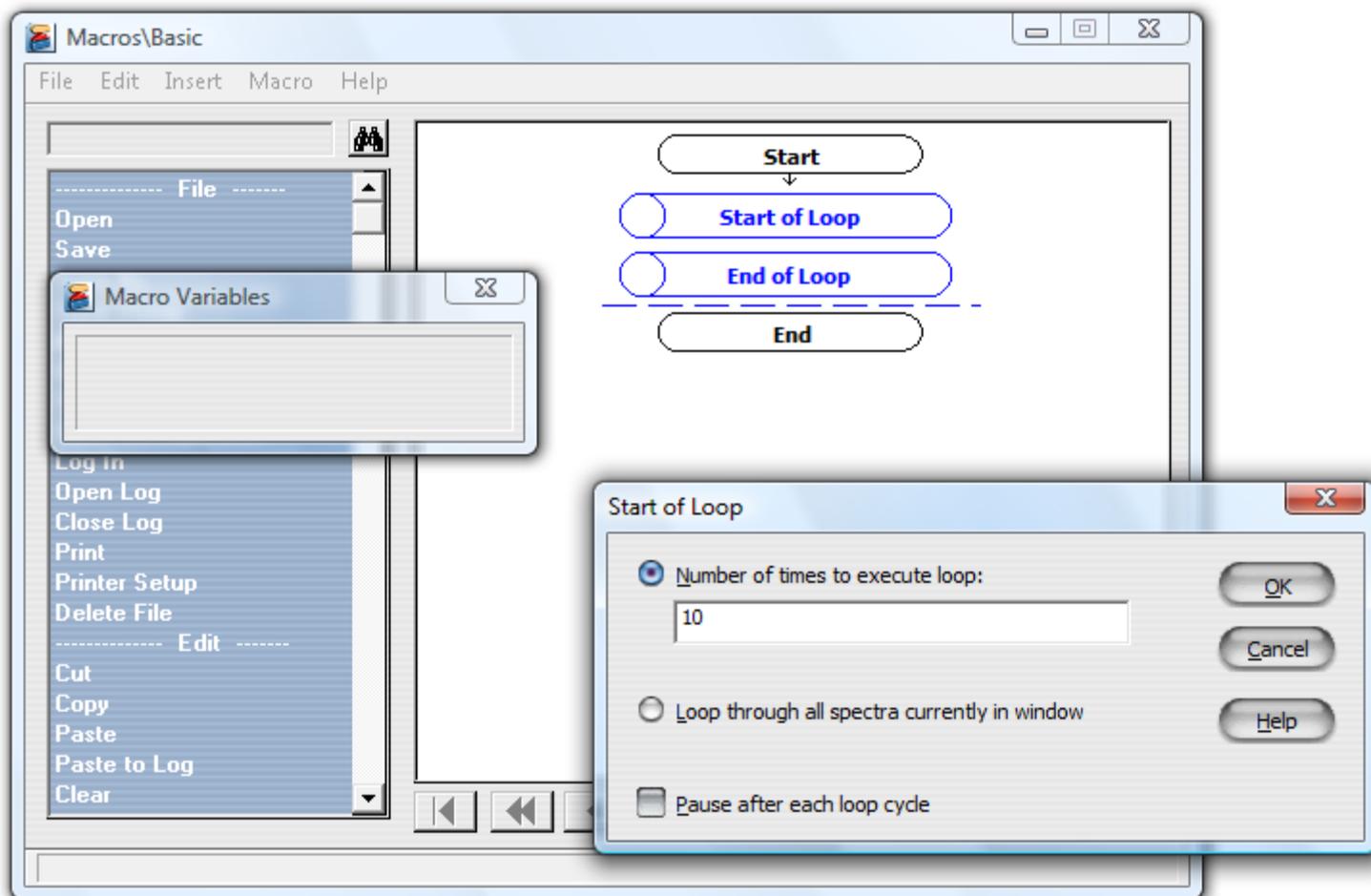
Moving between pages in your macro



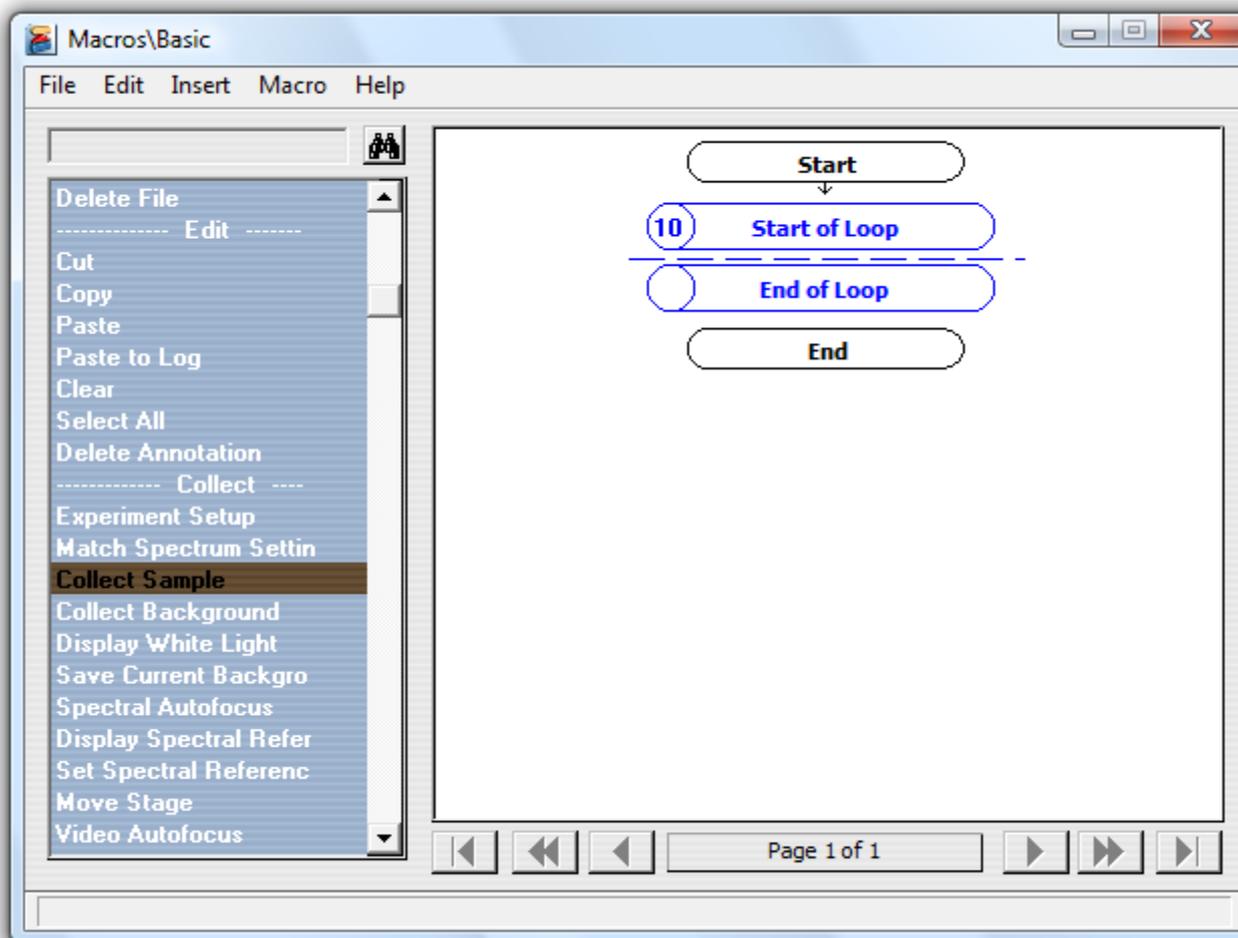
If...Then at run time



Loops



Loop boundaries



Adding tasks to a loop

The screenshot displays the 'Macro\Basic' software interface. The main window shows a flowchart with the following steps: Start, Start of Loop (with a '10' in a circle), Collect Sample (highlighted in black), Delay, End of Loop, and End. A 'Macro Variables' dialog box is open over the 'Collect Sample' step. A 'Collect Sample' dialog box is also open, showing the following options:

- Enter title for the spectrum:
Spectrum #index#
- Show data collect window
- Show data collect window and prompts
- Hide data collect window and prompts

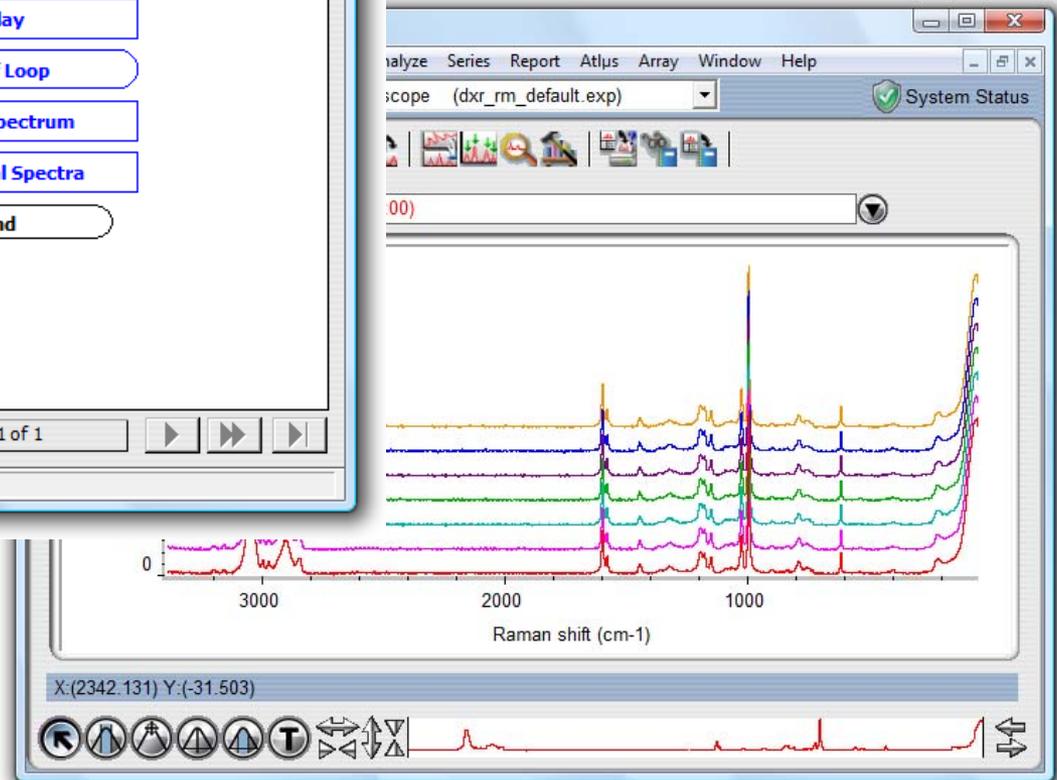
Buttons for OK, Cancel, and Help are visible on the right side of the dialog box. The status bar at the bottom of the main window reads 'Collects a sample spectrum'.

Running a macro with a loop

The screenshot shows the 'Macros\Basic - gswm_ex04.mac' window. The macro sequence is as follows:

- Start
- 10 Start of Loop
- Collect Sample (highlighted in black)
- Delay
- End of Loop
- Select Spectrum
- Statistical Spectra
- End

A dialog box is open over the 'Collect Sample' step, displaying 'Executing macro task: Loop[4]: Collect Sample' and buttons for 'Exit Loop' and 'Stop Macro'. The left sidebar contains a list of macro tasks such as 'Statistical Spectra', 'Test Search', 'Add to Library', 'Quant Setup', 'Quantify', 'Series Setup', 'Collect Series', 'Open Data Set', 'Change Title', 'Apply Function', 'Truncate All Spectra', 'Coadd Region', 'Extract Spectrum', and 'Add Basis Vector'. The bottom of the window shows 'Page 1 of 1' and navigation arrows.



The End

- This concludes the Getting Started With Macros module
- Next...
 - Explore the capabilities of the Tasks List
 - Task options reflect the same options you have when using OMNIC
 - The Utilities section includes tasks to mimic many of the “interactive” functions in OMNIC such as Peak Height
 - Practice making your own macros
 - Start with simple macros and save them as examples to use later when building more complex macros