SAS Graphical User Interface

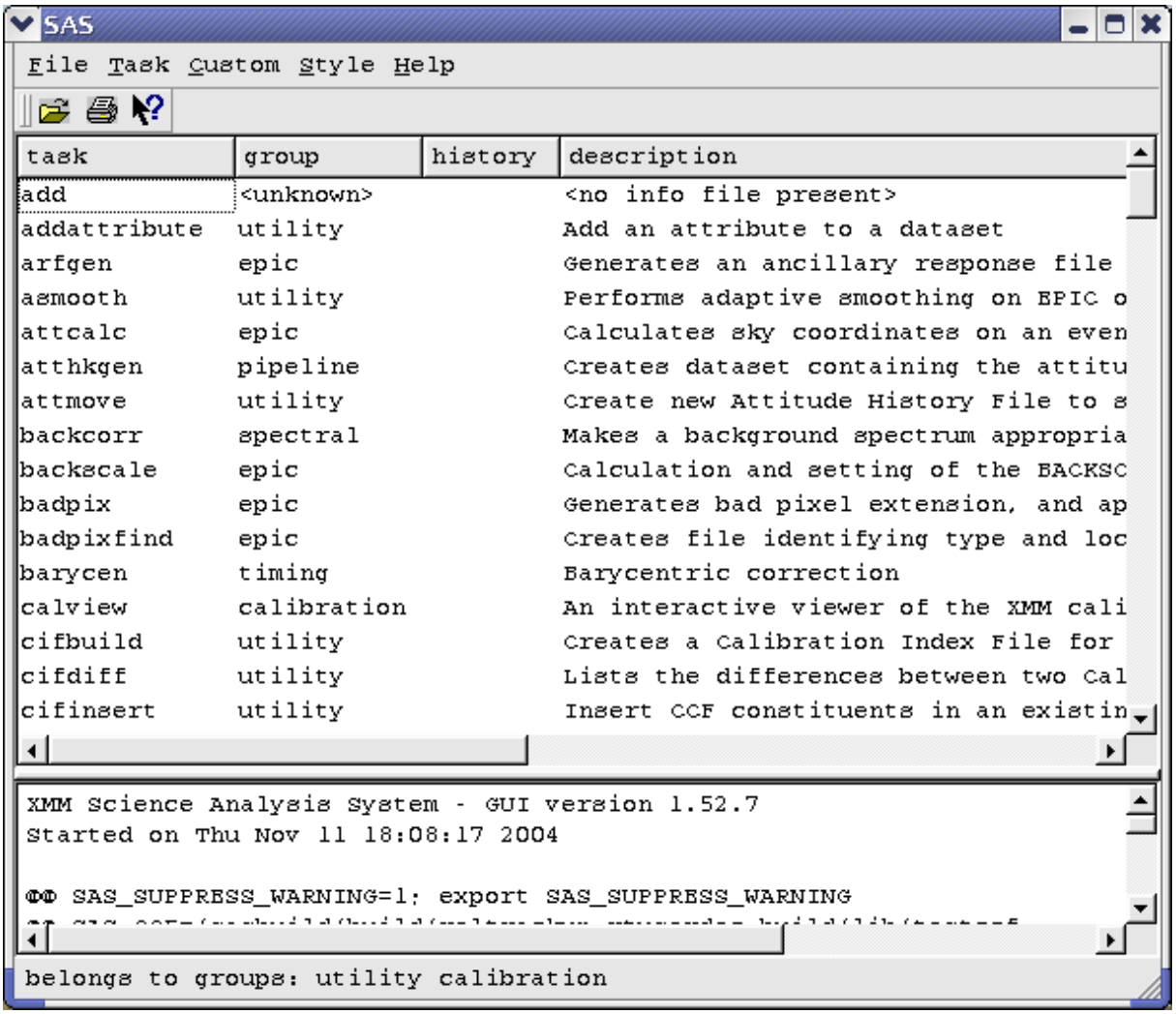
August 15, 2005

Abstract

The SAS Graphical User Interface (GUI) is intended for interactive analysis of XMM data. It provides a graphical means of running tasks which is more convenient than the UNIX command line.

1 Overview of main screen elements

After starting the SAS GUI you will see the components of the SAS GUI interface on screen. The interface consists of a menu, a tool bar, a task browser, a log browser and a status bar. Your view may be similar to the one shown here:



1.1 Menu bar

On the top of the SAS GUI window you will find the menu bar. Point to a menu with the mouse and press the left mouse button. The menu will open and you can select an item from the sub-menu by clicking it.

The menus in the menu bar can be accessed in two ways:

Alternatively, you can us *shortcut keys*. If the first letter of a menu is underlined, you can access that menu by using short cut keys.
For example, the **File** menu, can be accessed by pressing the key combination *CTRL+F*.

An item in the *menu bar* followed by ... gives access to a sub-menu. Some items in the menus may be grayed out: if that is the case, such items are not accessible.

1.1.1 File menu

The File menu gives access to:

- Preferences...
- Browse datasets...
- Print log...
- Save as script...
- Exit

1.1.2 Task menu

The Task menu gives access to:

- Revert to defaults
- Kill task...

1.1.3 Custom menu

In the current version, the Custom menu is empty

1.1.4 Style menu

The Style menu gives access to:

- Window
- Motif
- CDE
- Platinum
- Font...

1.1.5 Help menu

The Help menu gives access to:

- Tasks
- Contents
- About

1.2 Tool bar

The main screen of the SAS GUI has a *tool bar*. Clicking on one of the buttons will perform a function.

Currently, the *tool bar* supports the following tools:

- Exploring datasets
- Printing the log history
- What's this?

1.3 Selecting a task

The main screen of the SAS GUI has one window that lists all tasks that the SAS can perform. Such a listing may look like:

task	type	history	description
emframes	mos		Analyses frame i
emproc	mos		Process EPIC M
rmfgen	mos		Generates an OG
emchain	mos		Perl script for the
arfgen	mos		Generates an an
lccorr	mos		Performs exposu
merge	mos		Merges two even
omthconv	om		Converts OM tra
omprep	om		Interacts directly

This is what we call the *task browser*. The browser shows four columns:

- Name of a task,
- Main group this task belongs to,
- Last time in the history of this session, that this task is performed,
- Short description of what this task will do. A full description can be found in the documentation of that task.

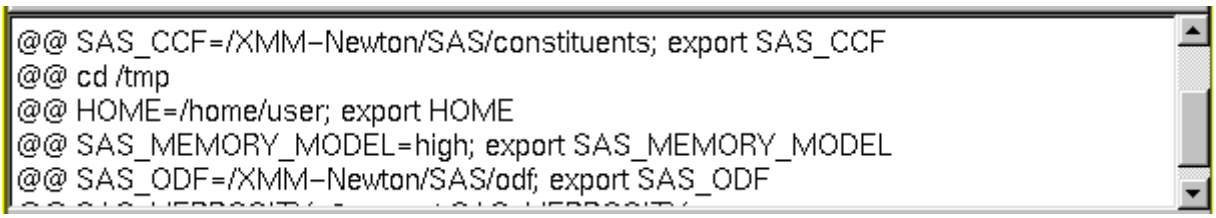
You can navigate through browser by using your *mouse* or *keyboard*.

With your *mouse*, you can scroll to a specific task, using the *scrollbar* on the right side of this window. If you *double-click* on a a specific task, you will be presented with a dialog.

Using your keyboard, you can quickly browse through the **task browser**. Pressing one of the *Page Up*, *Page Down*, *Home* and *End* keys will scroll you up, down, to the beginning or to the end of the task browser respectively.
Typing the first letters of a task name, will jump downwards to the first occurrence of such a task name. Pressing *Enter* on your keyboard will launch the task dialog.

1.4 The log window

The main screen of the SAS GUI also has a window that shows what tasks are executed, and how they are executed. The log window may look like:



If you wish, you can save the log in a script format, such that you can re-run all executed tasks in batch form.

In the log window, you will find the changes you have made in the environment, the precise execution of the tasks, as well as any messages produced by the tasks.

Each time a task is executed from the GUI, an equivalent command-line is written to the log. These lines have the prefix **@@**, so that they may be easily identified. The File menu has an option to extract the commands and save them as an executable script. You may wish to edit the script and replace some file names by command-line arguments, so that the script can be run on different data.

The log also records warnings and error messages, received from the task. These are prefixed with ******, so that they are clearly visible. Other output from the task (normally written to the terminal , if the task is executed on the command line) is logged without any prefix.

As well as being displayed in the SAS window, the log is also written to the file `sas_log`. This file is created in the directory from which the GUI was invoked.

The log may be printed using using the **Print** button in the tool bar or the File menu.

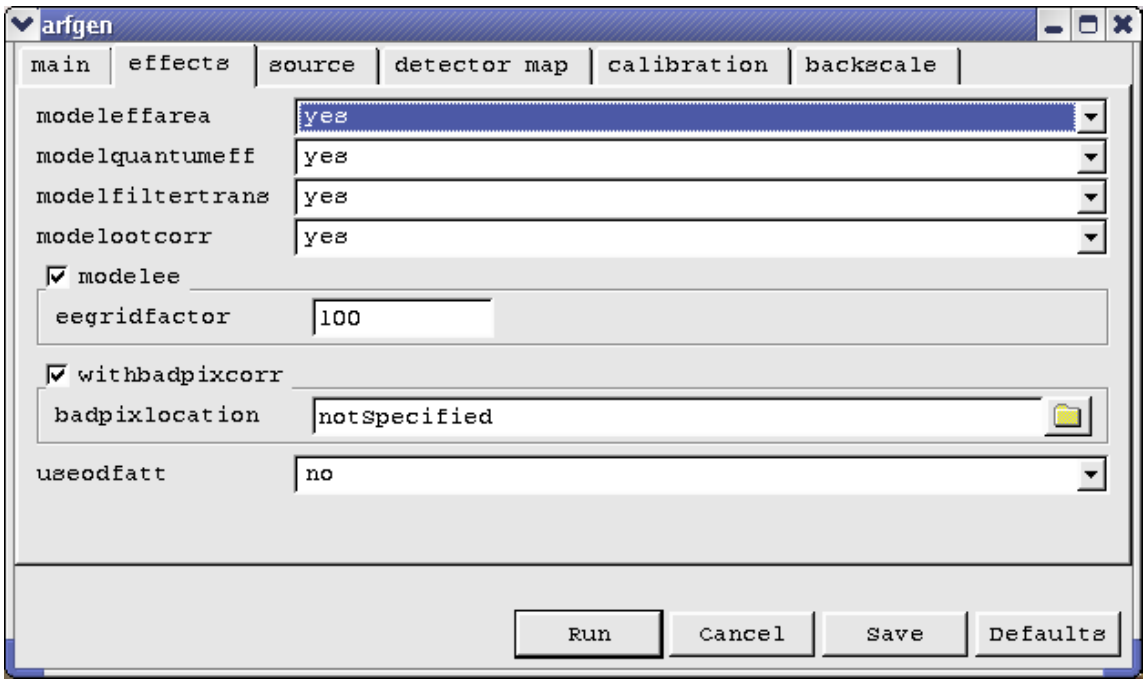
1.5 Status bar

The status bar at the bottom of the SAS GUI gives you additional information about processes that ae taking place in the background:

Its purpose is to give you extra information about -for example- processes that are taking place in the background.

2 Using tasks

Once you have selected a specific **SAS task**, a *dialog* will appear. Though the *dialog* may be different for every task, the all have a general layout, that may look like:



The top side of the **dialog** contains all parameters that are needed by this task.

Parameters may be grouped:

- Clicking on one of the *tabs* will show the parameters belonging to the *selected tab*.
- Parameters can be *framed* to notify the user that they logically belong to each-other.

- Some of these *frames* have a *check box* on the top left. This *check box* enables or disables all parameters in that box. If disabled, the parameters are grayed out, which means that their values are not important to the task.
- Other *frames* may show a *selection box*. By clicking on the selection, a *pull-down* menu appears where you can change the selection. Once a new selection is made, the parameters in the box have changed.

2.1 Changing parameters

The *parameter dialog* presents you with the parameters that the task will use. Details about available parameter types can be found in the **param** documentation.

Besides parameters that switch other parameters *on* or *off*, the GUI makes a distinction between:

- **scalar parameters**
  A single value is expected. This value may be empty (for example, in case of a string)
- **list parameters**
  One or more values can be entered

In general, the *edit field* field is preceded by a *label*, specifying the name of the parameter. Holding your mouse over an *edit field* will generate a tool tip, explaining what input the *dialog* is expecting.

Some parameters can be entered in different formats. If that is the case, a *pull-down menu* is shown next to the *edit field* of that parameter.
Other parameters may have a *browse button* next to the *edit field*. Clicking on this *button* will pop-up a browser, in which you can select the value of this parameter by browsing through your file system.

You can give the focus of your keyboard to one of *edit fields* by *clicking* your mouse button in an *edit field*.
Alternatively, you can use the *TAB* key, or the *SHIFT+TAB* key-combination to jump forwards and backwards through the *edit fields* respectively.

2.2 Execute a task

At the bottom of the task dialog you will always find three buttons:

- **Run**
  Starts the tasks with the selected parameters. Any changes you have made to the parameters of this task, will be kept in memory.
- **Cancel**
  This button will close this window. Any changes to the parameters are ignored.
- **Save**
  This button will store your current parameters value in the $HOME/.sas.d/config directory.
- **Defaults**
  Reverts the parameters to the values they had, when you opened this window.

2.3 Kill a task

You can kill a running **task** in the task menu.
This is useful if a long task is accidentally started with the wrong parameters or if a task appears to `hang` for some reason. Killing a task may, of course, result in the output files being truncated or corrupted.

2.4 Running multiple tasks

For interactive processing, it is normal to run one task at a time. However, once a task has started, you can open a parameter dialog to configure the parameters in preparation for running the next task. If you press the Run button before the previous task has finished, you will be given the option of running the task immediately or queuing it for later execution:

- **Immediate execution** is appropriate if the tasks make use of separate files, so that they may be run in parallel.
- You should use **queuing** if the tasks form a processing chain, where each task makes use of output from the previous task.

  The next queued task is started automatically, when all currently running tasks have finished. Tasks are logged when they are started.

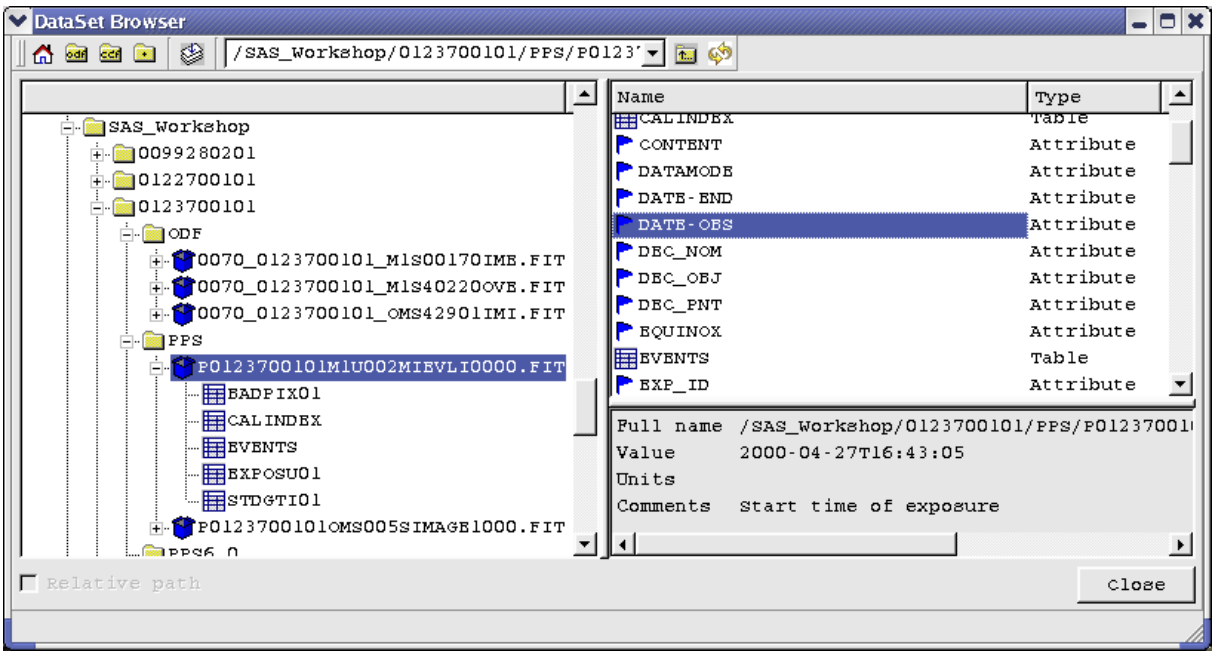
When a task is started, or queued for later execution, the parameter values are saved along with the task. Consequently, editing the parameters and queuing a second instance of a task will not affect the parameters of a task that is already running or queued.

However, you should take the following considerations into account:

- Changing global preferences which affect a task, such as the setting of the **ODF** directory, will affect all queued tasks which have not yet started.
- The kill command stops the last task started. It is only possible to kill an earlier task by killing all later tasks. This command can not be used to remove a pending task from the queue
- If a queued task fails, the remaining tasks in the queue are still executed.

3 Exploring datasets

The **SAS GUI** has a file browser. This browser can be used to explore the data sets on your file system, or to select a parameter. Typically your explorer will look like:

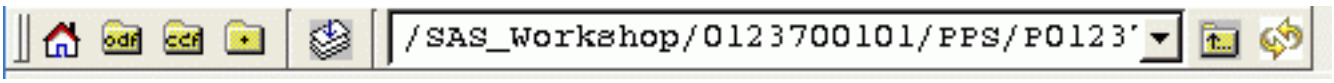


The browser not only shows your system directories and files, but also allows you to browse into data sets.

Additionally, a **Cancel** and an **Ok** button may appear at the bottom of this window, if the browser is used in to select a parameter in the dialog of a task.

3.1 Tool bar

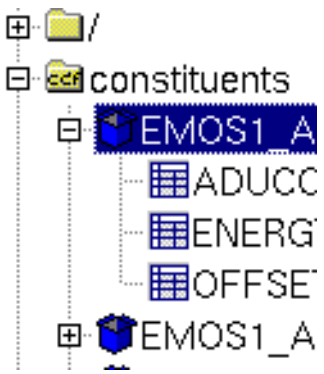
At the top of your browser, you will find a *tool bar* that is specific to the browser. It allows you to quickly jump through your file system:



- The four left-most buttons navigate you to the pre-selected *Home*, *ODF*, *CCF* and *Current* directories. You can change these directories in the preferences dialog.
- Next, you will find a **selection** *toggle* button. This is only useful if you are selecting parameters for a task.
  Pressing this button will show or hide a window, that lists all currently selected entries.
- The *pull-down* menu allows you to quickly jump to a previous visited item.
- Pressing the next button in the tool bar will jump to a higher level (for example the parent directory).
- Finally, we have a refresh button. This button allows you to see the new files created during the sas run.

3.2 Tree window

In the left window you can navigate through your file system. Navigation is similar to the task browser, except that you can also expand a tree by *clicking* your *mouse* button or using the *arrow keys* on your *keyboard*.

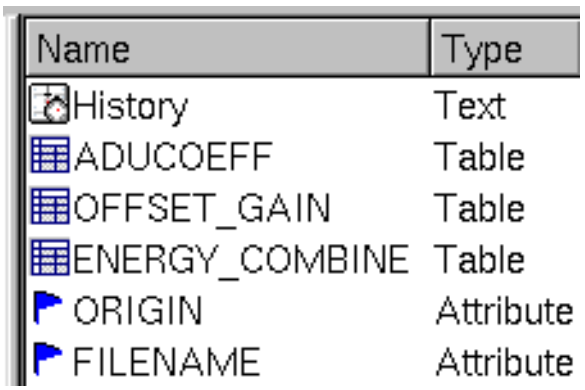


As you can see, some folders are presented with an icon similar to that of the tool bar buttons. They are the pre-selected directories. Next to your **folders**, this view will also show **data sets** as well as their **images** and/or **tables**.

Selecting an item in this window will change the right-pane of the browser.

3.3 List window

The right window shows the contents of the item selected in the left-pane of the browser:



Navigation is similar to the task browser. Additionally, the *right-button* on your mouse will show a small menu, that speaks for itself.

In this window one can view the contents of an item by either *double-clicking* your *mouse* button, pressing *Enter* on your *keyboard* or selecting *Open* in the pop-up menu discussed above.

If the browser is used for selecting parameters for a task, a single *click* with your *mouse* button will add it to your selection box.

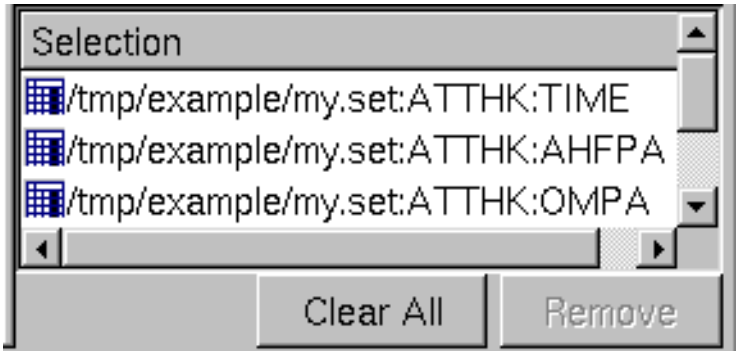
Note: Only items that match the parameter type can be added to your selection. The *title bar* of the browser specifies what parameter type is expected.

3.4 QuickView window

Information about data set items like **attributes**, **columns** in a table as well as simple **images** are displayed in this window:

3.5 Selection window

When you are selecting an item, the current selected item (or items if you have to select a list of items) can be shown by pressing the **select** button in the tool-bar. This will open a window similar to:



In this window you can **remove** all highlighted items, or **clear** the complete selection.

4 Use with FTOOLS

It is possible to run many FTOOLS from within the GUI, although they are naturally not as well integrated as native SAS tasks.

The SAS package **ftools** provides parameter files and GUI layout files for a few common FTOOLS, so that they can be run from the SAS GUI. See the documentation of that package for further details.

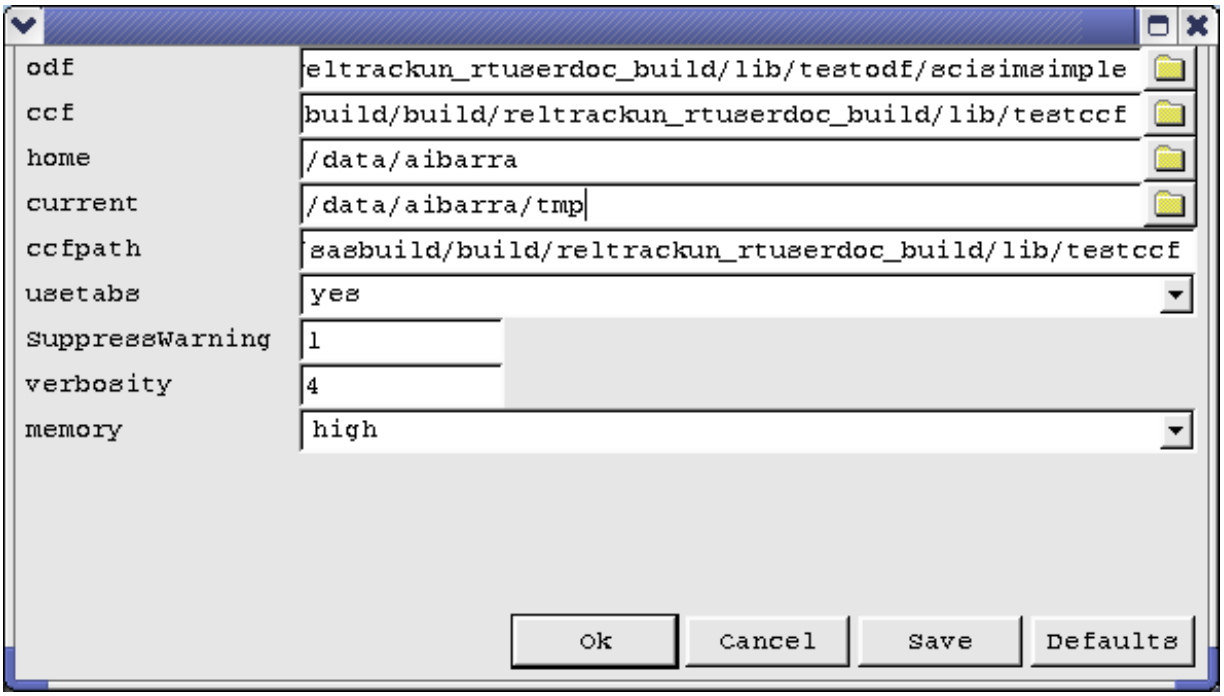
The following limitations should be noted:

- The user can only respond to prompts from a task by typing in the terminal window from which the GUI was started. However, FTOOLS should not normally generate prompts since the GUI provides values for all parameters.
- The GUI enforces the types of parameters. For example, it is not possible to enter a string for a numeric parameter. Consequently, some numeric parameters are handled as strings in the SAS **ftools** package, to allow the value `INDEF` to be entered. This prevents the GUI checking the syntax or range of these parameters.
- FTOOLSwill mis-interpret the command line produce by the GUI if a string parameter is empty. The parameter files in the SAS **ftools** package use a " " (space) or "?" as the default to avoid this problem.

5 Reference documentation

5.1 Setting preferences

The **Preferences...** item on the File menu allows you to change the behavior of tasks and to alter your default directories:



Most items are related to the corresponding environment variables as discussed in the **taskmain** package. These variables determine the default settings in this dialog.

5.2 Printing the log

The log as shown in the log window can be printed, via the File menu or using the Tool bar

5.3 Saving the log

The log can be saved as a script, via the file menu or using the tool bar.

5.4 Exiting the GUI

You can exit the GUI by selecting **Exit** in the file menu or using the means of your favorite window manager.

5.5 Getting back your task defaults

The task menu allows you to change all parameters of all tasks back to their defaults.

5.6 Killing a running task

The task menu allows you to stop currently running tasks.

5.7 Changing the look & feel

You can alter the look and feel of the GUI by changing the used fonts or using a different style for the buttons, menus etc...

5.7.1 Supported styles

The GUI currently supports different look & feel of the GUI. Currently supported styles are:

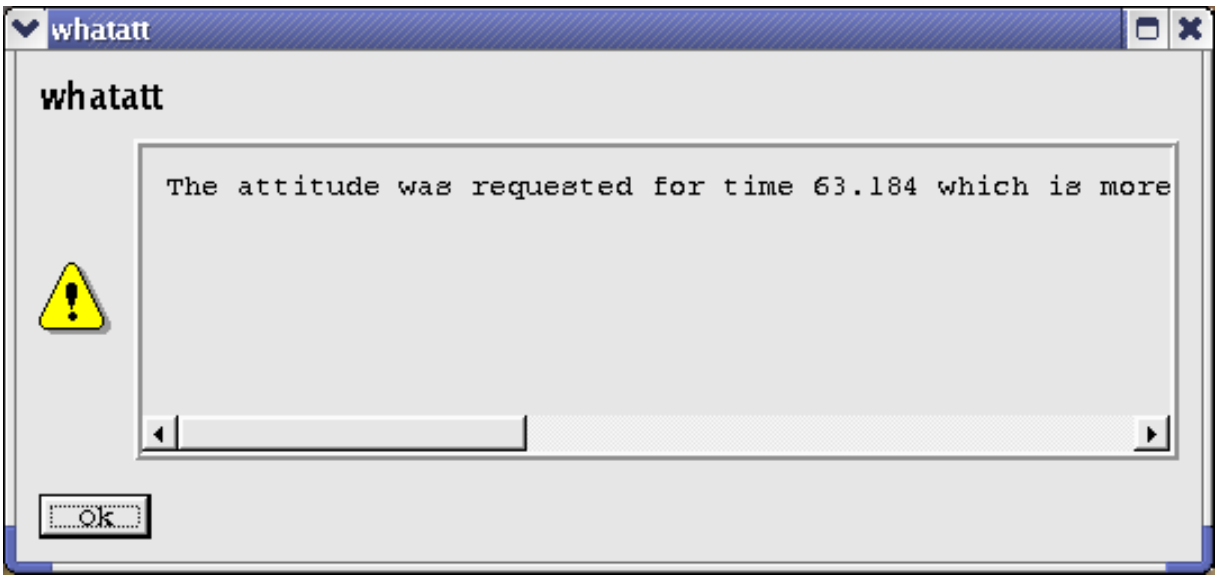
- **Windows**
- **Motif**
- **CDE**
- **Platinum**

5.7.2 Supported fonts

The supported fonts depend on your system. A dialog will appear with all possible fonts.

5.8 Tasks messages

Messages of running tasks appear in the log window.
Additionally, **warning** and **error** messages may pop up a small window to alert the user:



Warning dialogs include a check-box, which allows subsequent occurrences of the same warning to be ignored, so that no further user interaction is needed. However, all occurrences are still written to the log. The warning is re-enabled next time the task is run.

Note that warnings can also be suppressed via command line switches as discussed in the **taskmain** package.

5.9 Help

The SAS GUI provides 3 levels of help:

- Yellow tool tips pop up when the cursor is placed and held over an item.
- The main window has a What's this button, in the tool bar; select the help tool and click it on an item to obtain more detailed help.
- The help menu provides access to the on-line documentation of the GUI as well as how to use a specific task.

  The on-line documentation requires that Netscape is already running before selecting **Help**.
  The help menu passes the URL of the requested documentation to Netscape.
  If you use a different web browser, simply invoke the browser on **README.html** in the `SAS_DIR` directory.

5.9.1 Reference documentation of all tasks

Access to documentation of all available packages in this release.

5.9.2 Current documentation

What you are seeing now.

5.9.3 About the SAS

Shows a small window with information about this release.

5.9.4 What's this button

Clicking on this button will change the appearance of the cursor. By clicking your mouse again, it will give you a description of the window the cursor was pointing at.

5.9.5 Tooltips

Tool tips appear when you keep your *mouse* over a *button* or a *input field*.

References