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attachment
A program that communicates with xwaves to perform specific tasks. These programs are separate UNIX programs, but they are useless without xwaves running. Currently there are four attachments: xlabel, xspectrum, xmarks, and xchart. The attachments have a command language of their own. Commands can be sent to them via the xwaves send command.

boolean
In the context of xwaves variable assignments, a boolean is FALSE if it has the value 0 and TRUE if it has any non-zero value.

commands
Commands are members of a distinguished, permanent set of character strings (with no embedded spaces) that provides a means for controlling xwaves from other programs, or via typed lines in the xwaves main control panel. These commands may also be associated with buttons on xwaves button panels. xwaves commands are divided into two categories: “global” or “waves” commands, and “object” commands. Waves commands are sent to the program xwaves itself and cause some program-wide impact. View or object commands are sent to a particular display window of a display object and usually perform operations that have impact only on the display window...
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or its object. The op command provides command-type access to “operators” (see below). See “object commands” on page 106 and “waves commands” on page 108. For a complete discussion, see “xwaves Commands” on page 1.

cursors
These are the lines on data display windows that move when the mouse pointer is inside of the frame of a display window. For a given display object, the cursor representations in all display window are linked so that moving the pointer in one display window, causes all data cursors to move in step in both time and amplitude (frequency) domains. Cursors, marks and markers may be positioned independently in each data object.

display object, data object (or object)
Set of display windows opened under the same “object” name. The object name is specified in the xwaves commands that are used to create display windows. The object name defaults to the name in the OBJECT name: field in the main control panel, if not explicitly specified when creating the display window.

All windows in a display object share the same set of “marks” and “markers” and have their time/frequency/amplitude cursors synchronized.

display window
A single window which is either an image or a waveform window.

external process (or program)
This term refers to any program that works in conjunction with xwaves to accomplish your goal. A major mode for functional extension of xwaves is calling other programs from xwaves menus, button panels, etc. to compute some result that itself may then become an xwaves data display window. Many ESPS programs can serve in this capacity, but also programs and shell scripts written by yourself or others.
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**image window**
A window that displays spectrogram-like plots. Records are displayed horizontally, and tracks (channels) are displayed vertically. Color is used to differentiate between amplitude values in the tracks of the signal displayed.

**markers**
Each data display window has four markers, referred to as *top*, *bottom*, *left* and *right*. These may be moved in the display window by a variety of means, including using the mouse pointer and buttons. The marker positions in a display window are indicated by dashed lines extending all of the way across the display window. The left and right markers are often referred to as the *vertical* markers. The top and bottom ones are the *horizontal* markers. Many *xwaves* operators perform their functions on the region of data delimited by the markers. Marker positions are displayed consistently in all display windows comprising a data object.

**marks**
Each display object may have a collection of time “marks” on the displays. These may be placed anywhere in time and may have any color you choose. They have no “built-in” meaning to *xwaves*, but you have access to their attributes via symbols in the `add_op` command. Thus, you may construct custom operators based on the locations of these marks. Attachments, like `xlabel`, `xchart` and `xmarks`, use *xwaves’* mark facility to represent the segment boundaries which these attachments manage. You can place marks using the `mark` command. See “*xwaves* Object Commands” on page 25 and “View-Specific *xwaves* Symbols” on page 63. Note the difference between “markers” and “marks”.

**menu-operator lists**
These are named lists, maintained by *xwaves* and possibly augmented by you, that associate names with operations. *xwaves* comes with some menu operators defined. These are the default data display window menus you see when *xwaves* runs with no customization. The `add_op` command, described in detail in “*xwaves* Global Commands” on page 2, permits definition of custom operators. There are three distinguished list names: `wave`,...
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for operators that may appear on menus of waveform data display windows, spect, for operators that may appear on spectrogram display window menus, and all, for operators that can appear on all data display window menus. The add_op command allows generation of other named lists (with the menu specification). Operators defined on any of these other lists are accessible for many purposes, but will never appear on any data display window menu.

object

See “display object, data object (or object)” on page 104.

object commands

These commands are always explicitly directed to an existing display object by having the object name be the first word on the command line. View commands cannot be issued if no display object exists.

operators

Operators are the functions known to xwaves. xwaves knows about functions either because they are built-in or because they have been defined through the add_op command. Operators implement the functions invoked when menu items are selected from data display window menus. They also implement functions that may be directly bound to keys on the keyboard. Many operators perform their function on the region of a signal delimited by the left, right, top and bottom data display window markers. Internal to xwaves, operators exist on menu-operator lists that may be augmented or modified by using the add_op command. New operator definitions can be comprised of xwaves commands, externally-called programs, or both. See add_op on page 2.

pointer

This refers to the arrow, or similar figure used to indicate the active position of the mouse on the window display screen. When this pointer enters an xwaves data display window, it begins to move the xwaves cursors.
quoted string
In several contexts this term comes up to describe the type of character string that may be used (e.g. as the name of a menu item). A quoted string may simply be written verbatim if:

1. it contains no blanks,
2. it does not start with a double quote ("),
3. it contains blanks (embedded spaces), but is the last item on a command line.

Otherwise, enclose the string in double quotes. Between the delimiting double quotes, use the pair reverse-slash double-quote (to denote a double quote character that is to be part of the string). In the same context, use a pair of reverse slashes (\) to denote a single reverse slash character.

reticle
This refers to the tic-marks, grid lines, borders and numeration that are optional decoration on xwaves’ data display windows. The resolution of the reticles adjusts as the display window is resized or zoomed so as to maintain a reasonable density of marks and numbers.

scrollbars
At the top of each xwaves data display window is a horizontal region we refer to as the scrollbar. It is mouse sensitive and may be moved in various ways by pressing the left, middle and right mouse buttons. (Strictly speaking, these operations are “jumping” rather than “scrolling”, but the usage paradigm is the same as the “scrollbars” typical of text displays in various other X-Windows applications).

simple quoted string
A simple quoted string is similar to a quoted string with one exception: In the case where multiple space-separated items are present without an open double quotes, the simple quoted string type assumes that only the first item is the argument, whereas the quoted string type assumes the remainder of the
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line is the argument. Simple quoted strings are used to represent, among other things, menu item names which may consist of single or multiple words.

view
Word used in commands to refer to display window.

waveform window
A window that displays two-dimensional signals, possibly with multiple channels. The horizontal axis represents time, the vertical a scalar value.

waves commands
These are commands directed at the program \texttt{xwaves} itself. Formally, such commands should always begin with the word \texttt{waves}. However, this requirement is relaxed for convenience, so that if the \texttt{xwaves} command interpreter is sent a string that does not begin with the name of any object known to it (these include \texttt{waves} and any current display object), it assumes the command was destined for the object \texttt{waves}, i.e. the program itself.