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1 Module Curses : Bindings to the ncurses library.

Beware, all coordinates are passed **y** first, then **x**.

Functions whose name start with a "w" take as first argument the window the function applies to. Functions whose name start with "mv" take as first two arguments the coordinates **y** and **x** of the point to move the cursor to. For example `mvaddch y x ch` is the same as `move y x; addch ch`.

type window
Windows.

type screen
Screens.

type terminal
Terminals.

`type chtype = int`

Characters. Usual characters can be converted from/to `chtype` using `char_of_int` and `int_of_char`. See also `get_acs_codes` for characters useful for drawing and the `Key` module for special input characters.

`type attr_t = int`

Attributes are borings of flags which are defined in the `A` module.

`type err = bool`

A return value. `false` means that an error occurred.

1.1 Initialization functions

`val initscr : unit -> window`

Initialize the curses library.

`val endwin : unit -> unit`

Restore the terminal (should be called before exiting).

`val isendwin : unit -> bool`

Has `endwin` been called without any subsequent call to `werefresh`?

`val newterm : string -> Unix.file_descr -> Unix.file_descr -> screen`

Create a new terminal.

`val set_term : screen -> unit`

Switch terminal.

`val delscreen : screen -> unit`

Delete a screen.

`val stdscr : unit -> window`

1.2 Cursor

`val getyx : window -> int * int`

Get the current cursor position.

`val getparyx : window -> int * int`

`val getbegyx : window -> int * int`

`val getmaxyx : window -> int * int`

`val move : int -> int -> err`

Move the cursor.

`val wmove : window -> int -> int -> err`

1.3 Operations on characters

```
module Acs :
sig
  type acs = {
    ulcorner : Curses.chtype ;
        Upper left-hand corner (+).
    llcorner : Curses.chtype ;
        Lower left-hand corner (+).
    urcorner : Curses.chtype ;
        Upper right-hand corner (+).
    lrcorner : Curses.chtype ;
        Lower right-hand corner (+).
    ltee : Curses.chtype ;
        Left tee (+).
    rtee : Curses.chtype ;
        Tight tee (+).
    btee : Curses.chtype ;
    ttee : Curses.chtype ;
    hline : Curses.chtype ;
        Horizontal line (-).
    vline : Curses.chtype ;
        Vertical line (|).
    plus : Curses.chtype ;
        Plus (+).
    s1 : Curses.chtype ;
        Scan line 1 (-).
    s9 : Curses.chtype ;
        Scan line 9 (_).
    diamond : Curses.chtype ;
        Diamond (+).
    ckboard : Curses.chtype ;
    degree : Curses.chtype ;
```

```

        Degree symbol (').
plminus : Curses.chtype ;
        Plus/minus (#).
bullet : Curses.chtype ;
larrow : Curses.chtype ;
        Arrow pointing left (<).
rarrow : Curses.chtype ;
        Arrow pointing right (>).
darrow : Curses.chtype ;
uarrow : Curses.chtype ;
        Arrow pointing up (^).
board : Curses.chtype ;
lantern : Curses.chtype ;
block : Curses.chtype ;
        Solid square block (#).
s3 : Curses.chtype ;
        Scan line 3 (-).
s7 : Curses.chtype ;
        Scan line 7 (-).
lequal : Curses.chtype ;
        Less-than-or-equal-to (<=).
gequal : Curses.chtype ;
        Greater-or-equal-to (>=).
pi : Curses.chtype ;
        Greek pi ( * ).
nequal : Curses.chtype ;
        Not-equal (!).
sterling : Curses.chtype ;
        Pound-Sterling symbol (£).
}
val bssb : acs -> Curses.chtype
val ssbb : acs -> Curses.chtype
val bbss : acs -> Curses.chtype

```

```

    val sbbs : acs -> Curses.chtype
    val sbss : acs -> Curses.chtype
    val sssb : acs -> Curses.chtype
    val ssbs : acs -> Curses.chtype
    val bsss : acs -> Curses.chtype
    val bsbs : acs -> Curses.chtype
    val sbsb : acs -> Curses.chtype
    val ssss : acs -> Curses.chtype
end

```

Predefined characters.

```

val get_acs_codes : unit -> Acs.acs
    Get the predefined characters.

```

1.3.1 Displaying characters

```

val addch : chtype -> err

```

Add a character at the current position, then advance the cursor.

```

val waddch : window -> chtype -> err
val mvaddch : int -> int -> chtype -> err
val mvwaddch : window -> int -> int -> chtype -> err
val echochar : chtype -> err

```

`echochar ch` is equivalent to `addch ch` followed by `refresh ()`.

```

val wechochar : window -> chtype -> err
val addchstr : chtype array -> err

```

Add a sequence of characters at the current position. See also `addstr`.

```

val waddchstr : window -> chtype array -> err
val mvaddchstr : int -> int -> chtype array -> err
val mvwaddchstr : window -> int -> int -> chtype array -> err
val addchnstr : chtype array -> int -> int -> err
val waddchnstr : window -> chtype array -> int -> int -> err
val mvaddchnstr : int -> int -> chtype array -> int -> int -> err
val mvwaddchnstr :
    window ->
    int -> int -> chtype array -> int -> int -> err
val addstr : string -> err

```

Add a string at the current position.

```

val waddstr : window -> string -> err
val mvaddstr : int -> int -> string -> err
val mvwaddstr : window -> int -> int -> string -> err
val addnstr : string -> int -> int -> err
val waddnstr : window -> string -> int -> int -> err
val mvaddnstr : int -> int -> string -> int -> int -> err
val mvwaddnstr : window -> int -> int -> string -> int -> int -> err
val insch : chtype -> err

```

Insert a character before cursor.

```

val winsch : window -> chtype -> err
val mvwinsch : int -> int -> chtype -> err
val mvwinsch : window -> int -> int -> chtype -> err
val insstr : string -> err

```

Insert a string before cursor.

```

val winsstr : window -> string -> err
val mvwinsstr : int -> int -> string -> err
val mvwinsstr : window -> int -> int -> string -> err
val insnstr : string -> int -> int -> err
val winsnstr : window -> string -> int -> int -> err
val mvwinsnstr : int -> int -> string -> int -> int -> err
val mvwinsnstr : window -> int -> int -> string -> int -> int -> err
val delch : unit -> err

```

Delete a character.

```

val wdelch : window -> err
val mvdelch : int -> int -> err
val mvwdelch : window -> int -> int -> err

```

1.3.2 Attributes

```

module A :

```

```

  sig

```

```

    val normal : int

```

Normal display (no highlight).

```

    val attributes : int

```

```

    val chartext : int

```

Bit-mask to extract a character.

```
val color : int
val standout : int
    Best highlighting mode of the terminal.

val underline : int
    Underlining.

val reverse : int
    Reverse video.

val blink : int
    Blinking.

val dim : int
    Half bright.

val bold : int
    Extra bright or bold.

val altcharset : int
    Alternate character set.

val invis : int
    Invisible or blank mode.

val protect : int
    Protected mode.

val horizontal : int
val left : int
val low : int
val right : int
val top : int
val vertical : int
val combine : int list -> int
val color_pair : int -> int
    Color-pair number n.

val pair_number : int -> int
    Get the pair number associated with the color_pair n attribute.
```

```

end

    Attributes.

module WA :
sig
    val normal : int
        Normal display (no highlight).

    val attributes : int
    val chartext : int
    val color : int
    val standout : int
        Best highlighting mode of the terminal. Same as attron A.standout.

    val underline : int
        Underlining.

    val reverse : int
        Reverse video.

    val blink : int
        Blinking.

    val dim : int
        Half bright.

    val bold : int
        Extra bright or bold.

    val altcharset : int
        Alternate character set.

    val invis : int
    val protect : int
    val horizontal : int
    val left : int
    val low : int
    val right : int
    val top : int

```



```

    val vertical : int
    val combine : int list -> int
    val color_pair : int -> int
    val pair_number : int -> int
end

```

New series of highlight attributes.

```
val attroff : int -> unit
```

Turn off the attributes given in argument (see the A module).

```
val wattroff : window -> int -> unit
```

```
val attron : int -> unit
```

Turn on the attributes given in argument.

```
val wattron : window -> int -> unit
```

```
val attrset : int -> unit
```

Set the attributes.

```
val wattrset : window -> int -> unit
```

```
val standend : unit -> unit
```

```
val wstandend : window -> unit
```

```
val standout : unit -> unit
```

```
val wstandout : window -> unit
```

```
val attr_off : attr_t -> unit
```

Turn off the attributes given in argument (see the WA module).

```
val wattr_off : window -> attr_t -> unit
```

```
val attr_on : attr_t -> unit
```

```
val wattr_on : window -> attr_t -> unit
```

```
val attr_set : attr_t -> int -> unit
```

```
val wattr_set : window -> attr_t -> int -> unit
```

```
val chgat : int -> attr_t -> int -> unit
```

chgat n attr color changes the attributes of n characters.

```
val wchgat : window -> int -> attr_t -> int -> unit
```

```
val mvchgat : int -> int -> int -> attr_t -> int -> unit
```

```
val mvwchgat : window -> int -> int -> int -> attr_t -> int -> unit
```

```
val inch : unit -> chtype
```

Get the attributes of the character at current position.

```

val winch : window -> chtype
val mvinch : int -> int -> chtype
val mvwinch : window -> int -> int -> chtype
val inchstr : chtype array -> err
    Get the attributes of a sequence of characters.

val winchstr : window -> chtype array -> err
val mvinchstr : int -> int -> chtype array -> err
val mvwinchstr : window -> int -> int -> chtype array -> err
val inchnstr : chtype array -> int -> int -> err
val winchnstr : window -> chtype array -> int -> int -> err
val mvinchnstr : int -> int -> chtype array -> int -> int -> err
val mvwinchnstr : window ->
    int -> int -> chtype array -> int -> int -> err
val instr : string -> err
    Get the attributes of a string.

val winstr : window -> string -> err
val mvinstr : int -> int -> string -> err
val mvwinstr : window -> int -> int -> string -> err
val innstr : string -> int -> int -> err
val winnstr : window -> string -> int -> int -> err
val mvinnstr : int -> int -> string -> int -> int -> err
val mvwinnstr : window -> int -> int -> string -> int -> int -> err

```

1.3.3 Background

```

val bkgdset : chtype -> unit
    Set the background of the current character.

val wbkgdset : window -> chtype -> unit
val bkgd : chtype -> unit
    Set the background of every character.

val wbkgd : window -> chtype -> unit
val getbkgd : window -> chtype
    Get the current background.

```

1.3.4 Operations on lines

`val deleteln : unit -> err`

Delete a line.

`val wdeleteln : window -> err`

`val insdelln : int -> err`

`insdelln n` inserts `n` lines above the current line if `n` is positive or deletes `-n` lines if `n` is negative.

`val winsdelln : window -> int -> err`

`val insertln : unit -> err`

Insert a blank line above the current line.

`val winsertln : window -> err`

1.3.5 Characters input

`module Key :`

`sig`

`val code_yes : int`

`val min : int`

`val break : int`

`val down : int`

`val up : int`

`val left : int`

`val right : int`

`val home : int`

`val backspace : int`

`val f0 : int`

`val dl : int`

`val il : int`

`val dc : int`

`val ic : int`

`val eic : int`

`val clear : int`

`val eos : int`

`val eol : int`

`val sf : int`

`val sr : int`

`val npage : int`

```
val ppage : int
val stab : int
val ctab : int
val catab : int
val enter : int
val sreset : int
val reset : int
val print : int
val ll : int
val a1 : int
val a3 : int
val b2 : int
val c1 : int
val c3 : int
val btab : int
val beg : int
val cancel : int
val close : int
val command : int
val copy : int
val create : int
val end_ : int
val exit : int
val find : int
val help : int
val mark : int
val message : int
val move : int
val next : int
val open_ : int
val options : int
val previous : int
val redo : int
val reference : int
val refresh : int
val replace : int
val restart : int
val resume : int
```

```
val save : int
val sbeg : int
val scancel : int
val scommand : int
val scopy : int
val screate : int
val sdc : int
val sdl : int
val select : int
val send : int
val seol : int
val sexit : int
val sfind : int
val shelp : int
val shome : int
val sic : int
val sleft : int
val smessage : int
val smove : int
val snext : int
val soptions : int
val sprevious : int
val sprint : int
val sredo : int
val sreplace : int
val sright : int
val srsume : int
val ssave : int
val ssuspend : int
val sundo : int
val suspend : int
val undo : int
val mouse : int
val resize : int
val max : int
val f : int -> int
end
```

Special keys.

```
val getch : unit -> int
```

Read a character in a window.

```
val wgetch : window -> int
```

```
val mvgetch : int -> int -> int
```

```
val mvwgetch : window -> int -> int -> int
```

```
val ungetch : int -> err
```

```
val getstr : string -> err
```

Read a string in a window.

```
val wgetstr : window -> string -> err
```

```
val mvwgetstr : int -> int -> string -> err
```

```
val mvwgetstr : window -> int -> int -> string -> err
```

```
val getnstr : string -> int -> int -> err
```

```
val wgetnstr : window -> string -> int -> int -> err
```

```
val mvwgetnstr : int -> int -> string -> int -> int -> err
```

```
val mvwgetnstr : window -> int -> int -> string -> int -> int -> err
```

1.4 Windows

1.4.1 Window manipulations

```
val newwin : int -> int -> int -> int -> window
```

`newwin l c y x` create a new window with `l` lines, `c` columns. The upper left-hand corner is at `(x,y)`.

```
val delwin : window -> err
```

Delete a window.

```
val mvwin : window -> int -> int -> err
```

Move a window.

```
val subwin : window -> int -> int -> int -> int -> window
```

`subwin l c y x` create a subwindow with `l` lines and `c` columns at screen-relative position `(x,y)`.

```
val derwin : window -> int -> int -> int -> int -> window
```

Same as `subwin` excepting that the position `(x,y)` is relative to the parent window.

```
val mvderwin : window -> int -> int -> err
```

Move a derived window.

```
val dupwin : window -> window
```

Duplicate a window.

```
val wsyncup : window -> unit
```

```
val syncok : window -> bool -> err
```

If `syncok` is called with `true` as second argument, `wsyncup` is called automatically whenever there is a change in the window.

```
val wcursyncup : window -> unit
```

```
val wsyncdown : window -> unit
```

```
val winch_handler_on : unit -> unit
```

```
val winch_handler_off : unit -> unit
```

```
val get_size : unit -> int * int
```

```
val get_size_fd : Unix.file_descr -> int * int
```

```
val null_window : window
```

1.4.2 Refresh control

```
val refresh : unit -> err
```

Refresh windows.

```
val wrefresh : window -> err
```

```
val wnoutrefresh : window -> err
```

```
val doupdate : unit -> err
```

```
val redrawwin : window -> err
```

```
val wredrawln : window -> int -> int -> err
```

```
val wresize : window -> int -> int -> err
```

```
val resizeterm : int -> int -> err
```

```
val scroll : window -> err
```

```
val scr1 : int -> err
```

```
val wscr1 : window -> int -> err
```

```
val touchwin : window -> err
```

```
val touchline : window -> int -> int -> err
```

```
val untouchwin : window -> err
```

```
val wtouchln : window -> int -> int -> bool -> err
```

```
val is_linetouched : window -> int -> int
```

```
val is_wintouched : window -> bool
```

```
val erase : unit -> unit
```

Clear a window.

```

val werase : window -> unit
val clear : unit -> unit
val wclear : window -> unit
val clrtoobot : unit -> unit
val wclrtoobot : window -> unit
val clrtoeol : unit -> unit
val wclrtoeol : window -> unit

```

1.4.3 Overlapped windows

```

val overlay : window -> window -> err
    overlay srcwin dstwin overlays srcwin on top of dstwin.

val overwrite : window -> window -> err
val copywin :
    window ->
    window -> int -> int -> int -> int -> int -> int -> bool -> err

```

1.4.4 Decorations

```

val border :
    chtype ->
    chtype ->
    chtype ->
    chtype ->
    chtype -> chtype -> chtype -> chtype -> unit
    Draw a box around the edges of a window.

val wborder :
    window ->
    chtype ->
    chtype ->
    chtype ->
    chtype ->
    chtype -> chtype -> chtype -> chtype -> unit
val box : window -> chtype -> chtype -> unit
    Draw a box.

val hline : chtype -> int -> unit
    Draw an horizontal line.

val whline : window -> chtype -> int -> unit
val mvhline : int -> int -> chtype -> int -> unit
val mvwhline : window -> int -> int -> chtype -> int -> unit
val vline : chtype -> int -> unit

```


Draw a vertical line.

```
val wvline : window -> ctype -> int -> unit
val mvvline : int -> int -> ctype -> int -> unit
val mvwvline : window -> int -> int -> ctype -> int -> unit
```

1.4.5 Pads

A pad is like a window except that it is not restricted by the screen size, and is not necessarily associated with a particular part of the screen.

```
val newpad : int -> int -> window
```

Create a new pad.

```
val subpad : window -> int -> int -> int -> int -> window
val prefresh : window -> int -> int -> int -> int -> int -> int -> err
val pnoutrefresh : window -> int -> int -> int -> int -> int -> int -> err
val pechochar : window -> ctype -> err
```

1.5 Colors

```
module Color :
```

```
sig
```

```
    val black : int
    val red : int
    val green : int
    val yellow : int
    val blue : int
    val magenta : int
    val cyan : int
    val white : int
```

```
end
```

Colors.

```
val start_color : unit -> err
val use_default_colors : unit -> err
val init_pair : int -> int -> int -> err
val init_color : int -> int -> int -> int -> err
val has_colors : unit -> bool
val can_change_color : unit -> bool
val color_content : int -> int * int * int
val pair_content : int -> int * int
val colors : unit -> int
val color_pairs : unit -> int
```

1.6 Input/output options

1.6.1 Input options

`val cbreak : unit -> err`

Disable line buffering.

`val halfdelay : int -> err`

Similar to `cbreak` but with delay.

`val nocbreak : unit -> err`

Enable line buffering (waits for characters until newline is typed).

`val echo : unit -> err`

Don't echo typed characters.

`val noecho : unit -> err`

Echo typed characters.

`val intrflush : window -> bool -> err`

`val keypad : window -> bool -> err`

`val meta : window -> bool -> err`

`val nodelay : window -> bool -> err`

`val raw : unit -> err`

`val noraw : unit -> err`

`val noqiflush : unit -> unit`

`val qiflush : unit -> unit`

`val notimeout : window -> bool -> err`

`val timeout : int -> unit`

`val wtimeout : window -> int -> unit`

`val typeahead : Unix.file_descr -> err`

`val notypeahead : unit -> err`

1.6.2 Output options

`val clearok : window -> bool -> unit`

If called with `true` as second argument, the next call to `wrefresh` with this window will clear the screen completely and redraw the entire screen from scratch.

`val idlok : window -> bool -> unit`

`val idcok : window -> bool -> unit`

`val immedok : window -> bool -> unit`

`val leaveok : window -> bool -> unit`

```
val setscreg : int -> int -> err
val wsetscreg : window -> int -> int -> err
val scrollok : window -> bool -> unit
val nl : unit -> unit
val nonl : unit -> unit
```

1.7 Soft-label keys

```
val slk_init : int -> err
    Initialize soft labels.

val slk_set : int -> string -> int -> err
val slk_refresh : unit -> err
val slk_noutrefresh : unit -> err
val slk_label : int -> string
val slk_clear : unit -> err
val slk_restore : unit -> err
val slk_touch : unit -> err
val slk_attron : attr_t -> err
val slk_attroff : attr_t -> err
val slk_attrset : attr_t -> err
```

1.8 Mouse

```
val mousemask : int -> int * int
    Sets the mouse mask.
```

1.9 Misc

```
val beep : unit -> err
    Ring a bell.

val flash : unit -> err
    Flash the screen.

val unctrl : chtype -> string
val keyname : int -> string
val filter : unit -> unit
val use_env : bool -> unit
val putwin : window -> Unix.file_descr -> err
val getwin : Unix.file_descr -> window
val delay_output : int -> err
val flushingp : unit -> unit
```

1.10 Screen manipulation

`val scr_dump : string -> err`

Dump the current screen to a file.

`val scr_restore : string -> err`

`val scr_init : string -> err`

`val scr_set : string -> err`

1.11 Terminal

`val baudrate : unit -> int`

Get the speed of a terminal (in bits per second).

`val erasechar : unit -> char`

Get user's current erase character.

`val has_ic : unit -> bool`

Has the terminal insert- and delete-character capabilities?

`val has_il : unit -> bool`

Has the terminal insert- and delete-line capabilities?

`val killchar : unit -> char`

Get user's current line kill character.

`val longname : unit -> string`

Get a description of the terminal.

`val termattrs : unit -> attr_t`

`val termname : unit -> string`

`val tgetent : string -> bool`

`val tgetflag : string -> bool`

`val tgetnum : string -> int`

`val tgetstr : string -> bool`

`val tgoto : string -> int -> int -> string`

`val setupterm : string -> Unix.file_descr -> err`

`val setterm : string -> err`

`val cur_term : unit -> terminal`

`val set_curterm : terminal -> terminal`

`val del_curterm : terminal -> err`

`val restartterm : string -> Unix.file_descr -> err`

```

val putp : string -> err
val vidattr : chtype -> err
val mvcur : int -> int -> int -> int -> err
val tigetflag : string -> bool
val tigetnum : string -> int
val tigetstr : string -> string
val tputs : string -> int -> (char -> unit) -> err
val vidputs : chtype -> (char -> unit) -> err
val tparm : string -> int array -> string
val bool_terminfo_variable : int -> string * string * string
val num_terminfo_variable : int -> string * string * string
val str_terminfo_variable : int -> string * string * string
val bool_terminfo_variables : (string, string * string) Hashtbl.t
val num_terminfo_variables : (string, string * string) Hashtbl.t
val str_terminfo_variables : (string, string * string) Hashtbl.t

```

1.12 Low-level curses routines

```

val def_prog_mode : unit -> unit
    Save the current terminal modes as the "program" state for use by the reser_prog_mod and
    reset_shell_mode functions.

val def_shell_mode : unit -> unit
val reset_prog_mode : unit -> unit
val reset_shell_mode : unit -> unit
val resetty : unit -> unit
val savetty : unit -> unit
val getsyx : unit -> int * int
val setsyx : int -> int -> unit
val curs_set : int -> err
val napms : int -> unit
val ripoffline : bool -> unit
val get_ripoff : unit -> window * int

```

1.13 Configuration

```

module Curses_config :
  sig
    val wide_ncurses : bool

```

If `Curses` has been linked against a curses library with wide character support, then `wide_ncurses` is `true`.

`end`