

NAME

dialog – widgets and utilities for the dialog program

SYNOPSIS

```
cc [ flag ... ] file ... -ldialog [ library ... ]
or
cc $(dialog-config --cflags) file ... $(dialog-config --libs) ]
```

```
#include <dialog.h>
```

Dialog is a program that will let you present a variety of questions or display messages using dialog boxes from a shell script. It is built from the **dialog** library, which consists of several widgets as well as utility functions that are used by the widgets or the main program.

DESCRIPTION

This manpage documents the features from `<dialog.h>` which are likely to be important to developers using the widgets directly. Some hints are also given for developing new widgets.

Here is a **dialog** version of *Hello World*:

```
int main(void)
{
    int status;
    init_dialog(stdin, stdout);
    status = dialog_yesno(
        "Hello, in dialog-format",
        "Hello World!",
        0, 0);
    end_dialog();
    return status;
}
```

DEFINITIONS

Exit codes (passed back to the main program for its use) are defined with a `"DLG_EXIT_` prefix. The defined constants can be mapped using environment variables as described in **dialog(1)**, e.g., `DLG_EXIT_OK` corresponds to `$DIALOG_OK`.

Useful character constants which correspond to user input are named with the `"CHR_` prefix, e.g., `CHR_BACKSPACE`.

Colors and video attributes are categorized and associated with settings in the configuration file (see the discussion of `$DIALOGRC` in **dialog(1)**). The `DIALOG_ATR(n)` macro is used for defining the references to the combined color and attribute table `dlg_color_table[]`.

The **dialog** application passes its command-line parameters to the widget functions. Some of those parameters are single values, but some of the widgets accept data as an array of values. Those include check-list/radiobox, menubox and formbox. When the `--item-help` option is given, an extra column of data is expected. The `USE_ITEM_HELP()`, `CHECKBOX_TAGS`, `MENUBOX_TAGS` and `FORMBOX_TAGS` macros are used to hide this difference from the calling application.

Most of the other definitions found in `<dialog.h>` are used for convenience in building the library or main program. These include definitions based on the generated `<dlg_config.h>` header.

DATA STRUCTURES

All of the global data for the **dialog** library is stored in a few structures: `DIALOG_STATE`, `DIALOG_VARS` and `DIALOG_COLORS`. The corresponding `dialog_state`, `dialog_vars` and `dlg_color_table` global variables should be initialized to zeros, and then populated with the data to use. A few of these must be non-zero for the corresponding widgets to function. As as the case with function names, variables beginning with `"dialog_` are designed for use by the calling application while variables beginning with `"dlg_` are intended for lower levels, e.g., by the **dialog** library.

DIALOG_STATE

The *state* variables are **dialog**'s working variables. It initializes those, uses them to manage the widgets.

.all_subwindows

This is a linked list of all subwindows created by the library. The **dlg_del_window** function uses this to free storage for subwindows when deleting a window.

.all_windows

This is a linked list of all windows created by the library. The **dlg_del_window** function uses this to locate windows which may be redrawn after deleting a window.

.aspect_ratio

This corresponds to the command-line option "**--aspect-ratio**". The value gives the application some control over the box dimensions when using auto sizing (specifying 0 for height and width). It represents width / height. The default is 9, which means 9 characters wide to every 1 line high.

.finish_string

When set to true, this allows calls to **dlg_finish_string** to discard the corresponding data which is created to speed up layout computations for the given string parameter. The **gauge** widget uses this feature.

.getc_callbacks

This is set up in *ui_getc.c* to record windows which must be polled for input, e.g., to handle the background tailbox widget. One window is designated as the foreground or control window.

.getc_redirect

If the control window for *DIALOG_STATE.getc_callbacks* is closed, the list is transferred to this variable. Closing all windows causes the application to exit.

.had_resize

This is set to TRUE in **dlg_will_resize** or **dlg_result_key** when **KEY_RESIZE** is read, to tell **dialog** to ignore subsequent **ERR**s.

.no_mouse

This corresponds to the command-line option "**--no-mouse**". If true, **dialog** will not initialize (and enable) the mouse in *init_dialog*.

.output

This is set in the **dialog** application to the stream on which the application and library functions may write text results. Normally that is the standard error, since the curses library prefers to write its data to the standard output. Some scripts, trading portability for convenience, prefer to write results to the standard output, e.g., by using the "**--stdout**" option.

.output_count

This is incremented by **dlg_does_output**, which is called by each widget that writes text to the output. The **dialog** application uses that to decide if it should also write a separator, i.e., *DIALOG_STATE.separate_str*, between calls to each widget.

.pipe_input

This is set in *init_dialog* to a stream which can be used by the **gauge** widget, which must be the application's standard input. The **dialog** application calls *init_dialog* normally with *input* set to the standard input, but optionally based on the "**--input-fd**" option. Since the application cannot read from a pipe (standard input) and at the same time read the curses input from the standard input, it must allow for reopening the latter from either a specific file descriptor, or directly from the terminal. The adjusted pipe stream value is stored in this variable.

.screen_height

The text-formatting functions use this for the number of rows used for formatting a string.

It is used by **dialog** for the command-line options "**--print-text-size**" and "**--print-text-only**".

.screen_initialized

This is set in *init_dialog* and reset in *end_dialog*. It is used to check if curses has been initialized, and if the *endwin* function must be called on exit.

.screen_output

This is set in *init_dialog* to the output stream used by the curses library. Normally that is the standard output, unless that happens to not be a terminal (and if *init_dialog* can successfully open the terminal directly).

.screen_width

The text-formatting functions use this for the number of columns used for formatting a string.

It is used by **dialog** for the command-line options "**--print-text-size**" and "**--print-text-only**".

.separate_str

This corresponds to the command-line option "**--separate-widget**". The given string specifies a string that will separate the output on **dialog**'s output from each widget. This is used to simplify parsing the result of a dialog with several widgets. If this option is not given, the default separator string is a tab character.

.tab_len

This corresponds to the command-line option "**--tab-len number**". Specify the number of spaces that a tab character occupies if the "**--tab-correct**" option is given. The default is 8.

.text_height

The text-formatting functions set this to the number of lines used for formatting a string.

It is used by **dialog** for the command-line options "**--print-text-size**" and "**--print-text-only**".

.text_only

Dialog uses this in the command-line option "**--print-text-only**".

The text-formatting functions (**dlg_print_text**, **dlg_print_line**, and **dlg_print_utowrap**) check this to decide whether to print the formatted text to **dialog**'s output or to the curses-display.

Also, **dlg_auto_size** checks the flag, allowing it to be used before **init_dialog** is called.

.text_width

The text-formatting functions set this to the number of columns used for formatting a string.

It is used by **dialog** for the command-line options "**--print-text-size**" and "**--print-text-only**".

.trace_output

This corresponds to the command-line option "**--trace file**". It is the file pointer to which trace messages are written.

.use_colors

This is set in *init_dialog* if the curses implementation supports color.

.use_scrollbar

This corresponds to the command-line option "**--scrollbar**". If true, draw a scrollbar to make windows holding scrolled data more readable.

.use_shadow

This corresponds to the command-line option "**--no-shadow**". This is set in *init_dialog* if the curses implementation supports color. If true, suppress shadows that would be drawn to the right and bottom of each dialog box.

.visit_items

This corresponds to the command-line option "**--visit-items**". Modify the tab-traversal of the list-oriented widgets (builddlist, checklist, radiobox, menubox, inputmenu, and treeview) to include the list of items as one of the states. This is useful as a visual aid, i.e., the cursor position helps some users.

The **dialog** application resets the **dialog_vars** data before accepting options to invoke each widget. Most of the *DIALOG_VARS* members are set directly from **dialog**'s command-line options:

DIALOG_VARS

In contrast to **DIALOG_STATE**, the members of **DIALOG_VARS** are set by command-line options in **dialog**.

.ascii_lines

This corresponds to the command-line option "**--ascii-lines**". It causes line-drawing to be done with ASCII characters, e.g., "+" and "-". See *DIALOG_VARS.no_lines*.

.backtitle

This corresponds to the command-line option "**--backtitle** *backtitle*". It specifies a *backtitle* string to be displayed on the backdrop, at the top of the screen.

.beep_after_signal

This corresponds to the command-line option "**--beep-after**". If true, beep after a user has completed a widget by pressing one of the buttons.

.beep_signal

This corresponds to the command-line option "**--beep**". It is obsolete.

.begin_set

This is true if the command-line option "**--begin** *y x*" was used. It specifies the position of the upper left corner of a dialog box on the screen.

.begin_x

This corresponds to the *x* value from the command-line option "**--begin** *y x*" (second value).

.begin_y

This corresponds to the *y* value from the command-line option "**--begin** *y x*" (first value).

.cancel_label

This corresponds to the command-line option "**--cancel-label** *string*". The given *string* overrides the label used for "Cancel" buttons.

.cant_kill

This corresponds to the command-line option "**--no-kill**". If true, this tells **dialog** to put the **tailboxbg** box in the background, printing its process id to **dialog**'s output. SIGHUP is disabled for the background process.

.colors

This corresponds to the command-line option "**--colors**". If true, interpret embedded "\Z" sequences in the dialog text by the following character, which tells **dialog** to set colors or video attributes:

- 0 through 7 are the ANSI codes used in curses: black, red, green, yellow, blue, magenta, cyan and white respectively.
- Bold is set by 'b', reset by 'B'.
- Reverse is set by 'r', reset by 'R'.
- Underline is set by 'u', reset by 'U'.

The settings are cumulative, e.g., "\Zb\Z1" makes the following text bright red. Restore normal settings with "\Zn".

.column_separator

This corresponds to the command-line option "**--column-separator**". **Dialog** splits data for radio/check-boxes and menus on the occurrences of the given string, and aligns the split data into columns.

.cr_wrap

This corresponds to the command-line option "**--cr-wrap**". If true, interpret embedded newlines in the dialog text as a newline on the screen. Otherwise, **dialog** will only wrap lines where needed to fit inside the text box. Even though you can control line breaks with this, **dialog** will still wrap any lines that are too long for the width of the box. Without cr-wrap, the layout of your text may be formatted to look nice in the source code of your script without affecting the way it will look in the dialog.

.cursor_off_label

This corresponds to the command-line option "**--cursor-off-label**". If true, place the terminal cursor at the end of a button instead of on the first character of the button label. This is useful to reduce visual confusion when the cursor coloration interacts poorly with the button-label text colors.

.date_format

This corresponds to the command-line option "**--date-format** *string*". If the host provides **strftime**, and the value is nonnull, the calendar widget uses this to format its output.

.default_button

This is set by the command-line option "**--default-button**". It is used by **dlg_default_button**.

.default_item

This corresponds to the command-line option "**--default-item** *string*". The given string is used as the default item in a checklist, form or menu box. Normally the first item in the box is the default.

.defaultno

This corresponds to the command-line option "**--defaultno**". If true, make the default value of the **yes/no** box a **No**. Likewise, treat the default button of widgets that provide "OK" and "Cancel" as a *Cancel*. If **--no-cancel** was given that option overrides this, making the default button always "Yes" (internally the same as "OK").

.dlg_clear_screen

This corresponds to the command-line option "**--clear**". This option is implemented in the main program, not the library. If true, the screen will be cleared on exit. This may be used alone, without other options.

.erase_on_exit

This corresponds to the command-line option "**--erase-on-exit**". If true, remove the dialog widget on program exit, erasing the entire screen to its native background color, and place the terminal cursor at the lower left corner of the screen.

This is useful for making the window contents invisible at the end of a series of dialog boxes. It can also be used at earlier stages of a series of invocations of **dialog**, if the series may be aborted before it is fully completed.

.exit_label

This corresponds to the command-line option "**--exit-label** *string*". The given string overrides the label used for "EXIT" buttons.

.extra_button

This corresponds to the command-line option "**--extra-button**". If true, some widgets show an extra button, between "OK" and "Cancel" buttons, or "Yes" and "No" buttons.

.extra_label

This corresponds to the command-line option "**--extra-label** *string*". The given string overrides the label used for "Extra" buttons. Note: for inputmenu widgets, this defaults to "Rename".

.formitem_type

This is set by the command-line option "**--passwordform**" to tell the form widget that its text fields should be treated like password widgets.

.help_button

This corresponds to the command-line option "**--help-button**". If true, some widgets show a help-button after "OK" and "Cancel" buttons, i.e., in checklist, radiolist and menu boxes, or the "Yes" and "No" buttons for the *yesno* box.

If **--item-help** is also given, on exit the return status will be the same as for the "OK" button, and the item-help text will be written to **dialog**'s output after the token "HELP". Otherwise, the return status will indicate that the Help button was pressed, and no message printed.

.help_file

This corresponds to the command-line option "**--hfile** *string*". The given filename is passed to **dialog_helpfile** when the user presses F1.

.help_label

This corresponds to the command-line option "**--help-label** *string*". The given string overrides the label used for "Help" buttons.

.help_line

This corresponds to the command-line option "**--hline** *string*". The given string is displayed in the bottom of dialog windows, like a subtitle.

.help_status

This corresponds to the command-line option "**--help-status**". If true, and the the help-button is selected, writes the checklist or radiolist information after the item-help "HELP" information. This can be used to reconstruct the state of a checklist after processing the help request.

.help_tags

This corresponds to the command-line option "**--help-tags**". If true, **dlg_add_help_foritem** and **dlg_add_help_listitem** use the item's tag value consistently rather than using the tag's help-text value when *DIALOG_VARS.item_help* is set.

.input_length

This is nonzero if *DIALOG_VARS.input_result* is allocated, versus being a pointer to the user's local variables.

.input_menu

This flag is set to denote whether the menubox widget implements a menu versus a inputmenu widget.

.input_result

This may be either a user-supplied buffer, or a buffer dynamically allocated by the library, depending on *DIALOG_VARS.input_length*:

- If *DIALOG_VARS.input_length* is zero, this is a pointer to user buffer (on the stack, or static). The buffer size is assumed to be **MAX_LEN**, which is defined in *<dialog.h>*.
- When *DIALOG_VARS.input_length* is nonzero, this is a dynamically-allocated buffer used by the widgets to return printable results to the calling application.

Certain widgets copy a result to this buffer. If the pointer is NULL, or if the length is insufficient for the result, then the **dialog** library allocates a buffer which is large enough, and sets *DIALOG_VARS.input_length*. Callers should check for this case if they have supplied their own buffer.

.insecure

This corresponds to the command-line option "**--insecure**". If true, make the password widget friendlier but less secure, by echoing asterisks for each character.

.in_helpfile

This variable is used to prevent **dialog_helpfile** from showing anything, e.g., if F1 were pressed within a help-file display.

.iso_week

This corresponds to the command-line option "**--iso-week**". It is used in the calendar widget to tell how to compute the starting week for the year:

- by default, the calendar treats January 1 as the first week of the year.
- If this variable is true, the calendar uses ISO 8601's convention. ISO 8601 numbers weeks starting with the first week in January with a Thursday in the current year. January 1 may be in the *previous* year.

.item_help

This corresponds to the command-line option "**--item-help**". If true, interpret the tags data for checklist, radiolist and menu boxes adding a column whose text is displayed in the bottom line of the screen, for the currently selected item.

.keep_tite

This is set by the command-line option "**--keep-tite**" to tell **dialog** to not attempt to cancel the terminal initialization (termcap *tite*) sequences which correspond to xterm's alternate-screen switching. Normally **dialog** does this to avoid flickering when run several times in a script.

.keep_window

This corresponds to the command-line option "**--keep-window**". If true, do not remove/repaint the window on exit. This is useful for keeping the window contents visible when several widgets are run in the same process. Note that curses will clear the screen when starting a new process.

.last_key

This corresponds to the command-line option "**--last-key**".

.max_input

This corresponds to the command-line option "**--max-input size**". Limit input strings to the given size. If not specified, the limit is 2048.

.no_hot_key

This corresponds to the command-line option "**--no-hot-list**".

Some widgets (builddlist, checklist, inputmenu, menu, radiolist, treeview) display a list for which the leading capital letter in each entry is accepted as a hot-key, to quickly move the focus to that entry.

Setting this variable to TRUE disables the feature.

.no_items

This corresponds to the command-line option "**--no-items**". Some widgets (checklist, inputmenu, radiolist, menu) display a list with two columns (a "tag" and "item", i.e., "description"). This tells **dialog** to read shorter rows from data, omitting the "list".

.no_label

This corresponds to the command-line option "**--no-label string**". The given string overrides the label used for "No" buttons.

.no_lines

This corresponds to the command-line option "**--no-lines**". It suppresses line-drawing. See *DIALOG_VARS.ascii_lines*.

.no_nl_expand

This corresponds to the command-line option "**--no-nl-expand**". If false, **dlg_trim_string** converts literal "\n" substrings in a message into newlines.

.no_tags

This corresponds to the command-line option "**--no-tags**". Some widgets (checklist, inputmenu, radiolist, menu) display a list with two columns (a "tag" and "item", also known as "description"). The tag is useful for scripting, but may not help the user. The **--no-tags** option (from Xdialog) may be used to suppress the column of tags from the display.

Normally **dialog** allows you to quickly move to entries on the displayed list, by matching a single character to the first character of the tag. When the **--no-tags** option is given, **dialog** matches against the first character of the description. In either case, the matchable character is highlighted.

Here is a table showing how the `no_tags` and `no_items` values interact:

Widget	Fields Shown	Fields Read	.no_items	.no_tags
builddlist	item	tag,item	0	0*
builddlist	item	tag,item	0	1
builddlist	tag	tag	1	0*
builddlist	tag	tag	1	1
checklist	tag,item	tag,item	0	0
checklist	item	tag,item	0	1
checklist	tag	tag	1	0
checklist	tag	tag	1	1
inputmenu	tag,item	tag,item	0	0
inputmenu	item	tag,item	0	1
inputmenu	tag	tag	1	0

inputmenu	tag	tag	1	1
menu	tag,item	tag,item	0	0
menu	item	tag,item	0	1
menu	tag	tag	1	0
menu	tag	tag	1	1
radiolist	tag,item	tag,item	0	0
radiolist	item	tag,item	0	1
radiolist	tag	tag	1	0
radiolist	tag	tag	1	1
treeview	item	tag,item	0	0*
treeview	item	tag,item	0	1
treeview	tag	tag	1	0*
treeview	tag	tag	1	1

* Xdialog does not display the tag column for the analogous buildlist and treeview widgets. **Dialog** does the same on the command-line. However the library interface defaults to displaying the tag column. Your application can enable or disable the tag column as needed for each widget.

.nocancel

This corresponds to the command-line option "**--no-cancel**". If true, suppress the "Cancel" button in checklist, inputbox and menu box modes. A script can still test if the user pressed the ESC key to cancel to quit.

.nocollapse

This corresponds to the command-line option "**--no-collapse**". Normally **dialog** converts tabs to spaces and reduces multiple spaces to a single space for text which is displayed in a message boxes, etc. If true, that feature is disabled. Note that **dialog** will still wrap text, subject to the **--cr-wrap** option.

.nook

This corresponds to the command-line option "**--no-ok**". **Dialog** will suppress the "ok" (or "yes") button from the widget.

.ok_label

This corresponds to the command-line option "**--ok-label string**". The given string overrides the label used for "OK" buttons.

.pause_secs

When set, force **dlg_set_timeout** to use 10 milliseconds rather than using the *DIALOG_VARS.timeout_secs* value.

.print_siz

This corresponds to the command-line option "**--print-size**". If true, each widget prints its size to **dialog**'s output when it is invoked.

.quoted

This corresponds to the command-line option "**--quoted**". Normally **dialog** quotes the strings returned by checklist's as well as the item-help text. If true, **dialog** will quote all string results.

.reorder

This corresponds to the command-line option "**--reorder**". By default, the buildlist widget uses the same order for the output (right) list as for the input (left). If true, **dialog** will use the order in which a user adds selections to the output list.

.separate_output

This corresponds to the command-line option "**--separate-output**". If true, checklist widgets output result one line at a time, with no quoting. This facilitates parsing by another program.

.single_quoted

This corresponds to the command-line option "**--single-quoted**". If true, use single-quoting as needed (and no quotes if unneeded) for the output of checklist's as well as the item-help text. If this option is not set, **dialog** uses double quotes around each item. The latter requires occasional use of backslashes to make

the output useful in shell scripts.

.size_err

This corresponds to the command-line option "**--size-err**". If true, check the resulting size of a dialog box before trying to use it, printing the resulting size if it is larger than the screen. (This option is obsolete, since all new-window calls are checked).

.sleep_secs

This corresponds to the command-line option "**--sleep secs**". This option is implemented in the main program, not the library. If nonzero, this is the number of seconds after to delay after processing a dialog box.

.tab_correct

This corresponds to the command-line option "**--tab-correct**". If true, convert each tab character of the text to one or more spaces. Otherwise, tabs are rendered according to the curses library's interpretation.

.time_format

This corresponds to the command-line option "**--time-format string**". If the host provides **strftime**, and the value is nonnull, the timebox widget uses this to format its output.

.timeout_secs

This corresponds to the command-line option "**--timeout secs**". If nonzero, timeout input requests (exit with error code) if no user response within the given number of seconds.

.title

This corresponds to the command-line option "**--title title**". Specifies a *title* string to be displayed at the top of the dialog box.

.trim_whitespace

This corresponds to the command-line option "**--trim**". If true, eliminate leading blanks, trim literal new-lines and repeated blanks from message text.

.week_start

This corresponds to the command-line option "**--week-start**". It is used in the calendar widget to set the starting day for the week. The string value can be

- a number (0 to 6, Sunday through Saturday using POSIX) or
- the special value "locale" (this works with systems using glibc, providing an extension to the **locale** command, the **first_weekday** value).
- a string matching one of the abbreviations for the day of the week shown in the **calendar** widget, e.g., "Mo" for "Monday".

.yes_label

This corresponds to the command-line option "**--yes-label string**". The given string overrides the label used for "Yes" buttons.

WIDGETS

Functions that implement major functionality for the command-line **dialog** program, e.g., widgets, have names beginning "*dialog_*".

All dialog boxes have at least three parameters:

title the caption for the box, shown on its top border.

height
the height of the dialog box.

width
the width of the dialog box.

Other parameters depend on the box type.

dialog_buildlist

implements the "**--buildlist**" option.

const char * title

is the title on the top of the widget.

const char * cprompt

is the prompt text shown within the widget.

int height

is the desired height of the box. If zero, the height is adjusted to use the available screen size.

int width

is the desired width of the box. If zero, the height is adjusted to use the available screen size.

int list_height

is the minimum height to reserve for displaying the list. If zero, it is computed based on the given *height* and *width*.

int item_no

is the number of rows in *items*.

char ** items

is an array of strings which is viewed either as a list of rows

tag item status

or

tag item status help

depending on whether **dialog_vars.item_help** is set.

int order_mode

is reserved for future enhancements

dialog_calendar

implements the "**--calendar**" option.

const char * title

is the title on the top of the widget.

const char * subtitle

is the prompt text shown within the widget.

int height

is the height excluding the fixed-height calendar grid.

int width

is the overall width of the box, which is adjusted up to the calendar grid's minimum width if needed.

int day

is the initial day of the week shown, counting zero as Sunday. If the value is negative, the current day of the week is used.

int month

is the initial month of the year shown, counting one as January. If the value is negative, the current month of the year is used.

int year

is the initial year shown. If the value is negative, the current year is used.

dialog_checklist

implements the "**--checklist**" and "**--radiolist**" options depending on the *flag* parameter.

const char * title

is the title on the top of the widget.

const char * cprompt

is the prompt text shown within the widget.

int *height*

is the desired height of the box. If zero, the height is adjusted to use the available screen size.

int *width*

is the desired width of the box. If zero, the height is adjusted to use the available screen size.

int *list_height*

is the minimum height to reserve for displaying the list. If zero, it is computed based on the given *height* and *width*.

int *item_no*

is the number of rows in *items*.

int *items*

is an array of strings which is viewed either as a list of rows

tag item status

or

tag item status help

depending on whether **dialog_vars.item_help** is set.

flag is either *FLAG_CHECK*, for checklists, or *FLAG_RADIO* for radiolists.

dialog_dselect

implements the "**--dselect**" option.

const char * *title*

is the title on the top of the widget.

const char * *path*

is the preselected value to show in the input-box, which is used also to set the directory- and file-windows.

int *height*

is the height excluding the minimum needed to show the dialog box framework. If zero, the height is based on the screen size.

int *width*

is the desired width of the box. If zero, the height is based on the screen size.

dialog_editbox

implements the "**--editbox**" option.

const char * *title*

is the title on the top of the widget.

const char * *file*

is the name of the file from which to read.

int *height*

is the desired height of the box. If zero, the height is adjusted to use the available screen size.

int *width*

is the desired width of the box. If zero, the height is adjusted to use the available screen size.

dialog_form

implements the "**--form**" option.

const char * *title*

is the title on the top of the widget.

const char * *cprompt*

is the prompt text shown within the widget.

int *height*

is the desired height of the box. If zero, the height is adjusted to use the available screen size.

int *width*

is the desired width of the box. If zero, the height is adjusted to use the available screen size.

int *form_height*

is the minimum height to reserve for displaying the list. If zero, it is computed based on the given *height* and *width*.

int *item_no*

is the number of rows in *items*.

int *items*

is an array of strings which is viewed either as a list of rows

Name NameY NameX Text TextY TextX FLen ILen

or

Name NameY NameX Text TextY TextX FLen ILen Help

depending on whether **dialog_vars.item_help** is set.

dialog_fselect

implements the "**--fselect**" option.

const char * *title*

is the title on the top of the widget.

const char * *path*

is the preselected value to show in the input-box, which is used also to set the directory- and file-windowns.

int *height*

is the height excluding the minimum needed to show the dialog box framework. If zero, the height is based on the screen size.

int *width*

is the desired width of the box. If zero, the height is based on the screen size.

dialog_gauge

implements the "**--gauge**" option. Alternatively, a simpler or customized gauge widget can be set up using **dlg_allocate_gauge**, **dlg_reallocate_gauge**, **dlg_update_gauge** and **dlg_free_gauge**.

const char * *title*

is the title on the top of the widget.

const char * *cprompt*

is the prompt text shown within the widget.

int *height*

is the desired height of the box. If zero, the height is based on the screen size.

int *width*

is the desired width of the box. If zero, the height is based on the screen size.

int *percent*

is the percentage to show in the progress bar.

dialog_inputbox

implements the "**--inputbox**" or "**--password**" option, depending on the value of *password*.

const char * *title*

is the title on the top of the widget.

const char * *cprompt*

is the prompt text shown within the widget.

int *height*

is the desired height of the box. If zero, the height is based on the screen size.

int *width*

is the desired width of the box. If zero, the height is based on the screen size.

const char * *init*

is the initial value of the input box, whose length is taken into account when auto-sizing the width of the dialog box.

int *password*

if true, causes typed input to be echoed as asterisks.

dialog_helpfile

implements the "--hfile" option.

const char * *title*

is the title on the top of the widget.

const char * *file*

is the name of a file containing the text to display. This function is internally bound to F1 (function key "1"), passing **dialog_vars.help_file** as a parameter. The **dialog** program sets that variable when the --hfile option is given.

int *height*

is the desired height of the box. If zero, the height is based on the screen size.

int *width*

is the desired width of the box. If zero, the height is based on the screen size.

dialog_menu

implements the "--menu" or "--inputmenu" option depending on whether **dialog_vars.input_menu** is set.

const char * *title*

is the title on the top of the widget.

const char * *cprompt*

is the prompt text shown within the widget.

int *height*

is the desired height of the box. If zero, the height is based on the screen size.

int *width*

is the desired width of the box. If zero, the height is based on the screen size.

int *menu_height*

is the minimum height to reserve for displaying the list. If zero, it is computed based on the given *height* and *width*.

int *item_no*

is the number of rows in *items*.

int *items*

is an array of strings which is viewed either as a list of rows
tag item

or

tag item help

depending on whether **dialog_vars.item_help** is set.

dialog_mixedform

implements the "--mixedform" option.

const char * title

is the title on the top of the widget.

const char * cprompt

is the prompt text shown within the widget.

int height

is the desired height of the box. If zero, the height is adjusted to use the available screen size.

int width

is the desired width of the box. If zero, the height is adjusted to use the available screen size.

int form_height

is the minimum height to reserve for displaying the list. If zero, it is computed based on the given *height* and *width*.

int item_no

is the number of rows in *items*.

int items

is an array of strings which is viewed either as a list of rows

Name NameY NameX Text TextY TextX FLen ILen Ityp

or

Name NameY NameX Text TextY TextX FLen ILen Ityp Help

depending on whether **dialog_vars.item_help** is set.

dialog_mixedgauge

implements the "--mixedgauge" option

const char * title

is the title on the top of the widget.

const char * cprompt

is the caption text shown within the widget.

int height

is the desired height of the box. If zero, the height is based on the screen size.

int width

is the desired width of the box. If zero, the height is based on the screen size.

int percent

is the percentage to show in the progress bar.

int item_no

is the number of rows in *items*.

int items

is an array of strings which is viewed as a list of *tag* and *item* values. The *tag* values are listed, one per row, in the list at the top of the widget.

The *item* values are decoded: digits 0 through 9 are the following strings

0	Succeeded
1	Failed
2	Passed
3	Completed
4	Checked

5	Done
6	Skipped
7	In Progress
8	(blank)
9	N/A

A string with a leading "-" character is centered, marked with "%". For example, "-75" is displayed as "75%". Other strings are displayed as is.

dialog_msgbox

implements the "--msgbox" or "--infobox" option depending on whether *pauseopt* is set.

const char * title

is the title on the top of the widget.

const char * cprompt

is the prompt text shown within the widget.

int height

is the desired height of the box. If zero, the height is based on the screen size.

int width

is the desired width of the box. If zero, the height is based on the screen size.

int pauseopt

if true, an "OK" button will be shown, and the dialog will wait for it to complete. With an "OK" button, it is denoted a "msgbox", without an "OK" button, it is denoted an "infobox".

dialog_pause

implements the "--pause" option.

const char * title

is the title on the top of the widget.

int height

is the desired height of the box. If zero, the height is based on the screen size.

int width

is the desired width of the box. If zero, the height is based on the screen size.

int seconds

is the timeout to use for the progress bar.

dialog_prgbox

implements the "--prgbox" option.

const char * title

is the title on the top of the widget.

const char * cprompt

is the prompt text shown within the widget. If empty or null, no prompt is shown.

const char * command

is the name of the command to execute.

int height

is the desired height of the box. If zero, the height is based on the screen size.

int width

is the desired width of the box. If zero, the height is based on the screen size.

int pauseopt

if true, an "OK" button will be shown, and the dialog will wait for it to complete.

dialog_progressbox

implements the "**--progressbox**" option.

const char * title

is the title on the top of the widget.

const char * cprompt

is the prompt text shown within the widget. If empty or null, no prompt is shown.

int height

is the desired height of the box. If zero, the height is based on the screen size.

int width

is the desired width of the box. If zero, the height is based on the screen size.

dialog_rangebox

implements the "**--rangebox**" option.

const char * title

is the title on the top of the widget.

const char * cprompt

is the prompt text shown within the widget. If empty or null, no prompt is shown.

int height

is the desired height of the widget. If zero, the height is based on the screen size.

int width

is the desired width of the widget. If zero, the height is based on the screen size.

int min_value

is the minimum value to allow.

int max_value

is the maximum value to allow.

int default_value

is the default value, if no change is made.

dialog_tailbox

implements the "**--tailbox**" or "**--tailboxbg**" option depending on whether *bg_task* is set.

const char * title

is the title on the top of the widget.

const char * file

is the name of the file to display in the dialog.

int height

is the desired height of the box. If zero, the height is based on the screen size.

int width

is the desired width of the box. If zero, the height is based on the screen size.

int bg_task

if true, the window is added to the callback list in **dialog_state**, and the application will poll for the window to be updated. Otherwise an "OK" button is added to the window, and it will be closed when the button is activated.

dialog_textbox

implements the "**--textbox**" option.

const char * title

is the title on the top of the widget.

const char * file

is the name of the file to display in the dialog.

int height

is the desired height of the box. If zero, the height is based on the screen size.

int width

is the desired width of the box. If zero, the height is based on the screen size.

dialog_timebox

implements the "--timebox" option. See **dlg_auto_size** for layout using *height* and *width* parameters.

const char * title

is the title on the top of the widget.

const char * subtitle

is the prompt text shown within the widget.

int height

is the desired height of the box.

- If zero, the height is based on the screen size.
- If greater than zero, the requested height is added to the minimum box size.

int width

is the desired width of the box.

- If zero, the height is based on the screen size.
- If greater than zero, the requested width is constrained by the minimum box size and the width of the buttons.

int hour

is the initial hour shown. If the value is negative, the current hour is used. Returns `DLG_EXIT_ERROR` if the value specified is greater than or equal to 24.

int minute

is the initial minute shown. If the value is negative, the current minute is used. Returns `DLG_EXIT_ERROR` if the value specified is greater than or equal to 60.

int second

is the initial second shown. If the value is negative, the current second is used. Returns `DLG_EXIT_ERROR` if the value specified is greater than or equal to 60.

dialog_treeview

implements the "--treeview" option.

const char * title

is the title on the top of the widget.

const char * cprompt

is the prompt text shown within the widget.

int height

is the desired height of the box. If zero, the height is based on the screen size.

int width

is the desired width of the box. If zero, the height is based on the screen size.

int list_height

is the minimum height to reserve for displaying the list. If zero, it is computed based on the given *height* and *width*.

int item_no

is the number of rows in *items*.

char ** items

is the list of items, contain tag, name, and optionally help strings (if **dialog_vars.item_help** is set). The initial selection state for each item is also in this list.

int flag

flag is either *FLAG_CHECK*, for checklists (multiple selections), or *FLAG_RADIO* for radiolists (a single selection).

dialog_yesno

implements the "--yesno" option.

const char * title

is the title on the top of the widget.

const char * cprompt

is the prompt text shown within the widget.

int height

is the desired height of the box. If zero, the height is based on the screen size.

int width

is the desired width of the box. If zero, the height is based on the screen size.

UTILITY FUNCTIONS

Most functions that implement lower-level functionality for the command-line **dialog** program or widgets, have names beginning "*dlg_*". Bowing to longstanding usage, the functions that initialize the display and end it are named *init_dialog* and *end_dialog*.

The only non-widget function whose name begins with "*dialog_*" is **dialog_version**, which returns the version number of the library as a string.

A few functions are prefixed "*_dlg_*", because they are required for internal use, but not intended as part of the library application programming interface.

Here is a brief summary of the utility functions and their parameters:

dlg_add_callback

Add a callback, used to allow polling input from multiple tailbox widgets.

DIALOG_CALLBACK *p

contains the callback information.

dlg_add_callback_ref

Like **dlg_add_callback**, but passes a reference to the **DIALOG_CALLBACK** as well as a pointer to a cleanup function which will be called when the associated input ends.

DIALOG_CALLBACK **p

points to the callback information. This is a reference to the pointer so that the caller's pointer can be zeroed when input ends.

DIALOG_FREEBACK func

function to call when input ends, e.g., to free caller's additional data.

dlg_add_help_foritem

This is a utility function used enforce consistent behavior for the *DIALOG_VARS.help_tags* and *DIALOG_VARS.item_help* variables.

int *result

this is updated to *DLG_EXIT_ITEM_HELP* if *DIALOG_VARS.item_help* is set.

char **tag

the tag- or help-text is stored here.

DIALOG_FORMITEM **item*

contains the list item to use for tag- or help-text.

dlg_add_help_listitem

This is a utility function used enforce consistent behavior for the *DIALOG_VARS.help_tags* and *DIALOG_VARS.item_help* variables.

int **result*

this is updated to DLG_EXIT_ITEM_HELP if *DIALOG_VARS.item_help* is set.

char ***tag*

the tag- or help-text is stored here.

DIALOG_LISTITEM **item*

contains the list item to use for tag- or help-text.

dlg_add_last_key

Report the last key entered by the user. This implements the **--last-key** command-line option, using **dialog_vars.last_key**.

int *mode*

controls the way the last key report is separated from other results:

- 2 (no separator)
- 1 (separator after the key name)
- 0 (separator is optionally before the key name)
- 1 (same as -1)

dlg_add_quoted

Add a quoted string to the result buffer (see **dlg_add_result**). If no quotes are necessary, none are used. If **dialog_vars.single_quoted** is set, single-quotes are used. Otherwise, double-quotes are used.

char ** string*

is the string to add.

dlg_add_result

Add a string to the result buffer **dialog_vars.input_result**.

char ** string*

is the string to add.

dlg_add_separator

Add an output-separator to the result buffer **dialog_vars.input_result**. If **dialog_vars.output_separator** is set, use that. Otherwise, if **dialog_vars.separate_output** is set, use newline. If neither is set, use a space.

dlg_add_string

Add a quoted or unquoted string to the result buffer (see **dlg_add_quoted**) and **dlg_add_result**), according to whether **dialog_vars.quoted** is true.

char ** string*

is the string to add.

dlg_align_columns

Copy and reformat an array of pointers to strings, aligning according to the column separator **dialog_vars.column_separator**. If no column separator is set, the array will be unmodified; otherwise it is copied and reformatted.

Caveat: This function is only implemented for 8-bit characters.

char ***target*

This is the array to reformat. It points to the first string to modify.

int *per_row*

This is the size of the struct for each row of the array.

int *num_rows*

This is the number of rows in the array.

dlg_allocate_gauge

Allocates a gauge widget. Use **dlg_update_gauge** to display the result.

const char * *title*

is the title string to display at the top of the widget.

const char * *cprompt*

is the prompt text shown within the widget.

int *height*

is the desired height of the box. If zero, the height is adjusted to use the available screen size.

int *width*

is the desired width of the box. If zero, the height is adjusted to use the available screen size.

int *percent*

is the percentage to show in the progress bar.

dlg_asciiobox

returns its parameter transformed to the corresponding "+" or "-", etc., for the line-drawing characters used in **dialog**. If the parameter is not a line-drawing or other special character such as ACS_DARROW, it returns 0.

chtype *ch*

is the parameter, usually one of the ACS_XXX constants.

dlg_attr_clear

Set window to the given attribute.

WINDOW * *win*

is the window to update.

int *height*

is the number of rows to update.

int *width*

is the number of columns to update.

chtype *attr*

is the attribute, e.g., **A_BOLD**.

dlg_auto_size

Compute window size based on the size of the formatted *prompt* and minimum dimensions for a given widget.

Dialog sets **dialog_state.text_height** and **dialog_state.text_width** for the formatted *prompt* as a side-effect.

Normally **dialog** writes the formatted *prompt* to the curses window, but it will write the formatted *prompt* to the output stream if **dialog_state.text_only** is set.

const char * *title*

is the title string to display at the top of the widget.

const char * *prompt*

is the message text which will be displayed in the widget, used here to determine how large the widget should be.

If the value is *NULL*, **dialog** allows the widget to use the whole screen, i.e., if the values referenced by *height* and/or *width* are zero.

int * height

is the nominal height. **Dialog** checks the referenced value and may update it:

- if the value is negative, **dialog** updates it to the available height of the screen, after reserving rows for the window border and shadow, as well as taking into account **dialog_vars.begin_y** and **dialog_vars.begin_set**.
- if the value is zero, **dialog** updates it to the required height of the window, taking into account a (possibly) multi-line *prompt*.
- if the value is greater than zero, **dialog** uses it internally, but restores the value on return.

int * width

is the nominal width. **Dialog** checks the referenced value and may update it:

- if the value is negative, **dialog** updates it to the available width of the screen, after reserving rows for the window border and shadow, as well as taking into account **dialog_vars.begin_x** and **dialog_vars.begin_set**.
- if the value is zero, **dialog** updates it to the required width of the window, taking into account a (possibly) multi-line *prompt*.
- if the value is greater than zero, **dialog** uses it internally, but restores the value on return.

int boxlines

is the number of lines to reserve in the vertical direction.

int mincols

is the minimum number of columns to use.

dlg_auto_sizefile

Like **dlg_auto_size**, but use a file contents to decide how large the widget should be.

const char * title

is the title string to display at the top of the widget.

const char * file

is the name of the file.

int * height

is the nominal height.

If it is -1, use the screen's height (after subtracting **dialog_vars.begin_y** if **dialog_vars.begin_set** is true).

If it is greater than zero, limit the referenced value to the screen-height after verifying that the file exists.

int * width

is the nominal width.

If it is -1, use the screen's width (after subtracting **dialog_vars.begin_x** if **dialog_vars.begin_set** is true).

If it is greater than zero, limit the referenced value to the screen-width after verifying that the file exists.

int boxlines

is the number of lines to reserve on the screen for drawing boxes.

int mincols

is the number of columns to reserve on the screen for drawing boxes.

dlg_beeping

If **dialog_vars.beep_signal** is nonzero, this calls **beep** once and sets **dialog_vars.beep_signal** to zero.

dlg_boxchar

returns its **chtype** parameter transformed as follows:

- if neither **dialog_vars.ascii_lines** nor **dialog_vars.no_lines** is set.
- if **dialog_vars.ascii_lines** is set, returns the corresponding "+" or "-", etc., for the line-drawing characters used in **dialog**.
- otherwise, if **dialog_vars.no_lines** is set, returns a space for the line-drawing characters.
- if the parameter is not a line-drawing or other special character such as ACS_DARROW, it returns the parameter unchanged.

dlg_box_x_ordinate

returns a suitable x-ordinate (column) for a new widget. If **dialog_vars.begin_set** is 1, use **dialog_vars.begin_x**; otherwise center the widget on the screen (using the *width* parameter).

int *width*

is the width of the widget.

dlg_box_y_ordinate

returns a suitable y-ordinate (row) for a new widget. If **dialog_vars.begin_set** is 1, use **dialog_vars.begin_y**; otherwise center the widget on the screen (using the *height* parameter).

int *height*

is the height of the widget.

dlg_buildlist

This is an alternate interface to the **buildlist** widget which allows the application to read the list item states back directly without putting them in the output buffer.

const char * *title*

is the title string to display at the top of the widget.

const char * *cprompt*

is the prompt text shown within the widget.

int *height*

is the desired height of the box. If zero, the height is adjusted to use the available screen size.

int *width*

is the desired width of the box. If zero, the height is adjusted to use the available screen size.

int *list_height*

is the minimum height to reserve for displaying the list. If zero, it is computed based on the given *height* and *width*.

int *item_no*

is the number of rows in *items*.

DIALOG_LISTITEM * *items*

is the list of items, contain tag, name, and optionally help strings (if **dialog_vars.item_help** is set). The initial selection state for each item is also in this list.

const char * *states*

This is a list of characters to display for the given states. Normally a buildlist provides true (1) and false (0) values, which the widget displays as "*" and space, respectively. An application may set this parameter to an arbitrary null-terminated string. The widget determines the number of states from the length of this string, and will cycle through the corresponding display characters as the user presses the space-bar.

int *order_mode*

is reserved for future enhancements

int * *current_item*

The widget sets the referenced location to the index of the current display item (cursor) when it returns.

dlg_button_count

Count the buttons in the list.

const char ** *labels*

is a list of (pointers to) button labels terminated by a null pointer.

dlg_button_key

If a key was bound to one of the button-codes in **dlg_result_key**, fake a button-value and an “Cancel” key to cause the calling widget to return the corresponding status.

See **dlg_ok_buttoncode**, which maps settings for ok/extra/help and button number into exit-code.

dlg_button_layout

Make sure there is enough space for the buttons by computing the width required for their labels, adding margins and limiting based on the screen size.

const char ** *labels*

is a list of (pointers to) button labels terminated by a null pointer.

int * *limit*

the function sets the referenced *limit* to the width required for the buttons (limited by the screen size) if that is wider than the passed-in limit.

dlg_button_sizes

Compute the size of the button array in columns.

const char ** *labels*

is a list of (pointers to) button labels terminated by a null pointer.

int *vertical*

is true if the buttons are arranged in a column rather than a row.

int * *longest*

Return the total number of columns in the referenced location.

int * *length*

Return the longest button’s columns in the referenced location.

dlg_button_to_char

Find the first uppercase character in the label, which we may use for an abbreviation. If the label is empty, return -1. If no uppercase character is found, return 0. Otherwise return the uppercase character.

Normally **dlg_draw_buttons** and **dlg_char_to_button** use the first uppercase character. However, they keep track of all of the labels and if the first has already been used in another label, they will continue looking for another uppercase character. This function does not have enough information to make that check.

const char * *label*

is the label to test.

dlg_button_x_step

Compute the step-size needed between elements of the button array.

const char ** *labels*

is a list of (pointers to) button labels terminated by a null pointer.

int *limit*

is the maximum number of columns to allow for the buttons.

int * *gap*

store the nominal gap between buttons in the referenced location. This is constrained to be at least one.

int * margin
store the left+right total margins (for the list of buttons) in the referenced location.

int * step
store the step-size in the referenced location.

dlg_calc_list_width

Calculate the minimum width for the list, assuming none of the items are truncated.

int item_no
is the number of *items*.

DIALOG_LISTITEM * items

contains a *name* and *text* field, e.g., for checklists or radiobox lists. The function returns the sum of the widest columns needed for of each of these fields.

If **dialog_vars.no_items** is set, the *text* fields in the list are ignored.

dlg_calc_listh

Calculate new height and list_height values.

int * height
on input, is the height without adding the list-height. On return, this contains the total list-height and is the actual widget's height.

int * list_height
on input, is the requested list-height. On return, this contains the number of rows available for displaying the list after taking into account the screen size and the **dialog_vars.begin_set** and **dialog_vars.begin_y** variables.

int item_no
is the number of *items* in the list.

dlg_calc_listw

This function is obsolete, provided for library-compatibility. It is replaced by **dlg_calc_list_width**.

int item_no
is the number of *items*.

char ** items
is a list of character pointers.

int group
is the number of items in each group, e.g., the second array index.

dlg_char_to_button

Given a list of button labels, and a character which may be the abbreviation for one, find it, if it exists. An abbreviation will be the first character which happens to be capitalized in the label. If the character is found, return its index within the list of *labels*. Otherwise, return **DLG_EXIT_UNKNOWN**.

int ch
is the character to find.

const char ** labels
is a list of (pointers to) button labels terminated by a null pointer.

dlg_checklist

This entrypoint provides the **--checklist** or **--radiolist** functionality without the limitations of **dialog's** command-line syntax (compare to **dialog_checklist**).

const char * title
is the title string to display at the top of the widget.

const char * cprompt
is the prompt text shown within the widget.

int *height*

is the desired height of the box. If zero, the height is adjusted to use the available screen size.

int *width*

is the desired width of the box. If zero, the height is adjusted to use the available screen size.

int *list_height*

is the minimum height to reserve for displaying the list. If zero, it is computed based on the given *height* and *width*.

int *item_no*

is the number of *items*.

DIALOG_LISTITEM * *items*

This is a list of the items to display in the checklist.

const char * *states*

This is a list of characters to display for the given states. Normally a checklist provides true (1) and false (0) values, which the widget displays as "*" and space, respectively. An application may set this parameter to an arbitrary null-terminated string. The widget determines the number of states from the length of this string, and will cycle through the corresponding display characters as the user presses the space-bar.

int *flag*

This should be one of **FLAG_CHECK** or **FLAG_RADIO**, depending on whether the widget should act as a checklist or radiobox.

int * *current_item*

The widget sets the referenced location to the index of the current display item (cursor) when it returns.

dlg_check_scrolled

given a function key (or other key that was mapped to a function key), check if it is one of the up/down scrolling functions:

```
DLGK_PAGE_FIRST,
DLGK_PAGE_LAST,
DLGK_GRID_UP,
DLGK_GRID_DOWN,
DLGK_PAGE_PREV or
DLGK_PAGE_NEXT.
```

Some widgets use these key bindings for scrolling the prompt-text up and down, to allow for display in very small windows.

The function returns 0 (zero) if it finds one of these keys, and -1 if not.

int *key*

is the function-key to check

int *last*

is the number of lines which would be used to display the scrolled prompt in an arbitrarily tall window. It is used here to check limits for the *offset* value.

int *page*

this is the available height for writing scrolled text, which is smaller than the window if it contains buttons.

bool * *show*

on return, holds TRUE if **dlg_print_scrolled** should be used to redisplay the prompt text.

int * *offset*

on entry, holds the starting line number (counting from zero) last used for **dlg_print_scrolled**. On return, holds the updated starting line number.

dlg_clear

Set window to the default **dialog** screen attribute. This is set in the rc-file with **screen_color**.

dlg_clr_result

Free storage used for the result buffer (**dialog_vars.input_result**). The corresponding pointer is set to NULL.

dlg_color_count

Return the number of colors that can be configured in **dialog**.

dlg_color_setup

Initialize the color pairs used in **dialog**.

dlg_count_argv

Count the entries in an argument vector.

argv Points to the argument vector.

dlg_count_columns

Returns the number of columns used for a string. This is not necessarily the number of bytes in a string.

const char * *string*

is the string to measure.

dlg_count_real_columns

Returns the number of columns used for a string, accounting for "\Z" sequences which can be used for coloring the text if **dialog_vars.colors** is set. This is not necessarily the number of bytes in a string.

const char * *string*

is the string to measure.

dlg_count_wchars

Returns the number of wide-characters in the string.

const char * *string*

is the string to measure.

dlg_create_rc

Create a configuration file, i.e., write internal tables to a file which can be read back by **dialog** as an rc-file.

const char * *filename*

is the name of the file to write to.

dlg_ctl_size

If **dialog_vars.size_err** is true, check if the given window size is too large to fit on the screen. If so, exit with an error reporting the size of the window.

int *height*

is the window's height

int *width*

is the window's width

dlg_default_button

If **dialog_vars.default_button** is positive, return the button-index for that button code, using **dlg_ok_buttoncode** to test indices starting with zero. Otherwise (or if no match was found for the button code), return zero.

dlg_default_formitem

If **dialog_vars.default_item** is not null, find that name by matching the *name* field in the list of form *items*. If found, return the index of that item in the list. Otherwise, return zero.

DIALOG_FORMITEM * *items*

is the list of items to search. It is terminated by an entry with a null *name* field.

dlg_default_item

This function is obsolete, provided for library-compatibility. It is replaced by **dlg_default_formitem** and **dlg_default_listitem**.

char ** *items*

is the list of items to search.

int *llen*

is the number of items in each group, e.g., the second array index.

dlg_defaultno_button

If **dialog_vars.defaultno** is true, and **dialog_vars.nocancel** is not, find the button-index for the “Cancel” button. Otherwise, return the index for “OK” (always zero).

dlg_del_window

Remove a window, repainting everything else.

WINDOW * *win*

is the window to remove.

dlg_der_window

create a derived window, e.g., for an input area of a widget

WINDOW * *win*

is the parent window

int *height*

is the subwindow’s height

int *width*

is the subwindow’s width

int *y* is the subwindow’s top-row

int *x* is the subwindow’s left-column

dlg_does_output

This is called each time a widget is invoked which may do output. It increments **dialog_state.output_count**, so the output function in **dialog** can test this and add a separator.

dlg_draw_arrows

Draw up/down arrows on a window, e.g., for scrollable lists. It calls **dlg_draw_arrows2** using the *menubox_color* and *menubox_border_color* attributes.

WINDOW * *dialog*

is the window on which to draw an arrow.

int *top_arrow*

is true if an up-arrow should be drawn at the top of the window.

int *bottom_arrow*

is true if a down-arrow should be drawn at the bottom of the window.

int *x* is the zero-based column within the window on which to draw arrows.

int *top*

is the zero-based row within the window on which to draw up-arrows as well as a horizontal line to show the window’s top.

int *bottom*

is the zero-based row within the window on which to draw down-arrows as well as a horizontal line to show the window’s bottom.

dlg_draw_arrows2

Draw up/down arrows on a window, e.g., for scrollable lists.

WINDOW * dialog

is the window on which to draw an arrow.

int top_arrow

is true if an up-arrow should be drawn at the top of the window.

int bottom_arrow

is true if a down-arrow should be drawn at the bottom of the window.

int x is the zero-based column within the window on which to draw arrows.

int top

is the zero-based row within the window on which to draw up-arrows as well as a horizontal line to show the window's top.

int bottom

is the zero-based row within the window on which to draw down-arrows as well as a horizontal line to show the window's bottom.

chtype attr

is the window's background attribute.

chtype borderattr

is the window's border attribute.

dlg_draw_bottom_box

Draw a partial box at the bottom of a window, e.g., to surround a row of buttons. It is designed to merge with an existing box around the whole window (see **dlg_draw_box**), so it uses tee-elements rather than corner-elements on the top corners of this box.

WINDOW * win

is the window to update.

dlg_draw_bottom_box2

Draw a partial box at the bottom of a window, e.g., to surround a row of buttons. It is designed to merge with an existing box around the whole window (see **dlg_draw_box2**), so it uses tee-elements rather than corner-elements on the top corners of this box.

WINDOW * win

is the window to update.

chtype on_left

is used to color the upper/left edges of the box, i.e., the tee-element and horizontal line

chtype on_right

is used to color the right edge of the box, i.e., the tee-element

chtype on_inside

is used to fill-color the inside of the box

dlg_draw_box

Draw a rectangular box with line drawing characters.

WINDOW * win

is the window to update.

int y is the top row of the box.

int x is the left column of the box.

int height

is the height of the box.

int *width*
is the width of the box.

chtype *boxchar*
is used to color the right/lower edges. It also is fill-color used for the box contents.

chtype *borderchar*
is used to color the upper/left edges.

dlg_draw_box2

Draw a rectangular box with line drawing characters.

WINDOW * *win*
is the window to update.

int *y* is the top row of the box.

int *x* is the left column of the box.

int *height*
is the height of the box.

int *width*
is the width of the box.

chtype *boxchar*
is used to fill-color for the box contents.

chtype *borderchar*
is used to color the upper/left edges.

chtype *borderchar2*
is used to color the right/lower edges.

dlg_draw_buttons

Print a list of buttons at the given position.

WINDOW * *win*
is the window to update.

int *y* is the starting row.

int *x* is the starting column.

const char ** *labels*
is a list of (pointers to) button labels terminated by a null pointer.

int *selected*
is the index within the list of the selected button.

int *vertical*
is true if the buttons are arranged in a column rather than a row.

int *limit*
is the number of columns (or rows if *vertical*) allowed for the display.

dlg_draw_helpline

draw the text in **dialog_vars.help_line** at the bottom of the given window.

WINDOW * *dialog*
is the window to modify.

bool *decorations*
if true, allow room for the scrolling arrows.

dlg_draw_scrollbar

If **dialog_state.use_scrollbar** is set, draw a scrollbar on the right margin of windows holding scrollable data. Also (whether or not the scrollbar is drawn), annotate the bottom margin of the window with the

percentage of data by the bottom of that window, and call **dlg_draw_arrows2** to put markers on the window showing when more data is available.

WINDOW * *win*

is the window in which the data is scrolled. Because *left*, *right*, *top*, *bottom* are passed as parameters, this window can contain additional data.

long *first_data*

is the zero-based index to the first row of data in the current window.

long *this_data*

is the zero-based index to the current row of data.

long *next_data*

is the zero-based index to the next data after the current row.

long *total_data*

is the total number of rows of data.

int *left*

is the zero-based left margin/column of the window. The up/down arrows are drawn inset by 5 columns from this point.

int *right*

is the zero-based right margin/column of the window. The scrollbar is drawn flush against this column.

int *top*

is the zero-based row within the window on which to draw up-arrows as well as a horizontal line to show the window's top.

int *bottom*

is the zero-based row within the window on which to draw down-arrows as well as a horizontal line to show the window's bottom.

chtype *attr*

is the window's background attribute.

chtype *borderattr*

is the window's border attribute.

dlg_draw_shadow

Draw shadows along the right and bottom edge of a window to give it a 3-dimensional look. (The height, etc., may not be the same as the window's actual values).

WINDOW * *win*

is the window to update.

int *height*

is the height of the window.

int *width*

is the width of the window.

int *y* is the top row of the window.

int *x* is the left column of the window.

dlg_draw_title

Draw a title centered at the top of the window.

WINDOW * *win*

is the window to update.

const char * title

is the title string to display at the top of the widget.

dlg_dummy_menutext

This is a utility function which supports the `--inputmenu` option of the **dialog** program. If **dialog_vars.input_menu** is set, **dialog_menu** passes this pointer to **dlg_menu** as the *rename_menutext* parameter. Otherwise, it passes **dlg_dummy_menutext**.

The function should only return **DLG_EXIT_ERROR**.

DIALOG_LISTITEM * items

is the list of menu items

int current

is the index of the currently-selected item

char * newtext

is the updated text for the menu item

dlg_dump_keys

Write all user-defined key-bindings to the given stream, e.g., as part of **dlg_create_rc**.

FILE * fp

is the stream on which to write the bindings.

dlg_dump_window_keys

Write all user-defined key-bindings to the given stream, e.g., as part of **dlg_create_rc**.

FILE * fp

is the stream on which to write the bindings.

WINDOW * win

is the window for which bindings should be dumped. If it is null, then only built-in bindings are dumped.

dlg_eat_argv

Remove one or more items from an argument vector.

int * argcp

in/out parameter giving the length of the argument vector. **char *** argvp** in/out parameter pointing to the argument vector. **int start** starting index. **int count** number of arguments to remove.

dlg_edit_offset

Given the character-offset in the string, returns the display-offset where **dialog** should position the cursor. In this context, “characters” may be multicolumn, since the string can be a multibyte character string.

char * string

is the string to analyze

int offset

is the character-offset

int x_last

is a limit on the column positions that can be used, e.g., the window’s size.

dlg_edit_string

Updates the string and character-offset, given various editing characters or literal characters which are inserted at the character-offset. Returns true if an editing change was made (and the display should be updated), and false if the key was something like **KEY_ENTER**, which is a non-editing action outside this function.

char * string

is the (multibyte) string to update

int * *offset*
is the character-offset

int *key*
is the editing key

int *fkey*
is true if the editing key is a function-key

bool *force*
is used in a special loop case by calling code to force the return value of this function when a function-key code 0 is passed in.

dlg_exit

Given an internal exit code, check if the corresponding environment variable is set. If so, remap the exit code to match the environment variable. Finally call **exit** with the resulting exit code.

int *code*
is the internal exit code, e.g., **DLG_EXIT_OK**, which may be remapped.

The **dialog** program uses this function to allow shell scripts to remap the exit codes so they can distinguish ESC from ERROR.

dlg_exitcode2s

Returns the name of an exit-code, e.g., “OK” for **DLG_EXIT_OK**.

int *code*
is an exit-code for **dialog** as defined in **<dialog.h>**.

dlg_exitname2n

Returns an exit-code as the reverse of **dlg_exitcode2n**, e.g., 0 (**DLG_EXIT_OK**) for the “OK” string.

const char * *name*
is the name of an exit-code for **dialog** as defined in **<dialog.h>** but omitting the “DLG_EXIT_” prefix.

dlg_exit_buttoncode

Map the given button index for **dlg_exit_label** into **dialog**’s exit-code.

int *button*
is the button index

dlg_exit_label

Return a list of button labels. If **dialog_vars.extra_button** is true, return the result of **dlg_ok_labels**. Otherwise, return a list with the “Exit” label and (if **dialog_vars.help_button** is set) the “Help” button as well.

dlg_exiterr

Quit program killing all **tailboxbg** widgets.

const char * *fmt*
is the format of the **printf**-like message to write.

...

are the variables to apply to the *fmt* format.

dlg_find_index

Given the character-offset to find in the list, return the corresponding array index.

const int **list*
contains a list of character-offsets, i.e., indices into a string that denote the beginning of multibyte characters.

int *limit*
is the last index into **list** to search.

int *to_find*
is the character-offset to find.

dlg_finish_string

If `DIALOG_STATE.finish_string` is true, this function discards data used to speed up layout computations.

const char * *string*
is the address of the string whose data should be discarded. The address rather than contents is used as the unique identifier because some of the caching is used for editable input-fields.

dlg_flush_getc

Cancel the local data saved by **dlg_last_getc**.

dlg_editbox

This entrypoint provides the `--editbox` functionality without the limitations of **dialog**'s command-line syntax (compare to **dialog_editbox**).

const char * *title*
is the title string to display at the top of the widget.

char *** *list*
is a pointer to an array of **char *** pointers. The array is allocated by the caller, and so are the strings to which it points. The **dlg_editbox** function may reallocate the array and the strings.

int * *rows*
points to the nominal length of *list*. The referenced value is updated if *list* is reallocated.

int *height*
is the desired height of the box. If zero, the height is adjusted to use the available screen size.

int *width*
is the desired width of the box. If zero, the height is adjusted to use the available screen size.

dlg_form

This entrypoint provides the `--form` functionality without the limitations of **dialog**'s command-line syntax (compare to **dialog_form**).

const char * *title*
is the title string to display at the top of the widget.

const char * *cprompt*
is the prompt text shown within the widget.

int *height*
is the desired height of the box. If zero, the height is adjusted to use the available screen size.

int *width*
is the desired width of the box. If zero, the height is adjusted to use the available screen size.

int *form_height*
is the minimum height to reserve for displaying the list. If zero, it is computed based on the given *height* and *width*.

int *item_no*
is the number of *items*.

DIALOG_FORMITEM * *items*
This is a list of the items to display in the form.

int * *current_item*
The widget sets the referenced location to the index of the current display item (cursor) when it returns.

dlg_free_columns

Free data allocated by **dlg_align_columns**.

char **target

This is the array which was reformatted. It points to the first string to free.

int per_row

This is the size of the struct for each row of the array.

int num_rows

This is the number of rows in the array.

dlg_free_formitems

Free memory owned by a list of DIALOG_FORMITEM's.

DIALOG_FORMITEM * items

is the list to free.

dlg_free_gauge

Remove the gauge widget from the screen and free its associated memory.

void *objptr

points to the gauge widget.

dlg_getc

Read a character from the given window. Handle repainting here (to simplify things in the calling application). Also, if input-callback(s) are set up, poll the corresponding files and handle the updates, e.g., for displaying a tailbox. Returns the key-code.

WINDOW * win

is the window within which to read.

int * fkey

as a side-effect, set this to true if the key-code is really a function-key.

dlg_getenv_num

Get a number from the environment:

- If the caller provides a pointer in the second parameter, return success/failure for the function return, and the actual value via the pointer. Use this for decoding arbitrary numbers, e.g., negative or zero.
- If the caller does not provide a pointer, return the decoded value for the function-return. Use this when only values greater than zero are useful.

char * name

is the name of the environment-variable to retrieve.

int * value

is the optional pointer to a return-value.

dlg_getenv_str

Get a string from the environment, rejecting those which are entirely blank.

char * name

is the name of the environment-variable to retrieve.

dlg_get_attrs

extract the video attributes from the given window.

WINDOW * win

is the window from which to get attributes.

dlg_getc_callbacks

passes the given key-code *ch* to the current window that has established a callback. If the callback returns zero, remove it and try the next window. If no more callbacks remain, return. If any callbacks were found, return true, otherwise false.

int *ch*

is the key-code

int *fkey*

is true if the key is a function-key

int * *result*

is used to pass an exit-code to the caller, which should pass that via **dlg_exit**.

dlg_index_columns

Build a list of the display-columns for the given multibyte string's characters.

const char * *string*

is the string to analyze

dlg_index_wchars

Build an index of the wide-characters in the string, so the caller can easily tell which byte-offset begins a given wide-character.

const char * *string*

is the string to analyze

dlg_item_help

Draw the string for the **dialog_vars.item_help** feature.

const char * *txt*

is the help-message

dlg_keep_tite

This performs the check and modifications for the command-line option "**--keep-tite**", used in **init_dialog** as well as for the command-line option **--erase-on-exit**.

FILE * *output*

is the output stream used for displaying widgets. It is either *stdout* or *stderr*, depending on the **--stdout** option.

dlg_killall_bg

If **dialog** has callbacks active, purge the list of all that are not marked to keep in the background. If any remain, run those in a background process.

int * *retval*

stores the exit-code to pass back to the caller.

dlg_last_getc

returns the most recent character that was read via **dlg_getc**.

dlg_limit_columns

Given a column limit, count the number of wide characters that can fit into that limit. The offset is used to skip over a leading character that was already written.

const char * *string*

is the string to analyze

int *limit*

is the column limit

int *offset*

is the starting offset from which analysis should continue

dlg_lookup_key

Check for a key-binding. If there is no binding associated with the widget, it simply returns the given curses-key. Otherwise, it returns the result of the binding

WINDOW * *win*

is the window on which the binding is checked

int *curses_key*
is the curses key-code

int * *dialog_key*
is the corresponding **dialog** internal code (see **DLG_KEYS_ENUM** in *dlg_key.h*).

dlg_max_input

Limit the parameter according to **dialog_vars.max_input**

int *max_len*
is the value to limit. If it is less than or equal to zero, the return value is the maximum value for **dialog_vars.max_input**.

dlg_match_char

Match a given character against the beginning of the string, ignoring case of the given character. The matching string must begin with an uppercase character.

int *ch*
is the character to check

const char * *string*
is the string to search

dlg_menu

This entypoint provides the **--menu** functionality without the limitations of **dialog**'s command-line syntax (compare to **dialog_menu**).

const char * *title*
is the title string to display at the top of the widget.

const char * *cprompt*
is the prompt text shown within the widget.

int *height*
is the desired height of the box. If zero, the height is adjusted to use the available screen size.

int *width*
is the desired width of the box. If zero, the height is adjusted to use the available screen size.

int *menu_height*
is the minimum height to reserve for displaying the list. If zero, it is computed based on the given *height* and *width*.

int *item_no*
is the number of *items*.

DIALOG_LISTITEM * *items*
This is a list of the items to display in the form.

int * *current_item*
The widget sets the referenced location to the index of the current display item (cursor) when it returns.

DIALOG_INPUTMENU *rename_menutext*

If this is not **dlg_dummy_menutext**, the widget acts like an *inputmenu* widget, providing an extra "Rename" button, which activates an edit feature on the selected menu item.

dlg_move_window

Moves/resizes the given window to the given position and size.

WINDOW **win*
is the window to move/resize.

WINDOW **height*
is the height of the resized window.

WINDOW *width

is the width of the resized window.

WINDOW *y

y-ordinate to use for the repositioned window.

WINDOW *x

x-ordinate to use for the repositioned window.

dlg_mouse_bigregion

Retrieve the big-region under the pointer.

int *y* is the row on which the mouse click occurred

int *x* is the column on which the mouse click occurred

dlg_mouse_free_regions

Free the memory associated with mouse regions.

dlg_mouse_mkbigregion

Creates a region on which the mouse-clicks will return a specified code.

int *y* is the top-row of the region.

int *x* is the left-column of the region.

int *height*

is the height of the region.

int *width*

is the width of the region.

int *code*

is a code used to make the region unique within a widget

int *step_x*

is used in modes 2 (columns) and 3 (cells) to determine the width of a column/cell.

int *step_y*

is currently unused

int *mode*

is used to determine how the mouse position is translated into a code (like a function-key):

1 index by lines

2 index by columns

3 index by cells

dlg_mouse_mkregion

int *y* is the top-row of the region.

int *x* is the left-column of the region.

int *height*

is the height of the region.

int *width*

is the width of the region.

int *code*

is a code used to make the region unique within a widget

dlg_mouse_region

Retrieve the frame under the mouse pointer

int *y* is the row of the mouse-click

int *x* is the column of the mouse-click

dlg_mouse_setbase

Sets a base for subsequent calls to **dlg_mouse_mkregion**, so they can make regions relative to the start of a given window.

int *x* is the left-column for the base

int *y* is the top-row for the base

dlg_mouse_setcode

Sets a value used internally by **dlg_mouse_mkregion** which is added to the *code* parameter. By providing different values, e.g., multiples of **KEY_MAX**, it is possible to support multiple “big” regions in a widget. The *builddlist* widget uses this feature to recognize mouse-clicks in the left/right panes.

int *code*

is the value to add to **dlg_mouse_mkregion**’s *code* parameter.

dlg_mouse_wgetch

is a wrapper for **dlg_getc** which additionally maps mouse-clicks (if the curses library supports those) into extended function-keys which encode the position according to the *mode* in **dlg_mouse_mkbigregion**. Returns the corresponding key-code.

WINDOW * *win*

is the window on which to perform the input

int * *fkey*

the referenced location is set to true if the key-code is an actual or extended (mouse) function-key.

dlg_mouse_wgetch_nowait

This is a non-blocking variant of **dlg_mouse_wgetch**.

WINDOW * *win*

is the window on which to perform the input

int * *fkey*

the referenced location is set to true if the key-code is an actual or extended (mouse) function-key.

dlg_need_separator

Check if an output-separator is needed. If **dialog_vars.output_separator** is set, return true. Otherwise, if **dialog_vars.input_result** is nonempty, return true. If neither, return false.

dlg_new_modal_window

Create a modal window, optionally with a shadow. The shadow is created if **dialog_state.use_shadow** is true.

WINDOW * *parent*

is the parent window (usually the top-level window of a widget)

int *height*

is the window’s height

int *width*

is the window’s width

int *y* is the window’s top-row

int *x* is the window’s left-column

dlg_new_window

Create a window, optionally with a shadow. The shadow is created if **dialog_state.use_shadow** is true.

int *height*

is the window’s height

int *width*
is the window's width

int *y* is the window's top-row

int *x* is the window's left-column

dlg_next_button

Return the next index in the list of labels.

const char ** *labels*
is a list of (pointers to) button labels terminated by a null pointer.

int *button*
is the current button-index.

dlg_next_ok_buttonindex

Assuming that the caller is using **dlg_ok_labels** to list buttons, find the next index in the list of buttons.

int *current*
is the current index in the list of buttons

int *extra*
if negative, provides a way to enumerate extra active areas on the widget.

dlg_ok_buttoncode

Map the given button index for **dlg_ok_labels** into **dialog**'s exit-code.

int *button*
is the button-index (which is not necessarily the same as the index in the list of labels).

dlg_ok_button_key

Calls **dlg_button_key** with the "Cancel" button disabled, e.g., for the textbox widget.

dlg_ok_label

Returns a list with the "Ok" label, and if **dialog_vars.help_button** is true, the "Help" label as well.

dlg_ok_labels

Return a list of button labels for the OK/Cancel group of widgets.

dlg_ordinate

Decode the string as an integer, decrement if greater than zero to make a curses-ordinate from a dialog-ordinate.

dlg_parse_bindkey

Parse the parameters of the "bindkeys" configuration-file entry. This expects widget name which may be "*", followed by curses key definition and then **dialog** key definition.

char * *params*
is the parameter string to parse.

dlg_parse_rc

Parse the configuration file and set up variables.

dlg_popen

Open a pipe which ties the standard error and output together. The **popen** function captures only the standard output of a command.

const char * *command*
The shell command to run.

const char * *type*
Like **popen**, "r" is used to read, and "w" is used to write.

dlg_prev_button

Return the previous index in the list of labels.

const char ** labels

is a list of (pointers to) button labels terminated by a null pointer.

int button

is the current button index

dlg_print_listitem

This is a helper function used for the various “list” widgets, e.g., checklist, menu, buidlist, treeview. Each list-widget has “tag” and “description” values for each item which can be displayed. If **dialog_vars.no_tags** is true, the “tag” value is not shown. The first character of the first value shown (tag or description) is highlighted to indicate that the widget will match it for quick navigation.

WINDOW *win

the window in which to display the text

const char *text

the value to display

int climit

the number of columns available for printing the text

bool first

true if this is the first call (for “tag” and “description”), and the first character of the value should be highlighted.

int selected

nonzero if the text should be displayed using the “selected” colors

dlg_print_scrolled

This is a wrapper for **dlg_print_autowrap** which allows the user to scroll too-long prompt text up/down.

See **dlg_check_scrolled** for a function which updates the *offset* variable used as a parameter here. It complements this function; you need both. If *pauseopt* is set, this function returns an updated *last* parameter, needed for **dlg_check_scrolled** calls.

WINDOW * win

is the window to update.

const char * prompt

is the string to print

int offset

is the starting line-number to write wrapped text.

int height

is the available height for writing the wrapped text

int width

is the width that the wrapping should occur in

int pauseopt

is true if the extra functionality for scrolling should be enabled. If false, this calls **dlg_print_autowrap** without doing any scrolling.

dlg_print_line

Print one line of the prompt in the window within the limits of the specified right margin. The line will end on a word boundary and a pointer to the start of the next line is returned, or a NULL pointer if the end of *prompt is reached.

WINDOW *win

is the window to update.

chtype *attr

holds the starting attributes, and is updated to reflect the final attributes applied to the string.

const char *prompt
is the string to print

int lm
is the left margin.

int rm
is the right margin

int *x
returns the ending x-ordinate.

dlg_prev_ok_buttonindex

Find the previous button index in the list from **dlg_ok_labels**.

int current
is the current index

int extra
if negative provides a way to enumerate extra active areas on the widget.

dlg_print_autowrap

Print a string of text in a window, automatically wrap around to the next line if the string is too long to fit on one line. Note that the string may contain embedded newlines. The text is written starting at the top of the window.

WINDOW * win
is the window to update.

const char * prompt
is the string to print

int height
is the nominal height the wrapped string is limited to

int width
is the width that the wrapping should occur in

dlg_print_size

If **dialog_vars.print_siz** is true, print the given height/width (from a widget) to **dialog_state.output**, e.g.,
Size: height, width.

int height
is the window's height

int width
is the window's width

dlg_print_text

Print up to *cols* columns from **text**, optionally rendering **dialog**'s escape sequences for attributes and color.

WINDOW * win
is the window to update.

const char * txt
is the string to print

int col
is the column limit

chtype * attr
holds the starting attributes, and is updated to reflect the final attributes applied to the string.

dlg_progressbox

implements the "**--prgbox**" and "**--progressbox**" options.

const char * title

is the title on the top of the widget.

const char * cprompt

is the prompt text shown within the widget. If empty or null, no prompt is shown.

int height

is the desired height of the box. If zero, the height is based on the screen size.

int width

is the desired width of the box. If zero, the height is based on the screen size.

int pauseopt

if true, an “OK” button will be shown, and the dialog will wait for it to complete. With an “OK” button, it is denoted a “progressbar”, without an “OK” button, it is denoted a “progressbox”.

FILE * fp

is the file pointer, which may be a pipe or a regular file.

dlg_put_backtitle

Display the background title if **dialog_vars.backtitle** is non-null. The background title is shown at the top of the screen.

dlg_reallocate_gauge

Allocates or reallocates a gauge widget (see **dlg_allocate_gauge**). Use **dlg_update_gauge** to display the result.

void ** objptr

If the pointer referenced by this parameter is null, the function creates a new gauge widget using **dlg_allocate_gauge**. Otherwise, it updates the title and cprompt values, reusing the window from the previous call on this function. As a side-effect, the function stores the updated object-pointer via the *objptr* parameter.

const char * title

is the title string to display at the top of the widget.

const char * cprompt

is the prompt text shown within the widget.

int height

is the desired height of the box. If zero, the height is adjusted to use the available screen size.

int width

is the desired width of the box. If zero, the height is adjusted to use the available screen size.

int percent

is the percentage to show in the progress bar.

dlg_register_buttons

The widget developer should call this function after **dlg_register_window**, for the list of button labels associated with the widget. One may bind a key to a button, e.g., “OK” for **DLGK_OK**,

WINDOW * win

is the window with which to associate the buttons

const char * name

is the widget’s binding name (usually the name of the widget).

const char ** buttons

is the list of buttons

dlg_register_window

For a given named widget’s window, associate a binding table.

WINDOW * *win*

is the window with which to associate the buttons

const char * *name*

is the widget's binding name (usually the name of the widget).

DLG_KEYS_BINDING * *binding*

is the binding table

dlg_remove_callback

Remove a callback.

DIALOG_CALLBACK * *p*

contains the callback information.

dlg_renamed_menutext

This is a utility function which supports the `--inputmenu` option of the `dialog` program. If `dialog_vars.input_menu` is set, `dialog_menu` passes this pointer to `dlg_menu` as the `rename_menutext` parameter. Otherwise, it passes `dlg_dummy_menutext`.

The function should add "RENAMED" to `dialog_vars.input_result`, followed by the menu item's name and the `newtext` value (with a space separating the three items), and return `DLG_EXIT_EXTRA`.

DIALOG_LISTITEM * *items*

is the list of menu items

int *current*

is the index of the currently-selected item

char * *newtext*

is the updated text for the menu item

dlg_reset_timeout

Calls `wtimeout` with the value saved for a window in the last call to `dlg_set_timeout`.

dlg_restore_vars

Restore `dialog`'s variables from the given variable (see `dialog_save_vars`).

DIALOG_VARS * *save*

is the variable from which to restore.

The `DIALOG_VARS.input_length` and `DIALOG_VARS.input_result` members are treated specially, since these are used by a widget to pass data to the caller. They are not modified by this function.

dlg_result_key

Test a `dialog` internal keycode to see if it corresponds to one of the push buttons on the widget such as "OK". This is only useful if there are user-defined key bindings, since there are no built-in bindings that map directly to `DLGK_OK`, etc. Return true if a mapping was done.

int *dialog_key*

is the `dialog` key to test

int *fkey*

is true if this is a function key

int * *resultp*

store the result of the mapping in the referenced location.

dlg_save_vars

Save `dialog`'s variables into the given variable (see `dlg_restore_vars`).

DIALOG_VARS * *save*

is the variable into which to save.

dlg_set_focus

Set focus on the given window, making it display above other windows on the screen.

WINDOW * *parent*

is the parent window (usually the top-level window of a widget)

WINDOW * *win*

is the window on which to place focus (usually a subwindow of a widget)

dlg_set_result

Setup a fixed-buffer for the result in **dialog_vars.input_result**

const char * *string*

is the new contents for the result

dlg_set_timeout

Calls **wtimeout** to establish a preferred timeout for nonblocking reads, e.g., to allow the gauge widget to handle window-resizing events. The **dlg_may_resize** function temporarily overrides this value, to allow it to skip over the error codes returned while the ncurses library processes window-resizing events. It restores the value established in this call by calling **dlg_restore_timeout**.

WINDOW * *win*

is the window whose input-timeout should be set

bool *will_getc*

is true if the widget is expected to read keyboard characters. Some (such as the gauge widget) do not.

dlg_show_string

Displays the string, shifted as necessary, to fit within the box and show the current character-offset.

WINDOW * *win*

is the window within which to display

const char * *string*

is the string to display

int *offset*

is the starting (character, not bytes) offset

chtype *attr*

is the window attribute to use for the string

int *y_base*

beginning row on screen

int *x_base*

beginning column on screen

int *x_last*

number of columns on screen

bool *hidden*

if true, do not echo input

bool *force*

if true, force repaint

dlg_strclone

duplicate the string, like **strdup**.

const char * *cprompt*

is the string to duplicate

dlg_strcmp

compare two strings, ignoring case.

const char * a

is one string

const char * b

is the other string

dlg_string_to_argv

Convert a string to an argument vector returning an index (which must be freed by the caller). The string is modified:

- Blanks between arguments are replaced by nulls.
- Normally arguments are separated by blanks; however you can double-quote an argument to enclose blanks. The surrounding double-quotes are removed from the string.
- A backslash preceding a double-quote within double-quotes is removed.
- A backslash preceding a newline outside double-quotes is removed.
- Except for special cases, backslashes are preserved in the strings, since other **dialog** functions interpret backslashes, e.g., for colors.

char *blob

is the string to convert.

dlg_sub_window

create a subwindow, e.g., for an input area of a widget

WINDOW * win

is the parent window

int height

is the subwindow's height

int width

is the subwindow's width

int y is the subwindow's top-row

int x is the subwindow's left-column

dlg_tab_correct_str

If the **dialog_vars.tab_correct** is true, convert tabs to single spaces. Return the converted result. The caller is responsible for freeing the string.

char * prompt

is the string to convert

dlg_trace

If the parameter is non-null, opens a trace file with that name and stores the file pointer in **dialog_state.trace**.

dlg_trace_2n

logs a numeric value as a comment.

char * name

is the name to log in the comment.

int value

is the value to log in the comment.

dlg_trace_2s

logs a string value as a comment. If the value contains embedded newlines, the comment is continued with “#+” markers.

char * name

is the name to log in the comment.

int value
is the value to log in the comment.

dlg_trace_chr

If **dialog_state.trace** is set, translate the parameters into a printable representation, log it on a “chr” line.

int ch
is the nominal keycode value.

int fkey
is nonzero if the value is really a function key. Some of these may be values declared in the **DLG_KEYS_ENUM**.

dlg_trace_msg

Write a formatted message to the trace file.

const char *fmt
is the format of the **printf**-like message to write.

...
are the variables to apply to the *fmt* format.

Use the **DLG_TRACE** macro for portability, in case the trace feature is not compiled into the library. It uses an extra level of parentheses to work with a variable number of parameters, e.g.,

```
DLG_TRACE(("this is dialog version %s\n", dialog_version()));
```

dlg_trace_va_msg

Write a formatted message to the trace file.

const char *fmt
is the format of the **printf**-like message to write.

va_list ap
are the variables to apply to the *fmt* format.

This is used in **dlg_exiterr** to capture error messages in the trace file:

```
va_start(ap, fmt);
dlg_trace_msg("## Error: ");
dlg_trace_va_msg(fmt, ap);
va_end(ap);
```

Unlike **dlg_trace_msg**, an extra macro is not needed.

dlg_ttysize

Returns the screensize without using cursers. That allows the function to be used before initializing the screen.

dlg_trace_win

If **dialog_state.trace** is set, log a printable picture of the given window.

dlg_treeview

This is an alternate interface to ‘treeview’ which allows the application to read the list item states back directly without putting them in the output buffer.

const char *title
is the title on the top of the widget.

const char *cprompt
is the prompt text shown within the widget.

int height
is the desired height of the box. If zero, the height is based on the screen size.

int *width*

is the desired width of the box. If zero, the height is based on the screen size.

int *list_height*

is the minimum height to reserve for displaying the list. If zero, it is computed based on the given *height* and *width*.

int *item_no*

is the number of rows in *items*.

DIALOG_LISTITEM * *items*

is the list of items, contain tag, name, and optionally help strings (if **dialog_vars.item_help** is set). The initial selection state for each item is also in this list.

const char * *states*

This is a list of characters to display for the given states. Normally a buildlist provides true (1) and false (0) values, which the widget displays as "*" and space, respectively. An application may set this parameter to an arbitrary null-terminated string. The widget determines the number of states from the length of this string, and will cycle through the corresponding display characters as the user presses the space-bar.

int * *depths*

This is a list of depths of each item in the tree. It is a separate parameter from *items* to allow reuse of the existing functions.

int *flag*

is either *FLAG_CHECK*, for checklists (multiple selections), or *FLAG_RADIO* for radiolists (a single selection).

int * *current_item*

The widget sets the referenced location to the index of the current display item (cursor) when it returns.

dlg_trim_string

The **dialog** program uses this in each widget to adjust the message string, which may contain the newline character (referred to as '\n') and/or the special substring "\n" (which can be translated into a newline character).

There are several optional features:

- Unless **dialog_vars.nocollapse** is set, each tab is converted to a space before other processing.
- If **dialog_vars.no_nl_expand** is not set, and the string has "\n" substrings:
 - The function changes embedded "\n" substrings to '\n' characters.
 - The function preserves extra spaces after these substitutions. For instance, spaces following a newline (substring or character) are preserved to use as an indentation.
 - If **dialog_vars.cr_wrap** is set, the function preserves '\n' newline characters. Otherwise, each '\n' newline character is converted to a space.
- Otherwise, if **dialog_vars.trim_whitespace** is set:
 - This function strips all extra spaces to simplify justification.
 - If **dialog_vars.cr_wrap** is set, the function preserves '\n' newline characters. Otherwise, each '\n' newline character is converted to a space.
- Finally (if **dialog_vars.no_nl_expand** is set, or the string does not contain "\n" substrings, and **dialog_vars.trim_whitespace** is not set):
 - Unless **dialog_vars.nocollapse** is set, sequences of spaces are reduced to a single space.

char * *src*
is the string to trim

dlg_unregister_window
Remove the bindings for a given window.

WINDOW * *win*
is the window from which to remove bindings

dlg_update_gauge
Update a gauge widget to show a different percentage value.

void **objptr*
points to the gauge object to update.

int *percent*
is the new percentage value to display.

dlg_will_resize
This filters out bursts of **KEY_RESIZE** values. Call this after **dlg_getc** returns **KEY_RESIZE**, to improve performance.

dlg_yes_buttoncode
Map the given button index for **dlg_yes_labels** into **dialog**'s exit-code.

int *button*
is the button index

dlg_yes_labels
Return a list of buttons for Yes/No labels.

end_dialog
End use of **dialog** functions.

init_dialog
Do some initialization for **dialog**.

FILE **input*
is the real tty input of **dialog**. Usually it is the standard input, but if **--input-fd** option is used, it may be anything.

FILE **output*
is where **dialog** will send its result. Usually it is the standard error, but if **--stdout** or **--output-fd** is used, it may be anything.

SEE ALSO

dialog(1).

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