OMNIC™

Macros User's Guide

Macros\Basic Version 7.0

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Contents

1 Welcome to OMNIC Macros

Welcome to Thermo Scientific OMNIC™ Macros. With OMNIC Macros, you can turn a series of OMNIC software operations into a simple click of the mouse button.

This manual covers the basic display features of OMNIC Macros and takes you through the steps of creating and running macros. Reference information about the commands in OMNIC Macros and the OMNIC software operations which can be executed using OMNIC macros are provided at the back of the manual.

Note You should have OMNIC or EZ OMNIC installed on your computer before you run OMNIC Macros\Basic™. If you install Macros\Basic on a system that includes OMNIC, the complete OMNIC command set is available for creating macros in Macros\Basic software. If only EZ OMNIC is installed, the Macros\Basic task list includes only the OMNIC commands that are available in EZ OMNIC. The general functions of Macros\Basic, such as the software features to run utilities or create conditional statements and loops in macros, are available when Macros\Basic is run with OMNIC or EZ OMNIC. ▲

Conventions used in this manual

The following manual conventions are used in this manual to help you learn about the software features and draw your attention to important information.

Bold type is used when you need to perform an action.

Note Notes contain helpful supplementary information. ▲

Notice Follow instructions labeled “Notice” to avoid damaging the system hardware or losing data. ▲

⚠ Caution Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. ▲

Questions or concerns

In case of emergency, follow the procedures established by your facility. If you have questions or concerns about safety or need assistance with operation, repairs or replacement parts, you can contact our sales or service representative in your area or use the information at the beginning of this document to contact us.

About OMNIC Macros

OMNIC Macros allows you to easily create macros that you can use with our OMNIC spectroscopy software. You can run macros from OMNIC by adding them to an OMNIC menu or the OMNIC toolbar. You can also run macros directly from Macros\Basic and from the Macros\Basic Macro Panel.

What is a macro?

A macro is a series of OMNIC software operations, or tasks, which are joined together using OMNIC Macros. Once the macro has been created, the series of tasks can be executed from OMNIC as if they were a single OMNIC command.

What is Macros\Basic?

Macros\Basic is the macros creation portion of OMNIC Macros. It allows you to specify the tasks you want the macro to perform and allows you to join them together to create the macro. To build a macro, you point to the tasks that you want the macro to perform and then click the mouse button to add the tasks to the macro. Information on creating a macro is available in chapter 3, “Creating a Macro Using Macros\Basic.”

What is the Macro Panel?

The Macro Panel is the portion of OMNIC Macros from which you can run many different kinds of macros. The Macro Panel consists of a set of macro buttons and macro control buttons. You can run a macro by selecting the macro from the Macro Panel and then clicking the Run Macro button. Information on running a macro from the Macro Panel is available in chapter 4, “Running Macros from the Macro Panel.”

You also use the Macro Panel commands to assign macros to the Macro Panel. Information on assigning macros is available in chapter 5, “Assigning a Macro to the Macro Panel.”

Note It is often more convenient to run macros directly from OMNIC rather than using the macro panel. To run a macro from OMNIC, you must first add the macro to an OMNIC menu or the OMNIC toolbar. See Running a Macro from OMNIC later in this chapter for more information. ▲

Using OMNIC Macros

Before you use the OMNIC Macros applications, you should be familiar with basic Windows® software operations such as pointing and clicking and working with the Windows Task Bar. You should also be familiar with OMNIC software operations.

To try running macros, you can use the set of macros we’ve supplied with the OMNIC Macros software. These macros perform a number of basic data collection and plotting operations. The example macro set appears on the Macro Panel when you first start the Macro Panel application. You can also open these macro files in Macros\Basic to see how the macros were created.

Starting and quitting Macros\Basic

There are several ways to start the Macros\Basic software as described below. For more detailed instructions on using Windows features, see your Windows documentation.

To start Macros\Basic, do one of the following:

- Double-click the Macros\Basic shortcut on your workstation desktop.

  -or-

  If the Macros\Basic shortcut does not appear on your desktop:

  - Open the Windows Start menu by choosing Start on the Windows taskbar.
  - Point to Programs in the Start menu.
  - Point to the Thermo Scientific OMNIC program group.
  - Choose the Macros\Basic program.

- Double-click a file in Explorer:

  1. Use Explorer to locate a macro file or the OMMAC.EXE program file.
  2. Double-click the file to start Macros\Basic. If you double-click a macro file, the macro contained in the file is displayed when Macros\Basic starts.

To quit Macros\Basic, do one of the following:

- Click the close box in the upper right corner of the Macros\Basic main window.
- Choose Exit from the File menu.

Starting and quitting the Macro Panel

There are several ways to start the Macro Panel as described below. For more detailed instructions on using Windows features, see your Windows documentation.

To start the Macro Panel, do one of the following:

- Open the Macro Panel program from the Start menu:
  - Open the Windows Start menu by choosing Start on the Windows taskbar.
  - Point to Programs in the Start menu.
  - Point to the Thermo Scientific OMNIC program group.
  - Choose the Macro Panel program.
- Double-click the program file in Explorer:
  1. Use Explorer to locate a macro file or the MPANEL.EXE program file.
  2. Double-click the file to start the Macro Panel.

Note When you start the Macro Panel, OMNIC is started automatically if it is not already running. The OMNIC window may obscure the view of the Macro Panel. To view the Macro Panel, you may need to size or move the OMNIC window. ▲

To quit the Macro Panel, do one of the following:

- Click the close box in the upper right corner of the Macro Panel.
- Choose Exit from the File menu.

Running a macro from OMNIC

When you have created a macro, you can run it from the Macro Panel, or directly from the OMNIC menu or toolbar. To add a macro to OMNIC's menu or toolbar, see chapter 3, "Assigning a Macro to an OMNIC Menu or Toolbar." Once you have added a macro to an OMNIC menu or the OMNIC toolbar, you can execute the macro just as you would any other OMNIC command or toolbar button.

To run a macro from OMNIC, follow these steps:

1. **Choose the macro menu item or toolbar button.**

   The macro loads and runs. As the macro runs, it displays a status window that shows the status of the macro, including the names of the tasks as they execute.

2. **To stop the macro or exit a loop in the macro, click the appropriate buttons.**

   Clicking the Exit Loop button causes the macro to jump out of a loop prior to its normal completion, and displays an error message. This button is only enabled when the macro is executing tasks within a Start of Loop/End of Loop structure. There may be a time delay between clicking the Exit Loop button and the display of the error message. The macro continues to execute the tasks following the End of Loop task.

   Clicking the Stop Macro button cancels execution of a macro prior to its normal completion, and displays an error message. There may be a time delay between clicking the Stop Macro button and the display of the error message.

Getting on-line help

Macros\Basic and the Macro Panel include on-line help for both applications to give you easy access to information on how to use the OMNIC Macros software. Whenever you have a question about how to perform an operation, use Help to quickly find the information you’re looking for.

Help information on using the Macro Panel and Macros\Basic is available from the Help menu. To access this information, choose Contents from the Help menu. The Macros Help Contents appears on the screen. The contents lists the available categories of help. To get help information for a particular topic, click the underlined text.

When you are creating your macro, you can also access context-sensitive help for setup dialog boxes and error messages by selecting the Help button in the dialog box. Help information for that dialog box will be displayed.

2 Creating a Macro Using Macros\Basic

Using OMNIC Macros\Basic, you can create macros which automate OMNIC software operations. Macros\Basic is flexible enough to allow you to create a macro which is highly interactive or a macro which requires very little interaction at run time.

To create a macro, you specify the tasks to be performed by the macro and the parameter settings to be used for the operations. The tasks which can be added correspond directly with OMNIC software commands and operations. You can also add features such as loops for performing repetitive tasks and customized dialog boxes for presenting the operator with information or choices between several tasks. All of these features can be added to your macros by simply pointing to and clicking menu commands, tasks and task symbols in the Macros\Basic main window.

This chapter provides an overview of the Macros\Basic working environment and features. It also covers procedures for creating, testing and saving macros.

Using Macros\Basic

As described in the introduction to this manual, Macros\Basic is the macros creation portion of the OMNIC Macros package. Using Macros\Basic you can create, test, save, and print macros.

Starting and quitting Macros\Basic

There are several ways to start the Macros\Basic software. For more detailed instructions on using Windows features, see your Windows documentation.

To start Macros\Basic, do one of the following:

- Double-click the Macros\Basic shortcut on your Workstation desktop.

  -or-

  If the Macros\Basic shortcut does not appear on your desktop:

  - Open the Windows Start menu by choosing Start on the Windows taskbar.
  - Point to Programs in the Start menu.
  - Point to the Thermo Scientific OMNIC program group.
  - Choose the Macros\Basic program.

- Double-click a file in Explorer:

  1. Use Explorer to locate a macro file or the OMMAC.EXE program file.
  2. Double-click the file to start Macros\Basic. If you double-click a macro file, the macro contained in the file is displayed when Macros\Basic starts.

To quit Macros\Basic, do one of the following:

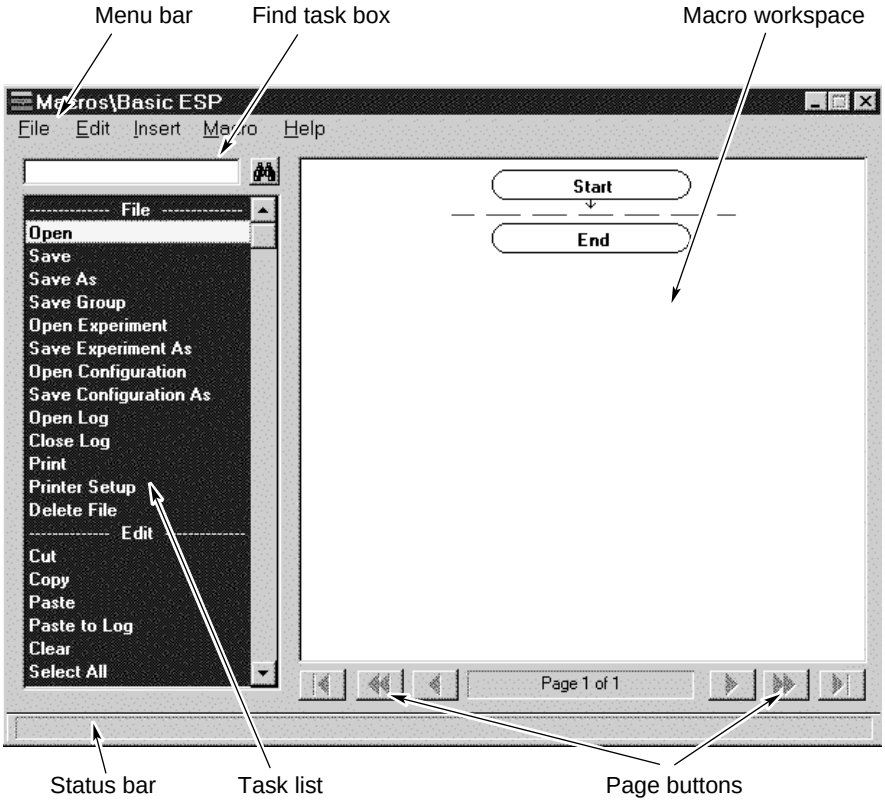
- Click the close box in the upper right corner of the Macros\Basic main window.
- Choose Exit from the File menu.

About the Macros\Basic window

When you open Macros\Basic, the Macros\Basic window appears on the display.

The Macros\Basic window consists of these items (shown in the following illustration):

- The menu bar.
- The task list, which lists the tasks available for creating macros.
- The find task box, which lets you quickly locate tasks in the task list.
- The macro workspace, which displays a graphical representation of the tasks in the macro.
- The page buttons, which let you view different pages of the macro in the workspace.
- The status bar, which displays information about the selected task or command or about what the software is currently doing.



The menu bar

The Macros\Basic menu bar contains the Macros\Basic menu names. The commands in the Macros\Basic menus allow you to manage your macro files, edit macros, insert loops, dialog boxes and macros into a macro, test your macros and get on-line help. For information on the Macros\Basic commands, refer to the “Macros\Basic Command Descriptions” section of chapter 8, “OMNIC Macros Commands and Tasks.”

The task list

The task list contains all of the tasks that can be added to a macro to perform OMNIC software operations. Most of the tasks in the task list correspond directly with the OMNIC commands of the same name. The task list is divided into sections which reflect the location of the task's command in the OMNIC software menus. Tasks which do not correspond directly with OMNIC commands, such as selecting a spectrum, are listed under the Utilities section of the task list.

To select an item in the task list, click the task with the mouse or use the up and down arrow keys to highlight the task and then press Enter. You can also move to a task by typing the first character of the task name. If you need to change the focus to the task list, click one of the dashed lines between each group of tasks in the task list. When tasks are selected, they are added to the macro at the location of the insertion point in the workspace.

The find task box

The find task box quickly searches through all of the tasks using the characters or words you enter. To use the find task box, enter text contained in the name of the task you want to find and press Enter, or click the binocular button next to the find task box. To find the next occurrence of the text, press Enter again. When you locate the task you want, you can click the task name to add it to the macro workspace at the insertion point, or press Ctrl+Enter.

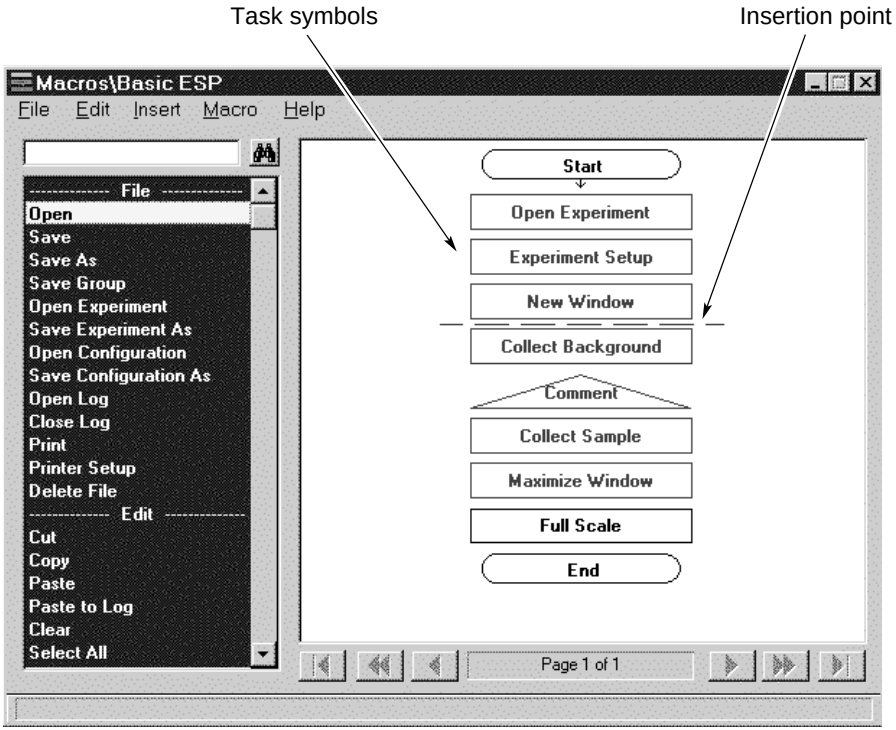
The status bar

The status bar is a line at the bottom of the Macros\Basic window that displays status information about the following:

- When a menu is active, the status bar displays a short message describing the action the highlighted command performs.
- When a task is highlighted in the task list, the status bar displays a short message describing the action the highlighted task performs.
- When Macros\Basic needs to inform you of its progress or give you information following the completion of a command, it displays an informative message.

The macro workspace

The macro workspace provides you with a graphical representation of the macro you are working on. When you add a task to the macro, the task is displayed as a task symbol in the workspace. The task is added to the macro at the location of the insertion point, which appears in the workspace as a dashed blue line.



Task symbols

When you add a task to a macro, the task symbol for the task appears in the macro workspace. Using the editing functions available in the Edit menu, you can cut, copy and paste task symbols to easily edit your macro. If the task symbol is red or blue, the task has associated parameters. Double-clicking the task symbols for these tasks allows you to set the task parameters. For example, double-clicking the Experiment Setup task symbol will display the Experiment Setup dialog box, allowing you to set the data collection parameters for subsequent data collection tasks.

Insertion point

The insertion point is the blue dashed line which appears between task symbols in the macro workspace. The insertion point indicates where the next task you select will be placed in the macro. You can move the insertion point to a new location by clicking between the task symbols in the workspace at the new location.

Note When a task symbol in the workspace is selected, the insertion point is removed from the workspace. Click between task symbols in the workspace to redisplay the insertion point. ▲

The workspace page buttons

When each page of the macro workspace is filled with tasks, a new page is automatically generated. The page buttons beneath the workspace can be used to move to different pages of the macro. The function of each page button is indicated below.

 Returns to the start of the macro.

 Moves back two pages in the macro.

 Moves back one page in the macro.

 Moves forward one page in the macro.

 Moves forward two pages in the macro.

 Moves to the end of the macro.

Creating a macro

To create a macro, you specify the tasks that you want the macro to perform; then you set the parameters that control how the tasks are executed. After you have specified the functions of the macro, you can test and save the macro.

Features which can be added to a macro include:

- Tasks which correspond with OMNIC commands and operations.
- Loops for repeating a series of tasks a specified number of times.
- Comment dialog boxes for providing information for the operator at run time.

- If…Then conditions to allow certain tasks to run depending on the outcome of previous tasks.
- Decision dialog boxes for providing the operator with several choices of operations at run time.
- OMNIC Dynamic Data Exchange (DDE), which allows you to initiate commands, set parameters, or return a parameter value.
- Existing macros.

These features are added to the macro by selecting the tasks from the task list or by selecting commands from the Insert menu. Tasks in the task list are added by clicking the tasks. Loops, dialog boxes and macros are added to the macro by choosing the appropriate command from the Insert menu.

You can also assign values to variables or use variables to store the results from a previous task. Once a variable is assigned, you can use it in subsequent tasks in the macro.

The following procedure describes the steps involved in creating a macro. Details on each step are provided in the sections following this procedure.

To create a macro:

When you first start Macros\Basic, only the Start and End task symbols appear on the display. This indicates that the Macros\Basic program is ready to create a macro.

1. **If you have already created a macro and want to create another one, choose New from the File menu.**

2. **Position the insertion point in the macro at the point where you want to add the task or Insert menu option. Then select the features from the task list or the Insert menu that you want to add to the macro.**

   As each feature is added, the task symbol for the task or Insert option is placed in the workspace at the position of the insertion point.

3. **Set the task parameters so that the tasks will operate as desired at run time.**

   Some tasks have parameters which must be set in order for the macro to compile and run. The task symbols for tasks with parameters which must be set are displayed in red until you set the parameters. Other tasks may have parameters which can be changed but do not need to be set in order for the macro to run. The task symbols for tasks with parameters which can be changed are displayed in blue. The task symbols for tasks which have no settable parameters are displayed in black. To change the parameters associated with a task, double-click the task symbol. The setup dialog box for that task will appear in the workspace. Enter the parameter values that you want and then choose OK.

Note At this point you can try out the macro using the Test command, or you can save the macro using the Save command. When you choose either command, the macro will first be compiled. Errors that are found in the macro during compilation are indicated with error messages along with possible sources of the error. ▲

4. **To test the macro, choose Test from the Macro menu.**

   If errors are found during compilation, you must correct the errors before you can continue to test the macro. The macro is then run as it will operate at run time. All of the tasks in the macro will be executed.

5. **To save the macro you just created, choose Save from the File menu.**

   The macro is compiled before it is saved. If errors are found during compilation, you can choose to save the macro without correcting the errors; however, the macro will not execute if you try to run it. You can open the macro later and fix the errors.

6. **When the macro is finished compiling, enter a file name for the macro and choose OK.**

7. **Enter the optional Comments, Author or Title in the Summary Info dialog box and then choose OK.**

8. **If you turned on the Password check box, type a password in the Enter Password dialog box and then choose OK.**

   You will be asked to verify the password by entering it again.

In order to run the macro you just created, you can add it to OMNIC's menu or toolbar, or you can assign it to a Macro Panel button. Using OMNIC's menus and toolbar provides the easiest method for running macros. For information on how to assign a macro to an OMNIC menu or toolbar, see chapter 3, "Assigning a Macro to an OMNIC Menu or Toolbar. For information on how to assign a macro to a Macro Panel button, see chapter 5, "Assigning a Macro to the Macro Panel."

Adding tasks to a macro

The tasks in the task list correspond to OMNIC commands and operations. As tasks are selected, the task symbol for the task is placed in the workspace at the position of the insertion point. When the macro is run, the tasks are executed in the order they appear in the macro.

To add a task to a macro:

1. **Click between existing tasks in the workspace at the point where you want to add the new task.**

   The insertion point will move to the selected location.

2. **Click the task in the task list to add it to the macro.**

   The task symbol for the task appears in the workspace.

When adding tasks to macros, keep in mind that some tasks will fail at run time unless certain conditions are met. For example, two spectra must be selected in order for an Add task to execute at run time. In this case, you must make sure that two Select Spectrum tasks appear in the macro before the Add task. For information on the requirements for each Macros\Basic task, refer to the "Macros\Basic Task Descriptions" section of chapter 8, "OMNIC Macros Commands and Tasks."

In addition, you can specify how the tasks are executed at run time by setting the parameters associated with the task. For example, by setting the Baseline Correct task parameters, you can specify whether to perform an automatic or manual baseline correction. For information on how to set these parameters, refer to the "Modifying the Parameters Associated with a Task" section of this chapter. For information on the parameters associated with each task, refer to the "Macros\Basic Task Descriptions" section of chapter 8, "OMNIC Macros Commands and Tasks."

Cutting, copying and pasting tasks in a macro

You can edit your macro using the Cut, Copy and Paste commands.

To cut a task from a macro:

1. **Select the task by clicking the task symbol in the workspace.**

   If you want to cut more than one task from the macro, hold down the Ctrl key and make additional selections. You can use the Shift key to select contiguous tasks.

2. **Choose Cut from the Edit menu or press Ctrl + X to remove the selected task(s) from the macro.**

   The tasks are placed on the Clipboard and remain there until a different task is cut or copied.

To copy tasks in a macro:

1. **Select the task you want to copy by clicking the task symbol in the workspace.**

   If you want to copy more than one task, hold down the Ctrl key and make additional selections. You can use the Shift key to select contiguous tasks.

2. **Choose Copy from the Edit menu or press Ctrl + C to copy the selected task(s).**

   The copied tasks are placed on the Clipboard and remain there until a different task is cut or copied.

To paste tasks in a macro:

1. **Position the insertion point by clicking in the workspace at the point where you want to paste the task(s).**

2. **Choose Paste from the Edit menu or press Ctrl + V.**

   The tasks which are on the Clipboard are pasted into the macro at the insertion point.

Modifying the parameters associated with a task

Some tasks have parameters which must be set in order for the macro to run. The task symbols for tasks with parameters which must be set are displayed in red until you set the parameters. Other tasks may have parameters which can be changed but do not need to be set in order for the macro to run. The task symbols for tasks with parameters which can be changed are displayed in blue. The task symbols for tasks which have no settable parameters are displayed in black.

Note For information on the parameters associated with a task, check the entry for the task in the "Macros\Basic Task Descriptions" section of chapter 8, "OMNIC Macros Commands and Tasks." ▲

To modify the parameter settings associated with a task:

1. **Double-click the task symbol for a task that has settable parameters.**

   Task symbols for tasks which have settable parameters will be displayed in red or blue. When you double-click a red or blue task symbol, the setup dialog box for the task will appear on the display.

2. **Set the parameters.**

   To change the focus to a specific parameter in the setup dialog box using the keyboard, hold down the Alt key and press the underscored character in the parameter name. If the parameter is an option or a check box, using the Alt + underscore key combination will turn the option or check box on or off.

3. **Choose OK when the parameters are set as you want them.**

   These parameter settings will control the operation of the task when the macro is run.

Note The task symbols for tasks which have required parameters will change from red to blue once the required parameters have been set. ▲

Using variables in macros

Variables can be used to store information and task results in a macro and to carry out mathematical calculations. Macros\Basic provides you with three types of variables: macro variables, the Result variable, and the Index variable.

Macro variables are containers, defined at development time, that can hold nearly any type of information: numbers, text strings and comma separated lists, for example. You can define up to 65535 macro variables in a macro. The capability of the Math task allows you to parse the content of macro variables which contain multiple items, characters, words, and lines of text.

The Result variable is used by Macros\Basic to store the results of the most recently completed task. You may find it useful to access the Result variable to find the results of tasks such as: Average, Find Peaks, Noise, Peak Height, Peak Area, Quantify, and Search. Each time the macro executes one of these tasks, the current value of the Result variable is overwritten.

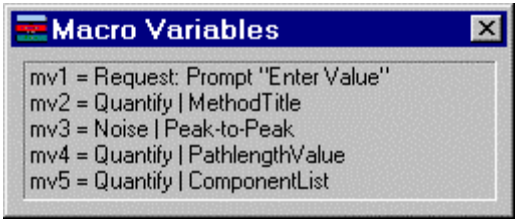
The Index variable is the iteration number in a loop. This variable exists only within a loop, but you can use it to access the current loop count.

Macro variables and the Result variable can be used in all tasks that have settable parameters.

Displaying a list of assigned variables

Most tasks allow you to use macro variables. Whenever you open a task that accepts macro variables, the Macro Variable viewer is automatically opened. To add a macro variable reference, just click a line in the Macro Variable viewer and a reference is added at the insertion point in the dialog.

You can also view all of the macro variables you have assigned by using the Show Macro Variables command in the Macro menu. Selecting the command once opens the macro variable viewer window.



Close the viewer by either choosing Show Macro Variables again from the Macro menu, or closing the viewer window directly.

Using variables in macro tasks

Macro variables, Result variable and the Index variable can be used in all tasks that have settable parameters. To add the current value of a macro variable to a task, use the placeholder #mv?#, where ? is the number assigned to the macro variable whose value you want to include. To add the current value of the Result variable to a task, type the placeholder #result# in the text box displayed in the setup screen for the task. To add the current value of the Index variable to a task, type the placeholder #index# in the text box displayed in the setup screen for the task.

For example, if you want to use macro variable 1 to specify the number of loop cycles, type the placeholder #mv1# in the Number of Times to Execute Loop box. If the value of macro variable 1 at run time is equal to 14, the loop will be executed 14 times. Think of the “#mv?#” notation as meaning “value of mv?”. For example, #mv7# means “substitute the current value of macro variable mv7 here”.

Note If you use the Result variable in a task, make sure you add the task to the macro immediately following the task that places its results in the Result variable. For descriptions of the tasks which place their results in the Result variable, see the section “Macros\Basic task descriptions” in chapter 8, “OMNIC Macros Commands and Tasks.” ▲

Note The Index variable exists only within the loop that is executing. In nested loops, it is the value of the imminent loop index. ▲

Adding a loop to a macro

Loops can be used in macros to repeat a task or series of tasks a specified number of times. For example, if you want to collect ten spectra and add the spectra to a library, you could create a loop which would execute ten times and include a Collect Sample task and a Add to Library task in the loop.

When you add a loop to a macro, you need to specify the location of the loop and the tasks to be included in the loop. You can also set up a loop to pause at the end of each loop cycle at run time and to stop if a certain condition is met. For example, if you want to collect a background spectrum periodically until the moisture level in the sample compartment is less than some value, you could write a macro loop that includes a Peak Height task to measure the water band in each background spectrum followed by a Store Result task to save the peak height result in a macro variable. Then you can enter the macro variable as the end-of-loop condition and set the condition value to the maximum allowable peak height for water in the background spectrum.

If a pause is included in the loop, you are given the option at run time to continue or exit the loop at the end of each loop cycle.

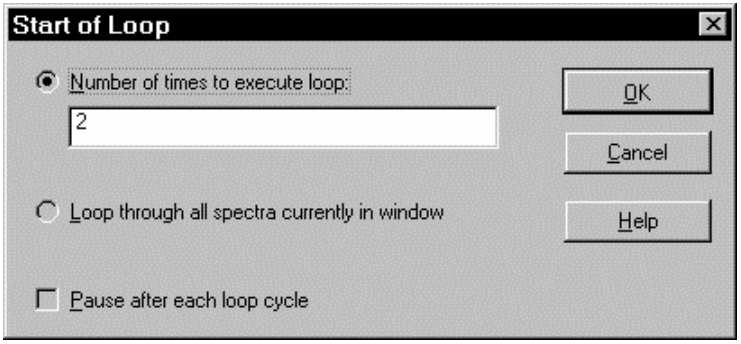
If an end-of-loop condition is set, the macro will check whether the condition is true at the end of each loop cycle and exit the loop without completing the full number of iterations specified by the Start of Loop task if the condition is true.

To add a loop to a macro:

1. **Position the insertion point in the workspace where you want to add the loop.**

2. **Choose Loop from the Insert menu.**

   The Start of Loop setup dialog box is displayed.



3. **Enter the number of times to execute the loop.**

   You can choose to have the loop run a defined number of times, or to loop through all the spectra in a window.

   If you choose to loop the macro a defined number of times, choose the Number Of Times To Execute Loop button. You can enter a number, or you can use a macro variable by typing a placeholder for the macro variable in the Number of Times to Execute Loop box. For example, if you want to use macro variable 1 to specify the number of loop cycles, select the value in the Number Of Times To Execute The Loop box, then click mv1 in the Macro Variable window. If the value of macro variable 1 at run time is equal to 14, the loop will be executed 14 times.

   If you want to loop through all of the spectra within a window, choose the Loop Through All Spectra Currently In Window button. This option applies each task in the loop to each spectra in the currently selected window. The macro does not affect any spectra added to the window while executing the loop. If loops are nested, only one can use the Loop Through All Spectra Currently In Window option.

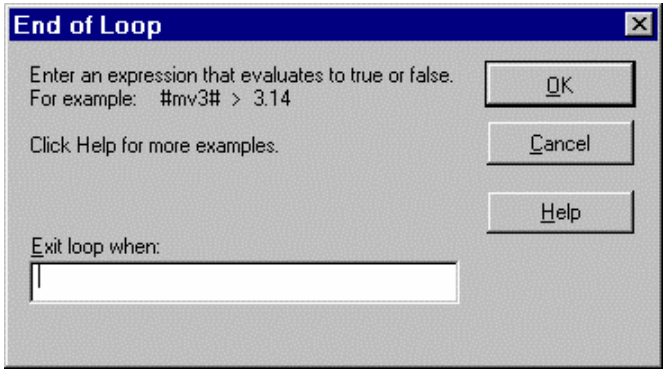
If you want the macro to pause at run time after each iteration of the loop, turn on the Pause After Each Loop Cycle check box. Then choose OK. The Start of Loop and End of Loop task symbols appear in the workspace. The Start of Loop task symbol indicates the number of times the loop will be executed. If the word “All” appears, the macro will loop through all the spectra in the currently selected window. The insertion point is positioned between the Start of Loop and End of Loop tasks.

4. **Select the tasks that you want to be included in the loop.**

   You can also cut and paste the Loop tasks to move them within the macro.

5. **If you want to specify an end-of-loop condition, double-click the End of Loop task symbol.**

   The End of Loop setup dialog box is displayed.



Define a condition to end the loop. A valid condition uses a logical operator to evaluate two expressions. The result of the evaluation is either true or false. An expression may be a macro variable reference, a number, a text string or another expression. Text strings must be enclosed in quotes if they contain a space.

To specify a macro variable, enter it in the form “#mv?#” where ? is the number of the macro variable, or click a defined macro variable displayed in the Macro Variables window. To specify an operator, enter any common arithmetic operator (for a complete list of operators, see the Loop command description). A placeholder for the macro variable you select will be placed at the end of any existing text in the box.

When you are finished specifying the end-of-loop condition, choose OK.

Note Once the loop has been defined, you can change the Start of Loop and End of Loop parameter settings by double-clicking the Start of Loop or End of Loop task symbol. ▲

Adding an If…Then structure to a macro

If…Then structures can be used within a macro to allow certain tasks to execute based on the outcome of previous tasks. Using the If…Then, Else and End If tasks, you can carry out one set of tasks if a condition is true (If branch), and another set of tasks if the condition is false (Else branch). For example, to collect and save spectra that meet a certain noise requirement, you could test for the noise level, then use the If…Then command to save the spectrum if it met the requirement.

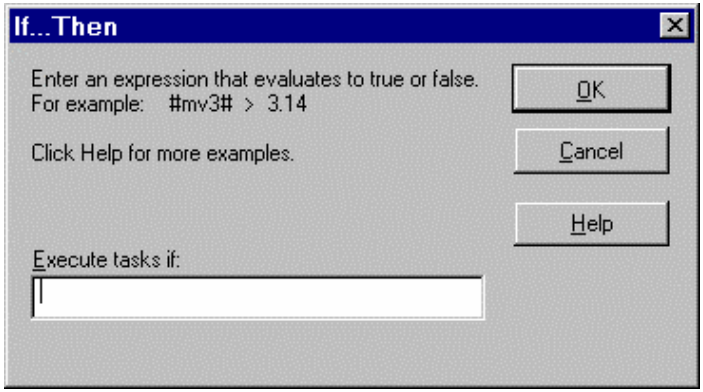
When you add an If…Then structure to a macro, you need to specify the condition to be met for the If branch tasks to be carried out. You can also choose to specify a set of tasks to carry out if the condition is not met. For example, if a spectrum does not meet the noise level requirement, a dialog box could be displayed alerting the operator.

To add an If…Then structure to a macro:

1. **Position the insertion point in the workspace where you want to add the If…Then structure.**

2. **Choose If…Then from the Insert menu.**

   The If…Then dialog box is displayed.



3. **Enter the condition to meet for the tasks to continue.**

   Define a condition to execute the If branch of the If…Then structure. A valid condition uses a logical operator to evaluate two expressions. The result of the evaluation is either true or false. An expression may be a macro variable reference, a number, a text string or another expression. Text strings must be enclosed in quotes if they contain a space.

   To specify a macro variable, enter it in the form “#mv?#” where ? is the number of the macro variable, or click a defined macro variable displayed in the Macro Variables window. To specify an operator, enter any common arithmetic operator (for a complete list of operators, see the Loop command description). A placeholder for the macro variable you select will be placed at the end of any existing text in the box.

   When you are finished specifying the If…Then condition, choose OK.

4. **Select the tasks that you want to be included when the If…Then condition is true.**

   You can also cut and paste tasks to move them within the macro. If the condition specified in the If…Then task is met when you run the macro, the tasks immediately following the If branch of the If…Then task will be executed.

5. **Position the insertion point after the Else task and select the tasks that you want to be included when the If…Then condition is false.**

   You can set up your macro to carry out one set of tasks if a condition is true (If branch), and another set of tasks if the condition is false (Else branch). If the condition specified in the If…Then task is not met when you run the macro, the tasks immediately following the Else task will be executed.

Note The Else task is optional. If you want the macro simply to continue if the If…Then condition specified in the If…Then task is not met rather than execute another set of tasks, delete the Else task. ▲

Adding a comment dialog box to a macro

A dialog box which provides information for an operator at run time can be added to a macro using the Comment command in the Insert menu. The run time dialog box will display the message until the operator chooses OK.

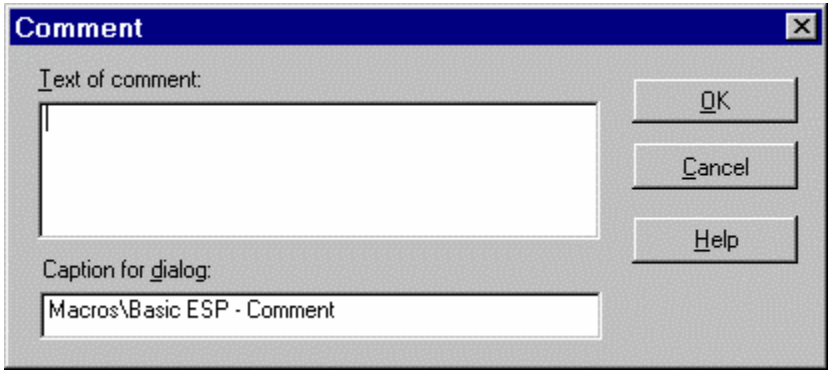
The comment text can include placeholders for macro variables or for the Result variable. At run time, the current value of the macro variable or the Result variable will replace the placeholder in the comment dialog box. If you include the Result variable in the Comment text, make sure you add the Comment task to the macro immediately following the task whose result you want to include.

To add a comment dialog box to a macro:

1. **Position the insertion point in the macro where you want the Comment dialog box to appear.**

2. **Choose Comment from the Insert menu.**

   The Comment setup dialog box appears.



3. **Enter the text you want to be displayed when the macro is run.**

   To include the current value of the Result variable in the comment text, type the placeholder #result# in the Text of Comment box. To include the current value of a macro variable in the comment text, click its name in the Macro Variables window. A placeholder for the macro variable you select will appear at the end of any existing text in the Text of Comment box.

4. **Enter the text you want to be displayed as the caption for the comment dialog box, and then choose OK.**

   This is the text that is displayed in the title bar of the comment dialog box at run time.

Comment dialog boxes can display any number of characters. If you include the results of a Find Peaks or Search task in a comment, the comment dialog box will automatically add scroll bars, letting you view all of the data. ▲

Note You can view or change the comment text at any time by double-clicking the Comment task symbol. ▲

Adding a decision dialog box to a macro

The Decision command in the Insert menu allows you to create your own dialog boxes with prompt text and up to three buttons. Selecting these buttons at run time executes a task or series of tasks which you specify when you add the decision task to the macro.

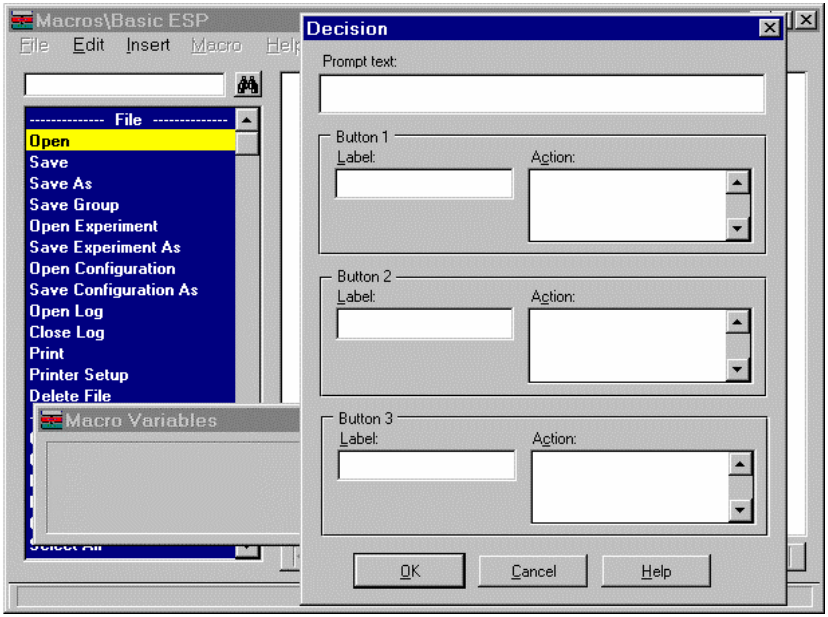
The Decision prompt text can include placeholders for macro variables or for the Result variable. At run time, the current value of the macro variable or the Result variable will replace the placeholder in the Decision dialog box. If you include the Result variable in the Decision prompt, make sure you add the Decision task to the macro immediately following the task whose result you want to include.

To add a decision dialog box to a macro:

1. **Position the insertion point in the macro where you want the decision dialog box to appear.**

2. **Choose Decision from the Insert menu.**

   The Decision setup dialog box appears.



3. **Type the text you want displayed at run time in the Prompt text box.**

   Decision prompts can display any number of characters. The prompt text should indicate the choices available in the dialog box and should give an indication of the results of each choice.

   To include the current value of a macro variable in the prompt text, type the placeholder #mv?# in the Prompt box, where ? is the number assigned to the macro variable whose result you want to include, or click its name in the Macro Variable window. To include the current value of the Result variable in the prompt text, type the placeholder #result# in the Prompt box. To include the current value of the Index variable in the prompt text, type the placeholder #index# in the Prompt box.

4. **Click in the Label box for Button 1 and type the label for that button.**

   The label you enter will appear on the button in the run time decision dialog box. If you want to define an underscore character for choosing the button from the keyboard, place the "&" character before the chosen letter in the button label. For example, to set up the key combination Alt + C for a Cancel button, type the label "&Cancel".

5. **Click in the Action box for Button 1 and then select the tasks you want associated with that button from the task list.**

   The tasks appear in the list in the order in which you select them.

6. **Parameters associated with the tasks added to the Action box can be set by double-clicking the task name in the Action box.**

   The cursor changes to a box when it is moved over a task in an Action box with settable parameters. Tasks with parameters which must be set appear in red and begin with an asterisk (*) when they are added to the Action box. Tasks with parameters which can be set but do not need to be set in order for the macro to run appear in blue when they are added to the Action box.

7. **Repeat steps 4, 5 and 6 for Button 2 and Button 3.**

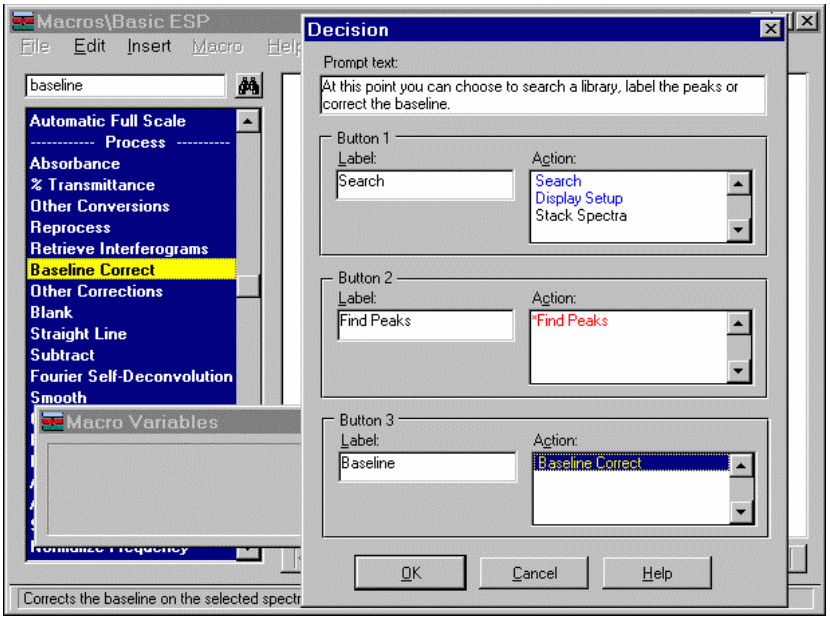
   You can also choose to define only one or two buttons for the decision dialog box if you want to limit the options available at run time.

8. **When each button has been defined, choose OK.**

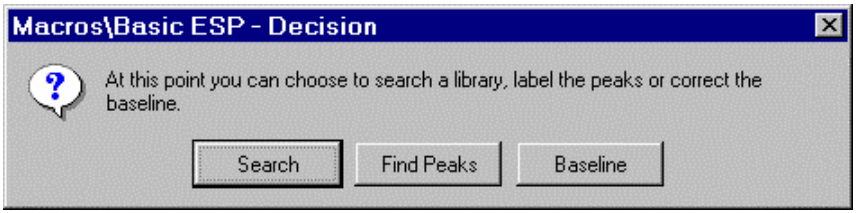
Note You can view or change the Decision prompt text or the Decision task parameters at any time by double-clicking the Decision task symbol. ▲

When the macro is run, the decision dialog box will be displayed with the prompt text and the buttons you have defined in the macro. The illustrations on the following page show a decision dialog box and the setup screen used to create it.

The following illustrations show the decision setup screen and the resulting decision dialog box at run time.



The decision setup screen illustrated above will result in the following Decision dialog box at run time. Clicking the buttons in the dialog box below will carry out the tasks specified in the action boxes in the previous illustration.



Calling an existing macro or executable from a macro

Macros that have been created, compiled and saved in the Macros\Basic application can be added to a macro using the Macro command in the Insert menu. You can also use the Macro command to add executable files created with a program such as Visual Basic. If you add an executable file to a Macros\Basic macro, the OMNIC Macros application (either Macros\Basic or Macro Panel) will suspend execution of the calling macro until the executable file finishes or tells OMNIC Macros to resume.

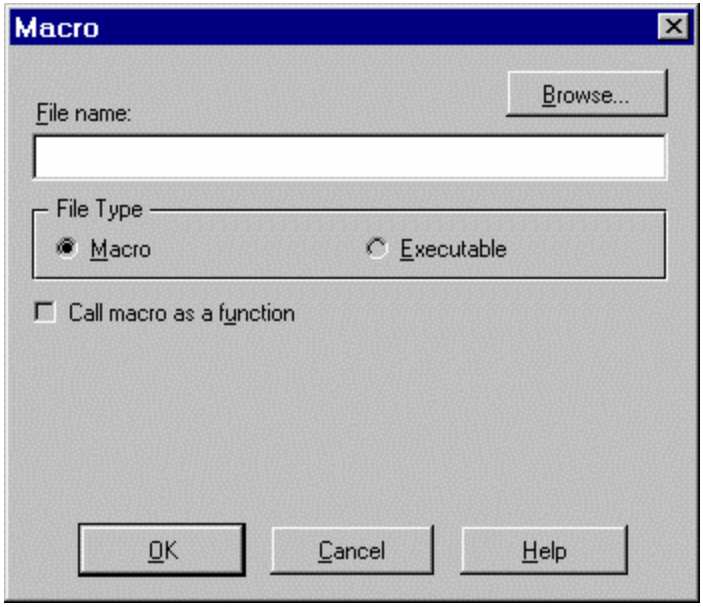
You can use macro variables to specify the names of macro files. To add a macro variable to a file name, use the placeholder #mv?#, where ? is the number assigned to the macro variable whose value you want to include. The placeholder will be replaced by the current value of the macro variable at run time.

To add an existing macro to a macro:

1. **Position the insertion point where you want to add the macro.**

2. **Choose Macro from the Insert menu.**

   The Macro setup dialog box will appear on the screen.



3. **Type the name of the macro in the File Name box or choose Browse to select the macro from the list of macro or executable files available.**

   If you do not specify a DOS path with the file name, the macro subdirectory of the OMNIC directory will be used. You can also choose the Browse button to display a dialog box that allows you to locate and select the macro.

4. **Choose the File Type.**

   Choose Macro if you wish to call a Macros\Basic macro (.MAC). Choose Executable if you wish to run an application file such as a routine created with Visual Basic.

If you choose to call an Executable file, you can also append a command line argument containing values you want to send to the called application. For example, you could choose to call the executable “run.exe” and append the command line argument “abc.txt.” This would be the same as using the Windows Run command to execute the file “abc.txt.”

5. **Choose to call the macro as a function.**

   If you choose to call a macro, you can choose Call Macro As A Function to call the macro as a function. Calling a macro as a function lets you can pass values between the macros. The Store Arguments and Return Value tasks provide a mechanism for sharing values between macros when used with the Macro command. When a macro is called as a function, it is the responsibility of the function macro to seize the arguments passed to it and set the return value. For more information, see the descriptions for these tasks in chapter 8, “OMNIC Macros Commands.”

6. **Verify the pathname of the macro to use, then choose OK.**

   If you choose OK, a Macro task symbol will appear in the workspace.

Note You can select a different macro to be associated with this Macro task by double-clicking the Macro task symbol and selecting a new macro file. ▲

Customizing a macro by setting options

You can define global parameters for your macros by setting options. Use the Options command to specify how the current macro affects OMNIC, to set password protection for this macro and to define the default format for numerical values displayed in Macros\Basic dialog boxes.

To specify options for the current macro:

1. **Choose Options from the Macro menu.**

2. **Turn on the Reset OMNIC Parameters When Macro Ends check box if, after running the macro, you want the macro to reset OMNIC parameter values to the values they had before the macro was executed.**

3. **Turn on the Password Protect This Macro check box if you wish to use a password to protect this macro from being changed.**

   When this check box is selected, the software will ask for a password the next time you save the macro. After a macro is saved with a password, the macro will run without requiring a password but the software will ask for the password before allowing the macro to be opened for editing.

4. **Enter a valid format for displaying numerical values in Macros\Basic dialog boxes in the Default Format For Numerical Values entry box.**

   Use zeros to set up your default format if you want Macros\Basic to add zeros to the number when it has fewer digits than the format specifies. Use the pound sign (#) to set up your default format if you want to specify the number of significant digits but don't want Macros\Basic to add zeros. For example, if you want the number 24.123 to be displayed as 24.12, enter "#.##" in the Default Format text box.

5. **When you are finished setting options, choose OK.**

   The next time you save the macro, it will include the new settings for the global parameters.

Testing a macro

After you have created your macro, you can test the macro. When you test the macro, the macro code is first compiled; then the macro is run as it will appear to the operator at run time.

If errors are found during compilation, they are reported and the test is canceled. You must correct the errors before you can proceed with the test. The source of the error is indicated in the error message that is displayed. Help information on the source of the error and possible solutions can be displayed from the error message dialog box. When you close the error message dialog box, the task symbol for the task that caused the error will be highlighted in the macro workspace.

To test the current macro:

Choose Test from the Macro menu.

If errors are found in the macro, they are reported and the test is canceled. If no errors are found, the macro is run as it will appear to the operator at run time.

Note When you test or run a macro, the current OMNIC settings are saved before the macro is run, and then are restored after the macro has completed. ▲

Saving a macro

Before a macro is saved, it is first compiled. If errors are found during compilation, they are reported and you are given the option of saving the macro with errors or canceling the Save command. If you choose to save the macro, the macro will not execute if you try to run it. However, you can open it later to fix the errors. The source of the error is indicated in the error message that is displayed. Help information on the source of the error and possible solutions can be displayed from the error message dialog box. When you close the error message dialog box, the task symbol for the task that caused the error will be highlighted in the macro workspace.

To save the current macro:

1. **Choose Save from the File menu.**

   If errors are found during compilation, you are given the option of saving the macro with errors or canceling the Save command. If the macro has been previously saved, it will be saved with the current file name. If the macro has not been previously saved, the Save As dialog box will appear.

2. **If the Save As dialog box is displayed, enter a file name for the macro in the File Name text box and then choose OK.**

3. **Enter the optional Comments, Author or Title in the Summary Info dialog box and then choose OK.**

   These comments are displayed in the Macro Panel when this macro is selected.

4. **If the Enter Password dialog box appears on the display, type a password and then choose OK.**

   You will be asked to verify the password by entering it again. If you enter a password, the Macros\Basic program will require the password to be entered before opening the macro for editing.

   The password feature is controlled by the Password Protect This Macro check box in the Options dialog box. See “Customizing A Macro By Setting Options” in chapter 2 “Creating A Macro Using Macros\Basic” for details.

3 Assigning a Macro to an OMNIC Menu or Toolbar

The easiest way to quickly run macros you create with Macros\Basic is to assign the macro to a menu command or toolbar button within OMNIC. Your macros are then always available whenever you run OMNIC.

This chapter describes how to assign macros to the OMNIC menu and toolbar.

Adding a macro to an OMNIC menu

The Edit Menu command in the OMNIC Edit menu allows you to customize the menus by adding macro commands.

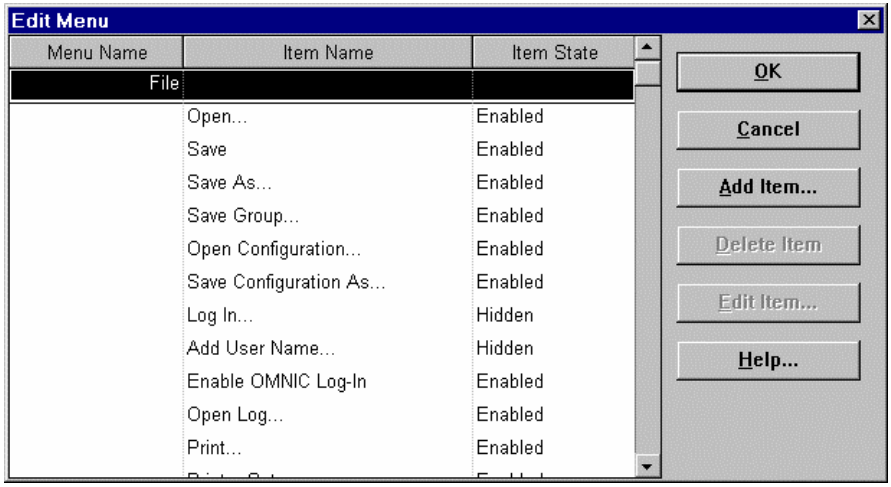
To assign a macro to the OMNIC menus, follow these steps:

1. **In OMNIC, choose Edit Menu from the Edit menu.**

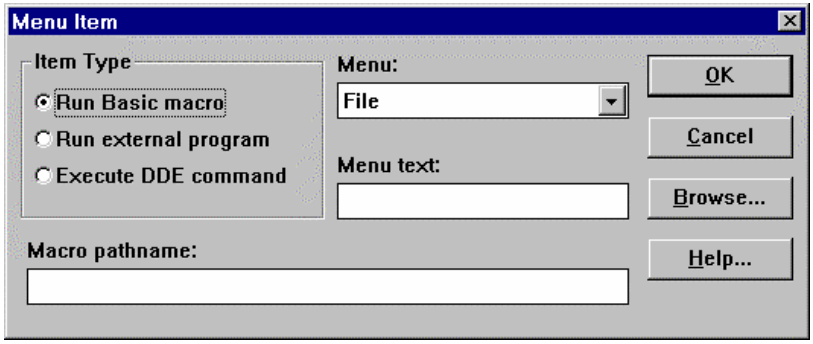
   The Edit Menu dialog box appears listing every item in each OMNIC menu.

2. **Choose Add Item to add the macro to the menus.**

   The Menu Item dialog box appears.



3. **Choose Run Basic Macro under Item Type.**



4. **Select the macro file.**

   Type the complete pathname of your macro file in the Macro pathname box. If you do not specify a DOS path with the file name, the macro subdirectory of the OMNIC directory will be used. You can also choose the Browse button to display a dialog box that allows you to locate and select the macro. Macro files have the extension .MAC.

5. **Enter the menu information.**

   Select from the Menu drop down list the menu to which you want the item added.

   Type in the Menu text box the name of the macro exactly as you want it to appear in the menu. If you want to define an underscore character for choosing the command from the keyboard, place the “&” character before the chosen letter in the command label. For example, to use the N in the macro name “Noise Macro,” type “&Noise Macro” in the text box.

   Choose OK to confirm the Menu Item dialog. Then choose OK to confirm the Edit Menu dialog.

6. **Choose Save Configuration As in the File menu to save your menu changes.**

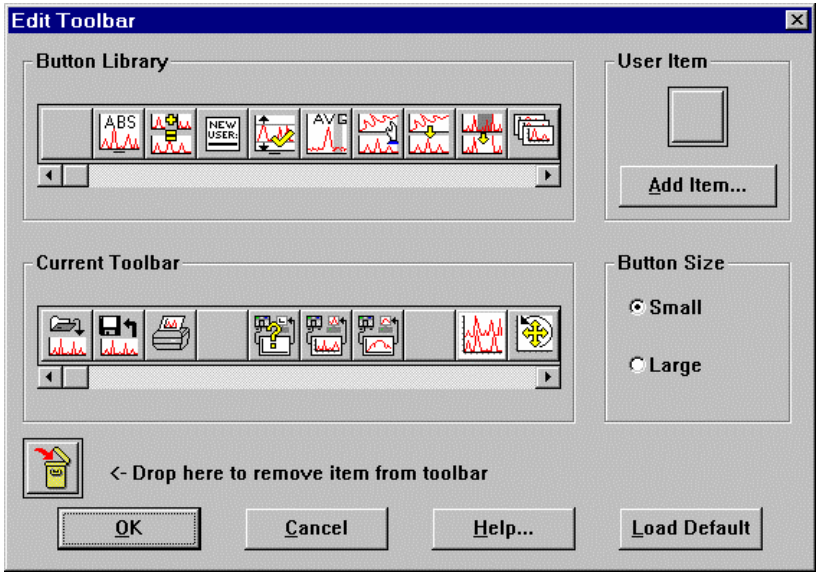
Adding a macro to the OMNIC toolbar

The Edit Toolbar command in the OMNIC Edit menu allows you to customize the toolbar by adding buttons to initiate macros.

To assign a macro to the OMNIC toolbar, follow these steps:

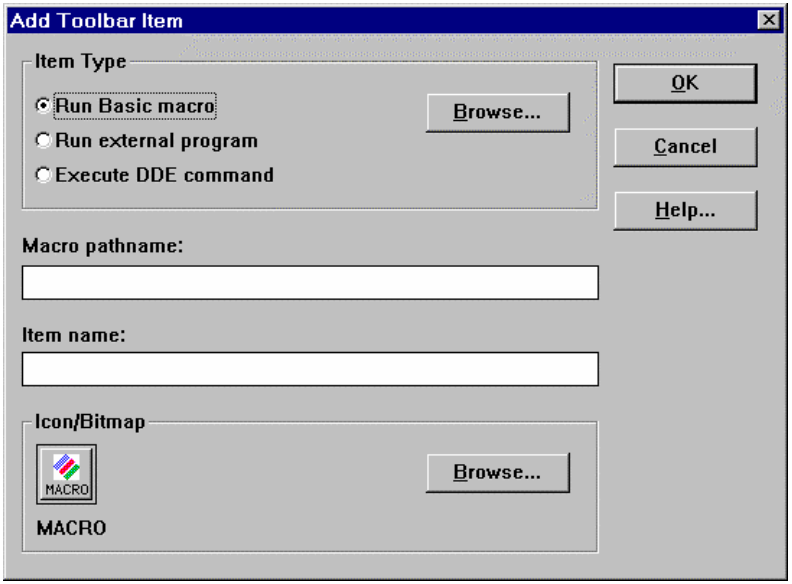
1. **In OMNIC, choose Edit Toolbar from the Edit menu.**

   The Edit Toolbar dialog box appears showing the standard button library and the current toolbar.



2. **Choose Add Item to add the macro to the toolbar.**

   The Add Toolbar Item dialog box appears.



3. **Choose Run Basic Macro under Item Type.**

4. **Select the macro file.**

   Type the complete pathname of your macro file in the Macro Pathname box. If you do not specify a DOS path with the file name, the macro subdirectory of the OMNIC directory will be used. You can also choose the Browse button to display a dialog box that allows you to locate and select the macro. Macro files have the extension .MAC.

5. **Enter the button name and icon information.**

   Click in the Item Name text box and type the name you want to assign to the new button. Once the button is added to the toolbar, you can point to the button and hold down the right mouse button to display its assigned name.

   To select the icon that will be displayed on the new button, click the Browse button in the Icon/Bitmap box. A dialog box appears that allows you to locate and select a file that contains a bitmap or icon image. When you select a file, the image it contains appears as a button. When you are finished selecting a file, choose OK. The new button appears in the Icon/Bitmap box.

   Choose OK to close the Add Toolbar Item dialog box.

6. **Click and drag the macro button to the toolbar.**

   Click the new button as it is displayed in the User Item box and drag the button to the desired location in the Current Toolbar box. Then choose OK.

7. **Choose Save Configuration As in the File menu to save your toolbar changes.**

Running a macro from OMNIC

Once you have added a macro to an OMNIC menu or the OMNIC toolbar, you can execute the macro just as you would any other OMNIC command or toolbar button.

To run a macro from OMNIC, follow these steps:

1. **Choose the macro menu item or toolbar button.**

   The macro loads and runs. As the macro runs, it displays a status window that shows the status of the macro, including the names of the tasks as they execute.

2. **To stop the macro or exit a loop in the macro, click the appropriate buttons.**

   Clicking the Exit Loop button causes the macro to jump out of a Loop prior to its normal completion, and displays an information message. This button is only enabled when the macro is executing tasks within a Start of Loop/End of Loop structure. The macro continues to execute the tasks following the End of Loop task.

   Clicking the Stop Macro button cancels execution of a macro prior to its normal completion, and displays an information message.

4 Running Macros from the Macro Panel

The Macro Panel allows you to run macros you create in Macros\Basic by pressing just a few buttons. First, you select the macro from the Macro Panel. Then you start the macro by clicking the Run Macro button.

This chapter provides an overview of the Macro Panel operation and procedures for running macros from the Macro Panel. OMNIC also has the capability of running macros directly from the toolbar or menus. See Chapter 3 “Assigning a Macro to an OMNIC Menu or ToolBar” for more information.

Using the Macro Panel in select mode

The Macro Panel is a “panel” of buttons which can be used to run macros. The Macro Panel has two modes of operation: the select macros mode and the assign macros mode. In select mode, the Macro Panel can be used to select and run macros. In assign mode, you can assign macros to the macro panel buttons. This chapter explains how to use the Macro Panel in the select macro mode. For information on using the Macro Panel in the assign macro mode, refer to chapter 5, “Assigning a Macro to the Macro Panel.”

Starting and quitting the Macro Panel

There are several ways to start the Macro Panel. For more detailed instructions on using Windows features, see your Windows documentation.

To start the Macro Panel, do one of the following:

- Open the Macro Panel program from the Start menu:
  - Open the Windows Start menu by choosing Start on the Windows taskbar.
  - Point to Programs in the Start menu.
  - Point to the Thermo Scientific OMNIC program group.
  - Choose the Macro Panel program.
- Double-click the program file in Explorer:
  1. Use Explorer to locate a macro file or the MPANEL.EXE program file.
  2. Double-click the file to start the Macro Panel.

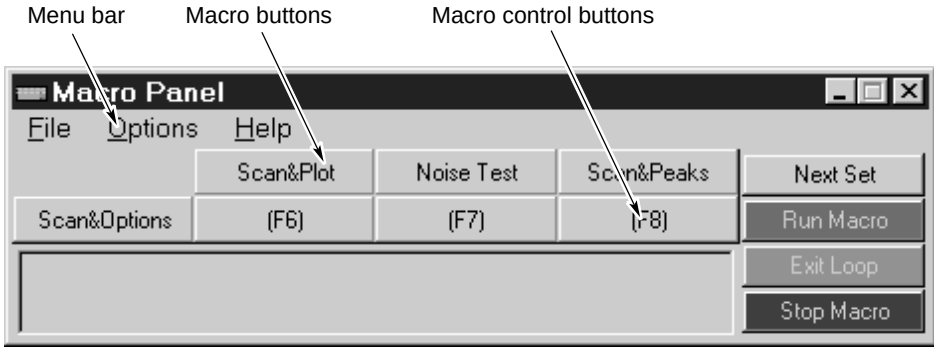
Note When you start the Macro Panel, OMNIC is started automatically if it is not already running. The OMNIC window may obscure the view of the Macro Panel. To view the Macro Panel, you may need to size or move the OMNIC window. ▲

To quit the Macro Panel, do one of the following:

- Click the close box in the upper right corner of the Macro Panel.
- Choose Exit from the File menu.

About the Macro Panel

When the Macro Panel is initially displayed, it appears in the select macros mode. In select mode, the Macro Panel consists of the Macro Panel menu bar, the macro buttons, and the macro control buttons.



The menu bar

The menu bar contains the Macro Panel menu names. In select macros mode, the menu commands allow you to quit the Macro Panel application, display a directory of assigned macros, and get help on using the Macro Panel.

The macro buttons

The macro buttons allow you to select the macro to be run. The macro buttons are saved in sets consisting of seven buttons. Different sets of macro buttons can be displayed by clicking the Next Set button.

The macro control buttons

The macro control buttons have the following functions.

Next Set - Displays the next set of macro buttons.

Run Macro - Runs the currently selected macro.

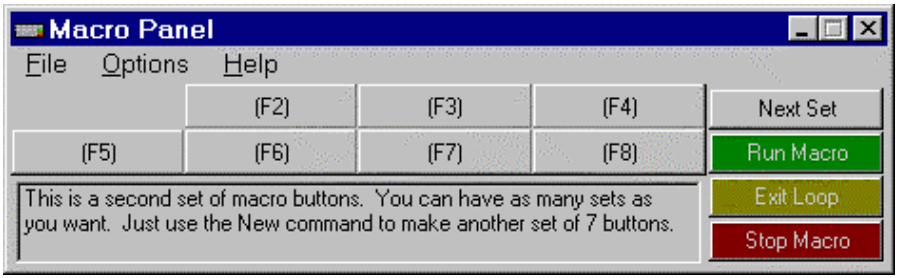
Exit Loop - Exits a loop before the loop has been executed the specified number of times without stopping the macro.

Stop Macro - Stops the execution of the macro.

Running a macro from the Macro Panel

Macros can be run from the Macro Panel by selecting the macro button with the mouse and then choosing the Run Macro button. A macro can also be run by pressing the function key that corresponds with the macro button. You can use the function keys to run macros when either the Macro Panel or the OMNIC window is active.

The function keys F2 through F8 correspond with the following macro buttons. The F1 key is reserved for Help; it cannot be assigned to a macro.



To run a macro from the Macro Panel:

1. **Make sure the Macro Panel is in the select macros mode.**

   To switch to select mode, choose Select Macros from the Options menu.

2. **If the macro you want to run is not in the currently displayed set of macro buttons, click the Next Set button to display the next set of macro buttons.**

3. **Select the macro you want to run by clicking the macro button for that macro.**

   When you select the macro, the macro description appears in the message box beneath the macro buttons.

4. **Click the Run Macro button to run the selected macro.**

Note You can exit a loop during the execution of a macro without stopping the macro by clicking the Exit Loop button. You can stop the macro by clicking the Stop Macro button. ▲

To use the function keys to run a macro from the Macro Panel:

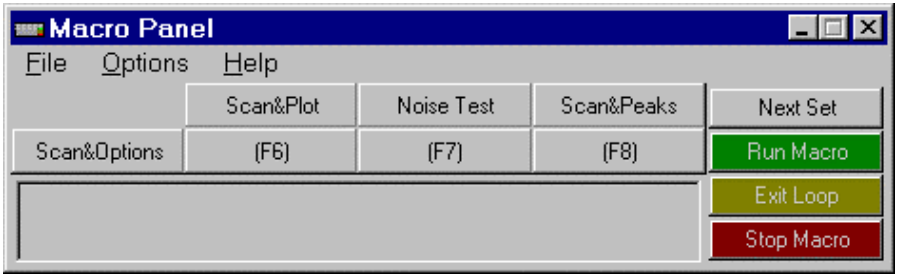
1. **Make sure the Macro Panel is in the select macros mode.**

   To switch to select mode, choose Select Macros from the Options menu.

2. **If the macro you want to run is not in the currently displayed set of macro buttons, click the Next Set button to display the next set of macro buttons.**

3. **Press the function key which corresponds with the macro you want to run to start the macro.**

   For example, if the following set of macro buttons were displayed, pressing the F4 function key would run the Scan & Peaks macro.



Note You can exit a loop during the execution of a macro without stopping the macro by clicking the Exit Loop button. You can stop the macro by clicking the Stop Macro button. ▲

Displaying a different set of macro buttons

The macro buttons are saved in sets consisting of seven buttons each. If the macro you want to run does not appear in the currently displayed set of macro buttons, click the Next Set button to display the next set of macro buttons.

Displaying a directory of assigned macros

You can display a directory of the macros which are currently assigned to macro buttons using the Directory command in the Options menu. The directory lists the button name, the file name of the associated macro, the date and time the macro was created, and any comments that were entered in the Summary Info for the macro when the macro was saved.

To display a directory of currently assigned macro:

1. **Choose Directory from the Options menu.**

   The directory of current macro button assignments is displayed. The directory lists the button name, the file name of the assigned macro, and any comments that were saved with the macro.

Note You can quickly move to a macro button by selecting a macro in the list and then choosing Go To. ▲

5 Assigning a Macro to the Macro Panel

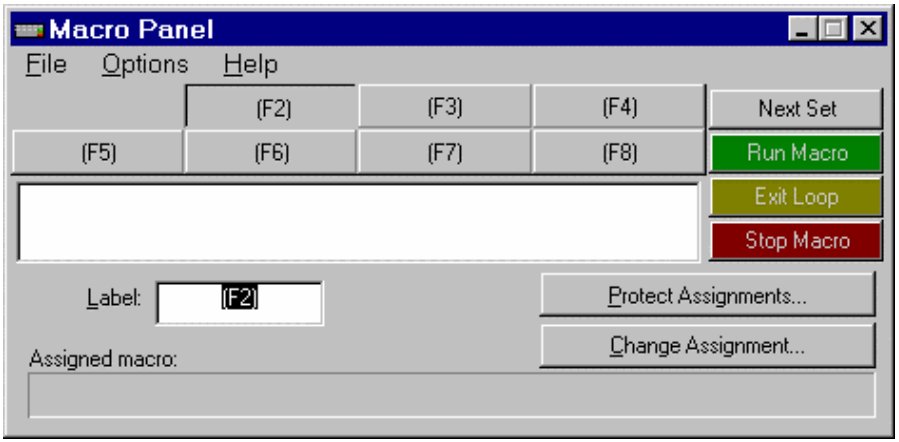
As described in the previous chapter, the Macro Panel gives you quick access to many macros, which you can select and run while using OMNIC. In order to run a macro from the Macro Panel, it must first be assigned to a Macro Panel button. Macros are assigned to Macro Panel buttons using the functions available in the Macro Panel assign mode. The Macro Panel assign mode also allows you to create and delete macro button sets and set protection for the macro button assignments.

This chapter describes how to assign macros to the Macro Panel and use the other Macro Panel assign mode functions.

Once the macros are assigned, you can run them by switching to the Macros Panel select mode, selecting a macro and then clicking the Run Macro button. Information on running a macro from the Macro Panel is available in chapter 4, “Running Macros from the Macro Panel.”

Using the Macro Panel in assign mode

When you choose Assign Macros from the Macro Panel Options menu, the Macro Panel is displayed in the assign macros mode. In assign mode, the Macro Panel expands to include additional buttons and text boxes, as illustrated below. These features allow you to assign macros to the Macro Panel and protect the macro button assignments. Additional commands are also available from the menus in assign mode which allow you to create and delete sets of macro buttons.



Assign mode Macro Panel features

The Macro Panel menu bar and buttons have the following functions in assign mode.

Macro Panel menu bar

In assign macros mode, the menu commands allow you to create a new set of seven macro buttons, save your changes to or delete the currently displayed set of macro buttons, display a directory of assigned macros, get help on using the Macro Panel, and quit the Macro Panel application.

Macro buttons - Allow you to choose which button to assign a macro to.

Macro control buttons

Next Set - Displays the next set of macro buttons.

Run Macro, Exit Loop and Stop Macro - These buttons are disabled in the assign mode.

Label - The Label text box allows you to enter the label for the selected macro button.

Protect Assignments - Displays a dialog box which allows you to set protection for the macro button assignments.

Change Assignment - Displays a dialog box which allows you to choose the macro to assign to the currently selected macro button.

Assigning a macro to a macro button

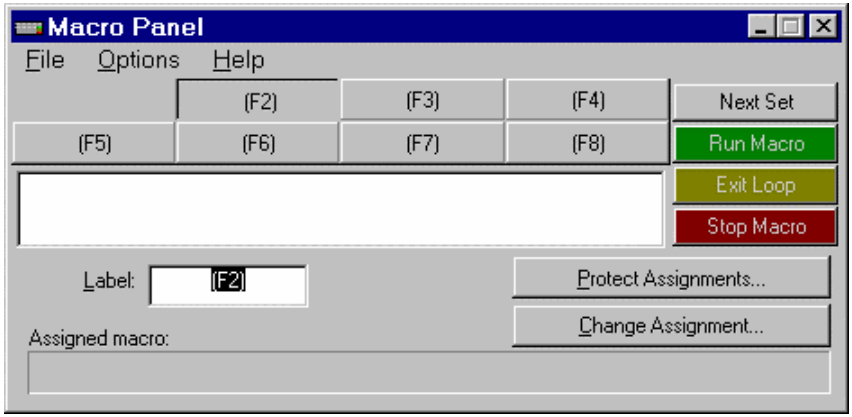
After a macro has been compiled and saved from Macros\Basic, you can assign the macro to a button on the Macro Panel. Until a macro has been assigned to a macro button, it cannot be run from the Macro Panel.

To assign a macro to a macro button:

1. **If the Macro Panel is not currently displayed, double-click the Macro Panel icon to open the Macro Panel.**

2. **Choose Assign Macros from the Options menu.**

   The Macro Panel appears with the assign macro functions enabled, as illustrated below.



3. **If the macro assignments are protected, you must enter the password in order to enter the assign macros mode.**

   Type the password in the text entry box and then choose OK.

4. **Select the set of macro buttons you want to add the macro to by clicking Next Set until the desired button set is displayed.**

   If all of the buttons have already been assigned, you will need to create a set of buttons by choosing New Set from the File menu.

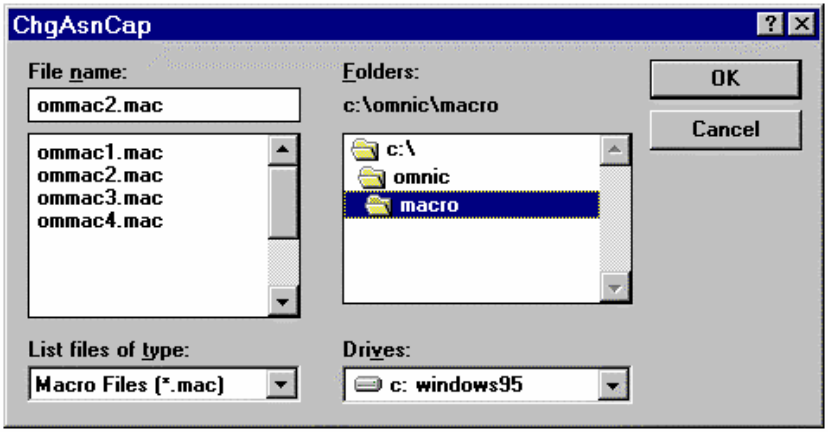
5. **Select the macro button you want to assign the macro to by clicking the macro button.**

   The current label for the selected button will appear in the Label text box.

6. **Type a label for the macro button in the Label box.**

7. **Click the Change Assignment button.**

   The Change Assignment dialog box appears on the display.



8. **Type the name of the macro you want to assign to the macro button in the File Name box, or select it from the list of macros.**

   If the macro you want to use is not displayed in the list of available macros, select a different drive or directory. To see file types other than Macros\Basic macros (.MAC), use the Files Of Type drop-down list box to choose a type of file. Choose OK when you have selected the macro.

9. **Comments that were saved with the macro file will appear in the comment box directly beneath the macro buttons.**

   If no comments were saved with the macro file, you can enter comments for the macro in the comments box by clicking inside the box and typing the desired text.

10. **When you are done assigning macros, choose Save Changes from the File menu, or choose Select Macros from the Options menu (this automatically saves the macro button assignment changes and returns you to the Macro Panel in select mode).**

Creating and deleting macro button sets

Using the New Set and Delete Set commands in the File menu, you can create and delete sets of macro buttons.

To create a set of macro buttons:

1. **Make sure the Macro Panel is in the assign macros mode.**

   If the Macro Panel is in select mode, choose Assign Macros from the Options menu. This enables the assign macros functions.

Note If the macro assignments are protected, you must enter the password in order to switch to the assign mode. ▲

2. **Choose New Set from the File menu.**

   The new set of macro buttons appears on the Macro Panel.

3. **To add comments for this set of macro buttons, make sure no buttons are selected. Then type the comments in the comments box directly beneath the macro buttons.**

To delete an existing set of macro buttons:

1. **Make sure the Macro Panel is in the assign macros mode.**

   If the Macro Panel is in select mode, choose Assign Macros from the Options menu. This enables the assign macros functions.

Note If the macro assignments are protected, you must enter the password in order to switch to the assign mode. ▲

2. **If the macro buttons you want to delete are not currently displayed, click Next Set until they appear on the Macro Panel.**

3. **Choose Delete Set from the File menu.**

   The macro buttons will be deleted.

Note Only the macro buttons are deleted. The macro files which were assigned to the macro buttons remain saved. ▲

Setting the macro button assignment protection

After assigning macros to macro buttons, you can protect the macro button assignments to prevent changes. The Protect Assignments button allows you to specify a password in order to make changes to the macro button assignments.

To set the macro button assignment protection:

1. **Make sure the Macro Panel is in the assign macros mode.**

   If the Macro Panel is in select mode, choose Assign Macros from the Options menu. This enables the assign macros functions.

Note If the macro assignments are protected, you must enter the password in order to switch to the assign mode. ▲

2. **Choose Protect Assignments.**

   The Protect Assignments dialog box appears on the display.

3. **Choose the Protect option and then choose OK.**

4. **Enter the password to use and choose OK.**

   The assign macros functions are automatically disabled.

Changing the assign macros password

After setting the Assign Macros password, you can change the password as described below.

To change the Assign Macros password:

1. **Make sure the Macro Panel is in the assign macros mode.**

   If the Macro Panel is in select mode, choose Assign Macros from the Options menu. This enables the assign macros functions.

2. **Enter the current password.**

3. **Choose Protect Assignments.**

   The Protect Assignments dialog box appears on the display.

4. **Choose Change Password and then choose OK.**

5. **Enter the new password and then choose OK.**

   The Macro Panel remains displayed with the assign macros functions enabled.

Removing macro button assignment protection

You can remove the macro button assignment protection entirely by following the procedure below.

To remove the macro button assignment protection:

1. **Make sure the Macro Panel is in the assign macros mode.**

   If the Macro Panel is in select mode, choose Assign Macros from the Options menu. This enables the assign macros functions.

2. **Enter the current password.**

3. **Choose Protect Assignments.**

   The Protect Assignments dialog box appears on the display.

4. **Choose Remove Protection and then choose OK.**

6 Working With Macro Files

The Macros\Basic File menu commands allow you to work with macro files. This chapter describes how to use the File menu commands to open, save, print and run macros from Macros\Basic. It also explains how to move macro files from one computer to another.

Opening an existing macro

You can open an existing macro to modify, view or print the macro.

To open an existing macro:

1. **Choose Open from the File menu.**

2. **Type the file name of the macro you want to open or select the file from the list of available files.**

   If the macro you want to open is not listed, select a different drive or directory from the Drives or Directories list boxes.

   A list of the most recently opened macro files appears at the bottom of the File menu of OMNIC. You can select a macro in this list by choosing it from the menu.

3. **Choose OK.**

Saving a macro

Before a macro is saved it is compiled. If errors are found during compilation, they are reported and you are given the option of saving the macro with errors or canceling the Save command. If you choose to save the macro, the macro will not execute if you try to run it, but you can open it later to fix the errors. The source of the error is indicated in the error message that is displayed. Help information on the source of the error and possible solutions can be displayed from the error message dialog boxes. Saving a macro with a password requires the operator to enter the correct password before modifying the macro.

Macros are saved in the location specified by the active OMNIC Options file (usually in the C:\OMNIC\MACRO directory). See the manuals and on-line help that came with your OMNIC software for information on customizing OMNIC by setting options for details on changing the directory used to store macros. All macro files are saved with the extension *.MAC.

To save the current macro:

1. **Choose Save from the File menu.**

   If errors are found during compilation, you are given the option of saving the macro with errors or canceling the Save command. If the file has been previously saved, the file will be saved with the current file name. If the file has not been saved previously, the Save As dialog box will appear.

2. **If the Save As dialog box appears on the display, type a file name for the macro in the File Name text box and then choose OK.**

3. **Enter the optional Comments, Author or Title in the Summary Info dialog box and then choose OK.**

   These comments are displayed in the Macro Panel when this macro is selected.

4. **If the Enter Password dialog box appears on the display, type a password and then choose OK.**

   You will be asked to verify the password by entering it again. If you enter a password, the Macros\Basic program will require the password to be entered before opening the macro for editing.

   The password feature is controlled by the Password Protect This Macro check box in the Options dialog box. See “Customizing A Macro By Setting Options” in chapter 2 “Creating A Macro Using Macros\Basic” for details.

Saving a macro with a new name

You can use the Save As command to save a copy of the macro with a different name. This is useful when you want to modify a macro but also want to keep a copy of the original macro.

Before the macro is saved it is compiled. If errors are found during compilation, they are reported and you are given the option of saving the macro with errors or canceling the save. If you choose to save the macro, the macro will not execute if you try to run it, but you can open it later to fix the errors. The source of the error is indicated in the error message that is displayed. Help information on the source of the error and possible solutions can be displayed from the error message dialog boxes. Saving a macro with a password requires the operator to enter the correct password before modifying the macro.

To save the current macro with a new name:

1. **Choose Save As from the File menu.**

2. **Enter a file name for the macro in the File Name text box.**

3. **Choose OK.**

4. **Enter the optional Comments, Author or Title in the Summary Info dialog box and then choose OK.**

   These comments are displayed in the Macro Panel when this macro is selected.

5. **If the Enter Password dialog box appears on the display, type a password and then choose OK.**

   You will be asked to verify the password by entering it again. If you enter a password, the Macros\Basic program will require the password to be entered before opening the macro for editing.

   The password feature is controlled by the Password Protect This Macro check box in the Options dialog box. See “Customizing A Macro By Setting Options” in chapter 2 “Creating A Macro Using Macros\Basic” for details.

Entering summary information for a macro

Summary information which describes the contents of the macro can be saved with the macro using the Summary Information command in the File menu. You are also prompted to enter summary information when you save a macro for the first time. This information will be displayed in the comments box for the macro when the macro is selected in the Macro Panel. Entering the summary information is optional.

To enter summary information for a macro:

1. **Choose Summary Info from the File menu.**

2. **Enter the information you want to save with the file in the Title, Author and Comments text boxes.**

   The comments you enter will be displayed in the Macro Panel when the macro is selected.

3. **Choose OK.**

Printing a macro

When you want to print a copy of your macro, you have two printing options. You can print a text listing of the tasks in the current macro using the Print Listing command or you can print a copy of the task symbols using the Print Symbols command.

To print a listing of the tasks in the current macro:

- Choose Print Listing from the File menu.

To print the task symbols for the current macro:

- Choose Print Symbols from the File menu.

Running a macro from Macros\Basic

Macros can be run from Macros\Basic. The Run command executes the macro you select as if you were running it from the OMNIC toolbar or menu. The macro you select is the one executed, not the one currently open in Macros\Basic.

To run a macro from Macros\Basic:

1. **Choose Run from the File menu.**

2. **Type the name of the macro you want to run in the File Name text box or select the macro from the list of available files.**

   If the macro you want to run is not listed, select a different drive or directory from the Drives or Directories list boxes.

3. **Choose OK.**

Moving macro files between computers

Macro files can be moved from one computer to another by copying the macro files (*.MAC) onto a floppy disk and then copying the files onto the new computer. This enables you to develop macros on one computer and run the macros on one or several other computers.

You can move the macro files individually and assign the macros to the Macro Panel on the new computer, or you can move a Macro Panel with its associated macro files and macro button assignments.

To move a Macro Panel with its associated files, you need to copy the files listed below into the appropriate subdirectories on the new computer.

- All of the macro files (*.MAC) that are associated with the Macro Panel must be copied into the macro directory on the new computer.
- The Macro Panel file (C:\OMNIC\MPANEL.EXE) from the computer on which the macro button assignments were made must be copied into the C:\OMNIC directory on the new computer.

Notice When you move the Macro Panel, you overwrite the current Macro Panel assignments on the new computer. However, the individual macro files (*.MAC) are not overwritten and can be assigned to the new Macro Panel. ▲

7 Example Macros

This chapter provides you with five example macros to study. The first example takes you step-by-step through the process of creating a macro. The second example demonstrates how to use the Report task to send results to another file via DDE. The third example shows an example Report task dialog configured to output results to a Word file. The fourth example demonstrates how to use the If…Then capability of Macros\Basic with the quantitative features of TQ Analyst. The final example shows how to pass values between two macros when one calls the other.

Several example macros came with your Macros\Basic software for you to study. Some of these are explained in detail in this chapter. The example macros that accompany your software are listed below. You can find these example macros in the macro subdirectory of the OMNIC folder.

Ommac1.mac	This macro lets you define the collection parameters, collect a sample and background, display and print the resulting spectrum.
Ommac2.mac	This macro uses a loop to collect a series of five samples after collecting a background.
Ommac3.mac	This macro collects a background and sample, then finds the resulting peaks and prints the result.
Ommac4.mac	This macro collects a background and sample, converts the spectrum to absorbance, then uses the Decision task to let the operator decide whether to search a library, label the peaks or correct the baseline.
Ommac5.mac	This macro shows how to use the Report task to send results to Microsoft® Excel via DDE (dynamic data exchange).

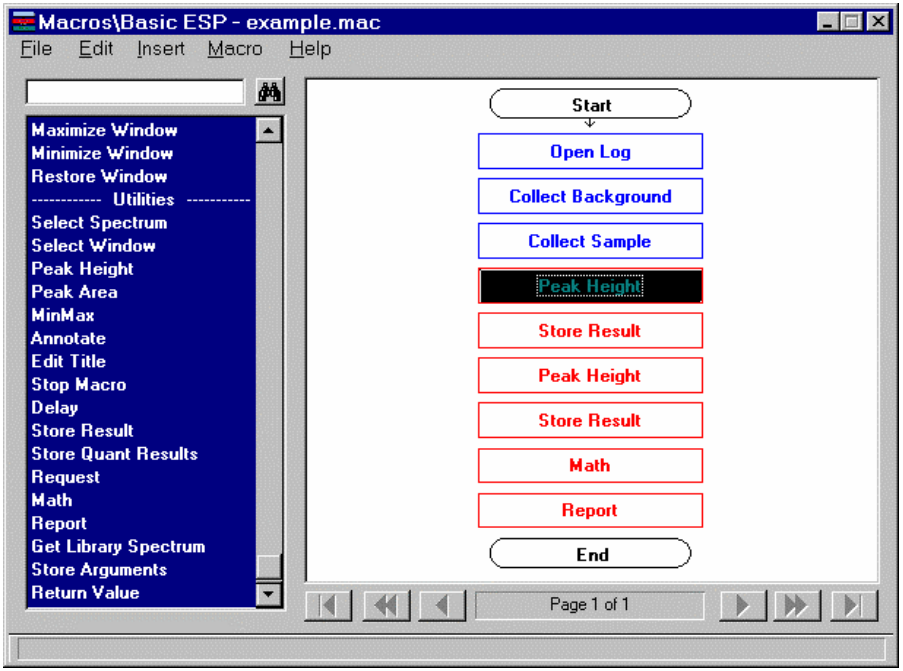
Ommac6.mac	This macro uses the If…Then capability of Macros\Basic with the quantitative features of our TQ Analyst software package for quantitative analysis.
Call.mac and Function.mac	These macros show how to pass values between macros. Call.mac makes a value available to another macro; Function.mac takes the value passed to it and returns another value based on a calculation it performs.
Reqex.mac	This macro takes text from an external file (reqex.txt) and parses it into macro variables.
Index.mac	This macro shows how to use the Index variable within a loop.

Creating a macro step by step

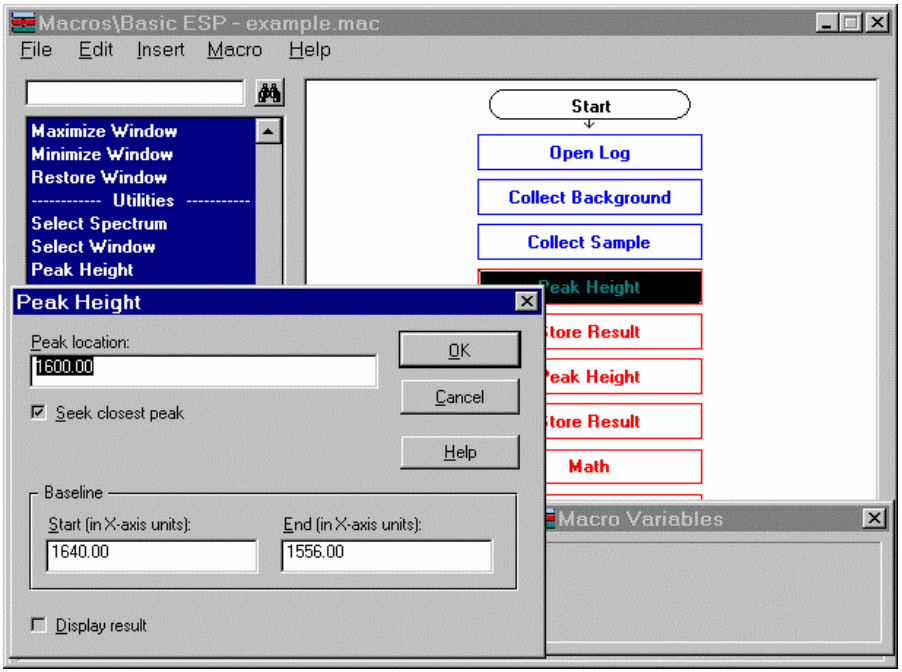
When executed from OMNIC, this example macro will open a log file, collect a sample and background spectrum, take the ratio of two peaks in the sample spectrum and append the result to the open log file. Follow the steps below to create the example macro.

Step 1: Open the Macros\Basic application. If the application is already open, choose New from the File menu.

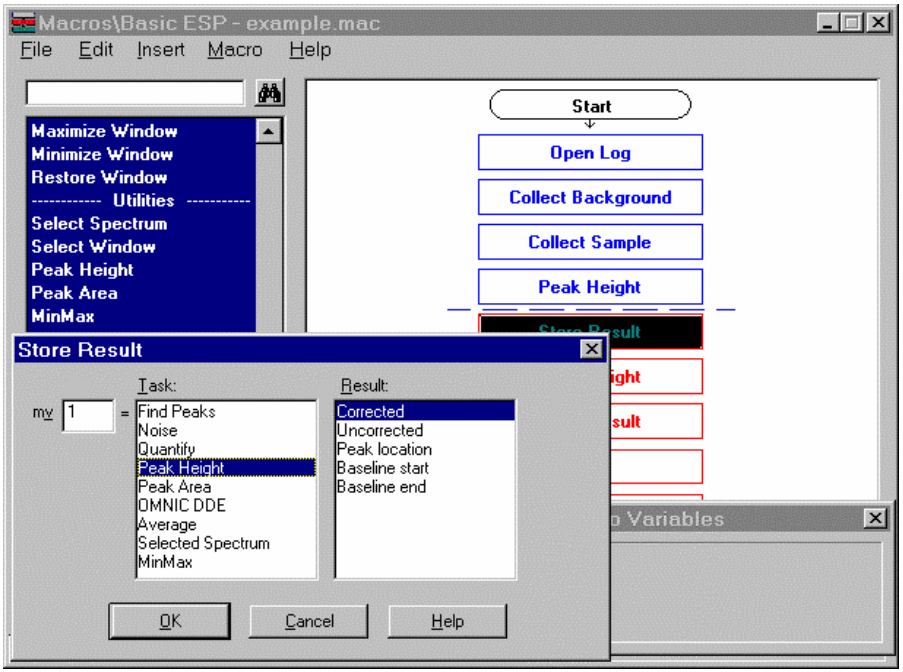
Step 2: Add the following tasks to the macro in the order shown in the illustration below.



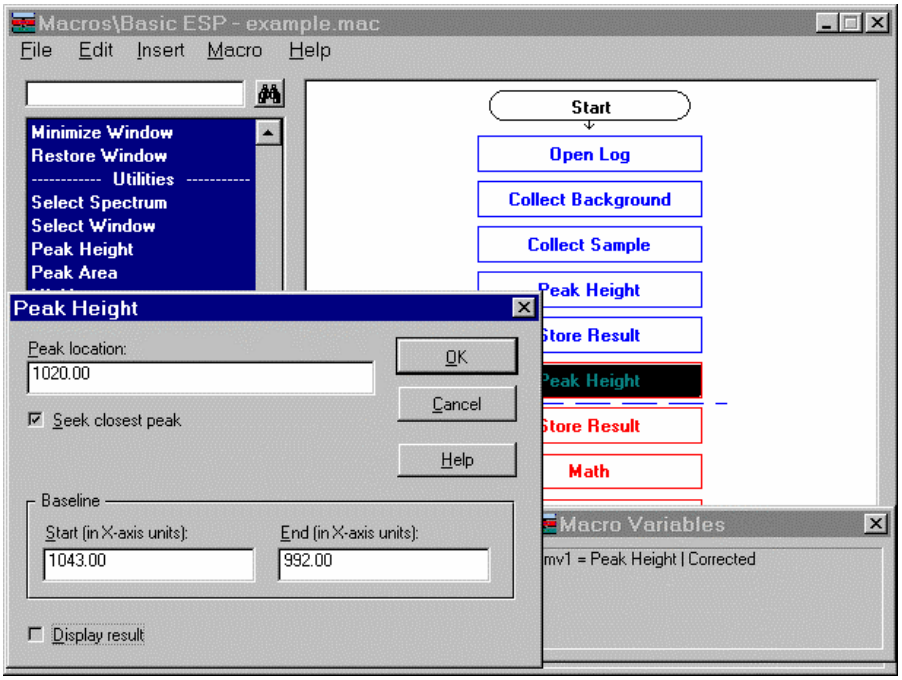
Step 3: Double-click the first Peak Height task symbol in the macro and enter the location for the first peak. If you want OMNIC to use the peak that is closest to the location you specified, make sure the Seek Closest Peak option is on. If you want to calculate the corrected peak height, enter values for the Baseline start and Baseline end parameters. When you are finished, choose OK.



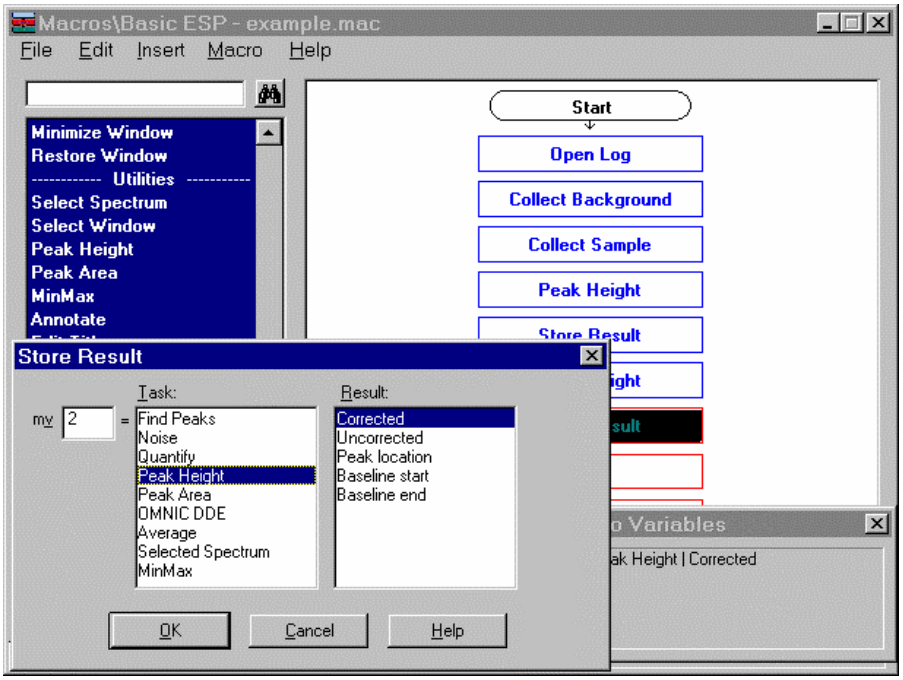
Step 4: Double-click the first Store Result task symbol in the macro and click “Peak Height” in the list of tasks which can store their results as a macro variable. If you entered a baseline region in the previous Peak Height task, click “Corrected” in the list of peak height results which can be stored. If you did not enter a baseline region, click “Uncorrected.” When you are finished, choose OK.



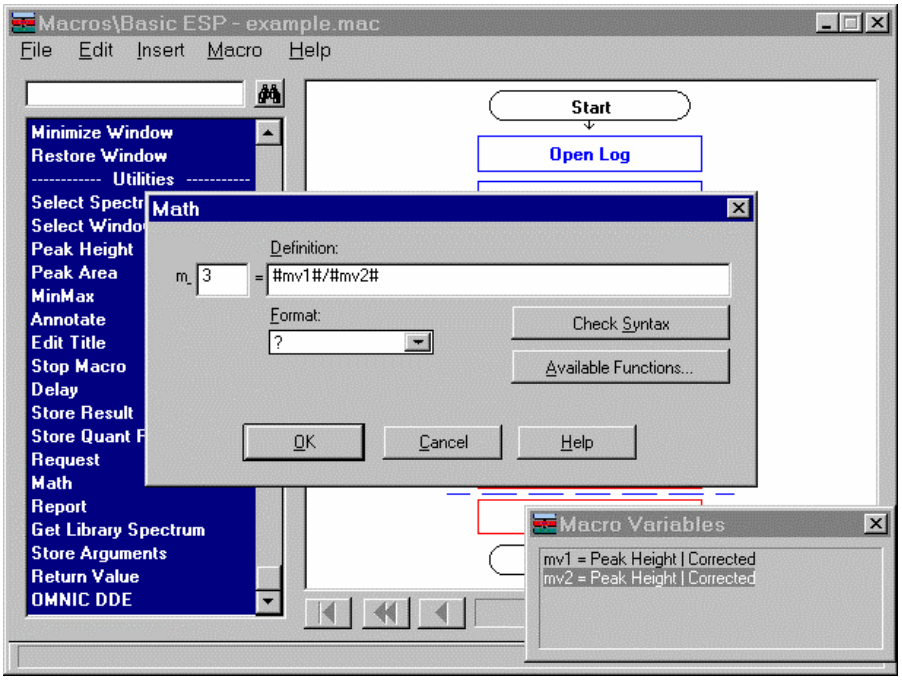
Step 5: Repeat step 3 for the second Peak Height task in the macro.



Step 6: Repeat step 4 for the second Store Result task in the macro.



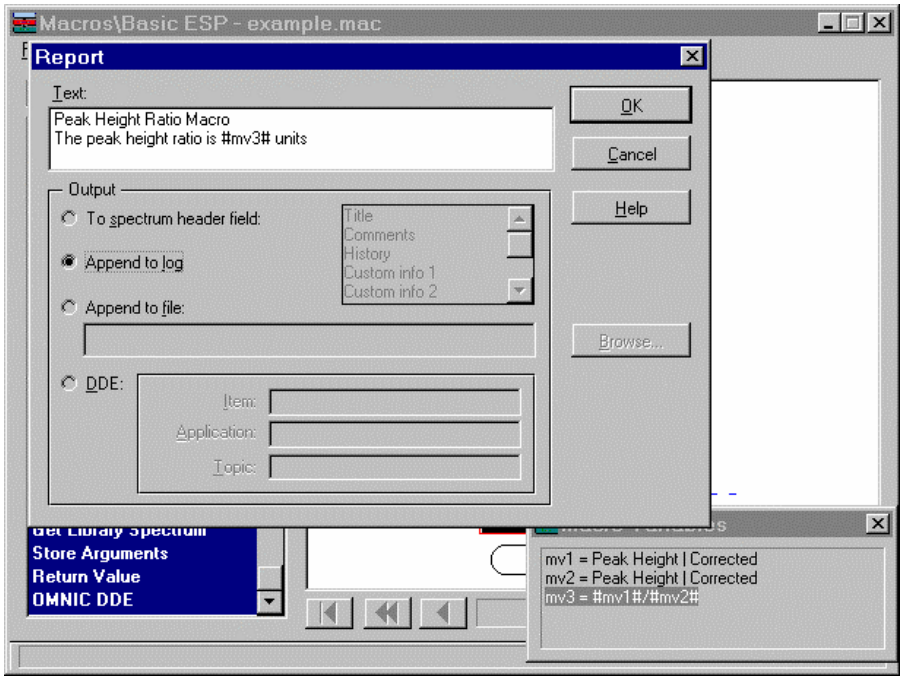
Step 7: Double-click the Math task symbol in the macro. In the Math setup dialog box, click “mv1” in the Macro Variables window. A placeholder for the macro will be added to the Equation Definition text box. Add the divide function by typing a slash (/) on the keyboard. In the Macro Variables window, click “mv2.” A placeholder for the macro will be added to the equation. When you are finished, choose OK.



Step 8: Double-click the Report task symbol in the macro. In the Text box, type:

Peak Height Ratio Macro
The peak height ratio is #mv3# units.

Turn on the “Append to Log” option and then choose OK.



For information on assigning the macro to an OMNIC menu or toolbar, see chapter 3. For information on assigning the example macro to the Macro Panel, see chapter 4. To learn how to run the macro from the Macro Panel, see chapter 5.

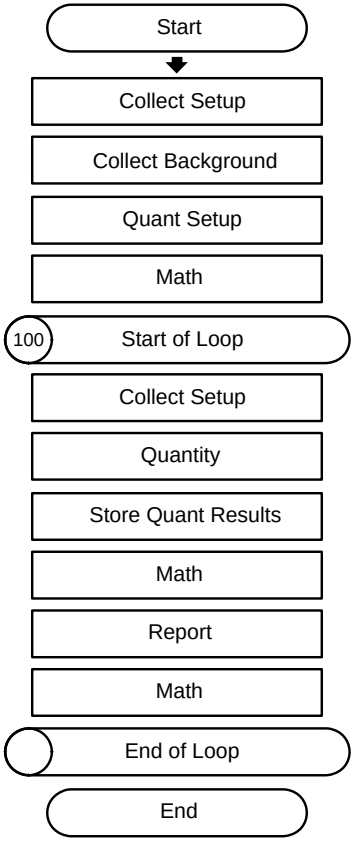
Using a macro to send quantitative results to an Excel spreadsheet

This macro demonstrates how to use the Report task to send results to Microsoft® Excel via DDE (dynamic data exchange). The overall goal of this example macro is to continuously collect spectra, quantify them, then send the quantitative results to an Excel spreadsheet. This example is not presented in a step-by-step form. Rather we show you the task symbols and task list. These items show all of the tasks and parameters used in the macro. The task symbols and task list are on the next page.

You can test or modify this macro yourself by opening the macro “ommac5.mac” in the macro subdirectory of the OMNIC folder. This macro was created using an earlier version of Macros\Basic that contained a task called “Collect Setup.” This task has been replaced by a task called “Experiment Setup” in OMNIC E.S.P. However, Collect Setup is still supported and this task will execute correctly with your version of OMNIC.

For more information on using OMNIC DDE with macros, see chapter 9 of this manual, “Designing a Macro with OMNIC DDE.”

Symbol List



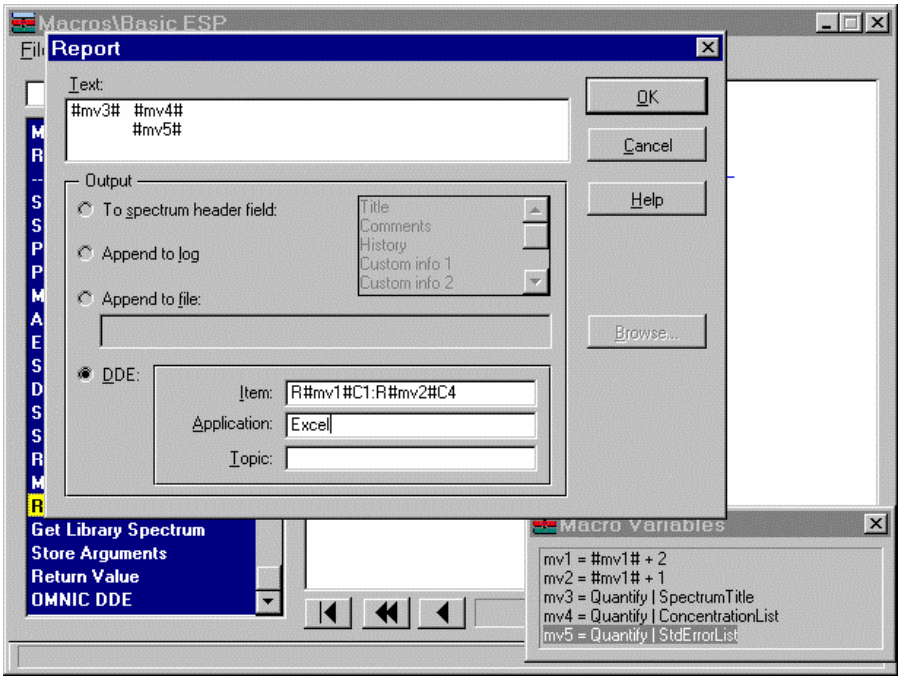
Task List

```
Collect Setup
    No. of scans = 32
    Resolution = 4.
    Apodization = Happ-Genzel
    Zero Filling = None
    Final Format = Absorbance
    Correction = None
    File Handling = Save Interferograms
    Background Handling = Collect
     background after 6000 minutes
Collect Background
    Show data collect window
Quant Setup
    Filename = d:\omnic\quant\examples
     \tqx_pls.qnt
    Title = turboquant example method-pls
    Parameters = Collect, Bench
Math
    mv1 = 1
    Format = “?”
Start of Loop
    Loop count = 100
    No pause between loops
    Collect Sample
        Show data collect window
    Quantify
    Store Quant Results
        mv3 = Quantify | SpectrumTitle
        mv4 = Quantify | ConcentrationList
        mv5 = Quantify | StdErrorList
    Math
        mv2 = #mv1# + 1
        Format = “?”
    Report
        Text = #mv3# #mv4#
                #mv5#
        DDE Item =
         R#mv1#C1:R#mv2#C4
        Application = Excel
        Topic
    Math
        mv1 = #mv1# + 2
        Format = ?
End of Loop
```

Setting up the Report task

Most of this example macro is straightforward so we will concentrate on the Report task. The Report task formats the Quantify results and sends them to the output location specified in the Report task dialog box.

The example below shows how to use the DDE output option to send quantitative results to an Excel spreadsheet. To use the Report DDE option, you must correctly specify the values for the Item, Application, and Topic fields in the Report task dialog. Any mistake in the Item or Topic fields will cause the macro to fail at run time. The following illustration shows the DDE options set correctly for this example.



Application field

Use the Application field to specify the program you want the Report task to send data to. For this example, simply enter “Excel”. In general, the correct entry for an application is the root name of the *.exe file for the application. Capitalization is not important in this or any of the DDE fields.

Note The specified application must be running and idle for DDE to succeed. If the application is not running, the Report task will fail. If the application is busy, for example if Excel has a cell selected for editing, the Report task will wait indefinitely until the application becomes idle. This may cause Macros\Basic to appear as if it has "hung up" but it is actually waiting for the DDE application to become available. ▲

Topic field The Topic field allows you to specify a particular file or page within the selected application. It is best to explicitly specify the topic. If you leave the Topic field blank, the Report task will send the data to the selected page in whatever application file is currently open (which is what would happen in this example). If more than one copy of Excel is open, the results are sent to the first one encountered, which can lead to unpredictable results. Below are some example topics for Excel. For Microsoft Word examples, see the next section. For other applications, refer to the documentation for the application.

For Microsoft Excel 5.0, files and page names are referenced by book and sheet. For a new Excel book, the references will be:

[Book1]Sheet1
[Book1]Sheet2
etc.

As soon as you save the Excel book, the "Book1" reference changes to the file name. For example,

[abc.xls]Sheet1
[abc.xls]Sheet2

If you rename a sheet in Excel, the "Sheet" reference changes to the name you entered. For example,

[abc.xls]FirstSheet
[abc.xls]Sheet2

To ensure that your macro will work as expected, either leave the Topic field blank and make sure you have only the target spreadsheet file open, or create your Excel book ahead of time, save it and refer to the topic by file and page name. Using the [Book1] topic reference is not recommended because as soon as you save the book, the DDE will fail because the topic has changed.

Text field

Use the Text field to specify the data you want to send to Excel and how the data will be formatted. In the Store Quant Result task of this example macro, we selected three items to store (Spectrum Title, Concentration List and Standard Error List) and assigned three macro variables to store them (mv3, mv4, and mv5).

To send the data stored in a macro variable to Excel, you must type the macro variable name in the text field of the Report task. The contents of the first macro variable you enter will be placed in the first column of the first row in the specified spreadsheet file. Use the <tab> character to specify the next field to the right (row 1, column 2). To enter a tab character, hold down the Control key and press the Tab key. Use the carriage return to specify the next row in the specified spreadsheet file.

Macro variables created by selecting a column header from the table in the bottom half of the Store Quant Result window may return more than one element of data. If a macro variable contains more than one element of data, tabs are inserted automatically so that each element falls in a separate column in the spreadsheet. In this example macro, the selected quantitative method calculates the concentrations for three components, so the ConcentrationList macro variable (mv4) and the StdErrorList macro variable (mv5) will each contain three tab separated values.

With the Text Field set up as follows:

```
mv3     mv4
        mv5
```

the spreadsheet file will look like the example below.

	A	B	C	D
1	80 PPM C3H8 30 PPM CH4	1.94	0.99	1.92
2		0.05	0.04	0.05
3	80 PPM C3H8 30 PPM CH4	1.26	0.51	4.01
4		0.10	0.07	0.110

The first row contains the spectrum title and the three concentration values. The second row contains the three standard error values. The initial tab character in line 2 instructs the macro to skip the first column so that the concentration and standard error values are aligned properly in the spreadsheet. Therefore, the complete Report result will cover 2 rows with each report using 4 columns.

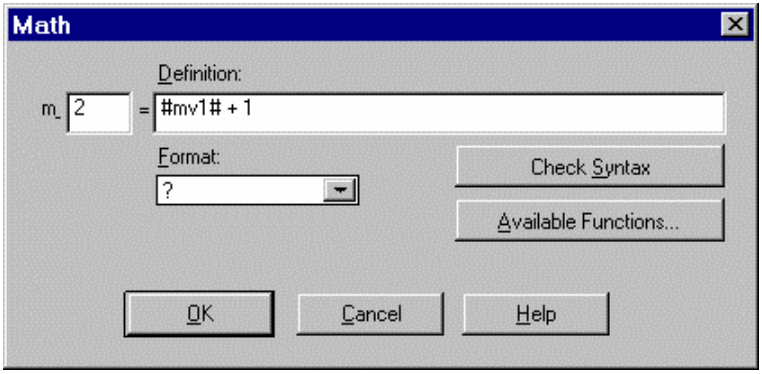
Item field

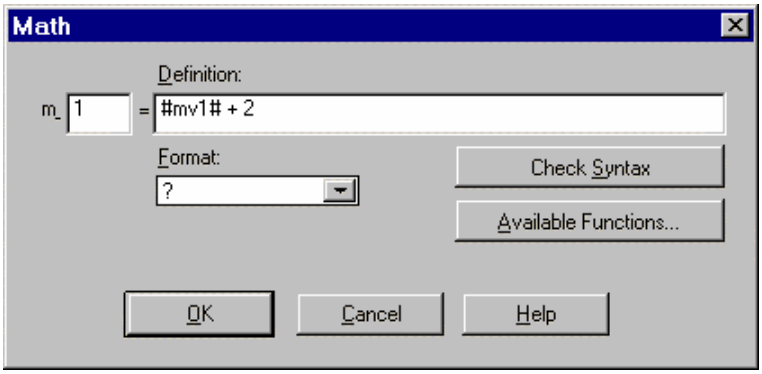
The Item field allows you to define the range of cells in the specified application file and page the data will be sent to. In this example you would enter R1C1:R2C4 because we have 2 rows and 4 columns of data in each row. If you enter too many or too few rows or columns, the DDE will fail.

If we were just sending one sample result to Excel we would be done. If you want to send additional results to Excel without overwriting the previous ones, you must use macro variables to increment the row indexing. For example, to set up the Report task in this example macro to accept and report the results from multiple samples, you must enter the following in the Item field:

R#mv1#C1:R#mv2#C4

For each iteration of the loop, the range of cells will increment so that the end of the range (#mv2#) is always one row greater than the start of the range (#mv1#). The following illustrations show how to set up the two Math tasks immediately preceding and following the Report task to increment these values.

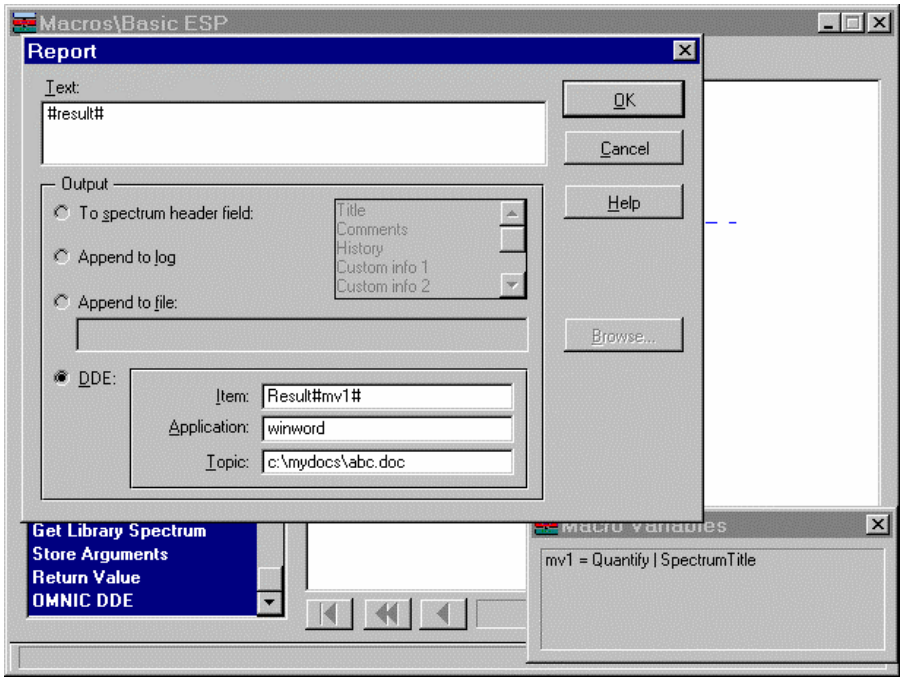




At run time, the values for these macro variables will be substituted for the #mv1# and #mv2# placeholders. The Math task before the Report task sets mv2 to the value of mv1 plus 1. The Math task after the Report task increments the value of mv1 by 2 in preparation for the next loop. The macro will now keep looping and append any subsequent quantitative results to the specified Excel spreadsheet.

Using a macro to send results to Microsoft Word

Sending results to Microsoft Word via DDE is a little simpler than to Excel, although less flexible. The following illustration shows an example Report task dialog configured to output results to a Word file.



To indicate that the output is to go to Word, enter “winword” in the Application field.

The Topic is the document name of a Word file. For example, you could use “abc.doc” for an unsaved document or “c:\mydocs\abc.doc” for a document that has been saved. You must use the full DOS path and file name for an existing document; the file name alone will not work.

The Item is the name of an existing bookmark for a Word file. In Word, defining a bookmark lets you give a unique name to a specific location you have selected. Create a bookmark in a Word file by selecting the location you wish to mark, choosing Bookmark from the Edit menu, and giving the bookmark a name. See the documentation that came with Word for more information.

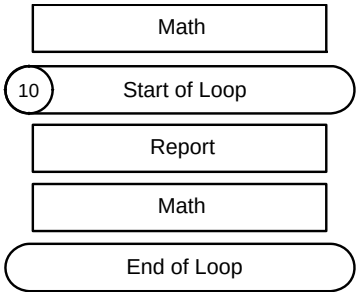
There is no way to append results to a Word file, since the results always overwrite the contents of the existing Word bookmark. To store a single result from the Report task, simply enter the name of the bookmark, for example, “Result”.

To save more than one result in a Word file, you can set up a document with several sequential bookmarks already created and then reference them by a macro variable. For example, create a Word file containing 10 bookmarks named:

Result1
Result2
…
Result10

Then set the Item in the Report task to “Result#mv1#”. Using a loop in the macro to increment mv1 ten times will save the results in the sequential bookmarks. The symbol and task lists below show an example of how this could be set up.

Symbol List



Task List

```
Math
    mv1 = 1
    Format = “?”
Start of Loop
    Loop count = 10
    No pause between loops
    Report
        Text
        DDE Item = Result#mv1#
        Application = winword
        Topic = c:\mydocs\abc.doc
    Math
        mv1 = mv1 + 1
        Format = “?”
End of Loop
```

The Math task before the start of the loop task sets the macro variable mv1 equal to 1. The first time through the loop, the Report task looks for a Word bookmark named “Results1” because it substitutes “1” for “#mv1#” within “Result#mv1#” as defined in the Item field.

The second Math task increments the value of mv1 by one for each iteration of the loop. So the second time through the loop, the Report task looks for a Word bookmark named “Results2”, and so on until it reaches the end of the loop.

Using If…Then tasks to create branches in a macro

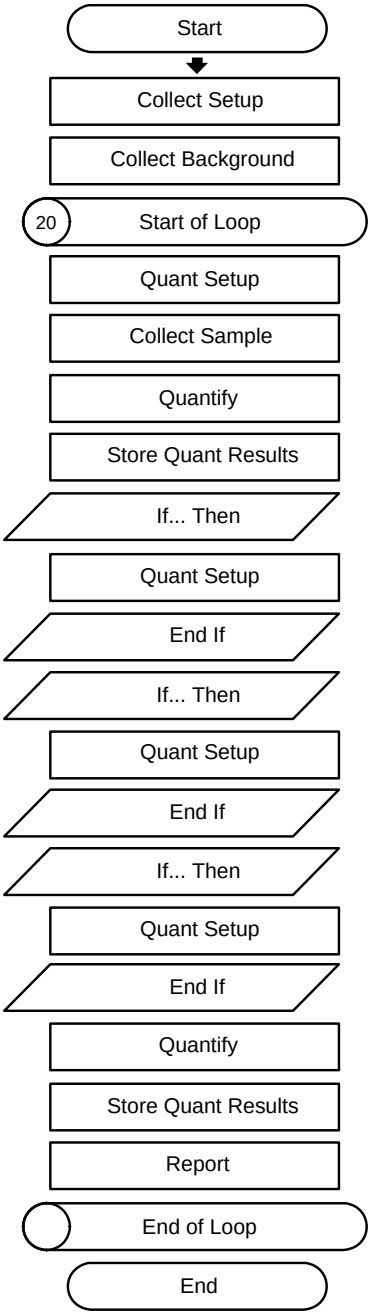
The example macro in this section shows you how to use the If…Then capability of Macros\Basic with the quantitative features of our TQ Analyst software package for quantitative analysis. This example is not presented in a step-by-step form. Rather we show you the task symbols and task listing. These items show all of the tasks and parameters used in the macro. The task symbols and task list are on the next page.

You can examine this example macro yourself by opening the macro “ommac6.mac” in the macro subdirectory of the OMNIC folder.

Note The example macro in this section will not run on your system because it calls several fictitious quantitative methods. ▲

This macro is designed to collect a sample spectrum, classify it as either “Alpha,” “Secondary,” or “Tertiary,” then quantify the spectrum with a quantitative method optimized for the class. The results are written to a text file. The macro loops until the operator clicks the Exit Loop button in the macro control, or until 20 iterations are complete.

Symbol List



Task List

```
Collect Setup
    No. of scans = 8
    Resolution = 8.
    Apodization = Happ-Genzel
    Zero Filling = None
    Final Format = Absorbance
    Correction = None
    File Handling = Save Interferograms
    Background Handling = Collect
     background after 6000 minutes
Collect Background
    Show data collect window
Start of Loop
    Loop count = 20
    No pause between loops
    Quant Setup
        Filename =
         d:\omnic\quant\classify.qnt
        Title
        Parameters = Collect, Bench
    Collect Sample
        Show data collect window
    Quantify
    Store Quant Results
        mv1 = Quantify | ClassName 1
    If…Then
        Execute tasks when mv1 = Alpha
        Quant Setup
            Filename =
             d:\omnic\quant\class1.qnt
            Title
    End If
    If…Then
        Execute tasks when mv1 =
         Secondary
        Quant Setup
            Filename =
             d:\omnic\quant\class2.qnt
            Title
    End If
    If…Then
        Execute tasks when mv1 =
         Tertiary
        Quant Setup
            Filename =
             d:\omnic\quant\class3.qnt
            Title
```

Task List, con't

```
    End If
    Quantify
    Store Quant Result
        mv2 = Quantify | SpectrumTitle
        mv3 = Quantify | SpectrumDate
        mv4 = Quantify | ConcentrationList
    Report
        Text = #mv2#  #mv3#  #mv1#
         #mv4#
        Append to file =
         d:\omnic\macro\ommac6.txt
End of Loop
```

The Macro begins by setting up the collection parameters and collecting a background for use with the subsequent samples. The collection conditions could also be set by using an Open Experiment task to load an Experiment file. Samples are collected within the loop described below.

This macro was created using an earlier version of Macros\Basic that contained a task called "Collect Setup." This task has been replaced by a task called "Experiment Setup" in OMNIC E.S.P. However, Collect Setup is still supported and this task will execute correctly with your version of OMNIC.

Setting up the loop

The main macro loop is defined with 20 iterations and no pause between loops. The macro executes a Quant Setup task prior to collecting the sample. The Quant Setup task has the Collect parameter and Bench parameter options set so that OMNIC's parameters will be set to those in the quantitative method. This ensures that the sample spectrum is collected under the same conditions as the method. This is very important for most quantitative methods, especially PLS (Partial Least Square).

The sample is then collected and quantified. The quantify task uses a TQ Analyst discriminant analysis method which analyzes the sample and classifies it as an “Alpha,” “Secondary,” or “Tertiary” sample. This analysis method is defined outside of the macro using our TQ Analyst software for quantitative analysis. The classification result is stored in macro variable mv1 using the first Store Quant Result task.

Adding the If…Then structure

Within the loop, three If…Then structures test the value of macro variable mv1. Each If…Then structure loads a quantitative method, which has been optimized for that particular class of samples.

For example, the first If…Then task tests macro variable mv1 for the value “Alpha.” If mv1 = “Alpha,” then the Quant Setup task following this If…Then task is executed. This loads the quantitative method “class1.qnt.” If mv1 does not equal “Alpha,” the macro jumps to the task that follows the first End If task.

This process is repeated for each If…Then structure. Our initial quantitative method guarantees that the classification result (stored in mv1) will be one of these three classes. Therefore, one and only one of these Quant Setup tasks will execute.

Adding the Quantify, Store and Report tasks

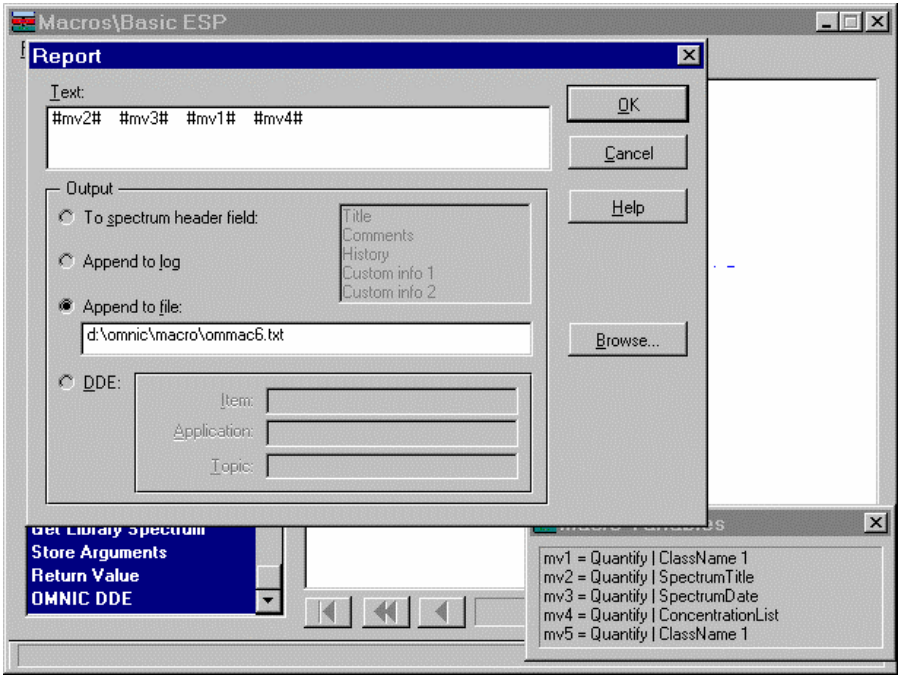
When each of the If…Then tasks is complete, the macro uses another Quantify task to analyze the sample again using the optimized quantitative method. The last Store Quant Result task saves the title of the spectrum and its collection date as well as a tab separated list of the concentrations for each component the quantitative method is set up to analyze.

The Report task is set up to format the results and write them to the file “ommac6.txt.” You must use the full path and file name of the text file or choose Browse to select an existing text file stored on the disk when you create a Report task. If the specified file does not exist at run time, OMNIC will create it. As additional samples are run, they are appended as new lines to this text file in the format:

SpectrumTitle <tab> SpectrumDate <tab> ClassName 1 <tab> ConcentrationList

You can enter the <tab> characters into the Text field of the Report task by holding down the Control key and pressing the Tab key. Note that we are not concerned with the exact number of components in the concentration list because the list is tab separated.

The following illustration shows how the Report task would be set up for this example.



When all samples have been run, the file ommac6.txt can be easily opened into a spreadsheet or word processor application for further analysis or to create a final report.

Sharing values between macros

One of the features of Macros\Basic is the ability to call one Macros\Basic macro from another. You can use the Macro task in the Insert menu to tell the current macro which previously saved macro to call. It may be useful to you to pass values back and forth between these macros. The Store Arguments and Return Value tasks provide a mechanism for sharing values between macros.

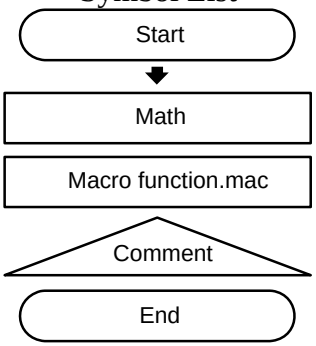
This example is not presented in a step-by-step form. Rather we show you the task symbols and task listing. These items show all of the tasks and parameters used in the macro. The task symbols and task list are on the next page.

This example demonstrates how you can use one macro, named “call.mac” to make a value available to another macro. The called macro, named “function.mac,” takes the value passed to it and returns another value based on a calculation it performs.

You can examine these example macros yourself by opening the macros “call.mac” and “function.mac” in the macro subdirectory of the OMNIC folder.

Call.mac

Symbol List

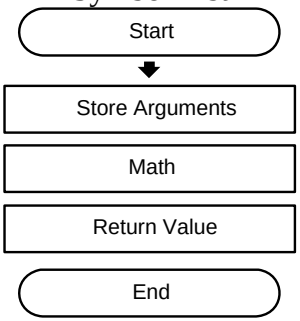


Task List

Math
    mv1 = 2
    Format = ?
Macro
    File name: =
C:\OMNIC\macro\function.mac
    File type = macro
    Call macro as a function
    Send the following argument string:
      #mv1#,3.14159
    Store return value in macro variable:
      mv = 2
Comment
    Text of Comment: Result = #mv2#
    Caption for dialog = “Macros\Basic
      ESP -Comment”

Function.mac

Symbol List



Task List

Store Arguments
    List of mv's to store: = 1,2
Math
    mv3 = #mv1# * #mv2#
    Format = ?
Return Value
    Result = #mv2#
    Return this value to calling macro:
     #mv3#

When function.mac is called, the Store Arguments task captures the values passed to it from call.mac (mv1=2 and 3.14159), and stores them in macro variables mv1 and mv2. There must be a one-to-one correspondence between the argument list in the macro task of the calling macro and the Store Arguments macro variable list.

Macro variables are unique to the macro in which they are defined. In other words, all macro variables are local and known only to the macro currently executing. There are no global macro variables known to all macros.

The macro function.mac includes a math task to perform a mathematical function on the values passed to the macro. When a macro is called as a function, it is the responsibility of the function macro to seize the arguments passed to it and set the return value.

The Return Value task makes the results of the math task available to the calling macro, call.mac. Normally the returned result is the value of a macro variable calculated by the function macro, but it could also include text.

Finally, the results are displayed in a comment dialog box.

8 OMNIC Macros Commands and Tasks

This chapter describes the commands available in the menu bar when the Macros\Basic application or the Macro Panel application is running. The chapter also provides an alphabetical listing of the tasks that can be added to a macro.

Macros\Basic command descriptions

This is a menu by menu description of the commands available in the menu bar when the Macros\Basic application is running. The commands are presented in the order in which they appear in the menus.

File menu

The Macros\Basic File menu commands allow you to work with macro files. This section describes how to use the File menu commands to open, save, print and run macros from Macros\Basic and to exit the Macros\Basic application.

New command

Use the New command to start a new macro. When you choose New from the File menu, the macro Start and End tasks appear in the macro workspace.

The insertion point is the blue dashed line which appears between task symbols in the macro workspace. The insertion point indicates where the next task you select will be placed in the macro. You can move the insertion point to a new location by clicking between the task symbols in the workspace at the new location.

To add tasks to the macro, click the task in the task list or select the option in the Insert menu that you want to add to the macro. As each feature is added, the task symbol for the task or Insert option is placed in the macro workspace at the position of the insertion point.

Some tasks have associated parameters which must be set in order for the macro to run. The task symbols for tasks with parameters which must be set are displayed in red until you set the associated parameters. Other tasks have settable parameters which can be changed but do not need to be set in order for the macro to run. The task symbols for tasks with parameters which can be changed are displayed in blue. The task symbols for tasks which have no settable parameters are displayed in black.

Note The task symbols for tasks which have required parameters will change from red to blue once the parameters have been set. ▲

To change the parameters associated with a task, double-click the task symbol. The setup dialog box for that task will appear in the workspace. When the parameters are set as you want them, choose OK.

Open command (File menu)

Use the Open command to open an existing macro. Open an existing macro when you want to modify, view, or print the macro.

To open an existing macro, choose Open from the File menu. Type the file name of the macro you want to open or select the file from the list of available files and then choose OK.

Save command (File menu)

Use the Save command to save the current macro. When a macro is saved, it is first compiled. If errors are found during compilation, you are given the option of saving the macro with errors or canceling the Save command. The source of the error is indicated in the error message that is displayed. Help information on the source of the error and possible solutions can be displayed from the error message dialog box.

Note If you choose to save a macro that has errors, the macro will not execute if you try to run it. However, you can open it later to fix the errors. ▲

To save the current macro, choose Save from the File menu. If the macro has not been saved before, the Save As dialog box will appear. Enter a file name for the macro in the File name box and then choose OK. Enter the optional Comments, Author or Title in the Summary Info dialog box. Then choose OK. These comments will be displayed in the Macro Panel when this macro is selected.

If the Enter Password dialog box appears on the display, type a password and then choose OK. You will be asked to verify the password by entering it again. If you enter a password, the Macros\Basic program will require the password to be entered before opening the macro for editing.

Note The password feature is controlled by the Password Protect This Macro check box in the Options dialog box. See “Customizing A Macro By Setting Options” in chapter 2 “Creating A Macro Using Macros\Basic” for details. ▲

Macros are saved in the location specified by the active OMNIC Options file (usually in the C:\OMNIC\MACRO directory).

Save As command (File menu)

Use the Save As dialog box to save the current macro with a new file name or in a different drive or directory. This is useful when you want to modify a macro but also want to keep a copy of the original macro.

When a macro is saved, it is first compiled. If errors are found during compilation, you are given the option of saving the macro with errors or canceling the Save command. The source of the error is indicated in the error message that is displayed. Help information on the source of the error and possible solutions can be displayed from the error message dialog box.

Note If you choose to save a macro that has errors, the macro will not execute if you try to run it. However, you can open it later to fix the errors. ▲

To save the current macro with a new name, choose Save As from the File menu. Enter a file name for the macro in the File name box and then choose OK. Enter the optional Comments, Author or Title in the Summary Info dialog box. Then choose OK. These comments will be displayed in the Macro Panel when this macro is selected.

If the Enter Password dialog box appears on the display, type a password and then choose OK. You will be asked to verify the password by entering it again. If you enter a password, the Macros\Basic program will require the password to be entered before opening the macro for editing.

Note The password feature is controlled by the Password Protect This Macro check box in the Options dialog box. See "Customizing A Macro By Setting Options" in chapter 2 "Creating A Macro Using Macros\Basic" for details. ▲

Macros are saved in the location specified by the active OMNIC Options file (usually in the C:\OMNIC\MACRO directory). All macro files are saved with the extension *.MAC.

Summary Info command (File menu)

Use the Summary Info command to enter comments about the macro. This information will be stored with the macro when it is saved. Entering the summary information is optional.

When you choose Summary Info from the File menu, a dialog box appears which allows you to enter a title, author and comments about the current macro. The comments entered in the Summery Information dialog box will be displayed in the Macro Panel when the macro is selected.

Dialog box options

File Name - This is the current file name, including the directory path, for the macro you are working on. If this field is blank, the macro has not yet been saved.

Macro Title - Enter text to be displayed in the title bar of the Macros\Basic window. This field defaults to the name "Macros\Basic -" plus the file name.

Author - Enter your name or initials.

Comments - Enter text which will be displayed in the Macro Panel readout when this macro is selected.

Print Listing command (File menu)

Use the Print Listing command to print a text listing of the tasks in the current macro. To print a listing of the current macro, choose Print Listing from the File menu.

Print Symbols command (File menu)

Use the Print Symbols command to print a copy of the task symbols for the current macro as they appear in the workspace. To print the task symbols for the current macro, choose Print Symbols from the File menu.

Run command (File menu)

Use the Run command to run a saved macro from Macros\Basic. To run a macro from Macros\Basic, choose Run from the File menu. Type the name of the macro you want to run in the File Name box or select the macro from the list of available files and then choose OK.

The Run command executes the macro you select as if you were running it from the OMNIC toolbar or menu. The macro you select is the one executed, not the one currently open in Macros\Basic.

Exit command (File menu)

Use the Exit command to close the Macros\Basic application.

Edit menu

The Macros\Basic Edit menu commands allow you to edit a macro. This section describes how to use the Edit menu commands to cut and copy task symbols onto the Clipboard, paste task symbols from the Clipboard into the macro workspace and clear task symbols from the macro workspace.

Cut command

Use the Cut command to cut the selected task(s) from the macro. Tasks which are cut are placed on the Clipboard and can be pasted into the macro using the Paste command.

To cut a task from a macro, select the task by clicking the task symbol in the workspace and then choose Cut from the Edit menu or press Ctrl + X. The task is placed on the Clipboard and remains there until a different task is cut or copied.

Note To select more then one task in the workspace, select the first task and then hold down the Ctrl key and make additional selections. You can use the Shift key to select contiguous tasks. ▲

Copy command

Use the Copy command to create a copy of the selected task(s) on the Clipboard. Tasks which are copied can be pasted into the macro using the Paste command.

To copy a task in a macro, select the task you want to copy by clicking the task symbol in the workspace and then choose Copy from the Edit menu or press Ctrl + C. The copied task is placed on the Clipboard and remains there until a different task is cut or copied.

Note To select more then one task in the workspace, select the first task and then hold down the Ctrl key and make additional selections. You can use the Shift key to select contiguous tasks. ▲

Paste command (Edit menu)

Use the Paste command to paste tasks which have been cut or copied into the macro at the position of the insertion point.

To paste tasks in a macro, position the insertion point by clicking in the workspace at the point where you want to paste the task(s). Choose Paste from the Edit menu or press Ctrl + V. The tasks which are on the Clipboard are pasted into the macro at the insertion point.

Clear command (Edit menu)

Use the Clear command to remove the selected tasks from the macro. To remove a task from the current macro, select the task you want to remove and then choose Clear from the Edit menu.

Note To select more then one task in the workspace, select the first task and then hold down the Ctrl key and make additional selections. You can use the Shift key to select contiguous tasks. ▲

Insert menu

The Macros\Basic Insert menu commands allow you to customize your macro. This section describes how to use the Insert menu commands to add customized dialog boxes, loops and even stored macros to your macro.

Comment command

Use the Comment command to add a dialog box to your macro which provides information or a prompt to the operator at run time. The run time dialog box will display the message until the operator chooses OK.

When you choose Comment from the Insert menu, a dialog box appears which allows you to define the text to be displayed when this task is executed.

Dialog box options

Text of Comment- Enter the text for your comment exactly as you want it to appear when this task is executed.

To include the current value of the Result variable in the comment dialog box, type the placeholder #result# in the text of the comment. The Result variable is used by Macros\Basic to store the results of the most recently completed task. You may find it useful to access the Result variable to find the results of tasks such as: Average, Find Peaks, Noise, Peak Height, Peak Area, Quantify, and Search. Each time the macro executes one of these tasks, the current value of the Result variable is overwritten.

To include the current value of a macro variable in the comment text, select the macro variable you want to include by clicking its name in the Macro Variables window. A placeholder for the macro variable you select will appear at the end of any existing text in the Comment box.

Note If you include the Result variable in the Comment text, make sure you add the Comment task to the macro immediately following the task whose results you want to include. ▲

Caption for Dialog - Enter the text to display at the top of the Comment window. The default comment is “Macros\Basic ESP - Comment.”

Decision command (Insert menu)

Use the Decision command to add a dialog box to your macro which allows the operator to choose between two or three buttons. When a button is selected at run time, the tasks which are specified for that button are performed.

When you choose Decision from the Insert menu, a dialog box appears which allows you to define the prompt text, the button labels and the action to be initiated when each of the buttons is pressed.

Dialog box options

Prompt text - Enter the text for your Decision prompt exactly as you want it to appear when this task is executed. The prompt text should indicate the choices available in the dialog box and should give an indication of the results of each choice. To include the current value of the Result variable or a macro variable in a decision prompt, include the placeholder #result# or #mv?# in the text of the prompt, where ? is the number assigned to the macro variable whose value you want to include.

Note If you include the Result variable in the Decision prompt text, make sure you add the Decision task to the macro immediately following the task whose result you want to include. ▲

Label - Enter the text for the label of Button 1, 2, or 3 exactly as you want it to appear at run time. If you leave a button label blank, the button will not be displayed even though it may have tasks listed in its Action box. To blank a button, select the button label text and press the Delete key. Button labels containing only space characters may appear blank but are not considered blank by the system. If you want to define an underscore character for choosing the button from the keyboard, place the "&" character before the chosen letter in the button label. For example, to set up the key combination Alt + C for a Cancel button, type the label "&Cancel".

Note You can also choose to define only one or two buttons for the decision dialog box if you want to limit the options available at run time. ▲

Action - Enter a list of tasks to be executed when the operator selects this button at run time. To enter a task, select the Action box then select tasks from the Tasks window. Tasks are added to the list in the Action box. Tasks which have parameters that you may define will cause the cursor to change from an arrow to a hand when you point to the task in the Action list box. To set a task's parameters, double-click the task in the Action list box. Tasks which have parameters that must be set and are undefined appear in red when they are added to the Action box and begin with an asterisk (*). Tasks with parameters which can be set but do not need to be set in order for the macro to run appear in blue. Tasks which have no settable parameters appear in black.

Loop command (Insert menu)

Use the Loop command to insert a loop into your macro. Loops are used in macros to repeat a task or series of tasks a specified number of times.

When you choose Loop from the Insert menu, a dialog box appears which allows you to define the number of times to execute the loop. You may also specify whether or not to pause at the completion of each loop cycle. Then click OK.

A Start of Loop and End of Loop task are created at the insertion point. You can choose to have the loop run a defined number of times, or to loop through all the spectra in a window. The Start of Loop task symbol indicates the number of times the loop will be executed. If the word “All” appears, the macro will loop through all the spectra in the currently selected window. You can insert tasks between the loop tasks, or you can cut and paste the Loop tasks to move them within the macro.

When you double-click the End of Loop task, a dialog box appears which allows you to specify an end-of-loop condition. When the condition is true, the macro will exit the loop without completing the full number of iterations specified by the previous Start of Loop task. If you do not specify an end-of-loop condition, the macro will complete the full number of iterations specified by the previous Start of Loop task.

Start of Loop Dialog box options

Number Of Times To Execute Loop - Select this option to enter a defined number of times to execute the loop. The value must be greater than zero. If you want to use a macro variable to specify the number of loop cycles, select the value in the Number Of Times To Execute The Loop box, then click mv1 in the Macro Variable window. You can also type the placeholder #mv?# in this field, where ? is the number assigned to the macro variable you want to use.

Loop Through All Spectra Currently In Window - Select this option to apply each task in the loop to each spectra in the currently selected window. The macro affects only spectra originally in the spectral window; it does not affect any spectra added to the window while executing the loop.

For example, suppose there are three spectra in a window and the loop contains the following tasks:

```
Start of Loop   (loop through all the spectra in window option)
        Baseline Correct (automatic option)
        Clear
End
```

The first time through the loop, the first spectrum is selected (the last spectrum added to the window; last in, first out). The Baseline Correct task creates a new baseline corrected spectrum and adds it to the window. The Clear task then deletes the original spectrum (not the new baseline corrected spectrum). At the conclusion of the loop, the widow contains only the three new baseline corrected spectra.

In this example, if the Loop Through All Spectra Currently In Window option was not checked, the new baseline corrected spectrum would be created and then immediately deleted.

Pause After Each Loop Cycle - Select this option to display a dialog box at the completion of each loop cycle. The dialog box displays the number of times the loop has been executed and lets you choose to continue or exit the loop. The macro will pause until you close the dialog box.

End of Loop Dialog box options

Exit Loop When - Use this option to specify an end-of-loop condition. A valid condition uses a logical operator to evaluate two expressions. The result of the evaluation is either true or false. An expression may be a macro variable reference, a number, a text string or another expression. Text strings must be enclosed in quotes if they contain a space.

To specify a macro variable, enter it in the form “#mv?#” where ? is the number of the macro variable, or click a defined macro variable displayed in the Macro Variables window. To specify an operator, enter one of the operators from the list below.

Operator	*Function*
=, is	Equal
<>, is not	Not equal
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to
contains	Right <expression> appears in left <expression>
is in	Left <expression> appears in right <expression>
is not in	Left <expression> does not appear in right <expression>
and	Both the left <expression> and right <expression> are true (Boolean and)
or	Either <expression> is true (Boolean or)
not	Logical opposite of <expression>

Examples of valid conditions:

#mv3# >= 3.14

#mv1# < #mv2#

#mv2# = (#mv1# + 2)

#mv1# > 2.5 and #mv1# < 10

#mv1# is “this is a test” or #mv2# contains “test”

If…Then command (Insert menu)

Use the If…Then command to insert an If…Then structure in your macro. If…Then structures can be used within a macro to allow certain tasks to execute based on the outcome of previous tasks. Using the If…Then, Else and End If tasks, you can carry out one set of tasks if a condition is true, and other set of tasks if the condition is false.

When you choose the If…Then command from the Insert menu, a dialog box appears which allows you to specify an If…Then condition. Enter the condition to meet for the tasks to continue and choose OK.

Position the insertion point after the If…Then task and then select the tasks that you want to be included when the If…Then condition is true. You can also cut and paste tasks to move them within a macro. If the condition specified with the If…Then task is met when you run the macro, the tasks immediately following the If…Then task will be executed.

If you want to specify another set of tasks to be executed when the If…Then condition is not met, position the insertion point after the Else task and select the tasks you want to be included.

Note The Else task is optional. If you want the macro simply to continue when the If…Then condition specified in the If…Then task is not met rather than execute another set of tasks, delete the Else task. ▲

Dialog box options

Execute Tasks If - Use this option to specify an If…Then condition. A valid condition uses a logical operator to evaluate two expressions. The result of the evaluation is either true or false. An expression may be a macro variable reference, a number, a text string or another expression. Text strings must be enclosed in quotes if they contain a space.

To specify a macro variable, enter it in the form “#mv?#” where ? is the number of the macro variable. Current macro variables are listed in the macro variables window. To specify an operator, enter an operators from the operators table in the section “Loop Commands.”

Macro command (Insert menu)

Use the Macro command to call another macro or executable file from the macro you are creating. Macros can also be inserted in Decision dialog boxes. Two macro file types can be inserted in a macro: User macros created with Macros\Basic (.MAC) and executable files (.EXE) created by Visual Basic or other application. If you call an executable file from a Macros\Basic macro, the OMNIC Macros application (either Macros\Basic or Macro Panel) will suspend execution of the macro until the executable file finishes or tells OMNIC Macros to resume.

You can use macro variables to specify the names of macro files. To add a macro variable to a file name, use the placeholder #mv?#, where ? is the number assigned to the macro variable whose value you want to include. The placeholder will be replaced by the current value of the macro variable at run time.

To call an existing macro from a macro, position the insertion point where you want to call the macro and choose Macro from the Insert menu. Type the name of the macro in the File Name box or choose the Browse button to select the macro. When you are done, choose OK. Choose whether you want to call a macro (.MAC) or an executable (.EXE).

If you choose to call a Macros\Basic macro as a function, you can pass values between the macros. The Store Arguments and Return Value tasks provide a mechanism for sharing values between macros when used with the Macro command. If you select this function, you can specify a list of arguments to be passed to the macro that you call. You can also designate a macro variable to hold the value returned by the function macro.

When a macro is called as a function, it is the responsibility of the function macro (that is, the macro being called) to seize the arguments passed to it and set the return value. Macro variables are unique to the macro in which they are defined. In other words, all macro variables are local; there are no global macro variables. For more information, see the descriptions for these tasks in chapter 8, “OMNIC Macros Commands and Tasks.”

Macro menu

The Macros\Basic Macro menu contains the commands described in the following sections.

Test command

The Test command allows you to test your macro to see how it operates at run time. When you select the Test command, the macro is first compiled. If no errors are found, the macro will be run. If errors are found during compilation, they are reported and the test is canceled. You must correct the errors before you can proceed with the test. The source of the error is indicated in the error message that is displayed. Help information on the source of the error and possible solutions can be displayed from the error message dialog box. When you close the error message dialog box, the task symbol for the task that caused the error will be highlighted in the macro workspace.

Note When you test or run a macro, the current OMNIC settings are saved before the macro is run, and then are restored after the macro has completed. ▲

Show Macro Variables command

The Show Macro Variables command allows you to see all of the macro variables you have assigned. Selecting the command once opens the macro variable viewer window. A check mark next to the command in the Macro menu indicates the viewer is open. Close the viewer by either choosing Show Macro Variables again from the Macro menu, or closing the viewer window directly.

Options command

You can define global parameters for your macros by setting options. Use the Options command to specify how your macros affect OMNIC, to set password protection for macros and to define the default format for numerical values displayed in Macros\Basic dialog boxes.

Macros\Basic includes the current settings for the global parameters whenever you save a macro. If you open a macro, the global parameters are reset to match their settings when that macro was last saved. To change global parameter settings for a macro, open the macro, reset the global parameters and then save the macro.

Dialog box options

Reset OMNIC Parameters When Macro Ends - Turn on this check box to save the OMNIC configuration and experiment settings while the macro executes. Any changes the macro makes to OMNIC parameters persist only while the macro is running. When the macro completes, OMNIC reverts to its previous settings.

We recommend that you always use this option by turning on the check box on, unless you want to create a macro that configures your system in a known way. This parameter is on by default for new macros.

Password Protect This Macro - Turn on this check box if you want to enter a password to protect your macro. When this check box is on, the software displays the Enter Password dialog box before saving a macro. You can enter a password to protect the macro. If you leave the password entry box blank, the software saves the macro with no password protection.

If you enter a password, the software asks you to verify it by entering the password again. The next time you open the macro in Macros\Basic, the software will ask you to enter the correct password before opening the macro.

Default Format For Numerical Values – Use this entry box to specify the default format that Macros\Basic will use to display numerical values. This is also the format that is used when you select the "?" format option in the Math task.

Use zeros to set up your default format if you want Macros\Basic to add zeros to the number when it has fewer digits than the format specifies. Use the pound sign (#) to set up your default format if you want to specify the number of significant digits but don't want Macros\Basic to add zeros. For example, if you want the number 24.123 to be displayed as 24.12, enter "#.##" in the Default Format text box.

Program Note command

The Program Note command is found in the Macro menu. Use this command to add a Program Note task to a macro at the location of the insertion point in the Macros\Basic dialog box. You can define global parameters for your macros by setting options.

Note A Program Note task is used only to document a macro. It does not display a message while the macro is running. To display a message when a macro runs, use a Comment task. ▲

Dialog box options:
Enter text for the program note in the Text Of Note box in the Program Note dialog box. You can also add an identifier to give each program note task a unique name. This makes it easier to correlate notes to the macro task sequence. An example program showing two program notes is shown below:

```
Start of Loop
    Number of times to execute loop = 2
    Open
        Display this dialog at run time

*****  Program Note 153  ********************************
This is a test of the Program Note task in Macros\Basic. In this case,
the text line is very long and wraps. Here is a complete list of
characters after an LF:
!@#$%^&*()_+`1234567890-=qwertyuiop[]\asdfghjkl;'zxcvbnm,./{}|:"<>?
*********************************************************
    Save
End of Loop
Print

*****  Program Note 2  ***********************************
This is a test of the Program Note task in Macros\Basic. In this case,
the text line is very long and wraps. Here is a complete list of
characters after a LF:
!@#$%^&*()_+`1234567890-=qwertyuiop[]\asdfghjkl;'zxcvbnm,./{}|:"<>?
*********************************************************

Paste
```

Macros\Basic task descriptions

This is an alphabetical listing of the tasks that can be added to a macro.

The following information is provided for each task:

- The operation of the task when the macro is run.
- The conditions required by the task in order to execute properly at run time.
- A description of the parameters that can be set for the task when the macro is created.

For complete information about tasks that are also OMNIC commands, see the manuals and on-line help that came with your OMNIC software.

Absorbance

When the macro is run, the Absorbance task converts the selected spectrum or spectra to absorbance units.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Note This task will fail if the selected spectrum is a Raman spectrum because this is not an allowed operation for a Raman spectrum. ▲

Add Basis Vector

The Add Basis Vector task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Add Basis Vector task adds the specified basis vector to the active Series Gram-Schmidt basis set. A basis vector contains data collected at a point in time during a series data collection. Adding a basis vector that contains unwanted features, such as a drifting baseline, eliminates such features from the Gram-

Schmidt reconstruction. The new Gram-Schmidt reconstruction will be displayed in the time response display of the series reconstruction window.

Run time requirements

A series reconstruction window or a contour window must be open and selected in order for this task to execute properly at run time.

Task parameters

The Add Basis Vector task parameter allows you to specify the collection time of the spectrum that you want to use for the basis vector. This parameter must be specified when you add the Add Basis Vector task to the macro. The macro will not run if this parameter is undefined.

To specify the collection time of the basis vector, double-click the Add Basis Vector task symbol. Enter the time and choose OK. The value you enter must be in the same X-axis units as the Gram-Schmidt reconstruction in the active series reconstruction window.

Add Constant

When the macro is run, the Add Constant task adds the specified value to every data point of the selected spectrum. The resulting spectrum becomes the selected spectrum in the active spectral window.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Add Constant task parameter allows you to specify a value used to add to each data point in the spectrum.

To specify the value used to add to each data point, enter a number or macro variable in the Add Constant dialog box, then choose OK.

Add Spectra

When the macro is run, the Add Spectra task adds the two selected spectra together to produce a new spectrum. When spectra are added, each data point of one spectrum is added to the corresponding data point of the other spectrum. You should use the Statistical Spectra task to average two or more spectra.

Run time requirements

The two spectra to be added must be selected in the same spectral window in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Add to Library

When the macro is run, the Add to Library task adds the selected spectrum to the specified user library with macro-entered or user-entered field information. You can enter the field information when creating the macro or have the operator prompted to enter the information.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Add to Library task parameters are the same as the OMNIC Add to Library parameters. They allow you to specify the library to which the spectrum will be added. You must specify the library when you add the Add to Library task to the macro. You can also enter descriptive information in up to nine fields that you can view during or after a library search.

To select the library, double-click the Add to Library task symbol and select a library from the list of available libraries. Then choose OK.

To have the operator enter descriptive field information, click the Prompt For Values At Run Time button in the Field Information section. Otherwise click the Use Values Supplied Below button to enter the information as you create the macro. To change the library, click the Change button. Then choose OK.

Add to Notebook

When the macro is run, the Add to Notebook task adds the selected spectrum to the specified user notebook with macro-entered or user-entered field information. You can enter the field information when creating the macro or have the operator prompted to enter the information.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Add to Notebook task parameters are the same as the OMNIC Add to Notebook parameters. They allow you to specify the notebook to which the spectrum will be added.

To select the notebook, double-click the Add to Notebook task symbol and type the name of the notebook file in the File Name box or choose the Browse button to select the notebook.

Note Once you add a report to a notebook, you cannot delete the report or change its template. ▲

To have the operator enter descriptive field information, click the Prompt For Title At Run Time button in the field information section. Otherwise click the Use This Title button to enter the information as you create the macro. Then choose OK.

Advanced ATR Correction

When the macro is run, the Advanced ATR Correction task performs the correction on the selected spectrum. A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Advanced ATR Correction task is the same as the Advanced ATR Correction command in OMNIC. This task allows you to specify the correction parameters to be used when the task is executed. These parameters do not need to be set in order for the macro to run. If the parameters are not set, the Advanced ATR Correction dialog box will be displayed when the macro runs.

To specify the ATR correction parameters, choose the Advanced ATR Correction task symbol. The Advanced ATR Correction dialog box is displayed showing the parameter settings stored in the macro task. Make any changes you wish, and then choose OK to store the settings in the macro task. (See the on-line OMNIC Help for more information about parameter settings.)

Note To allow the operator to specify the parameter settings when the macro is run, add the task to your macro but do not choose it. This leaves the parameter settings undefined, so the Advanced ATR Correction dialog box will be displayed when the macro runs. If you accidentally choose the task, choose Cancel in the Advanced ATR Corrections dialog box, delete the task from your macro, and then add a new Advanced ATR Correction task to your macro. ▲

Annotate

When the macro is run, the Annotate task adds annotation to the selected spectrum at the specified X position.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time. If more than one spectrum is selected, OMNIC issues a Failed message.

Task parameters

The Annotate task parameters allow you to specify the annotation. You must specify the X position for the annotation when you add this task to the macro. The macro will not run if this parameter is undefined. You can also specify the annotation text and specify whether annotation is connected to the spectrum, whether X only or both X and Y values will be used, and whether the annotation for all spectra in the active window will be displayed.

To set the Annotate task parameters, double-click the Annotate task symbol. Enter the X position, select the annotation options, and type the annotation text. If no annotation text is entered, the spectrum will be annotated with the X or X and Y values at the specified location. Choose OK when you have finished.

Apply Function

The Apply Function task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Apply Function task processes all data in the currently selected series data set. The results are displayed in the series reconstruction window.

Run time requirements

A series data set must be selected in order for this task to execute properly at run time.

Task parameters

The Apply Function task parameters allow you to apply one of several functions to the series data. These functions include converting to absorbance, % transmittance, Kubelka-Munk units, and others. Only functions appropriate for your selected data format can be selected. Applying a function to a data set permanently changes the series data; you cannot undo the change.

To set the Apply Function parameters, double-click the Apply Function task symbol. Select the function to apply to the data set. Depending on which function you apply, you may need to enter additional parameters. Specify the parameters, then choose OK.

Automatic Full Scale

When the macro is run and this option is turned on, the Automatic Full Scale task automatically displays spectra full scale whenever you display a different spectral region. You can also choose to turn Automatic Full Scale off.

Task parameters

The Automatic Full Scale task parameter lets you specify whether or not to display the spectra at full scale automatically.

To set the Automatic Full Scale task parameter, double-click the Automatic Full Scale task symbol. Turn the Automatic Full Scale on or off. (The default setting is on.) Then choose OK.

Average

When the macro is run, the Average task calculates the average Y-axis value in a region of the selected spectrum. The result of the average calculation will be stored in the Result variable. You should use the Statistical Spectra task to calculate an average spectrum.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Average task parameters allow you to specify the starting and ending values for the region in which to calculate the average. You must specify these values when you add the Average task to the macro. The macro will not run if these parameters are undefined.

To specify the region, double-click the Average task symbol and enter the starting and ending X-axis limits. The limits must be specified in the same X-axis units as the selected spectrum. If you want to display the result of the average calculation automatically, select the Display Result check box. Then choose OK.

The results of the Average calculation will be saved in the Result variable.

Note You may display the task results using a Comment task or send them to OMNIC or another Windows application using a Report task by

including the placeholder #result# in the text of your comment or report. #Result# will be replaced by the results of the task at run time. Each task result may also be stored in a macro variable by using a math task after the current task and setting up the math task to define a macro variable for #result# (for example, set mv1 equal to #result#). ▲

Baseline Correct

When the macro is run, the Baseline Correct task performs either a manual or automatic baseline correction on the selected spectrum, depending on what is specified in the Baseline Correct setup dialog box. If manual baseline correction is specified, the interactive Baseline Correct window will appear when the macro is run. The macro will not proceed at run time until you close the interactive Baseline Correct window. If automatic baseline correction is specified, the baseline correction is performed automatically and the baseline corrected spectrum is added to the active window when the macro is run.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time. The selected spectrum must be in absorbance.

Task parameters

The Baseline Correct task parameters allow you to specify the type of baseline correction to be used. To specify the type of baseline correction to be used, double-click the Baseline Correct task symbol and select the type of baseline correction to use. Then choose OK.

Blank

When the macro is run, the Blank task blanks the specified region of the selected spectrum. The spectrum with the blanked region will automatically replace the original spectrum.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Blank task parameters allow you to specify the region to be blanked. The Blank task parameters do not need to be set in order for the macro to run. If no region is specified, the spectrum will be blanked over the current X-axis display limits.

To set the region to be blanked, double-click the Blank task symbol and enter the starting and ending X-axis limits for the region. Then choose OK.

Cascade Windows

When the macro is run, the Cascade Windows task arranges all of the open OMNIC windows in a cascade pattern.

Task parameters

This task does not have any settable parameters.

Change Data Spacing

When the macro is run, the Change Data Spacing task changes the data spacing of the selected spectrum. The spectrum with the new data spacing will replace the original spectrum.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Change Data Spacing task parameter allows you to specify the data spacing to be used for the task. You must specify the new data spacing when you add this task to the macro. The macro will not run if this parameter is undefined.

To set the new data spacing, double-click the Change Data Spacing task symbol and select the new data spacing from the drop down list box. Then choose OK.

Note You cannot use a macro variable to set the data spacing. ▲

Change Reason

The Change Reason task appears in the Macros\Basic task list only when OMNIC DS software is loaded on the computer. When the macro is run, this task provides OMNIC with the reason changes were made to data while the macro was running.

Task parameters

When you add the Change Reason task to a macro, you may specify an explanation for the changes made while a macro was running. The OMNIC DS software uses this text whenever it is required to provide a reason for a change. If you do not include the Change Reason task in a macro that is running on an OMNIC DS system, the file name of the macro will be used in place of a reason you provide.

If you add the Change Reason task to your macro, you must supply a reason. To specify a reason, choose the Change Reason task, enter a reason, and then choose OK. The macro will not execute if a reason is not provided.

Change Title

The Change Title task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Change Title task allows you to change the title of the currently selected series data set.

Run time requirements

A series reconstruction window must be selected in order for this task to execute properly at run time.

Task parameters

To change the title of the series data set, enter the new name in the dialog box. If the title is not set, the operator will be prompted to enter a name at run time.

Clear

When the macro is run, the Clear task removes the selected spectrum or spectra from the display. When Clear is used, the spectrum is not placed on the Clipboard.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Close Log

When the macro is run, the Close Log task stops logging and closes the current OMNIC log window.

Run time requirements

An OMNIC log file must be open in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Close Window

When the macro is run, the Close Window task closes the specified OMNIC window.

Run time requirements

If a title is specified, it must match the OMNIC window title exactly. If there is no OMNIC window having a title that exactly matches the title you specify, OMNIC issues a Failed message.

Task parameters

The Close Window task parameters allow you to specify the window to be closed and whether or not to display the “Save Changes…” confirmation dialog box at run time. The Close Window task parameters do not need to be set in order for the macro to run. If the parameters are not set, the currently active window will be closed and the “Save Changes…” confirmation dialog box will not be displayed. Any changes to the spectra in the window that were not previously saved will be lost.

To specify the window to be closed, double-click the Close Window task symbol. Enter the title of the window to be closed. If you want the “Save Changes . . .” confirmation dialog box to be displayed at run time before the window is closed, make sure “Show Confirmation Dialog” is checked. Then choose OK.

Note OMNIC only displays the “Save Changes . . .” confirmation dialog box if a new spectrum has been collected into the window and never saved as a file. ▲

Note You cannot close an OMNIC window with quotes (’) in its name using the Close Window task. ▲

Coadd Region

The Coadd Region task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Coadd Region task produces a single spectrum or interferogram by coadding the data in the specified time region of the active series data set. The coadded data will be displayed in the spectral window specified in the Coadd Region setup dialog box.

Run time requirements

A series reconstruction window or a contour window must be open and selected in order for this task to execute properly at run time.

Task parameters

The Coadd Region task parameters allow you to define the coadd region operation. You must specify the start and end time of the region to be coadded when you add this task to the macro. The macro will not run if this parameter is undefined. You may also specify the title of the window in which the coadded data will be placed. The title specified in the Coadd Region setup dialog box must match the OMNIC window title exactly. If there is no OMNIC window having a title that exactly matches the title you specify, OMNIC issues a Failed message. If you decide not to specify a window, the coadded data will be placed in the spectral data display of the active series reconstruction window.

To set the Coadd Region task parameters, double-click the Coadd Region task symbol. Enter the start and end time of the region to be coadded. The values you enter must be in the same X-axis units as the reconstruction or rapid scan time line in the active series reconstruction window. Enter the exact title of the window the coadded data are to be placed in. Then choose OK.

Collect Background

When the macro is run, the Collect Background task collects a background spectrum using the current parameter settings in the OMNIC Experiment Setup dialog box. Depending on how the task was set up, the Collect Background window and the operator prompts may or may not be displayed at run time. If the task is set up to display the Data Collect window, the operator will be able to view the progress of and stop data collection at run time. If the task is set up without prompts, the background will be collected immediately when the Collect Background task is reached in the macro. The collected background will be automatically added to the active window, and the macro will automatically proceed to the remaining tasks. If the task is set up with prompts, the macro will not proceed to the remaining tasks until the operator responds to the prompts and closes the Collect Background window.

Task parameters

The Collect Background task parameters allow you to enter a title for the background and specify the amount of operator interaction for the background data collection. The Collect Background task parameters do not need to be set in order for the macro to run. If the parameters are not set, the Data Collect window will be displayed without prompts and a system generated title consisting of the date and time of collection will be used.

To set the Collect Background task parameters, double-click the Collect Background task symbol. Enter the title for the background spectrum. Specify whether or not to show the Data Collect window and prompts at run time. Then choose OK.

Collect Raman

The Collect Raman task appears in the Macros\Basic task list only when OMNIC for Raman software is loaded on the computer. When the macro is run, the Collect Raman task collects a Raman sample spectrum using the current parameter settings in the OMNIC Experiment Setup dialog box.

Depending on how the task was set up, the Collect Raman window and the operator prompts may or may not be displayed at run time. If the task is set up to display the Data Collect window, the operator will be able to view the progress of and stop data collection at run time. If the task is set up without prompts, the sample will be collected immediately when the Collect Raman task is reached in the macro. The collected Raman sample will be automatically added to the active window, and the macro will automatically proceed to the remaining tasks. If the task is set up with prompts, the macro will not proceed to the remaining tasks until the operator responds to the prompts and closes the Data Collect window.

Task parameters

The Collect Raman task parameters allow you to enter a title for the Raman sample and specify the amount of operator interaction for Raman data collection. The Collect Raman task parameters do not need to be set in order for the macro to run. If the parameters are not set, the Data Collect window will be displayed but no operator prompts will appear and a system generated title consisting of the date and time of collection will be used.

To set the Collect Raman task parameters, double-click the Collect Raman task symbol. Enter a title for the Raman sample spectrum. Specify whether or not to display the Data Collect window and operator prompts at run time. Then choose OK.

Collect Reference

The Collect Reference task appears in the Macros\Basic task list only when OMNIC for Raman software is loaded on the computer. When the macro is run, the Collect Reference task collects a white light reference spectrum using the current parameter settings in the OMNIC Experiment Setup dialog box. The white light reference spectrum is used to correct Raman sample spectra for effects caused by characteristics of the instrument.

Depending on how the task was set up, the Collect Reference window and the operator prompts may or may not be displayed at run time. If the task is set up to display the Data Collect window, the operator will be able to view the progress of and stop data collection at run time. If the task is set up without prompts, the reference will be collected immediately when the Collect Reference task is reached in the macro. The collected reference will be automatically added to the active window, and the macro will automatically proceed to the remaining tasks. If the task is set up with prompts, the macro will not proceed to the remaining tasks until the operator responds to the prompts and closes the Data Collect window.

Task parameters

The Collect Reference task parameters allow you to enter a title for the reference and specify the amount of operator interaction for the reference data collection. The Collect Reference task parameters do not need to be set in order for the macro to run. If the parameters are not set, the Data Collect window will be displayed without prompts and a system generated title consisting of the date and time of collection will be used.

To set the Collect Reference task parameters, double-click the Collect Reference task symbol. Enter the title for the reference spectrum. Specify whether or not to show the Data Collect window and prompts at run time. Then choose OK.

Collect Sample

When the macro is run, the Collect Sample task collects a sample spectrum using the current parameter settings in the OMNIC Experiment Setup dialog box. Depending on how the task was set up, the Data Collect window and the operator prompts may or may not be displayed at run time. If the task is set up to display the Data Collect window, the operator will be able to view the progress of and stop data collection at run time. If the task is set up without prompts, the sample will be collected immediately when the Collect Sample task is reached in the macro. The collected sample will be automatically added to the active window, and the macro will automatically proceed to the remaining tasks. If the task is set up with prompts, the macro will not proceed to the remaining tasks until the operator responds to the prompts and closes the Data Collect window.

Task parameters

The Collect Sample task parameters allow you to enter a title for the sample and specify the amount of operator interaction for sample data collection. The Collect Sample task parameters do not need to be set in order for the macro to run. If the parameters are not set, the Data Collect window will be displayed but no operator prompts will appear and a system generated title consisting of the date and time of collection will be used.

To set the Collect Sample task parameters, double-click the Collect Sample task symbol. Enter a title for the sample spectrum. Specify whether or not to display the Data Collect window and operator prompts at run time. Then choose OK.

Collect Series

The Collect Series task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Collect Series task collects a series of spectra equally spaced in time using the current parameter settings in the OMNIC Series Setup dialog box.

Depending on how the task was set up, the prompts to enter a series title and collect a background may or may not be displayed at run time. If the task is set up without prompts, the first spectrum in the series will be collected when the operator responds to the message to begin data collection or the software receives an external trigger to start data collection. If the task is set up with prompts, the macro will not proceed with series data collection until the operator responds to the prompts to enter a series title and collect a background. In both cases, the collected data will be processed and displayed automatically and the macro will automatically proceed to the remaining tasks when series collection is complete.

Task parameters

The Collect Series task parameters allow you to enter a title for the series data and specify the amount of operator interaction for series data collection. The Collect Series task parameters do not need to be set in order for the macro to run. If the parameters are not set, a system generated title consisting of the date and time of collection will be used and the prompts to enter a series title and collect a background will be displayed at run time.

To set the Collect Series task parameters, double-click the Collect Series task symbol. Enter a title for the series data. Specify whether or not to display the title and background prompts at run time. Then choose OK.

Common Scale

When the macro is run, the Common Scale task displays the selected spectra in the active window with the same Y-axis scale.

Task parameters

This task does not have any settable parameters.

Contour/Waterfall Setup

The Contour/Waterfall Setup task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Contour/Waterfall Setup task sets the Contour/Waterfall Setup parameters to the values specified in the Contour/Waterfall Setup task dialog box. The OMNIC Contour/Waterfall Setup dialog box will not be displayed at run time.

Task parameters

The Contour/Waterfall Setup task parameters are the same as the OMNIC Contour/Waterfall Setup parameters. They allow you to set up the contour or waterfall display. The Contour/Waterfall Setup task parameters do not need to be set in order for the macro to run. If the parameters are not set, the current OMNIC Contour/Waterfall Setup parameter settings will be used.

To set the Contour/Waterfall Setup task parameters, double-click the Contour/Waterfall Setup task symbol and set the parameters to the desired values. Specify the background threshold and foreground threshold values by typing the desired values in the text boxes. Specify the kind of scale to use for intensities represented by the map colors by selecting Linear or Log.

Turn on Auto Threshold if you want the threshold values to be adjusted automatically for optimum viewing whenever you apply a function to a data set using Apply Function, reprocess a data set using Reprocess, truncate the spectral range of a data set using Truncate All spectra, or create a profile using the Profile button.

Specify the Y display range for the waterfall by typing the desired values in the Minimum Y Value and Maximum Y Value text boxes.

If you want waterfall spectra displayed with the most recently collected spectrum at the front of the waterfall (lowest position on

the screen), turn on Reverse View. Turn off Reverse View if you want to use the normal display, with the most recently collected spectrum at the back of the waterfall (highest position on the screen). Then choose OK.

Note You cannot use macro variables to set the Contour/Waterfall Setup task parameters. ▲

Copy

When the macro is run, the Copy task creates a copy of the selected spectrum or spectra and places the copy on the Clipboard.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Create Chemigram

The Create Chemigram task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Create Chemigram task creates a Chemigram and adds it to the active series data set. The Chemigram will be displayed in the time response display of the active series reconstruction window.

Run time requirements

A series reconstruction window or a contour window must be open and selected in order for this task to execute properly at run time.

Task parameters

The Create Chemigram task parameters are the same as the OMNIC Create Chemigram parameters. They allow you to specify the spectral region that you want to integrate to produce the Chemigram reconstruction and a baseline region. The Create Chemigram task parameters do not need to be set in order for the macro to run. If the parameters are not set, the OMNIC Create Chemigram dialog box will be displayed at run time.

To set the Create Chemigram task parameters, double-click the Create Chemigram task symbol. Enter the starting and ending X-axis limits of the spectral region that you want to integrate. If you want to integrate above a baseline, enter the starting and ending X-axis limits of the baseline region. Then choose OK.

Create File

The Create File task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Create File task displays the Create File dialog box, which allows you to build a series data set from individual spectra or interferograms. After you build a data set, you can create a contour map or waterfall display of the data or view a reconstruction that shows changes in absorbance response over time.

Task parameters

The Create File task parameters are the similar to the OMNIC Create File parameters. They allow you to specify the series file spectra to use, the data range, series title, and the data range units.

To specify the spectral data files to be included in the data set, double-click the Create File task symbol. Enter the base name and sequence numbers of the spectral data files that are in the indicated directory to be included in the data set. The filename consists of the specified base name, a four-digit number that will increase by one for each successive file used, and an extension. Enter a unique, descriptive base name of up four characters that will help you identify the files later. The default directory for retrieving the files is shown in the Series File Spectra box. To specify the directory location where the current data set is located, choose Browse.

You can use macro variables in any of the parameter fields except the Units drop-down list box.

To select units for the Z-axis, choose a unit type from the Units drop-down list box. To specify the Z-axis range you want included in the data set, type the values in the Start and End text boxes.

To enter a title for the series, type a name in the Series Title text box.

To specify a background spectrum for ratioing the sample spectra in the series, type in the Background File text box the pathname of the background, or choose Browse and select a background from the dialog box that appears. If you don't specify a background file, you will not be able to reprocess the spectral data using Reprocess Series in the Series menu. When you are finished, choose OK.

Create Profile

The Create Profile task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. The Create Profile task allows you to create a new profile from the current data set. This profile is loaded when the macro task runs. The term "profile" is used to refer to any of six ways of representing series data.

Run time requirements

A Series Reconstruction window (.SRS) must be open and selected in order for this task to execute properly at run time. The task will fail if the selected window is a Series Contour or Waterfall display.

Task parameters

The Create Profile task parameters are the same as those displayed when you click the Profile Setup button in an OMNIC Series Reconstruction window. They allow you to specify the way the series data is represented. These are the same profile types as those that were available when you set up the series data collection.

To specify the profile for the series data, double-click the Create Profile task symbol and select the type of profile to display. Depending on the type of profile you select, you will also need to enter other parameters defining the display. The macro will not run if these parameters are undefined. Enter these parameters, then choose OK.

Custom Shift

The Custom Shift task appears in the Macros\Basic task list only when OMNIC for Raman software is loaded on the computer. When the macro is run, the Custom Shift task shifts the selected Raman sample spectrum by the laser frequency specified in the Custom Shift setup dialog box. If no laser frequency is specified in the setup dialog box, the operator will be prompted to enter the frequency at run time. The shifted spectrum will automatically replace the original spectrum.

Run time requirements

A spectrum that has not been shifted by the standard or a custom laser frequency must be selected in order for this task to execute properly at run time.

Task parameters

The Custom Shift task parameter is the same as the OMNIC Custom Shift parameter. It allows you to specify the laser frequency for shifting Raman sample spectra. The Custom Shift task parameter does not need to be set in order for the macro to run. If the parameter is not set, the OMNIC Custom Shift dialog box will be displayed at run time.

To set the Custom Shift task parameter, double-click the Custom Shift task symbol and enter the laser frequency. Then choose OK.

Note You cannot use macro variables to set the Custom Shift parameters. ▲

Cut

When the macro is run, the Cut task removes the selected spectrum or spectra from its window and places the spectrum or spectra on the Clipboard.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Delay

When the macro is run, the Delay task pauses the macro for a specified length of time or until a specified point in time.

Task Parameters

The Delay task parameters allow you to specify the type and length of the delay. You must set the Delay parameters when you add the Delay task to the macro. The macro will not run if these parameters are undefined.

To set the Delay task parameters, double-click the Delay task symbol. Select the type of delay and enter the delay time. If you select Delay Until Specific Time, you can enter the time and choose AM or PM. Then choose OK.

Delete Annotation

When the macro is run, the Delete Annotation task removes the annotation from the selected region of the selected spectrum.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Delete Annotation task parameter allows you to specify the X-axis region in which to delete the annotation. The macro will not run if this parameter is undefined.

To specify the region in which to delete the annotation, double-click the Delete Annotation task symbol. Enter start and end values for the X-axis. Any annotations between these limits will be deleted at run time.

Delete File

When the macro is run, the Delete File task deletes the file or files specified in the Delete File task dialog box.

Task parameters

The Delete File task parameter allows you to specify one or more files to be deleted. The Delete File task parameter does not need to be set in order for the macro to run. If the parameter is not set, the operator will be prompted to select the spectrum file to deleted at run time.

Type the complete pathname of the file in the pathname box. If you do not specify a DOS path with the file name, the spectrum subdirectory of the OMNIC directory will be used. You can also choose the Browse button to display a dialog box that allows you to locate and select the file.

To allow the operator to specify the file when the macro is run, click to turn on the Display This Dialog At Run Time check box. If this option is checked, the contents of the File Name edit box is ignored.

Delete Time Region

The Delete Time Region task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Delete Time Region task erases all the spectral data within the specified time region of the active series data set. All interferograms and spectra will be deleted and the data set will be resaved, overwriting the old data set. The original reconstructions or rapid scan time line will be retained.

Run time requirements

A series reconstruction window or a contour window must be open and selected in order for this task to execute properly at run time.

Task parameters

The Delete Time Region task parameter allows you to specify the time region to delete. You must specify the start and end time of the region to be deleted when you add this task to the macro. The macro will not run if this parameter is undefined.

To specify the time region to delete, double-click the Delete Time Region task symbol. Enter the start and end time of the region and choose OK.

Derivative

When the macro is run, the Derivative task converts the selected spectrum to its first or second derivative and applies the selected filter option. The results are displayed in the active spectral window. A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

You cannot use macro variables to set the Derivative parameters.

To specify a first or second order derivative, double-click the Derivative task symbol, select the chosen options, and choose OK. **(**If you choose Cancel, none of the changes you have made will be saved.)

Display Background

When the macro is run, the Display Background task displays the current background spectrum in the active spectral window.

Run time requirements

A background must have been collected in order for this task to execute properly at run time. If there is no spectral window in which to display the background spectrum, OMNIC issues a Failed message.

Task parameters

This task does not have any settable parameters.

Display Limits

When the macro is run, the Display Limits task displays the selected spectrum or spectra or all of the spectra currently displayed in the active window using the limits specified in the Display Limits setup dialog box.

Task Parameters

The Display Limits task parameters are the same as the OMNIC Display Limits parameters. They allow you to specify the display limits for the selected spectrum or spectra.

To set the Display Limits task parameters, double-click the Display Limits task symbol and set the X- and Y-axis display limits. The X-axis limits you specify will apply to all the spectra in the active spectral window. If you want the Y-axis display limits to be used for all the spectra in the active window, make sure “Apply to All Spectra” is checked. To show the Display Limits window at run time, choose Display This Dialog At Run Time. You do not need to enter values for the other parameters if this option is checked. Then choose OK.

Note You cannot use macro variables to set the Display Limit parameters. ▲

Display Setup

When the macro is run, the Display Setup task sets the display setup parameters to the values specified in the Display Setup task dialog box. The OMNIC Display Setup dialog box will not be displayed at run time.

Task parameters

The Display Setup task parameters are the same as the OMNIC Display Setup parameters. They allow you to set up the display. The Display Setup task parameters do not need to be set in order for the macro to run. If the parameters are not set, the current OMNIC Display Setup parameter settings will be used.

To set the Display Setup task parameters, double-click the Display Setup task symbol and set the parameters to the desired values. Then choose OK.

Display Spectral Reference

When the macro is run, the Display Spectral Reference task adds the spectral quality reference spectrum to the active OMNIC spectral window and makes it the active spectrum.

Task parameters

This task does not have any settable parameters.

Edit Title

When the macro is run, the Edit Title task changes the title of the selected spectrum to the title specified in the Edit Title setup dialog box.

Run time requirements

Only one spectrum can be selected in order for this task to execute properly at run time. If more than one spectrum is selected, OMNIC issues a Failed message.

Task parameters

The Edit Title task parameter allows you to specify the title for the selected spectrum. You must specify the title for the spectrum when you add this task to the macro. The macro will not run if this parameter is undefined.

To specify the title, double-click the Edit Title task symbol. Enter the new title and then choose OK.

Experiment Setup

When the macro is run, the Experiment Setup task loads the Experiment Setup parameters from the macro task into the current Experiment settings. The OMNIC Experiment Setup dialog box will not be displayed at run time.

Task Parameters

The Experiment Setup task parameters are the same as the OMNIC Experiment Setup parameters. The Experiment Setup parameters allow you to set the parameters that control how spectra are collected, including which beam path and accessory are used and how collected spectra are checked for quality. You can also use the command to perform diagnostic checks of the optical bench and to align the bench.

To set the Experiment Setup task parameters, double-click the Experiment Setup task symbol. Enter the parameters on the Collect, Bench, Quality, Advanced, and Diagnostic tabs, then choose OK. These parameters will load when the macro is run. The user cannot change the parameters when the macro is run.

Note You cannot use macro variables to set any of the Experiment Setup parameters. ▲

Export Series to Grams

The Export Series to Grams task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Export Series to Grams task loads the optional GRAMS/3D software. If you have the GRAMS/3D software you can manipulate data in a special three-dimensional display and view spectra from different locations in the display. See the documentation that came with the GRAMS/3D software for complete information on using the software to manipulate the series data.

Run time requirements

A series data set (.SRS) must be open in order for this task to execute properly at run time. A copy of the optional GRAMS/3D software must be installed on your system for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Extract Spectrum

The Extract Spectrum task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Extract Spectrum task extracts the specified coadded spectrum from the active series data set and places it in the specified spectral window.

Run time requirements

A series reconstruction window must be open and selected in order for this task to execute properly at run time.

Task parameters

The Extract Spectrum task parameters allow you to specify the collection time of the spectrum that you want to extract and the window in which the spectrum will be placed. You must specify a collection time when you add the Extract Spectrum task to the macro. The macro will not run if this parameter is undefined. You may also specify the title of the window in which the extracted spectrum will be placed. The title specified in the Extract Spectrum setup dialog box must match the OMNIC window title exactly. If there is no OMNIC window having a title that exactly matches the title you specify, OMNIC issues a Failed message. If you decide not to specify a window, the extracted spectrum will be placed in the spectral data display of the active series reconstruction window.

To set the Extract Spectrum task parameters, double-click the Extract Spectrum task symbol. Enter the collection time of the spectrum you want to extract. The value you enter must be in the same X-axis units as the reconstruction or rapid scan time line in the active series reconstruction window. Enter the exact title of the window the extracted spectrum is to be placed in. Then choose OK.

Find Peaks

When the macro is run, the Find Peaks task searches the selected region of the spectrum for absorptions that exceed a specified threshold value and then labels, or "annotates," them with their X values. A list of the peak locations is stored in the Result variable.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Find Peaks task parameters allow you to set up the Find Peaks operation. You can specify the region in which to find peaks when you add the Find Peaks task to the macro. If you do not specify a region, the displayed region is used. You can also optionally select the sensitivity and threshold and you can specify whether or not to show the Find Peaks window at run time. If you decide not to display the Find Peaks window, you must set the sensitivity and threshold parameters in the Find Peaks setup dialog box. The Sensitivity and Threshold values are the same as those used in the OMNIC Find Peaks window.

To set the Find Peaks task parameters, double-click the Find Peaks task symbol. Enter the starting and ending X-axis limits for the region in which to find peaks. The starting and ending limits must be entered in the same X-axis units as the selected spectrum. If desired, set the sensitivity and threshold and specify whether to show the Find Peaks window. Then choose OK.

The list of peak locations will be saved in the Result variable.

Note You may display the task results using a Comment task or send them to OMNIC or another Windows application using a Report task by including the placeholder #result# in the text of your comment or report. #Result# will be replaced by the results of the task at run time. Each task result may also be stored in a macro variable by using a math task after the current task and setting up the math task to define a macro variable for #result# (for example, set mv1 equal to #result#). ▲

Fourier Self-Deconvolution

When the macro is run, the Fourier Self-Deconvolution task performs a Fourier self-deconvolution on the selected spectra, allowing you to mathematically enhance the resolution of spectral data. It can separate overlapping spectral features that cannot be resolved by collecting data at higher resolution settings. The Fourier Self-Deconvolution window is displayed with the original spectrum at the top and the result spectrum at the bottom.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Fourier Self-Deconvolution task allows you to set the parameters for performing a Fourier Self-Deconvolution, or to allow the operator to perform the task manually. To set the parameters, double-click the Fourier Self-Deconvolution task symbol. Enter values for bandwidth and enhancement. The Bandwidth and Enhancement parameters are the same as in the OMNIC Fourier Self-Deconvolution window. To show the Fourier Self-Deconvolution window at run time, choose Display This Dialog At Run Time. You do not need to enter values for the other parameters if this option is checked.

Full Scale

When the macro is run, the Full Scale task displays the selected spectra so that the highest and the lowest points in the spectra appear at the top and bottom of the pane, respectively.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Get Library Spectrum

When the macro is run, the Get Library Spectrum task displays the Get Library Spectrum dialog box, which allows you to add a library spectrum to the currently active spectral window.

Task parameters

The Get Library Spectrum task parameters allow you to specify the library spectrum to display.

To define the library spectrum to get, double-click the Get Library Spectrum task symbol. To specify the name of the library to use, choose a library from the drop-down list box. To specify which file from the library to get, enter a number in the Index box. To change the directory where the macro looks for libraries, choose Change Library and select another directory. When you are finished, choose OK.

Hide Spectra

When the macro is run, the Hide Spectra task hides the currently selected spectra in the active spectral window. When the spectrum is hidden it cannot be seen in the spectral window, only its title appears in the title box list. When you hide a selected spectrum, it is no longer selected.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Instrument Correct

The Instrument Correct task appears in the Macros\Basic task list only when OMNIC for Raman software is loaded on the computer. When the macro is run, the Instrument Correct task corrects the selected Raman sample spectrum for instrument effects using the specified reference spectrum. The corrected spectrum will automatically replace the original spectrum.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time. If Use The Current Reference is selected (see below), a suitable reference spectrum must be in computer memory at run time.

Task parameters

The Instrument Correct task parameters are the same as the OMNIC Instrument Correct parameters. They allow you to specify whether the current reference or a reference stored on a disk will be used to correct the spectrum. The Instrument Correct task parameters do not need to be set in order for the macro to run. If the parameters are not set, the OMNIC Instrument Correct dialog box will be displayed at run time.

To set the Instrument Correct task parameters, double-click the Instrument Correct task symbol. Select whether the current reference or a specified reference file will be used. If you select Use This File, enter the name of the reference file. Then choose OK.

To allow the operator to specify the file when the macro is run, click to turn on the Display Open File Dialog At Run Time check box. If this option is checked, the contents of the Use This File edit box is ignored.

Library Setup

When the macro is run, the Library Setup task loads the Library Setup parameters from the macro task into the current Library settings.

Task Parameters

The Library Setup task parameters are the same as the OMNIC Library Setup parameters. The Library Setup parameters allow you to specify how to perform a spectral search of one or more search libraries to identify an unknown spectrum, or a QC comparison of one or more QC libraries to verify the composition of a sample.

To set the Library Setup task parameters, double-click the Library Setup task symbol. Enter the parameters on the tabs, then click OK. These parameters will load when the macro is run. The user cannot change the parameters when the macro is run.

Note You cannot use macro variables to set the Library Setup parameters. ▲

Log In

When the macro is run, the Log In task lets you enter a user name for the OMNIC log-in feature. If you supply a user name while creating the macro, the runtime log-in changes to the user name you supplied without displaying a prompt. If you select the Prompt For User Name At Runtime option, a prompt will be displayed at runtime to enter a user name.

Run time requirements

You do not need to have OMNIC log-in enabled before running a macro with this task. Log In will be enabled, if required, for the duration of the macro. At the conclusion of the macro, OMNIC is returned to its original log-in state (enabled or disabled).

Mail Spectra

When the macro is run, the Mail Spectra task starts your email application, opens a new email, and attaches the selected spectrum (or spectra). A spectrum (or spectra) must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Match Scale

When the macro is run, the Match Scale task displays all spectra in the active window using the same Y-axis display limits as the selected spectrum.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Match Spectrum Settings

When the macro is run, the Match Spectrum Settings task sets the Experiment Setup parameters on the Collect and Bench tabs to the values in the selected spectrum. This is useful if you want to collect a spectrum using the same collection settings as those in effect when an existing spectrum was collected.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Math

The Math task allows you to carry out mathematical calculations within a macro. When the macro is run, the calculated result will be stored in the specified macro variable which may then be used in other operations in the macro. You can also use the Math task to create macro variables and set them to initial values. For example, you could set mv13 = 3.141.

Task parameters

The Math task parameters allow you to define the mathematical equation and to specify the macro variable that will store the calculated result. You must specify both of these parameters when you add the Math task to the macro. The macro will not run if these parameters are undefined. You may also specify the format for displaying the calculated result.

To specify the Math task parameters, double-click the Math task symbol. The Math setup dialog box appears with the macro variable parameter set to the next available macro variable number. Enter an unused number for this macro variable (1-65535) or leave the default number. A list of macro variables that have already been assigned is provided in the Macro Variables window.

Define the equation by entering a value, a text string, or a mathematical formula in the Definition text box. You can also include any previously defined macro variable in the mathematical. To include a macro variable placeholder in the equation, click a name in the Macro Variables window. A placeholder for the macro variable you select will be placed at the end of your equation. If you place a macro variable placeholder in the equation, OMNIC will replace the placeholder with the current value of the macro variable at run time.

To include a text string in the equation, enclose the string in double quote marks “like this”.

To include a mathematical formula in the equation, type the formula in the Definition text box. Choose Available Functions to see a complete list of the functions the Math task can use. Most of the functions that you can enter are common mathematical operations. Some uncommon functions are explained below.

Symbol	*Function name*	*Description*
&	Concatenate	Join the previous “text string” to the next “text string.” (Using the + character to join strings in the equation will cause a syntax error in your macro).
div	division integer result	Integer division. Divide then return integer result with no remainder.
mod	division remainder	Modulo. Divide then return remainder only.
average()	average in list	Return the average of a list of numbers. Numbers in list must be separated with a comma.
log(x,base)	logarithm	Return the logarithm of the number *x* in the specified *base*.
round()	nearest integer	Round the number to the nearest integer (fractions of 0.5 or greater will be rounded up.)
truncate()	integer component	Truncate the number to the right of the decimal point without rounding up or down. Return the truncated integer.
systime & **sysdate**	system time and system date	The current time and date.

A complete list of the arithmetic operators, string operators, bitwise operators, and functions can be found in Macros\Basic on-line help. In the help system index, find “available functions” and go to the “Available Functions” topic.

When you are finished defining the equation, choose Check Syntax. The software computes a hypothetical equation result. If the equation includes a macro variable, OMNIC will set its current value to a random number while it checks the equation syntax since the macro variable has no value at development time.

Note Check the syntax of your equation before including it in the macro to ensure that the equation doesn’t cause an error at run time. ▲

You can use the Math task to extract specific information stored in macro variables by other tasks. For example, if you stored a series of values in macro variable mv1 in this format:

JT907, 0.346
JT908, 0.477
PT007, 0.953

you could extract just the value in the second line using the following definition: mv2 = item 2 of textline 2 of #mv1#.

To define the format of the macro variable value when it is displayed, printed or reported, enter a custom format in the Format text box or choose one from the Format drop down list. This option does not affect the internal value of the macro used in calculations. If you enter a new format, it is automatically added to the format list so you can reuse it later. Macros\Basic keeps track of the 10 most recently added new formats. If you want to reset the Format list box to the default format examples, clear the contents of the Format text box and choose OK. If you want to set the default format for this entry box, use the Options command in the Macro menu.

Use zeros to set up your custom format if you want Macros\Basic to add zeros to the number when it has fewer digits than the format specifies. For example, if you want the number 24 to be displayed as 024.00, enter “000.00” in the Format text box. Use the pound sign (#) to set up your custom format if you want to specify the number of significant digits but don’t want Macros\Basic to add zeros. For example, if you want the number 24.123 to be displayed as 24.12, enter “#.##” in the Format text box. If you use the symbol E- or e- rather than E+ or e+ to define an exponent, negative exponents will be displayed with a minus sign and positive exponents will be displayed without a sign.

Some example formats are described below.

?	General precision format. Macros\Basic displays the number as precisely as possible and in the format defined in the Options dialog box (Macro menu).
0	Macros\Basic displays a zero if there are fewer digits in a number than places in the format. If there are more digits than places, Macros\Basic displays all digits to the left of the decimal point and rounds digits to the right. For example, if the format is “000.00” for the numbers 34 and 3457.888, Macros\Basic displays 034.00 and 3457.89.
#	Same as 0 above, except Macros\Basic displays a space if there are fewer digits in a number than places in the format. For example, if the format is “###.##” for the number 34, Macros/Basic displays a space, then 34.

A complete list of placeholder symbols for number formats can be found in Macros\Basic on-line help. In the help system index, find “math task” and go to the “Using the Math Task” topic.

When you are finished setting the Math task parameters, choose OK.

Maximize Window

When the macro is run, the Maximize Window task expands the specified window so that it fills the screen. You can specify either the active window or the OMNIC window.

Task parameters

The Maximize Window task parameters allow you to specify the window to be maximized.

To select the window to be maximized, double-click the Maximize Window task symbol. Select to maximize the active spectral window or the OMNIC application window and then choose OK.

Minimize Window

When the macro is run, the Minimize Window task shrinks the specified window to its icon. You can specify either the active window or the OMNIC window.

Task parameters

The Minimize Window task parameters allow you to specify the window to be minimized.

To select the window to be minimized, double-click the Minimize Window task symbol. Select to minimize the active spectral window or the OMNIC application window and then choose OK.

Minimum/Maximum

When the macro is run, the Minimum/Maximum task calculates the minimum and maximum Y-axis values in the specified X-axis region of the selected spectrum. Both the minimum and maximum Y-axis values and their corresponding X-axis positions are calculated. The result of the Minimum/Maximum calculation is stored in the Result variable.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Minimum/Maximum task parameters allow you to specify the starting and ending X-axis region in which to calculate the Y-axis minimum and maximum. You must specify these values when you add the Minimum/Maximum task to the macro. The macro will not run if these parameters are undefined.

To specify the region, double-click the Minimum/Maximum task symbol and enter the starting and ending X-axis limits. The limits must be specified in the same X-axis units as the selected spectrum. If you want to display the result of the noise calculation automatically, select the Display Result check box. Then choose OK.

The results of the Minimum/Maximum calculation will be saved in the Result variable.

Note You may display the task results using a Comment task or send them to OMNIC or another Windows application using a Report task by including the placeholder #result# in the text of your comment or report. #Result# will be replaced by the results of the task at run time. Each task result may also be stored in a macro variable by using a math task after the current task and setting up the math task to define a macro variable for #result# (for example, set mv1 equal to #result#). ▲

Move Stage

The Move Stage task lets you position a sample from a macro by moving a motorized stage. The Move Stage task is available in the Macros\Basic task list only when the computer is connected to an FT-Raman system or a system that includes the Almega dispersive Raman microscope. For FT-Raman systems, the Move Stage task appears in the Raman group and may be used only in conjunction with the FT-Raman View Stage accessory. For Almega systems, Move Stage appears in the Collect group and may be used to control both the optional motorized microscope stage and the XYZ stage in the spectrometer sample compartment.

Task Parameters

You must specify the stage movement in the X, Y and Z direction. You may use macro variables (#mv#) to specify the stage movement. When the macro is run, the Move Stage task moves the stage the specified amount without displaying prompts to the operator. The stage is moved relative to the current position of the sample.

To specify the Move Stage task parameters, double-click the Move Stage task symbol in your macro. The software displays the Move Stage task dialog box. The parameters that appear in the dialog box depend on the type of system you are using. Set the dialog box parameters as described below.

FT-Raman View Stage Controls

If you are using an FT-Raman system, the Move Stage dialog box appears with the Sample Position option set to FT-Raman View Stage. The Move Stage task can be used to control the sample stage on an FT-Raman View Stage accessory. Set the stage movement parameters in step increments as described below. Each step corresponds to approximately 0.001 inch (25.4 micrometers).

Focus	Enter a positive Focus value to move the sample farther from the collection optics; enter a negative value to move it closer.
Left/Right	Enter a positive Left/Right value to move the sample to the right as you face the sample compartment; enter a negative value to move it to the left.
Front/Back	Enter a positive Front/Back value to move the sample closer to you as you face the sample compartment; enter a negative value to move it farther away from you.

Almega Microscope Stage Controls

If you are using an Almega system, the Move Stage task can be used to control the optional motorized microscope stage and the XYZ stage in the Almega sample compartment. If you are using the Move Stage task to control the microscope stage, set the stage movement parameters as described below. Keep in mind that the software controls are designed to work using a frame of reference that assumes you are facing the instrument and looking down through the objective lens at the sample.

Sample Position	Set to Microscope Stage.
Focus	Enter a positive Focus value in micrometers to move the stage up so that the sample is closer to the microscope objective; enter a negative value to move the stage down.
X-axis	Enter a positive X-axis (right/left) value to move the sample to the right as you face the microscope; enter a negative value to move it to the left.
Y-axis	Enter a positive Y-axis (in/out) value to move the sample away from you as you face the microscope; enter a negative value to move it towards you.

Almega Sample Compartment (XYZ) Stage Controls

If you are using the Move Stage task to control the XYZ stage in the Almega sample compartment, set the stage movement parameters in step increments as described below. Each step corresponds to approximately 0.001 inch (25.4 micrometers). Keep in mind that the software controls are designed to work using a frame of reference that assumes you are the collection lens facing the sample.

Sample Position	Set to Sample Compartment.
Focus	Enter a positive Focus value in steps to move the sample farther from the collection lens; enter a negative value to move it closer. Maximum range of movement is 400 steps.
Side To Side	Enter a positive Side To Side value in steps to move the sample toward the front of the sample compartment; enter a negative value to move it toward the back. Maximum range of movement is 1000 steps.
Up/Down	Use the Up/Down parameter to move the sample vertically. Enter a positive Up/Down value to move the sample up, towards the top of the sample compartment; enter a negative value to move it down, towards the sample compartment baseplate. Maximum range of movement is 320 steps.

Multiply

When the macro is run, the Multiply task multiplies each data point in the selected spectrum by a factor and displays the resulting spectrum in the active window.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Multiply task parameter is the same as the OMNIC Multiply parameter. It allows you to specify the factor used to multiply each data point in the spectrum.

To specify the factor used to multiply the spectrum, enter a number or macro variable in the Multiply dialog box. The macro will not execute if the factor is not specified. Then choose OK.

New Window

When the macro is run, the New Window task creates a spectral window.

Task parameters

The New Window task parameters are the same as the OMNIC New Window parameters. They allow you to specify the title of the new window. The New Window task parameters do not need to be set in order for the macro to run. If you do not specify a title, the default title, WINDOW*n*, will be used.

To specify a title for the window, double-click the New Window task symbol and enter a title for the window. Then choose OK.

Noise

When the macro is run, the Noise task calculates the noise in a specified region of the selected spectrum. The result of the noise calculation will be stored in the Result variable.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Noise task parameters allow you to specify the starting and ending values for the region in which to calculate noise. You must specify these values when you add the Noise task to the macro. The macro will not run if these parameters are undefined.

To specify the region, double-click the Noise task symbol and enter the starting and ending X-axis limits. The limits must be specified in the same X-axis units as the selected spectrum. If you want to display the result of the noise calculation automatically, select the Display Result check box. Then choose OK.

The results of the Noise calculation will be saved in the Result variable.

Note You may display the task results using a Comment task or send them to OMNIC or another Windows application using a Report task by including the placeholder #result# in the text of your comment or report. #Result# will be replaced by the results of the task at run time. Each task result may also be stored in a macro variable by using a math task after the current task and setting up the math task to define a macro variable for #result# (for example, set mv1 equal to #result#). ▲

Normalize Frequency

When the macro is run, the Normalize Frequency task repositions spectral data points relative to the standard reference laser frequency.

When the frequency is normalized, the spectral data points are repositioned as if they had been collected using an optical bench with a reference laser frequency of 15,798.0 wavenumbers. This allows you to compare spectra that were collected using optical benches with different laser frequencies.

Note The frequency is normalized only if it is not equal to the reference frequency and the difference between the two is less than 20 wavenumbers. ▲

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Normalize Scale

When the macro is run, the Normalize Scale task scales the selected spectrum from 0 to 1 absorbance units or from 0% to 100% transmittance units. The resulting spectrum becomes the selected spectrum in the active spectral window. These normal scales are typical of spectra in commercial spectral libraries.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Offset Scale

When the macro is run, the Offset Scale task displays all of the spectra in the window so that they are vertically offset from one another.

Task parameters

This task does not have any settable parameters.

OMNIC DDE

When the macro is run, the OMNIC DDE task executes the specified OMNIC Dynamic Data Exchange (DDE) instruction. OMNIC DDE instructions allow you to initiate an OMNIC command, set an OMNIC parameter or return a parameter value.

Task parameters

The OMNIC DDE task parameters allow you to specify the OMNIC DDE instruction to be executed. You must specify the OMNIC command to be initiated or the OMNIC parameter value to be set or retrieved when you add this task to the macro. The macro will not run if there is no DDE command to execute. You may use a macro variable placeholder as a value when setting a macro parameter. For example,

```
SetOMNIC “Display Xstat” , #mv1#
```

At run time, the OMNIC DDE task uses the macro variable #result# to return the error completion code. It is set to “OK” if the OMNIC DDE command succeeded. If you are executing more than one command, this completion code refers only to the last command in the OMNIC DDE task.

If you are getting the value of an OMNIC parameter, use the Store Result task to store the parameter value into a macro variable. If you are getting more than one parameter, only the value of the last one can be stored.

When the Display Error Messages At Runtime option is checked, the macro pauses if an error occurs during the OMNIC DDE task and displays an error message. If this option is not checked, errors are ignored and the macro continues without interruption.

You can test for errors after the OMNIC DDE task by using the Store Result task. In the Store Result dialog box, select OMNIC DDE as the task and Error as the result. If no errors occur, the result will be null. If an error occurs, the text of the error is placed into the macro variable.

If you are executing an OMNIC command which calculates a value, you must specifically request the result value by getting the value of Result Current or Result Array. Just executing the command does not return a value. For example,

```
ExecuteOMNIC "FWHH"
GetOMNIC "Result Array"
```

To display the OMNIC DDE task parameters, double-click the OMNIC DDE task symbol. For detailed instructions on specifying an OMNIC DDE command or parameter, see chapter 9, "Designing a Macro with OMNIC DDE." When you are finished setting the task parameters, choose OK.

Open

When the macro is run, the Open task opens the spectrum or spectra specified in the Open setup dialog box. The spectrum or spectra will be displayed in the active OMNIC window.

Task parameters

The Open task parameter is the same as the OMNIC Open parameter. It allows you to specify the spectral file(s) to be opened. The Open task parameter does not need to be set in order for the macro to run. If the parameter is not set, the operator will be prompted to select the file to open at run time.

To specify the spectral file(s) to be opened, double-click the Open task symbol. To specify one spectrum, enter its full name in the File Name box, or click the Browse button and select its name in the list box. If you want to open more than one spectrum, click the Browse button in the File Name box, then hold down the Ctrl key and make your selections. You can use the Shift key to select contiguous file names. Multiple file lists are not editable. When you are finished selecting the files, choose OK.

To allow the operator to specify the file when the macro is run, click to turn on the Display Open File Dialog At Run Time check box. If this option is checked, the contents of the File Name edit box is ignored.

To edit the list of spectra to be opened after they have already been specified, double-click the Open task symbol. Select the spectra to be opened as described above and then choose OK.

Open Configuration

When the macro is run, the Open Configuration task opens the Configuration file (*.CON) specified in the Open Configuration dialog box.

Task parameters

The Open Configuration task parameter is the same as the OMNIC Open Configuration parameter. It allows you to specify the configuration file to be opened, or to allow the operator to specify a file.

To specify the configuration to be opened, double-click the Open Configuration task symbol. Select the file from the standard open file dialog box. When you are finished selecting the files, choose OK.

To allow the operator to specify the file when the macro is run, click to turn on the Display Open File Dialog At Run Time check box. If this option is checked, the contents of the File Name edit box is ignored.

Note The Open Configuration task replaces the Open Options task found in versions of OMNIC before OMNIC E.S.P. If you have an existing macro containing an Open Options task, it will still function correctly. However, for best performance, you should manually delete it and replace it with an Open Configuration task. ▲

Open Data Set

The Open Data Set task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Open Data Set task opens the data set file (*.SRS) specified in the Open Data Set dialog box.

Task parameters

The Open Data Set task parameter is the same as the OMNIC Data Set parameter. It allows you to specify the data set file to be opened, or to allow the operator to specify a file.

To allow the operator to specify the data set file when the macro is run, click to turn on the Display Open File Dialog At Run Time check box. If this option is checked, the contents of the File Name edit box is ignored.

Open Experiment

When the macro is run, the Open Experiments task opens the parameter file specified in the Open Experiments setup dialog box.

Task parameters

The Open Experiments task parameter allows you to specify the experiment file to be opened. The Open Experiments task parameter does not need to be set in order for the macro to run. If the parameter is not set, the operator will be prompted to select the parameter file to open at run time.

Select the parameter groups you want included when the experiment is opened. To select a parameter group, turn on its check box in the Groups box. These check box settings are the ones actually used—the settings in the file open dialog are ignored.

To specify the experiment file to be opened, double-click the Open Parameters task symbol. Choose a parameter file or enter its full path and file name in the File Name text box. When you are finished, choose OK.

To allow the operator to specify the file when the macro is run, click to turn on the Display Open File Dialog At Run Time check box. If this option is checked, the contents of the File Name edit box is ignored.

Open Log

When the macro is run, the Open Log task opens the log file (*.LOG) specified in the Open Log setup dialog box and starts logging.

Run time requirements

There must be no open log file at run time in order for this task to execute properly. There must be no open log file at run time in order for this task to execute properly. If a log file is open prior to the Open Log task, the log file specified in this task will not be loaded. Instead, the currently opened log will be renamed with the file name specified in this task.

Task parameters

The Open Log task parameter is the same as the OMNIC Open Log parameter. It allows you to specify the log file to be opened. The Open Log task parameter does not need to be set in order for the macro to run. If the parameter is not set, the operator will be prompted to select the log file to open at run time.

To specify the log file to be opened, double-click the Open Log task symbol. Select a log file or enter its full name in the File Name text box. Then choose OK.

To allow the operator to specify the file when the macro is run, click to turn on the Display Open File Dialog At Run Time check box. If this option is checked, the contents of the File Name edit box is ignored.

Other Conversions

When the macro is run, the Other Conversions task converts the selected spectrum or spectra to the units which are specified in the Other Conversions setup dialog box (Kubelka-Munk, photoacoustic, % reflectance, log (1/r), wavenumbers, micrometers, or nanometers).

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Other Conversions task parameter is the same as the OMNIC Other Conversions parameter. It allows you to specify the conversion to be used when this task is executed. You must specify the conversion to be used when you add this task to the macro. The macro will not run if this parameter is undefined.

To specify the conversion to be used, double-click the Other Conversions task symbol. Select the conversion to be used and choose OK.

Note You cannot use macro variables to set the Other Conversions parameter. ▲

Other Corrections

When the macro is run, the Other Corrections task performs the specified correction on the selected spectrum. Corrections include dispersion, ATR, H_2O, CO_2, and H_2O and CO_2.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Other Corrections task parameter is the same as the OMNIC Other Corrections parameter. It allows you to specify the correction to be used when this task is executed. You must specify the correction to be used when you add this task to the macro. The macro will not run if this parameter is undefined.

To specify the correction to be used, double-click the Other Corrections task symbol. Select the correction to be used and choose OK.

Note This task will fail if the selected spectrum is a Raman spectrum because this is not an allowed operation for a Raman spectrum. ▲

Note You cannot use macro variables to set the Other Corrections parameter. ▲

Overlay Spectra

When the macro is run, the Overlay Spectra task displays the currently displayed spectra in the active window in overlaid panes.

Task parameters

This task does not have any settable parameters.

Paste

When the macro is run, the Paste task pastes the spectrum or spectra currently on the Clipboard into the active window.

Run time requirements

A spectrum must be on the Clipboard in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Paste to Log

When the macro is run, the Paste to Log task pastes the spectrum or spectra currently on the Clipboard into the active log file.

Run time requirements

A spectrum must be on the Clipboard in order for this task to execute properly at run time. The task will fail if there is not a spectrum on the Clipboard.

Task parameters

This task does not have any settable parameters.

Peak Area

When the macro is run, the Peak Area task calculates an uncorrected and corrected peak area for the specified peak. The uncorrected peak area is calculated for the specified region above zero absorbance units. The corrected peak area is the area for the specified region above the baseline you specify. The result of the peak area calculations will be stored in the Result variable. This will be the same text as that displayed in the OMNIC status bar when you use the Peak Area tool.

Run time requirements

An absorbance spectrum must be selected in order for this task to execute properly at run time. If more than one spectrum is selected, OMNIC issues a Failed message.

Task parameters

The Peak Area task parameters allow you to specify how the peak area will be calculated and whether or not to display the peak area calculation results at run time. You must specify the X-axis limits of the region to be measured when you add this task to the macro. The macro will not run if these parameters are undefined. You may also specify the X-axis limits of the baseline to be used for calculating peak area and whether or not to display the calculation results at run time.

To set the Peak Area task parameters, double-click the Peak Area task symbol. Enter the starting and ending X-axis limits for the region to be measured. Enter the starting and ending limits for the corrected peak area baseline. The values you enter for the region and baseline limits must be in the same X-axis units as the selected spectrum. If you do not enter the starting and ending X-axis limits for the baseline, a baseline will be drawn over the same region as the uncorrected peak area. If you want to display the peak area results dialog box at run time, turn on the Display Result check box. When the parameters are set, choose OK.

The results of the peak area calculation will be saved in the Result variable.

Note You may display the task results using a Comment task or send them to OMNIC or another Windows application using a Report task by including the placeholder #result# in the text of your comment or report. #Result# will be replaced by the results of the task at run time. Each task result may also be stored in a macro variable by using a math task after the current task and setting up the math task to define a macro variable for #result# (for example, set mv1 equal to #result#). ▲

Peak Height

When the macro is run, the Peak Height task calculates an uncorrected and a corrected peak height for the specified peak. The uncorrected peak height is calculated for the specified location above zero absorbance units. The corrected peak height is the height of the specified point above the baseline you specify. The result of the peak height calculations will be stored in the Result variable. This will be the same text as that displayed in the OMNIC status bar when you use the Peak Height tool.

Run time requirements

An absorbance spectrum must be selected in order for this task to execute properly at run time. If more than one spectrum is selected, OMNIC issues a Failed message.

Task parameters

The Peak Height task parameters allow you to specify the peak location and baseline limits to be used for the corrected peak height calculation. You must specify a peak location when you add this task to the macro. The macro will not run if this parameter is undefined. If you want OMNIC to calculate the height of the peak that is closest to the location you specify, turn on the Seek Closest Peak check box. You may also specify the X-axis limits of the baseline to be used for calculating peak height and whether or not to display the calculation results at run time.

To set the Peak Height task parameters, double-click the Peak Height task symbol. Enter the peak location. If you want OMNIC to use the maximum peak closest to the position you specify, turn on the Seek Closest Peak check box. If you want to calculate the corrected peak height, enter the starting and ending baseline limits. The values you enter must be in the same X-axis units as the selected spectrum. If you want to display the Peak Height results dialog box at run time, turn on the Display Result check box. When the parameters are set, choose OK.

The results of the peak height calculation will be saved in the Result variable.

Note You may display the task results using a Comment task or send them to OMNIC or another Windows application using a Report task by including the placeholder #result# in the text of your comment or report. #Result# will be replaced by the results of the task at run time. Each task result may also be stored in a macro variable by using a math task after the current task and setting up the math task to define a macro variable for #result# (for example, set mv1 equal to #result#). ▲

Preview/Print Report

When the macro is run, the Preview/Print Report task either displays or prints a report using the currently selected report template. You have the option to display the Print dialog box at run time.

Task parameters

To preview the report when the task executes, choose Preview Report. To print the report when the task executes, choose Print Report. To allow the operator to change the print options when the macro is run, click to turn on the Display Print Dialog At Run Time check box. The default is to print the report without displaying the dialog.

Print

When the macro is run, the Print task prints the contents of the active window as they are displayed. If no Printer Setup task is added to the macro before the Print task, the currently selected printer will be used.

Task parameters

This task does not have any settable parameters.

Printer Setup

When the macro is run, the Printer Setup task displays the OMNIC Printer Setup dialog box. This allows the operator to select the printer to be used for any subsequent print tasks.

Task parameters

This task does not have any settable parameters. The Printer Setup parameters are set by the operator at run time when the Printer Setup task executes.

Purge Correct Calibration

When the macro is run, the Purge Correct Calibration task performs a Quant Purge Correct Calibration, which lets you create or recalibrate a quantitative analysis method to use for correcting spectra for the effects of water vapor or carbon dioxide or both. After you create a method, it becomes available for use by Quant Purge Correct in the Process menu.

Creating or calibrating methods involves collecting water and carbon dioxide reference spectra at several levels of purge. When the task runs, the user is required to select a method and open the sample compartment on the optical bench. Once started, the collection is automated and takes one to two hours.

Task parameters

This task does not have any settable parameters.

QC Compare

When the macro is run, the QC Compare task compares the spectrum of the sample with spectra in the specified QC libraries and reports how well the spectrum matches the library spectra.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The QC Compare task parameters allow you to define the way the QC Compare results are displayed. You can display the interactive window, create a results window, or hide the window. If you select to create a results window, you can also select to print the results.

The entire displayed region is compared during a QC Compare. If you want to limit the spectral region compared, have the user define the region manually before running the macro, or use a task such as Blank Display Limits to automatically define the comparison region.

The QC Compare task parameters allow you to choose whether you want to show the OMNIC QC Compare window and a search results window, show only a search results window, or hide both windows when this task is executed at run time. If you display the OMNIC QC Compare window, the macro will not proceed to the remaining tasks until you close the Search window. If you display only a search results window or hide both windows, the macro will automatically proceed to the remaining tasks when the search is completed.

To set the QC Compare task parameter, double-click the QC Compare task symbol. If you want to show the OMNIC search results window, click the button for Display Interactive Search Window. If you want to hide the OMNIC Search window and add the results to a new window, click the button for Create Results Window. If you want to print the results, turn on the Print Result check box when Create Result Window is selected. If you want to hide both windows during the search operation, click the Hide Windows button. Then choose OK.

The QC Compare search results will be stored in the Result variable.

Note If you want to identify an unknown spectrum, use the Search task. ▲

Note You may display the task results using a Comment task or send them to OMNIC or another Windows application using a Report task by including the placeholder #result# in the text of your comment or report. #Result# will be replaced by the results of the task at run time. Each task result may also be stored in a macro variable by using a math task after the current task and setting up the math task to define a macro variable for #result# (for example, set mv1 equal to #result#). Use the Report task to append the search results to a log file. ▲

Quantify

When the macro is run, the Quantify task uses the currently selected quantitative method to analyze the selected spectrum. The result of the quantify calculation will be stored in the Result variable.

Run time requirements

A spectrum must be selected and a quantitative method must be selected in order for this task to execute properly at run time. If no quantitative method is selected prior to the Quantify task, the macro will fail at run time.

Task parameters

The Quantify task parameter lets you specify whether or not to display the quantitative results dialog box at run time. The Quantify task parameter does not need to be set in order for the macro to run. If the parameter is not set, the Quant results dialog box will be displayed when this task is executed at run time.

If you are using a quantitative method that uses a known pathlength, you can also choose to use a specific pathlength value or prompt the user for a pathlength at run time. If the quantitative method does not use a known pathlength, this option is ignored. That is, setting a value here does not change the quantitative method to a known pathlength type.

To set the Quantify task parameter, double-click the Quantify task symbol. Turn the Display Result check box on or off. If you are using a quantitative method that uses a known pathlength, you can choose either Prompt For Pathlength At Run Time or Use This Pathlength Value and enter a value. Then choose OK.

The result of the quantify operation will be saved in the Result variable

Note You may display the task results using a Comment task or send them to OMNIC or another Windows application using a Report task by including the placeholder #result# in the text of your comment or report. #Result# will be replaced by the results of the task at run time. Each task result may also be stored in a macro variable by using a math task after the current task and setting up the math task to define a macro variable for #result# (for example, set mv1 equal to #result#). ▲

Quant Setup

When the macro is run, the Quant Setup task selects the quantitative method specified in the Quant Setup dialog box, and optionally, resets the OMNIC experiment parameters to those stored in the quantitative method.

Task parameters

The Quant Setup task parameters are the same as the OMNIC Quant Setup parameters. They let you specify the quantitative method to be used for the Quantify task and whether or not to reset the Collect and Bench parameters. The Quant Setup method file does not need to be set in order for the macro to run.

To select the quantitative method, double-click the Quant Setup task symbol. Select the quantitative method from the list of available methods and then choose OK.

To allow the operator to specify the file when the macro is run, click to turn on the Display Quant Setup Dialog At Run Time check box. If this option is checked, the contents of the File Name edit box is ignored.

If you want to reset the OMNIC data collection and optical bench parameters to match the method you are opening, turn on the Collect and Bench check boxes. Resetting the parameters here is a convenient way to prepare for collecting sample spectra to be analyzed with the method.

Raman Shift

The Raman Shift task appears in the Macros\Basic task list only when OMNIC for Raman software is loaded on the computer. When the macro is run, the Raman Shift task shifts the selected Raman sample spectrum by the standard laser frequency, 9394 wavenumbers. The shifted spectrum will automatically replace the original spectrum and will be displayed with an X-axis range of 3600 to 100 wavenumbers.

Run time requirements

A spectrum that has not been shifted by the standard or a custom laser frequency must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Region Subtract

When the macro is run, the Region Subtract task does an auto-scaled subtraction of one spectrum from another based on a specified spectral region. When you add the Region Subtract task to a macro, you must specify a reference spectrum to use for the subtraction and the spectral region over which the subtraction factor is to be calculated. The macro will not run if these parameters are undefined.

Task parameters

To set the Region Subtract task parameters, double-click the Region Subtract task symbol in your macro. The Region Subtract dialog box is displayed. Enter the Start and End location of the region you wish to use to determine the subtraction factor. The values you enter must be in the same X-axis units as the selected spectrum. Set the option for locating the subtraction reference to either File Name or Spectrum Title and then enter the reference file name or title in the text box. When the parameters are set, choose OK.

At run time, the software uses the specified region of the two spectra to calculate a factor which minimizes the difference between the spectra in that region. That factor is then used to calculate the difference between the entire spectra (where they overlap). If the spectra do not have the same resolution, the spectrum with the higher resolution will be temporarily deresolved to match the resolution of the other spectrum. The subtraction operation will take longer in this case.

The subtraction result becomes the active spectrum when the subtraction is completed. The title of the spectrum will be "Subtraction Result."

Report

When the macro is run, the Report task outputs the specified text to the OMNIC log file, a field in an OMNIC spectrum, a text file or another Windows application via dynamic data exchange (DDE).

Run time requirements

If you set up the Report task to send text to a field in an OMNIC spectrum, a spectrum must be selected in order for the task to execute properly at run time. If more than one spectrum is selected, OMNIC issues a failed message. If you set up the Report task to send text to the log file, an Open Log task must appear earlier in the macro in order for the Report task to execute properly at run time. If you set up the Report task to send text to another Windows application via DDE, the other application must be open in order for the text to be sent. If the application is not open, no DDE communication will occur but the macro will continue.

Task parameters

The Report task parameters allow you to specify the text to be reported and where it will be sent. You must specify both of these parameters when you add the Report task to the macro. The macro will not run if these parameters are undefined.

To set the Report task parameters, double-click the Report task symbol. Enter the text to be reported at run time. The text may include placeholders for macro variables or the Result variable. If you add a placeholder for a macro variable or for the Result variable to the report, OMNIC will replace it with the current value of the macro variable or the Result variable at run time.

To include the current value of the Result variable in the reported text, type the placeholder #result# in the Report text box. To include a macro variable placeholder in the reported text, click in the Report text box and then click a name in the list of the Macro Variables window. A placeholder for the macro variable you select will appear at the end of any existing text.

Note You should only include placeholders for macro variables that have already been defined. If you include a placeholder for an undefined macro variable, the variable will not have a value at run time and the Report task may cause unexpected results. For information on defining macro variables, see the “Using Variables in Macros” section in chapter 2, “Creating a Macro Using Macros\Basic. ▲

Select where you want the text to be sent. You may send it to a field in the selected OMNIC spectrum, the OMNIC log file, a text file or

another Windows application. Instructions for choosing each of these options are provided below.

To spectrum header field - Sends the text to a field in the selected OMNIC spectrum. When you choose this option, the list box for choosing a field in the spectrum header becomes active. Select whether you want the text to be placed in the Title or Comment field of the selected spectrum or appended to the spectrum's history. You can also add the text to custom information fields.

Append to log - Appends the text to the open OMNIC log file.

Append to file - Appends the text to the specified text file. If you choose this option, enter the full path and file name of the text file or choose Browse to select a text file stored on the disk. If the specified file does not exist at run time, OMNIC will create it.

Note When appending to a text file, make sure to include a carriage return in the text field if you want data appended on separate lines. Data is appended exactly as entered in the text field. ▲

DDE - Sends the text to another Windows application, such as Excel or Lotus 1-2-3. If you choose this option, enter the name of the application, topic and item that the text should be sent to. The *application name* is usually the same as the application's .EXE file name but without the .EXE extension. Some examples are provided below.

Product Name	*Application Name*
Microsoft Word	winword
Microsoft Excel	excel
Lotus 1-2-3	123w

Topic is a generic term for the type of file a given application creates, such as a spreadsheet file or a document file. *Item* refers to a field within the specified file, such as a row or column in a spreadsheet or a bookmark in a Microsoft Word document.

Note To determine the appropriate syntax for communicating with an application via DDE, refer to the documentation that came with the application. ▲

You may include placeholders for other macro variables in any of the DDE fields by clicking in the Application, Topic or Item text box and then double-clicking a name in the list of currently defined macro variables. A placeholder for the macro variable you select will be added to the existing text in the selected text box.

If you add a macro variable placeholder to a DDE field, OMNIC will replace it with the current value of the macro variable at run time. For example, if you place the Report task in a loop that increments the value of the macro variable mv1, then choose the DDE option and set Application=excel, Topic=Book1 and Item=R#mv1#C2, OMNIC will place the specified text in a different row of an Excel spreadsheet each time it completes the loop.

When you are finished setting the Report task parameters, choose OK.

For examples of how to use the Report task, see chapter 7, “Example Macros.”

Reprocess

When the macro is run, the Reprocess task allows you to select a spectrum to be reprocessed. The reprocessed spectrum is added to the active spectral window and becomes the selected spectrum. For example, you can transform the interferogram data for a spectrum using different parameter settings or ratio the spectrum against a different background to improve the final data.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time. The spectrum and background interferograms must have been saved on a disk when the spectrum was collected in order to reprocess the data.

Task parameters

The Reprocess task parameters are the same as the OMNIC Reprocess parameters. They allow you to specify the settings for the spectrum to be reprocessed, or to allow the operator to specify the settings.

To specify the spectrum to be reprocessed, double-click the Reprocess task symbol. Choose the parameters for reprocessing the spectra. Then choose OK.

To allow the operator to specify the file when the macro is run, turn on the Display Reprocess Dialog At Run Time check box. If this option is checked, the settings in the Reprocess task dialog are ignored, and the operator can modify the parameter settings at run time.

Reprocess Series

The Reprocess Series task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Reprocess Series task allows you to select series data to be reprocessed. The series data must be in interferogram or single-beam format. You can transform them into a different format such as absorbance or % transmittance using various parameter settings. The reprocessed data will overwrite all the data collected during the experiment; you cannot reprocess only portion of the time range, and you can not reprocess a series more than once. To reprocesses a series more than once, make a copy of it before reprocessing.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time. The spectrum and background interferograms must have been saved on a disk when the spectrum was collected in order to reprocess the series data.

Task parameters

The Reprocess Series task parameters are the same as the OMNIC Reprocess Series parameters. They allow you to specify the settings used to reprocess the series, or to allow the operator to specify the settings.

To specify the series to be reprocessed, double-click the Reprocess Series task symbol. Choose the parameters for reprocessing the series. Then choose OK.

To allow the operator to specify the file when the macro is run, turn on the Display Reprocess Dialog At Run Time check box. If this option is checked, the contents of the file name edit box is ignored, and the operator can modify the parameter settings at run time.

Request

When the macro is run, the Request task displays the specified message prompting the operator to enter a value, or reads a value from a text file or via DDE. If the macro prompts for a value, it will not proceed until the operator responds to the request by entering a value and pressing OK or by pressing Cancel. If the operator enters a value, the value will be stored as a macro variable which may be used in other operations in the macro. The macro continues automatically if it reads a value from a text file or via DDE.

Task parameters

The Request task parameters allow you to specify the text to be displayed at run time and the macro variable that will store the requested information. You must specify the macro variable and the source of the input value; the operator, a text file or via DDE. The macro will not run if these parameters are undefined.

To set the Request task parameters, double-click the Request task symbol. Enter an unused number for this macro variable (1-65535). The Macro Variable window displays a list of macro variables that have already been assigned.

Select the source of the input variable. You may obtain it from the operator upon macro execution, a text file or another Windows application. Instructions for choosing each of these options are provided below.

Prompt For Value With This Text - Enter the text to be displayed at run time to prompt the operator to enter an input value. The text may include placeholders for other macro variables or for the Result variable. To include a macro variable placeholder in the request, double-click its name in the list of currently defined macro variables. A placeholder for the macro variable you select will appear at the end of any existing text. To include a placeholder for the Result variable in the Request, type the phrase #result# in the Request text box. If you add a placeholder for a macro variable or the Result variable to the request, OMNIC will replace it with the current value of the macro variable or the Result variable at run time.

Read Value From File - Enter the name of the file or click the Browse button to select a file.

Note The entire contents of the file is read into the macro variable. If the file contains multiple values, items, or lines of text, use the Math task to extract the value you want. ▲

DDE - To read the value from another Windows application via DDE, such as Excel or Lotus 1-2-3, enter the name of the application, topic and item that the text should be read from. The *application name* is usually the same as the application's ".EXE" file name but without the ".EXE" extension. Some examples are provided below.

Product Name	*Application Name*
Microsoft Word	winword
Microsoft Excel	excel
Lotus 1-2-3	123w

Topic is a generic term for the type of file a given application creates, such as a spreadsheet file or a document file. *Item* refers to a field within the specified file, such as a row or column in a spreadsheet or a bookmark in a Microsoft Word document.

Note To determine the appropriate syntax for communicating with an application via DDE, refer to the documentation that came with the application. ▲

You may include placeholders for other macro variables in any of the DDE fields. If you add a macro variable placeholder to a DDE field, OMNIC will replace it with the current value of the macro variable at run time. For example, if you place the Report task in a loop that increments the value of the macro variable mv1, then choose the DDE option and set Application=excel, Topic=Book1 and Item=R#mv1#C2, OMNIC will place the specified text in a different row of an Excel spreadsheet each time it completes the loop.

When you are finished setting the Request task parameters, choose OK.

Restore Window

When the macro is run, the Restore Window task restores the specified window to its size and position before it was minimized or maximized. You can specify either the active spectral window or the OMNIC application window.

Task parameters

The Restore Window task parameter allows you to specify the window to be restored. The Restore Window task parameter does not need to be set in order for the macro to run. If the parameter is not set, the active window will be restored.

To select the window to be restored, double-click the Restore Window task symbol. Select the window and then choose OK.

Retrieve Interferograms

When the macro is run, the Retrieve Interferograms task extracts background and sample interferograms from the selected spectrum. The extracted interferograms are added to the active spectral window and the background interferogram is the selected spectrum.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time. To be retrieved and displayed, the interferograms for a spectrum must have been saved when the spectrum was collected.

Task parameters

This task does not have any settable parameters.

Return Value

The Return Value task is used only in function macros which are called from another macro. When a function macro is called and executed, the Return Value task defines the value to be sent back to a calling macro.

Task parameters

When the macro is run, the Return Value task makes available the contents of the text box in this task to the calling macro. Normally this is the value of a macro variable calculated by the function macro, but it could also include text.

Macro variables are unique to the macro in which they are defined. In other words, all macro variables are local and known only to the macro currently executing. There are no global macro variables known to all macros. This task provides a way to share macro variable values between two macros.

Revert Basis Vector

The Revert Basis Vector task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Revert Basis Vector task removes all added basis vectors from the Gram-Schmidt basis set in the active Series Reconstruction window.

Run time requirements

A Series Reconstruction window must be active in order for this task to execute properly at run time. The basis vectors that were used to process the data immediately after collection are not removed.

Task parameters

This task does not have any settable parameters.

Save

When the macro is run, the Save task saves the currently selected spectrum using its current file name and path. If the spectrum has not been saved before, the OMNIC Save As dialog box will appear.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Save As

When the macro is run, the Save As task saves the currently selected spectrum with the file name specified in the Save As setup dialog box.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Save As task parameter is the same as the OMNIC Save As parameter. It allows you to specify the file name for the spectrum. The Save As task parameter does not need to be set in order for the macro to run. If the parameter is not set, the operator will be prompted to enter a file name for the spectrum at run time.

To specify a file name to use when the spectrum is saved, double-click the Save As task symbol. Enter a file name for the spectrum in the File Name text box and then choose OK.

To allow the operator to specify the file when the macro is run, click to turn on the Display Save File Dialog At Run Time check box. If this option is checked, the contents of the File Name edit box is ignored.

Save Configuration As

When the macro is run, the Save Configuration As task saves the current OMNIC configuration settings in a configuration file (.CON).

Task parameters

The Save Configuration As task parameter is the same as the OMNIC Save Configuration As parameter. It allows you to specify the file name for the configuration file. The Save Configuration As task parameter does not need to be set in order for the macro to run. If the parameter is not set, the operator will be prompted to enter a parameter file name at run time.

To specify a file name to use when the configuration file is saved, double-click the Save Configuration As task symbol. Enter a file name for the configuration file in the File Name box and then choose OK.

To allow the operator to specify the file when the macro is run, click to turn on the Display Save File Dialog At Run Time check box. If this option is checked, the contents of the File Name edit box is ignored.

Note The Save Configuration task replaces the Save Parameters As task found in versions of OMNIC before OMNIC E.S.P. If you have an existing macro containing an Save Parameters As task, it will still function correctly. However, for best performance, you should manually delete it and replace it with an Save Configuration As task. ▲

Save Experiment As

When the macro is run, the Save Experiment As task saves the current OMNIC experiment settings in an experiment file (.EXP).

Task parameters

The Save Experiment As task parameter is the same as the OMNIC Save Experiment As parameter. It allows you to specify the file name for the experiment file. The Save Experiment As task parameter does not need to be set in order for the macro to run. If the parameter is not set, the operator will be prompted to enter a parameter file name at run time.

To specify a file name to use when the experiment file is saved, double-click the Save Experiment As task symbol. Enter a file name for the experiment file in the File Name box and then choose OK.

Select the parameter groups you want included when the experiment is saved. To select a parameter group, turn on its check box in the Groups box. These check box settings are the ones actually used—the settings in the file open dialog are ignored.

To allow the operator to specify the file when the macro is run, click to turn on the Display Save File Dialog At Run Time check box. If this option is checked, the contents of the File Name edit box is ignored.

Save Group

When the macro is run, the Save Group task saves the currently selected spectra as a single spectral group file with the file name specified.

Run time requirements

Two or more spectra must be selected in order for this task to execute properly at run time.

Task Parameters

The Save Group task parameter is the same as the OMNIC Save Group parameter. It lets you specify the file name for the spectral group file. The Save Group task parameter does not need to be set in order for the macro to run. If the parameter is not set, the operator will be prompted to enter a file name for the spectral group at run time.

To specify a file name to use when the group of spectra is saved, double-click the Save Group task symbol. Enter a file name for the spectral group file in the File Name text box and then choose OK.

To allow the operator to specify the file when the macro is run, click to turn on the Display Save File Dialog At Run Time check box. If this option is checked, the contents of the File Name edit box is ignored.

Search

When the macro is run, the Search task searches the selected spectrum against the libraries specified in the Library Setup task dialog box. The search results will be stored in the Result variable.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Search task parameters allow you to choose how you want the search results handled when the macro runs. The Search task parameters do not need to be set in order for the macro to run. If the parameters are not set, the OMNIC Search window will not be displayed when this task is executed at run time and the search results will be placed in a new window.

To display the OMNIC search window and wait until the operator closes the window, choose the “Display Interactive Window” option. The macro will not proceed until the search window is closed. To display the search results and then continue with the macro, choose the “Create Results Window” option. The search results window is displayed and the macro proceeds to the next macro task. To search without displaying any window, choose the “Hide Windows” option. The search results will be stored in the Result variable. Then choose OK.

Note You may display the task results using a Comment task or send them to OMNIC or another Windows application using a Report task by including the placeholder #result# in the text of your comment or report. #Result# will be replaced by the results of the task at run time. Each task result may also be stored in a macro variable by using a math task after the current task and setting up the math task to define a macro variable for #result# (for example, set mv1 equal to #result#). ▲

Select All

When the macro is run, the Select All task selects all of the spectra in the active window.

Task parameters

This task does not have any settable parameters.

Select Spectrum

When the macro is run, the Select Spectrum task selects the spectrum or spectra to be used in subsequent tasks in the macro. The order of selection is the most recently opened or collected spectrum first, then back in reverse-order.

Run time requirements

The spectra to be selected must be in the window which is currently active when this task is executed.

Task parameters

The Select Spectrum parameter allows you to specify the spectrum or spectra to be selected. You must set this parameter when you add the Select Spectrum task to the macro. The macro will not run if this parameter is undefined.

To specify the spectrum or spectra to be selected, double-click the Select Spectrum task symbol. Set the Select Spectrum parameters as desired and then choose OK. The parameter options are described below.

All - This option selects all of the spectra in the active window (same as Select All task).

First - This option selects one spectrum in the active window. The spectrum selected is the last one opened or collected. Always use this option before using the Next option.

Next - This option selects another spectrum in the active window. It should be used after the First option to select a different spectrum in the active window. The spectra are selected in the reverse order of their being opened or collected. This option is typically used in a loop to carry out an operation on a group of spectra.

Note Using the Next option without initially using the First option will result in arbitrary spectra selection. ▲

By Title - This option allows you to select a specific spectrum by its title. The text you enter in the Title field must match the spectrum's title exactly in order for the spectrum to be selected.

Note You cannot select an OMNIC window with quotes (') in its name. ▲

Add To Current Selections - Check this box to leave all currently selected spectra selected and to select the new spectrum. This option always results in at least two spectra being selected.

Select Template

When the macro is run, the Select Template task opens the Select Report Template dialog box, which allows you to specify an existing report template to use the next time a report is printed.

Task parameters

The Select Template task parameter is the same as the OMNIC Select Template parameter. It allows you to select the Report template file, or to allow the operator to specify a file. The Select Template task parameter does not need to be set in order for the macro to run. If the parameter is not set, the operator will be prompted to select the parameter file to open at run time.

To specify the report template file to be opened, double-click the Select Template task symbol. Choose a report template or enter its full path and file name in the File Name text box. When you are finished, choose OK.

To allow the operator to specify the report template when the macro is run, click to turn on the Display Open File Dialog At Run Time

check box. If this option is checked, the contents of the File Name edit box is ignored.

Select Window

When the macro is run, the Select Window task makes the specified window active.

Task parameters

The Select Window task parameter allows you to select the window to make the active window. You must select the window when you add this task to the macro. The macro will not run if this parameter is undefined.

To specify the window, double-click the Select Window task symbol. Enter the title of window to be made active and choose OK. The text must match the window's title exactly in order for the window to be selected.

Note You cannot select an OMNIC window with quotes (') in its name using the Select Window task. ▲

Series Setup

The Series Setup task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Series Setup task sets the OMNIC series setup parameters to the values saved in the Series Setup task dialog box. The OMNIC Series Setup dialog box will not be displayed at run time.

Task parameters

The Series Setup task parameters are the same as the OMNIC Series Setup parameters. The Series Setup parameters allow you to set the parameters that control how spectra are collected, including which beam path and accessory are used and how collected spectra are checked for quality. You can also use the command to perform diagnostic checks of the optical bench and to align the bench.

To set the Series Setup task parameters, double-click the Series Setup task symbol. Enter the parameters on the Collect, Background,

Heaters, and Live Display tabs, then choose OK. These parameters will load when the macro is run. The user cannot change the parameters when the macro is run.

Note You cannot use macro variables to set the Series Setup parameters. ▲

Set Spectral Reference

When the macro is run, the Set Spectral Reference task makes the active spectrum the new spectral quality reference spectrum.

Task parameters

This task does not have any settable parameters.

Show Contour/Waterfall

The Show Contour/Waterfall task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Show Contour/Waterfall task displays a contour map of the spectral data contained in the open series data set. A contour map is a graphical representation of the absorbance response of a series of spectra collected over time and is displayed in a contour window.

Run time requirements

A series data set (.SRS) must be open in order for this task to execute properly at run time.

Task parameters

The Show Contour/Waterfall task parameter allows you to specify whether to display the series data set as either a contour or waterfall. A contour map is a graphical representation of the absorbance response of a series of spectra collected over time. A waterfall shows the specified number of consecutive spectra from the open data set in a three-dimensional display that makes it easy to see changes in absorbance response over time.

To specify the type of display, double-click the Show Contour/Waterfall task symbol and select either Contour or Waterfall. Then choose OK.

If you want to display the contour or waterfall using parameters other than the default settings, run the Contour/Waterfall Setup task before the Show Contour/Waterfall task.

Sign File

When the macro is run, the Sign File task digitally signs the specified file using the current Windows NT/2000 username and password. You can sign Thermo Scientific files that contain spectra, spectral groups, experiments, configurations or options (option files) and JCAMP files. The Sign File task appears in the Macros\Basic task list only when our Val-Q DS software is installed.

Task parameters

When you add the Sign File task to a macro, you may specify the file name of the file to be signed or set up the macro to display the Open File For Signature dialog box to allow the operator to select a file at run time. If both of these parameters are undefined, the macro will display the Open File For Signature dialog box at run time.

To specify the Sign File task parameters, double-click the Sign File task symbol in your macro. The Sign File dialog box is displayed. Enter the file name of the file to be signed or choose Browse and then select the file. You can select a Thermo Scientific file that contains a spectrum, spectral group, experiment, configuration or options (option file) or a JCAMP file. If you want the operator to select the file at run time, leave the File Name box blank and select the Display Open File Dialog At Run Time check box. When the parameters are set, choose OK.

At run time, the software uses the Windows NT/2000 username and password of the current user to digitally sign the specified file. If the file contains multiple items, such as two or more items in a spectral group file (*.SPG) or report notebook file (*.NBK), the software will sign all of the items in the file. The visible portion of a digital signature consists of a user name, a date and a stated reason for signing. A digital signature also contains encrypted information that guarantees that the file has not changed since it was signed and that the file can be changed only by a user who enters the correct name and password.

Smooth

When the macro is run, the Smooth task performs a smooth on the selected spectrum using the specified number of smooth points.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Smooth task parameter is the same as the OMNIC Smooth parameter. It allows you to specify the number of smooth points to be used for the smooth. The number of smooth points must be specified when you add this task to the macro. The macro will not run if this parameter is undefined.

To specify the number of smooth points, double-click the Smooth task symbol. Select the number of smooth points from the drop-down list and then choose OK.

Note You cannot use a macro variable in this task. ▲

Spectral Interpretation

When the macro is run, the Spectral Interpretation task initiates the IR Spectral Interpretation command found in the Analyze menu of OMNIC, which can help you determine which chemical functional groups may be present in an FT-IR sample. The command will operate on the active spectrum and the currently selected spectral region.

At run time, the Spectral Interpretation task examines the frequency locations and intensities of peaks in the specified spectrum, or in a specified spectral region, and then lists the functional groups that may be present, along with reference information about the groups. Use this information along with your own evaluation of the spectrum to determine which functional groups are actually present in the sample.

Note No special preparation is needed before you use this task to find functional groups in a spectrum. However, keep in mind that the presence of totally absorbing bands in a sample spectrum may reduce the accuracy of the results. ▲

The list of functional groups and reference information are displayed in the Spectral Interpretation window. The window remains open until the operator closes it. After the operator closes the window, the macro continues to the next task.

Task parameters

This task does not have any settable parameters.

Spectral Math

When the macro is run, the Spectral Math task allows you to perform arithmetic operations on one or two selected spectra. When the macro is run, the software performs the operations on the Y values of the data points in the spectrum or spectra and then displays the result spectrum.

Task parameters

To specify the Math task parameters, double-click the Spectral Math task symbol.

The Spectral Math setup dialog box appears with options for entering the math operation, and defining the spectrum or spectra to be used. To define the operation, type the desired operations just as you would any mathematical expression, except do not include an equals sign (=). Keep in mind that the software uses the standard order of priority when performing the operations; that is, multiplication and division before addition or subtraction, and operations to the left before those to the right when they have the same priority.

To define the spectra to use, select whether to enter a file name or spectrum title. To specify by file name, enter its full name or click the Browse button and select its name in the list box. If you select a spectrum title, the spectrum must be displayed in order for this task to execute properly at run time.

To allow the operator to specify the arithmetic operation when the macro is run, click to turn on the Display Spectral Math Window At Run Time check box. If this option is checked, the contents of the Spectral Math edit box is ignored.

Split File

The Split File task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Split File task displays the Split File dialog box, which allows you to split the current series data set, or just a portion of the data set, into separate spectral data files. The new files are created by copying the specified portion of the data set; the original data set remains intact on the disk.

Run time requirements

A series data set (.SRS) must be open in order for this task to execute properly at run time.

Task parameters

The Split File task parameters are the similar to the OMNIC Split File parameters. They allow you to specify the series file spectra to use, and the start and end data range units.

To specify the starting and ending values of the portion of the series data set you want to split, double-click the Split File task symbol and enter values for the start and end of the split and the Base Name. The split values must be in the same units as the series data set Z-axis, for example, time. The base name is a four-character text string used to create the filenames for the individual spectral files. You can use macro variables for the Base Name and Start Split and End Split.

The default directory for retrieving the files is shown in the Target File box. To specify the directory location where the current data set is located, choose Set Path. When you are finished, choose OK.

Stack Spectra

When the macro is run, the Stack Spectra task displays the currently displayed spectra in the active window in stacked panes. The number of panes used is set by the current Number of Panes in Stack parameter setting in the OMNIC Display Setup dialog box.

Task parameters

This task does not have any settable parameters.

Statistical Spectra

When the macro is run, the Statistical Spectra task calculates an average or variance spectrum from the selected group of spectra. For each data point (X value), you can find the average, variance and range of Y values for the group of spectra.

The results of the performed calculation are plotted in a spectral window using a vertical axis that indicates the average, variance or range and a horizontal axis that is identical to those of the original spectra.

Task parameters

The Statistical Spectra task parameters are the same as the OMNIC Statistical Spectra parameters. They allow you to control the data format and saved format.

To specify statistical spectra, double-click Statistical Spectra task symbol. Select the desired data format and save format. Then choose OK.

To allow the operator to specify the parameters when the macro is run, click to turn on the Display This Dialog At Run Time check box.

Note All the spectra in the group must have the same X-axis and Y-axis units and the same data spacing. ▲

Stop Macro

When the macro is run, the Stop Macro task stops the execution of the macro. The Stop Macro task is most useful when used as an option in a Decision dialog box to give the operator the choice of stopping the macro at a given point.

Task parameters

This task does not have any settable parameters.

Store Arguments

When the macro is run, the Store Arguments task captures values passed to this macro from a calling macro, and stores them into macro variables. This task can only be used in a macro which will be called from another macro (a function macro).

Task parameters

When the macro is run, the Store Arguments task takes the comma separated list of arguments defined in the Macro command task (Insert menu) and stores them in macro variables for use by this macro. There must be a one-to-one correspondence between the argument list in the macro task of the calling macro and the Store Arguments macro variable list.

To specify the arguments to be stored, double-click the Store Arguments task symbol. Enter a comma separated list of macro variable numbers. Values passed from the calling macro will be stored in the macro variables that you define here.

For example, if the list of macro variables to store is 1, 2, 5, then the first value received will be stored in mv1, the second in mv2 and the third into mv5.

Macro variables are unique to the macro in which they are defined. In other words, all macro variables are local and known only to the macro currently executing. There are no global macro variables known to all macros. This task provides a way to share macro variable values between two macros.

When a macro is called as a function, it is the responsibility of the function macro to seize the arguments passed to it and set the return value.

Store Result

When the macro is run, the Store Result task stores the result from a previous task as a macro variable.

Note To avoid possible conflicts between tasks, place the Store Result task immediately after the task whose result you want to store. ▲

Task parameters

The Store Result task parameters allow you to specify the task result to be stored and the macro variable that will store it. You must specify both of these parameters when you add the Store Result task to the macro. The macro will not run if these parameters are undefined.

To set the Store Result task parameters, double-click the Store Result task symbol. The next available macro variable number will be displayed in the setup dialog box. Enter an unused number for this macro variable (1-65535) or leave the default number. Select a task in the Task list box. If the task produces more than one type of result, select the result you want to store in the Result list box. If the selected result is a table that may contain multiple entries, such as the result from a Find Peaks task, enter the item number for the result you want to store. When you are finished, choose OK.

Store Quant Results

When the macro is run, the Store Quant Result task stores any or all of the results of a Quantify task in macro variables.

Run time requirements

You must have executed a Quantify task in order for this task to execute properly at run time.

Task parameters

The Store Quant Results task parameters allow you to specify the Quantify task results to be stored. You must specify all of these parameters when you add the Store Quant Results task to the macro. The macro will not run if these parameters are undefined.

To set the Store Quant Results task parameters, double-click the Store Quant Results task symbol. If you are staring the results from a method that was developed using TQ Analyst software, select the method analysis type by choosing an option in the Analysis Type list box. If you are storing the results from a method that was created in another software program for quantitative method development, such as QuantIR, QuickIR+, or CLSII, set the analysis type to Quantitative. Then choose OK. A dialog box representing a typical Quant dialog result is displayed.

When the cursor is placed over an item in the typical results window, a brief description of the item displays at the bottom of the window, and the name of the item is displayed at the cursor location. This is the name that will appear in the macro variable definition.

To select the quant file information you want to store from the top half of the window, click the item. Highlighted items you select will be assigned to a macro variable. Select items in the table portion in the bottom half of the window in one of these ways:

- To store a tab separated list of all the results from that category, click the column header. The tab separated list is stored in a single macro variable.

- To store only specific items in each table category, click an item in the column. This displays a prompt that lets you select which of the results in that table category you wish to store. Each result is stored in a separate macro variable. You may select as many items as you want, but do not enter a number greater than the number of results calculated by your quantitative method. For example, if you have a PLS method that calculates concentrations for 10 components, you may enter a value up to 10. To remove a selection you have made in the table category, delete all the values in the prompt dialog and choose OK.

Note The actual value of the selected item is determined at run time when the Store Quant Result task is executed. The values displayed in this dialog are only examples. ▲

To select all of the items, click to turn on the All Results check box. When you have completed selecting items, choose OK.

Straight Line

When the macro is run, the Straight Line task generates a straight line in the specified region of the selected spectrum.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

The Straight Line task parameters allow you to specify the region to be replaced by a straight line. The Straight Line task parameters do not need to be set in order for the macro to run. If the parameters are not set, the region of the spectrum between the current X-axis display limits will be replaced with a straight line.

To specify the region of the spectrum to replace with a straight line, double-click the Straight Line task symbol. Enter the starting and ending X-axis limits for the region. Both values must be entered in the same X-axis units as the selected spectrum. To straighten the line in the region currently displayed, choose to turn on the Region Being Displayed At Run Time check box. When you are finished, choose OK.

Subtract

When the macro is run, the Subtract task performs a subtraction using the selected spectra. The type of subtraction that is performed, manual, interactive or automatic, is specified in the Subtract setup dialog box.

Run time requirements

The sample spectra must be selected in order for this task to execute properly at run time. The reference spectra must be defined in the Subtract setup dialog box. If the Y-axis process checking option on the Process tab of the OMNIC Options dialog is on, both spectra must be in the same Y-axis units and only spectra in absorbance (or absorbance-like units such as Kubelka-Munk or log (1/R) units) can be subtracted. If these conditions are not met, OMNIC will fail to complete the Subtract task at run time. If the OMNIC Y-axis process checking option is off and one of the selected spectra is not in absorbance units, Macros\Basic will issue a warning message at run time and wait for the operator to respond to the message before continuing with the macro.

Task parameters

The Subtract task parameters allow you to specify the type of subtraction to be performed. The Subtract task parameters must be set in order for the macro to run.

To specify the type of subtraction that is performed, double-click the Subtract task symbol. If you want to display the Subtract window at run time, choose Display Subtract Window To Adjust Factor. When the Subtract window is displayed at run time, the macro will not proceed until the Subtract window is closed. If you choose either the Automatically Calculate Factor or Use This Factor options, the Subtract window will not be displayed. Choose Automatically Calculate Factor if you want the system to calculate the best factor and carry out an automatic subtraction. Choose Use This Factor to enter a factor to be used for the automatic subtraction.

To specify the spectrum to be used as the reference in the subtraction, select to enter either a file name or a spectrum title. The macro will fail to run if the reference is not specified.

The Factor option you select affects which spectra is selected when the Subtract task is completed. If you select the Display Subtract Window option, the sample spectrum will be the selected spectrum. This lets you add the subtraction result to a new window without changing the active OMNIC spectral window. If you select the one of the other options, the subtraction result is the selected spectrum when the Subtract task is completed.

When you have set the Subtract task parameters, choose OK.

Text Search

When the macro is run, the OMNIC Text Search dialog is displayed, which allows you to find library spectra by searching for an index number or key words or characters in the information saved with the spectra. After you find a library spectrum, you can add it to the spectral window.

Task parameters

This task does not have any settable parameters.

Tile Windows

When the macro is run, the Tile Windows task arranges all of the open spectral windows in a tile pattern.

Task parameters

This task does not have any settable parameters.

% Transmittance

When the macro is run, the % Transmittance task converts the selected spectrum or spectra to % transmittance units.

Run time requirements

A spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

Note This task will fail if the selected spectrum is a Raman spectrum because this is not an allowed operation for a Raman spectrum. ▲

Truncate All Spectra

The Truncate All Spectra task appears in the Macros\Basic task list only when OMNIC Series software is loaded on the computer. When the macro is run, the Truncate All Spectra task deletes from every spectrum in the active series data set all the spectral data outside the specified region.

Run time requirements

A series reconstruction window or a contour window must be open and selected in order for this task to execute properly at run time.

Task parameters

The Truncate All Spectra task parameters are the same as the OMNIC Truncate All Spectra parameters. They allow you to specify the spectral region that you want to save. The Truncate All Spectra task parameters do not need to be set in order for the macro to run. If the parameters are not set, the OMNIC Truncate All Spectra dialog box will be displayed at run time.

To specify the spectral region to save, double-click the Truncate All Spectra task symbol. Enter the starting and ending X-axis limits of the region to save and choose OK.

Note You cannot use macro variables to set the Truncate All Spectra parameters. ▲

Use Raman Accessory

The Use Raman Accessory task appears in the Macros\Basic task list only when OMNIC for Raman software is loaded on the computer. When the macro is run, the Use Raman Accessory task selects either the Raman accessory or the main IR bench for data collection.

Task parameters

To specify the IR bench or Raman accessory, double-click the Use Raman Accessory task symbol. Select to use either the Raman accessory or the main IR bench. Then choose OK. You can use this task to turn the Raman accessory on before collecting Raman spectra, then again to turn it off when done.

Verify File

When the macro is run, the Verify File task verifies that a file has been digitally signed. You can verify signatures for Thermo Scientific files that contain spectra, spectral groups, experiments, configurations or options (option files) and for JCAMP files. The Verify File task appears in the Macros\Basic task list only when Val-Q DS software is installed. When the macro is run, the task result will be stored in the Result variable.

Task parameters

When you add the Verify File task to a macro, you may specify the file name of the file to be verified or set up the macro to display the Open File To Verify dialog box to allow the operator to select a file at run time. If both of these parameters are undefined, the macro will display the Open File To Verify dialog box at run time.

To specify the Verify File task parameters, double-click the Verify File task symbol in your macro. The Verify File dialog box is displayed. Enter the file name of the file to be verified or choose Browse and then select a file. You can verify signatures for Thermo Scientific files that contain spectra (.SPA files), spectral groups (.SPG files), experiments (.EXP files), configurations (.CON files) or options (.OPT files) and for JCAMP files. If you want the operator to select the file at run time, leave the File Name box blank and select the Display Open File Dialog At Run Time check box. When the parameters are set, choose OK.

At run time, the software checks the selected file for a digital signature. If the file contains multiple items, such as two or more items in a spectral group file (*.SPG) or report notebook file (*.NBK), the software will verify only the first item in the multiple-item file. The result of the Verify File task is a text string containing either an error message or a success message and is saved in the Result variable.

Note You may display the task results using a Comment task or send them to OMNIC or another Windows application using a Report task by including the placeholder #result# in the text of your comment or report. #Result# will be replaced by the results of the task at run time. Each task result may also be stored in a macro variable by using a math task after the current task and setting up the math task to define a macro variable for #result# (for example, set mv1 equal to #result#). ▲

Unshift

The Unshift task appears in the Macros\Basic task list only when OMNIC for Raman software is loaded on the computer. When the macro is run, the Unshift task returns the selected Raman-shifted spectrum to its original, unshifted condition. Unshift reverses the effects of Raman Shift and Custom Shift operations and of Raman data collection with Final Format set to Shifted spectrum. The original, unshifted spectrum will automatically replace the shifted spectrum.

Run time requirements

A Raman-shifted spectrum must be selected in order for this task to execute properly at run time.

Task parameters

This task does not have any settable parameters.

View Notebook

When the macro is run, the View Notebook task displays the notebook specified in the View Notebook dialog box.

Task parameters

The View Notebook task parameter is the same as the OMNIC View Notebook parameter. It allows you to specify the notebook file to be opened. The View Notebook task parameter does not need to be set in order for the macro to run. If the parameter is not set, the operator will be prompted to select the notebook file to open at run time.

To specify the notebook file to be opened, double-click the View Notebook task symbol. Select an notebook file or enter its full name in the File Name text box. Then choose OK.

Macro Panel command descriptions

This is a menu by menu description of the commands available in the menu bar when the Macro Panel application is running. The commands are presented in the order in which they appear in the menus.

File menu

When the Macro Panel is in assign mode, the File menu contains the following commands:

Command name	*Description*
New Set	Creates a set of seven macro buttons.
Save Changes	Saves your changes to the Macro Panel.
Delete Set	Deletes the currently displayed set of macro buttons.
Exit	Closes the Macro Panel application.

When the Macro Panel is in select mode, only the Exit command is active in the File menu. This section describes all the commands in the Macro Panel File menu in both the assign and select modes.

New Set command (File menu)

This command is only active when the Macro Panel is in assign mode. Use the New Set command when you want to add more macros to the Macro Panel and all of the buttons in the current button set are assigned. When you choose New Set from the File menu, a new set of seven macro buttons will appear on the Macro Panel.

Note To add comments for the new set of macro buttons, make sure no buttons are selected. Then type the comments in the Comments box directly beneath the macro buttons. ▲

Save Changes command (File menu)

This command is only available when the Macro Panel is in assign mode. Use Save Changes to save your changes to the Macro Panel. When you choose Save Changes, all of the changes you made since you switched the Macro Panel to assign mode are saved.

Note Changes are automatically saved when you switch the Macro Panel from the assign macros mode to the select macros mode. To switch to the select macros mode, choose Select Macros from the Options menu. ▲

Delete Set command (File menu)

This command is only available when the Macro Panel is in assign mode. Use the Delete Set command to delete a set of seven macro buttons. When you choose Delete Set from the File menu, the currently displayed set of buttons is deleted.

Note Only the macro buttons are deleted. The macro files which were assigned to the macro buttons remain saved. ▲

Exit command (File menu)

Use the Exit command to close the Macro Panel.

Options menu

The commands in the options menu allow you to switch the Macro Panel between assign macros mode and select macros mode and to display a directory of assigned macros.

Assign Macros command

This command allows you to switch the Macro Panel from the select macros mode to the assign macros mode. To change to the assign macros mode, choose Assign Macros from the File menu. When the Macro Panel is in assign mode, you can assign macros to the macro buttons but you cannot select and run macros.

The Macro Panel menu bar and buttons have the following functions in assign mode.

Macro Panel menu bar

In assign macros mode, the menu commands allow you to create a new set of seven macro buttons, save your changes to or delete the currently displayed set of macro buttons, display a directory of assigned macros, get help on using the Macro Panel, and quit the Macro Panel application.

Macro buttons

The macro buttons allow you to choose which button to assign a macro to.

Macro control buttons

Next Set - Displays the next set of macro buttons.

Label - The Label text box allows you to enter the label for the selected macro button.

Protect Assignments - Displays a dialog box which allows you to set protection for the macro.

Change Assignment - Displays a dialog box which allows you to choose the macro to assign to the currently selected macro button. You can assign either a Basic macros (*.MAC) or executable file (*.EXE) using the Change Assignment dialog box.

Note The Run Macro, Exit Loop and Stop Macro buttons are disabled in the assign mode. ▲

Select Macros command (Options menu)

This command allows you to switch the Macro Panel from the assign macros mode to the select macros mode. To change to the select macros mode, choose Select Macros from the File menu. In select mode, the Macro Panel can be used only for selecting and running macros.

The Macro Panel menu bar and buttons have the following functions in select mode.

Macro Panel menu bar

In select macros mode, the menu commands allow you to quit the Macro Panel application, display a directory of assigned macros and get help on using the Macro Panel.

Macro buttons

The macro buttons allow you to choose the macro to be run. The macro buttons are saved in sets consisting of seven buttons. Different sets of macro buttons can be displayed by clicking the Next Set macro control button.

Macro control buttons

Next Set - Displays the next set of macro buttons.

Run Macro - Runs the currently selected macro.

Exit Loop - Stops a loop in the macro which is being run before the loop has been executed the specified number of times. The macro will continue after exiting the loop.

Stop Macro - Stops the macro before it is finished running.

Directory command (Options menu)

The Directory command displays a table of all the currently assigned macro buttons in the Macro Panel. Use the Directory command to quickly locate a macro which you want to run. Do this by clicking a line in the table to select it and then choosing “Go to.”

Each line in the table displays the macro button label followed by the macro file currently assigned to it. The date and time the macro file was last saved is also displayed along with the first few words of the macro file’s comments. These comments are entered in the Summary Info dialog box when the macro is created.

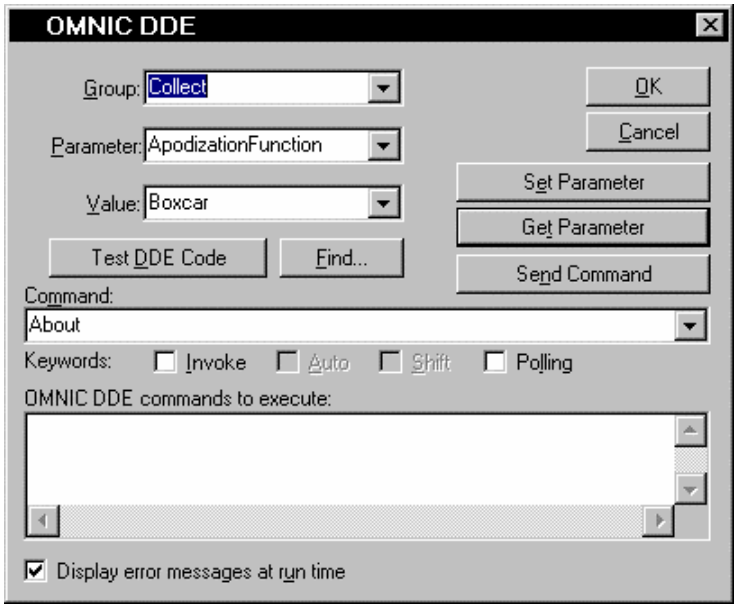
If a macro button is assigned to a macro file which cannot be found, the words “<NOT FOUND>“ are displayed in place of the date and time. This situation can occur if you have deleted a macro file from your disk or moved it to a different subdirectory. If you have moved it, you should use the Change Assignments button to reassign this macro button.

9 Designing a Macro with OMNIC DDE

Using OMNIC DDE as a task in a Macros\Basic macro allows you to execute commands and set or get the value of parameters when a macro is executed.

Note For full documentation on using OMNIC DDE, including descriptions of commands and parameters, see the *Macros\Pro User's Guide*. ▲

To add an OMNIC DDE task to your macro, click the OMNIC DDE entry at the bottom of the Macros\Basic Tasks list. An OMNIC DDE task will appear in the macro at the insertion point. To set-up the task, double-click the task object just as you would any other Macros\Basic task.



When a macro containing an OMNIC DDE task is executed at runtime, the commands listed in the OMNIC DDE Commands To Execute field are executed by the OMNIC DDE application. When the last DDE conversation is completed, control returns to the task following the OMNIC DDE task in the Macros\Basic macro.

The features of the OMNIC DDE task can be grouped into four categories:

- Parameters (Group, Parameter, and Value).
- Commands (Command and Keywords).
- Readout.
- Command buttons.

Parameters (Group, Parameter, and Value)

Each OMNIC parameter belongs to a specific group. These groups are a way of organizing related parameters; for example, all data collection parameters are located in the Collect group. To access an OMNIC parameter you must specify both the group name and the parameter name.

The Group drop down list displays the parameter groups recognized by OMNIC. To access the parameters in a specific group, select a group from the Group list. The contents of the Parameter field will change to display the parameters in the selected group.

The Value drop down list displays the values permitted for the selected parameter. You should select the appropriate value you wish to use from this list. This box will be empty for many parameters; in this case, you may enter any value you wish. See the parameter section of the *Macros\Pro User's Guide* for the type of value to use with each parameter.

The items listed in each drop down list are sorted alphabetically. You can select an item by scrolling through the drop down list or by typing the first few characters of an item while the drop down list is exposed.

You can also enter values into the Group, Parameter and Value text boxes if you do not see the parameter you want to use.

Commands (Command and Keywords)

Each OMNIC command is listed in the Command drop down list along with any arguments or options that the command recognizes. The commands are sorted alphabetically. You can select a command by scrolling through the drop down list or by typing the first few characters of the command while the drop down list is exposed.

Some commands require arguments. If arguments are required, a description of them is shown after the command name enclosed in angle brackets. For example,

DeleteAnnotation <RegionStart> <RegionEnd>

The DeleteAnnotation command requires two arguments: RegionStart and RegionEnd. You must substitute values for these two arguments; these values must be separated by a space. An easy way to enter values for the arguments is to double-click the argument in the Command box and type the value. This will automatically substitute the value over the argument description place holder. For example, the following command deletes all annotation in the region from 4000 to 2000 cm-1 (assuming a wavenumber spectrum is currently selected).

DeleteAnnotation 4000 2000

Some commands have optional arguments. These arguments are enclosed in square brackets. For example,

CoaddRegion [<StartTime> <EndTime> [<WindowTitle>]]

Optional arguments do not need to be provided. If you choose not to provide them, you must delete the optional argument place holders from the command box. Do this by selecting all text between and including the square brackets then pressing the Delete key.

In the previous example, there are two sets of optional arguments as indicated by the nested set of square brackets. This example can be

interpreted as follows. If you provide a value for StartTime you must also provide a value for EndTime because both of these arguments are within a set of square brackets. The WindowTitle argument is optional if you specify StartTime and EndTime. If you provide a value for WindowTitle you must also provide values for StartTime and EndTime. You cannot specify a value for just the WindowTitle argument because it is nested within the other option. For example, the following commands are valid:

CoaddRegion

CoaddRegion 2.05 4.30

CoaddRegion 2.05 4.30 “Coadded Result”

The following command is not valid because no StartTime and EndTime values were provided:

CoaddRegion “Coadded Result”

Some commands have arguments which are not enclosed in angle brackets and are separated by a vertical bar, |. For example,

OtherCorrections Dispersion|ATR

This notation means that you must select one of the keywords separated by the vertical bar. You must delete the vertical bar and the keyword which you do not want to use.

Keywords are optional command arguments which affect the behavior of the command when it is executed. To add a keyword to the command, click the appropriate check box after selecting a command from the Command drop down list.

Invoke Allows you to specify interactive operation for a command. When used with commands like CollectSample or Subtract, the interactive versions of these commands are “invoked. ” For example, the Collect Sample window appears during data collection and the Subtract window appears allowing you to perform an interactive subtraction. When used with commands like Average, the result will be displayed in a dialog box even though there is no equivalent OMNIC menu command.

When the Invoke keyword is used with a command, execution of code pauses until the operator closes the interactive window or dialog. In other words, the DDE conversation which initiates the command is not completed until the window or dialog is closed.

The Invoke keyword also affects how error messages are handled. If a command is used without this keyword, errors are stored and must be retrieved by getting the value of the parameter Result Error. When the Invoke keyword is used, these errors are displayed to the operator and a response is required.

Auto The Auto keyword sets up data collection so that no operator prompts for entering a title and preparing for data collection are displayed. This check box is enabled only for data collection commands which allow this option. The Invoke keyword must always be selected when the Auto keyword is selected.

Shift The Shift keyword is used with the Select command to cause the specified spectrum to be selected in addition to the currently selected spectrum or spectra.

This keyword is also used with the PeakHeight command to seek the peak closest to the specified peak location.

Polling The Polling keyword causes OMNIC to complete, or close, the DDE conversation as soon as the command is initiated. Without this keyword, OMNIC holds on to the DDE conversation until the command has finished executing then closes the conversation.

This keyword may be used with data collection commands to initiate a data collection then immediately return. This allows your program to continue executing while OMNIC proceeds with data collection.

This keyword gets its name from the polling mechanism you use in your code to test to see if the command has completed. Test the appropriate MenuStatus group parameter to see if its value is Enabled or Disabled. For example, the MenuStatus CollectSample parameter remains Disabled until data collection has finished, then its value becomes Enabled.

Readout

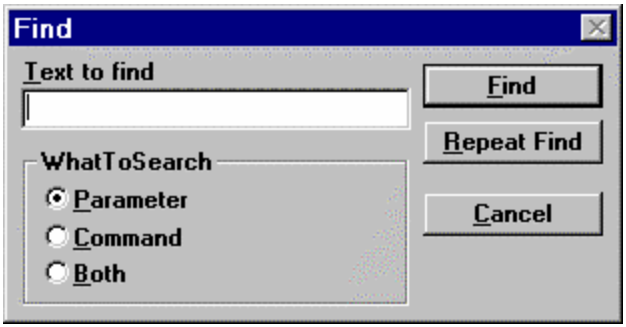
The readout area of the OMNIC DDE application is the field at the bottom of the window labeled OMNIC DDE Commands To Execute. This field is editable (cut, copy, paste, delete, etc.) so you can copy or modify any of the text in this field.

Command Buttons

These are the buttons in the application which carry out a specific action.

Find

Use the Find button to display a dialog box which assists you in locating a specific command or parameter. Use this feature when you don't know the exact name of a command or parameter or the group to which a parameter belongs.



For example, suppose you want to find the parameter which returns error information. Type "error" into the Text to find box, click the

Parameter radio button, and click the Find button. The application searches all parameter names until it finds one containing “error”. The first occurrence is the parameter Collect CorrError. This parameter is displayed in the Group and Parameter boxes with the matching text highlighted. To continue the search, click the Repeat Find button. The search continues and finds the next parameter, Result Error. This is the parameter we want so you can click the Cancel button in the Find dialog to close it.

Use the Find button to repeat the search of all parameters or commands; use Repeat Find to continue the search after the last occurrence.

The search is not case sensitive; this means “error” will match both “error” and “Error”.

OK — Use the OK button to save the contents of the OMNIC DDE Commands To Execute field in the Macros\Basic task and close the OMNIC DDE dialog.

Cancel — Use the Cancel button to close the OMNIC DDE dialog without saving any changes in the OMNIC DDE task.

Set Parameter — Use the Set Parameter button to create a command which sets the selected parameter to the value specified in the Value field at runtime. A SetOMNIC command to accomplish this is added to the current contents of the OMNIC DDE Commands To Execute field.

Get Parameter — Use the Get Parameter button to create a command which obtains the value of the selected parameter from OMNIC at runtime. A GetOMNIC command to accomplish this is added to the current contents of the OMNIC DDE Commands To Execute field. At runtime, the current value of the selected parameter is held in memory and may be accessed using the Macros\Basic Store Result task.

Send Command

Use the Send Command button to create an ExecuteOMNIC command which executes the command at runtime exactly as it appears in the Command field along with the selected keywords. You must have already substituted values for any argument or option place holders in the command string. Any results of the command are held in memory and may be accessed using the Macros\Basic Store Result task.

OMNIC DDE Commands to Execute

The OMNIC DDE Commands To Execute field contains the code generated by each of the above command buttons.

Note that the content of this field is editable; you may type, cut, copy, or paste any text in this field. You may find this more convenient than using the above command buttons to generate code.

You may also use macro variable placeholders to set parameter values or send DDT commands. (You cannot use macro variables to get parameter values; you must use the Store Results task after OMNIC DDE for that.)

Test DDE Code

Use this button to execute the contents of the OMNIC DDE Commands To Execute Field as you click the button. This is recommended so that you can be sure the code will operate as you intend at runtime.

The Test DDE Code command does not display any error messages. The only way to verify that the code is doing what you want it to is to have OMNIC running and watch to see what happens when you test the code.

Messages

If the Display Error Messages At Run Time option is checked (the default state), any error occurring during the OMNIC DDE task causes an error message to display in Macros\Basic at run time. When the option is not checked, errors are ignored, and the macro continues without interruption.

You can test for errors after the OMNIC DDE task by using the Store Result task. In the Store Result dialog box, select OMNIC DDE as the task and Error as the result. If no errors occur, the result will be null. If an error occurs, the text of the error is placed into the macro variable.

Some messages you may encounter when using OMNIC DDE and their meanings are provided here.

- “No match found.”
  This message is displayed when you click the Find button in the Find dialog and there are no parameters or commands which contain the text you have entered in the Text To Find box.

- “No additional matches found.”
  This message is displayed when you click the Repeat Find button in the Find dialog and there are no additional parameters or commands which contain the text you have entered in the Text To Find box. When you OK this message the last parameter or command which was found is displayed in the Parameter or Command fields.

- “Executing command...”
  This message is displayed in the Result field while OMNIC is executing a command after you click the Send Command button. As soon as the command finishes and the DDE conversation is closed, this message is overwritten with the result of the command.

- “Setting parameter value...”
  This message is displayed in the Result field while OMNIC is setting the value of a parameter after you click the Set Parameter button. As soon as the DDE conversation is closed, this message is overwritten with the result of the Set Parameter operation.

- “Reading parameter value...”
  This message is displayed in the Result field while OMNIC is getting the value of a parameter after you click the Get Parameter button. As soon as the DDE conversation is closed, this message is overwritten with the value of the parameter.

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