The miscellaneous controls panel

When you start up xwaves, next to the main control panel is another panel (see Figure 3). This panel is called Miscellaneous xwaves Controls. This panel contains 12 buttons that serve various purposes. In this section we will discuss the functionality of these buttons in more detail.

FIGURE 3. The miscellaneous controls panel.

Although in most cases this panel will be left unchanged, you should realize that the buttons and thus the functions of this panel can be fully customized to serve your own needs. The panel is just another panel created with the xwaves command make_panel (see “xwaves Commands” in waves+ Reference). You can change the functionality of the panel yourself by editing the relevant files (see chapter “The ESPS/waves+ directory structure” and the files named below).
The miscellaneous controls panel

Under all the buttons are xwaves command language statements that change the behavior of xwaves or add functionality to it. The xwaves symbols that are affected by the buttons are listed for each button.

Add_op...

When you click the Add_op... button with the left mouse button a new panel pops up. This window lets you interactively specify new functions to be added to your menu lists. This function is especially handy when you are new to the xwaves command language. For a full description of the functionality of the window see the description of the xwaves command add_op_panel in “xwaves Commands” in waves+ Reference.

File:

$ESPS_BASE/lib/waves/menus/controls.WM

Image Painting

This button allows for control of the spectrogram displays. When clicking the button with the left mouse the default function Rescale is selected. When clicking the button with the right mouse button a drop down menu is displayed containing three items:

- **Rescale** When this item is left or right moused, spectrograms will be vertically rescaled when spectrogram windows are resized.

- **No rescale** When this item is left or right moused, spectrograms will not be vertically rescaled when spectrogram windows are resized.

Image Painting Panel... When this item is left or right moused, a new button panel pops up, called Image Painting Controls, containing 5 items with radio buttons.
The miscellaneous controls panel

The items on the **Image Painting Controls** function as follows:

**Vert. Rescale**  The size of the spectrogram is (not) adjusted to vertical changes in the magnitude of the window containing the spectrogram. **OFF** is the default value.

**Horiz. Rescale**  The size of the spectrogram is (not) adjusted to horizontal changes in the magnitude of the window containing the spectrogram. Also horizontal rescaling is allowed via the zoom function. **OFF** is the default value.

**Interpolation**  The color values are (not) interpolated between adjoining fields (see also section “Spectrogram windows” on page 35). **ON** is the default value.

**Reticle Grid**  Tick marks and values are (not) added along the ordinate and abscissa of both waveform and spectrogram displays. In the spectrogram displays a grid is also displayed. **ON** is the default value.

**Interpolation scope**  Range over which rescaling is done when interpolation is set: either **BUFFER** or **VIEW**. **VIEW** is the default.

Files:

- `$ESPS_BASE/lib/waves/menus/controls.WM`
- `$ESPS_BASE/lib/waves/menus/imageglbl.WM`
- `$ESPS_BASE/lib/waves/commands/rescale_on.WC`
- `$ESPS_BASE/lib/waves/commands/rescale_off.WC`

xwaves symbols:

- `v_spect_rescale`
- `h_spect_rescale`
- `spect_interp`
- `spect_rescale_scope`

Audio extensions...

Left-mousing the button **Audio extensions...** pops up a panel called **Optional Audio Extensions**, which contains 4 buttons.
The miscellaneous controls panel

You will only need to use these menus if you have purchased ETSM (an optional waves+ add-on product for time scale modified playback) or if you are using a third party DSP board (Ariel DSP 32C, LSI C30, or Townshend DATLink) for playback and/or recording. If you are using native hardware for playback and recording, you will not need to use these menus.

Playback on native hardware should work automatically without your having to make any changes to the xwaves configuration. The internal play code in xwaves works automatically on all architectures except for DEC Alpha, and on DEC Alpha we have set the .wave_pro file up properly to use the external play program decplay. See Chapter “Using audio” on page 99 for more details on controlling playback.

To record files using native hardware, use EnSig’s Record tool, or the ESPS recording program for your architecture. In general we recommend that you record files using EnSig’s Record tool, a graphical user interface that allows you to record files on all architectures. The Record tool uses the native workstation hardware.

**Help** When left moused, this pops up a text window containing the information on how to use the other buttons.

**Time Scale Modification (ETSM Play)** Allows you to add TSM playback to the waveform menus and to add the TSM tool-bar creator to waveform menus. When right moused, a drop down menu is displayed from which you can make your selection. Note that you must have a license key for ETSM installed to use time scale modification.

**Play (3rd Party Programs)** Allows you to set the third party DSP board to use for playback: Ariel DSP 32C, LSI C30, or Townshend DATLink. Note that Entropic no longer supports external DSP boards; you must contact the vendor for drivers or updated play programs for these boards. Note also that these play programs will only work on the files they supported in the past, and will not work on certain new file types that ESPS/waves+ now supports, such as Esignal and PC-WAV files.

When right moused a drop down menu is displayed from which you may select your play program. Effectively the
The miscellaneous controls panel

xwaves symbol play_prog is set. Subsequent calls to play functions will use this program.

**Record (3rd Party Programs)**  Allows you to set the third party DSP board to use for recording: Ariel DSP 32C, LSI C30, or Townshend DATLink. Note that Entropic no longer supports external DSP boards; you must contact the vendor for drivers or updated recording programs for these boards.

When right moused, a drop down menu is displayed from which you can select your record program.

After you select a recording program from the xwaves Record panel, a button panel pops up. This panel contains two buttons: one to start recording and one to stop recording. After you have stopped recording, the recorded signal is displayed in xwaves.

Files:

\$ESPS_BASE/lib/waves/menus/controls.WM
\$ESPS_BASE/lib/waves/menus/audio.WM

xwaves symbols:

play_prog

waves+ profile...

Left-mousing the button waves+ profile...pops up a new panel, called waves+ profile Controls. This panel allows you to look at and change command configurations and the profile. The following sections describe the use of the buttons.

Entropic, Inc.
The miscellaneous controls panel

Save profile

Writes $HOME/.wave_pro (including the init_file) so that an xwaves started with the new profile will reflect the current globals, panels, and menus. If $HOME/.wave_pro already exists, but $HOME/.wave_pro_save does not, the old $HOME/.wave_pro is moved to $HOME/.wave_pro_save.

Load profile

Processes $HOME/.wave_pro (and runs the init_file). This will set waves+ globals to the values specified in the .wave_pro, and take whatever actions are specified in the init_file (bringing up panels, configuring menus, etc.).

Load system default profile

Processes $ESPS_BASE/lib/waves/.wave_pro (and runs the init_file specified there).

Restore profile to system default

Copies $ESPS_BASE/lib/waves/.wave_pro to $HOME/.wave_pro. If $HOME/.wave_pro already exists, but $HOME/.wave_pro_save does not, the old $HOME/.wave_pro is moved to $HOME/.wave_pro_save.

Display globals

Puts up a window showing the current values of waves+ globals.

Display menus

Puts up a window showing a command file that results in the current menu configurations.

Display add_ops

Puts up a window showing a command file that results in the current add_op commands.
The miscellaneous controls panel

**Display panels**

Puts up a window showing a command file that results in the current panels.

**Delete $HOME/.wave_pro_save**

Delete the file $HOME/.wave_pro_save.

**Bugs/problems**

When a saved profile involves panels, they are recreated on startup by running the `waves+ make_panel` command that created them originally. If the menu file that specified the panel no longer exists, that panel will not appear. For example, if you select **Record (3rd Party Programs)–>Ariel DSP 32C** from the **Optional Audio Extensions** panel, you will get another panel with **Start/Stop** buttons. The menu file for this panel is generated on the fly and then deleted. It will therefore not appear if you save and restore. To see the `make_panel` commands in this case, select **Display panels...** from the **waves+ profile...** panel.

Similarly, if the paths of the panel menu files are no longer valid (e.g., if you change machines), the panel menus won’t be found and the panels won’t appear.

After saving a profile and restarting, panels may come up in positions that are slightly different from their original positions. This is due to the morass resulting from different window managers and X server implementations. Sorry.

**Files:**

- `$ESPS_BASE/lib/waves/menus/controls.WM`
- `$ESPS_BASE/lib/waves/menus/profile.WM`

Entropic, Inc.
The miscellaneous controls panel

Print setup...

Left-mousing this button pops up a new panel called Printer Setup. The buttons and fields on this panel allow you to set the xwaves global symbols that control printing. See chapter “Printing graphics” and “xwaves Symbols” in waves+ Reference for more information on printing and the symbols.

File:

$ESPS_BASE/lib/waves/menus/controls.WM

xwaves symbols:

print_graphic_printer, print_ps_level,
print_graphic_type, print_graphic_resolution,
print_graphic_orientation, print_graphic_scale,
print_graphic_file

Annotation...

Left-mousing the button Annotation... pops up a new panel, called Annotation Controls. This panel allows for detailed control over annotation on the data windows:

Field Labels: Either show or hide the names of fields in ESPS files in waveform displays. Default: show.

Field Values: Either show or hide the values of fields in waveform displays. Default: show.

Reticule: Either show or hide tick marks on the axes in waveform and spectrogram displays and a grid in spectrogram displays. Similar to Reticle grid in the Image Painting Controls panel.

Files:

$ESPS_BASE/lib/waves/menus/controls.WM
$ESPS_BASE/lib/waves/menus/annot.WM
The miscellaneous controls panel

xwaves symbols:

show_labels, show_vals, reticle_grid

Ganging...

Left-mousing the Ganging... button pops up a new panel, called Ganging Controls, containing 3 items:

Scroll Ganging: When ON, scrolling is performed simultaneously in all the windows of a display object. Default: ON.

Zoom Ganging: When ON, zooming is performed simultaneously in all the windows of a display object. Default: OFF.

Edit Ganging: When ON, editing is performed simultaneously in all the windows of a display object. Editing in this case means deletion of segments. Default: OFF.

Files:

$ESPS_BASE/lib/waves/menus/controls.WM
$ESPS_BASE/lib/waves/menus/ganging.WM

xwaves symbols:

zoom_ganged, scroll_ganged, edit_ganged

Colormap...

Left-mousing the Colormap... button pops up a new panel, called Image Color Support. This panel contains a set of radio buttons and a push button. The radio buttons allow you to change the colors in which signals are displayed.

The push button, called Show Color Scale, lets you pop up a spectrogram window showing the relation between colors and values in the spectrogram.
The miscellaneous controls panel

file. On the ordinate the values are displayed. They will correspond to the same colors in all the image windows.

Files:

$ESPS_BASE/lib/waves/menus/controls.WM
$ESPS_BASE/lib/waves/menus/colors.WM
$ESPS_BASE/lib/waves/colormaps/greymap
$ESPS_BASE/lib/waves/colormaps/Colormap
$ESPS_BASE/lib/waves/colormaps/colormap
$ESPS_BASE/lib/waves/colormaps/COLORMAP
$ESPS_BASE/lib/waves/colormaps/COLOR_MAP
$ESPS_BASE/lib/waves/colormaps/TImap
$ESPS_BASE/lib/waves/files/color.fspec

xwaves symbols:

colormap

Toolbars...

Left-mousing the Toolbars... button pops up a new panel, called Tool Bars. This panel contains two buttons, which when right moused both show a drop down menu. The Help button give information on how to use and to build toolbars. The other button lets you add toolbar creators to the waveform and spectrogram menus. This means that after you have selected a toolbar from the Tool Bars panel an entry in the display menu lets you create a toolbar.

The functions in the toolbar only apply to a specific display window and often are a convenient way to group functions and prevent your menus from becoming too long. There are 6 ready to use toolbars. Their names are listed below:

- Zoom and scroll
- D/A conversion
- Print graphic
- All menu functions
- Edit (cut/copy/paste)
The miscellaneous controls panel

- **Output segment stats**
  They do what their names say. It is also easy to create them yourself. If you want to do this click right on the help button in the Tool Bars panel. This lists a number of buttons. The topmost gives you general help on toolbars, the other ones show the scripts that implement the toolbars. Use these as your models for new toolbars.

Files:

- `$ESP_BASE/lib/waves/menus/controls.WM`
- `$ESP_BASE/lib/waves/menus/toolbars.WM`
- `$ESP_BASE/bin/toolbar.sh`
- `$ESP_BASE/bin/toolbar2.sh`
- `$ESP_BASE/bin/edit_bar.sh`
- `$ESP_BASE/bin/stats_bar.sh`

---

**Menu Changes...**

Left-mousing the Menu Changes... button pops up a new panel, called Menu Changes. This panel allows you to make changes to the display menu using standard menus and/or predefined functions. The push down buttons in this panel all open drop down menus. The buttons are divided in waveform and image functions. The Select Waveform Menu and Select Image Menu buttons let you replace the whole menus at once. The Add Built in Waveform Op and Add Built in Image Op let you add one of the xwaves built-in functions (see chapter “Data window menu items: Built-in commands”). The Add Extended Waveform Op and Add Extended Image Op add other operations, such as 3D Plot for three-dimensional views of spectrograms (uses plot3d (1-ESPS)) and average spectrum computation (spectral block average). The last two lists consist mostly of combinations of ESPS program calls, but you are free to edit the relevant file and add your own functions.

The Help button on the panel supplies help on the use of the panel and a display window on the file that was used to create this panel.

Files:

- `$ESP_BASE/lib/waves/menus/controls.WM`
The miscellaneous controls panel

Mouse Bindings...

Left-mousing the Mouse Bindings... button pops up a new panel, called Global Mouse Bindings, containing four buttons. Right mousing any of these buttons will show a list containing all the available built-in functions for both waveform and image menus. The left and middle mouse button can be set like this for any of these functions. The changes in mouse functionality are applied to all display windows. See also chapter “Mouse button modes”.

Files:

$ESPS_BASE/lib/waves/menus/controls.WM
$ESPS_BASE/lib/waves/menus/mbind.WM

xwaves symbols:

left_op, middle_op, move_op, spec_left_op,
spec_middle_op

Debug...

Left-mousing the Debug... button pops up a new panel, called Debug Controls, containing three items with radio buttons. They allow you to set the xwaves variables: verbose, debug_level and command_step. They are described in “xwaves Symbols” in waves+ Reference.

Files:

$ESPS_BASE/lib/waves/menus/controls.WM
$ESPS_BASE/lib/waves/menus/debug.WM
The miscellaneous controls panel
The miscellaneous controls panel