

`$SPAD/src/lib edin.c`

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Abstract

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1 License

```
/*
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```

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SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
*/
```

— * —

```
/* #define debug 1 */

#include <stdlib.h>
```

The MACOSX platform is broken because no matter what you do it seems to include files from `[[/usr/include/sys]]` ahead of `[[/usr/include]]`. On linux systems these files include themselves which causes an infinite regression of includes that fails. GCC gracefully steps over that problem but the build fails anyway. On MACOSX the `[[/usr/include/sys]]` versions of files are badly broken with respect to the `[[/usr/include]]` versions.

```

      — * —

#if defined(MACOSXplatform)
#include "/usr/include/unistd.h"
#else
#include <unistd.h>
#endif
#include <string.h>
#include <stdio.h>
#include <sys/types.h>

#include "edible.h"

#define HFT 0
#define SUN 1
#define DEC 2
#define control_to_alpha(x) (x + ('A' - 0x01))
#define alpha_to_control(x) (x - ('A' - 0x01))

int termId;
QueStruct *ring = NULL;
QueStruct *current = NULL;
int ring_size = 0;
int MAXRING = 64;
int prev_check = 10;
int curr_pntr;
int num_pntr;
int num_proc;
int had_tab;
int had_tab_last;
extern char buff[1024]; /* Buffers for collecting input and */
extern int buff_flag[1024]; /* flags for whether buff chars
are printing or non-printing */
int buff_pntr; /* present length of buff */

#include "edin.h1"
#include "prt.h1"
#include "wct.h1"
#include "cursor.h1"
#include "fnct-key.h1"

void
init_reader(void)
{
    char *termVal;

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buff[50] = '\0';          /** initialize some stuff ***/
init_flag(buff_flag, MAXLINE);
buff_pntr = curr_pntr = 0;

had_tab = 0;
had_tab_last = 0;
termVal = (char *) getenv("TERM");
if (!strcmp("sun", termVal))
    termId = SUN;
else if (!strcmp("xterm", termVal) || !strcmp("vt", termVal, 2))
    termId = DEC;
else if (!strcmp("hft", termVal) || !strcmp("aixterm", termVal, 7))
    termId = HFT;
}

void
do_reading(void)
{
    int ttt_read;
    int done_completely;

    done_completely = 0;
    num_proc = 0;
    while (num_proc < num_read) {
        if(in_buff[num_proc]== _ERASE) {
            back_over_current_char();
            num_proc++;
        }
        else {
            switch (in_buff[num_proc]) {
                /* lets start checking for different types of chars */
                case _EOLN:
                case _CR:
                    /* If I have read a complete line, so send it to the child */
                    send_line_to_child();
                    if (!PTY)
                        myputchar('\n');
                    break;

                /*
                 * Use 0x7f as delete
                 */
                case _DEL:
                    /* Had a delete key */
                    delete_current_char();
                    break;

                case _CNTRL_W:
                    move_back_word();
            }
        }
    }
}

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num_proc++;
break;
        case _TAB:
had_tab = 1;
/* command completion stuff */
num_proc++;
if (had_tab_last)
    rescan_wct();
else
    find_wct();
break;
        case _BELL:
insert_buff_nonprinting(1);
putchar(_BELL);
fflush(stdout);
break;
        case _ESC:

/*
 * get 2 characters more
 */
while (!(num_read - num_proc > 2)) {
    ttt_read = read(0,
        in_buff + num_read,
        2 - (num_read - num_proc) + 1);
    if (ttt_read > 0)
        num_read = num_read + ttt_read;
}
if ((in_buff[num_proc + 1] == _LBRACK)) {

/* ESC [ */

switch (in_buff[num_proc + 2]) {
    /* look for arrows */
case _A:
    /* up arrow */

/*
 * The first thing I plan to do is get rid of the present
 * input **
 */
prev_buff();
curr_pntr = buff_pntr;
num_proc = num_proc + 3;
break;
case _B:
    /* down arrow */
next_buff();
curr_pntr = buff_pntr;
num_proc = num_proc + 3;

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        break;
    case _C:
        /* right arrow */
        move_ahead();
        num_proc = num_proc + 3;
        break;
    case _D:
        /* left arrow */
        move_back();
        num_proc = num_proc + 3;
        break;

    /*
     * Use ^[[P as delete
     */
    case _P:
        /*** Had a delete key      *****/
        delete_current_char();
        break;
    case _H:
    case 0:
        move_home();
        num_proc += 3;
        break;
    case _M:
    case _Z:
        insert_buff_nonprinting(3);
        done_completely = 1;
        num_proc += 3;
        break;
    case _x:
        num_proc = num_read;
        break;
    case _1:
    case _2:
    case _0:

    /*
     * I have had a possible function key hit, look for the
     * ones I want. check for ESC ] x ~
     */
    while (!(num_read - num_proc > 3)) {
        ttt_read = read(0,
            in_buff + num_read,
            3 - (num_read - num_proc) + 1);
        if (ttt_read > 0)
            num_read = num_read + ttt_read;
    }
    if (in_buff[num_proc + 3] == _twiddle) {

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        /*
        * treat ESC ] x ~
        */
        switch (in_buff[num_proc + 2]) {
        case _2:
flip(INS_MODE);
if (INS_MODE)
    Cursor_shape(5);
else
    Cursor_shape(2);
reprint(curr_pntr);
num_proc += 4;
break;
        default:
insert_buff_nonprinting(1);
break;
        }
        break;
    }
    /* check for ESC ] x y ~ */
    while (!(num_read - num_proc > 4)) {
        ttt_read = read(0,
            in_buff + num_read,
            4 - (num_read - num_proc) + 1);
        if (ttt_read > 0)
num_read = num_read + ttt_read;
    }
    if (in_buff[num_proc + 4] == _twiddle) {

        /*
        * treat ESC ] x y ~
        */
        insert_buff_nonprinting(1);
        break;
    }

    /* check for ESC ] x y z [q|z] */

    while (!(num_read - num_proc > 5)) {
        ttt_read = read(0,
            in_buff + num_read,
            5 - (num_read - num_proc) + 1);
        if (ttt_read > 0)
num_read = num_read + ttt_read;
    }
    if (insert_toggle(&in_buff[num_proc + 3])) {
        flip(INS_MODE);
        if (INS_MODE)
Cursor_shape(5);
        else

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Cursor_shape(2);
    reprint(curr_pntr);
    num_proc = num_proc + 6;
    break;
}
else if (cntrl_end(&in_buff[num_proc + 3])) {
    num_proc = num_proc + 6;
    delete_to_end_of_line();
    break;
}
else if (back_word(&in_buff[num_proc + 3])) {
    move_back_word();
    num_proc += 6;
    break;
}
else if (fore_word(&in_buff[num_proc + 3])) {
    move_fore_word();
    num_proc += 6;
    break;
}
else if (end_key(&in_buff[num_proc + 3])) {
    move_end();
    num_proc += 6;
    break;
}
switch (in_buff[num_proc + 5]) {
case _q:

    /*
     * IBM function keys
     */
    {
char num[3];
int key;

num[0] = in_buff[num_proc + 3];
num[1] = in_buff[num_proc + 4];
num[2] = '\0';
key = atoi(num);
if (key > 0 && key < 13) {
    if (function_key[key].str != NULL) {
        handle_function_key(key, contNum);
        done_completely = 1;
    }
    else {
        insert_buff_nonprinting(6);
        done_completely = 1;
    }
}
}
else {

```

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        insert_buff_nonprinting(6);
        done_completely = 1;
    }
break;
    }
    case _z:

        /*
         * Sun function keys
         */
        {
char num[3];
int key;

num[0] = in_buff[num_proc + 3];
num[1] = in_buff[num_proc + 4];
num[2] = '\0';
key = atoi(num) - 23;
if (key > 0 && key < 13) {
    if (function_key[key].str != NULL) {
        handle_function_key(key, contNum);
        done_completely = 1;
    }
    else {
        insert_buff_nonprinting(6);
        done_completely = 1;
    }
}
else if (atoi(num) == 14) {
    move_home();
    num_proc += 6;
    done_completely = 1;
}
else if (atoi(num) == 20) {
    move_end();
    num_proc += 6;
    done_completely = 1;
}
else if (atoi(num) == 47) {
    flip(INS_MODE);
    if (INS_MODE)
        Cursor_shape(5);
    else
        Cursor_shape(2);
    reprint(curr_ptr);
    num_proc = num_proc + 6;
    done_completely = 1;
}
else {
    insert_buff_nonprinting(6);

```

```

    done_completely = 1;
}

break;
}

    default:
        insert_buff_nonprinting(1);
        break;
}
default:
    if (!done_completely)
        insert_buff_nonprinting(1);
    break;
}
}
/* if */
else {
    /* ESC w/o [ */
    insert_buff_nonprinting(1);
}
break;

    case _BKSPC:
back_over_current_char();
num_proc++;
break;
    default:
if (in_buff[num_proc] == _KILL) {
    delete_line();
    num_proc++;
}
else {
    if ((in_buff[num_proc] == _INTR) || (in_buff[num_proc] == _QUIT)) {
        write(contNum, &in_buff[num_proc], num_read - num_proc);
        if (!PTY)
            write(contNum, "\n", 1);
        num_proc++;
    }
    else {
        if (in_buff[num_proc] == _EOF) {
            insert_buff_nonprinting(1);
            if (!PTY)
write(contNum, "\n", 1);

                /*comment out this bit
if (!buff_pntr) {
write(contNum, &in_buff[num_proc], 1);
if (!PTY)
write(contNum, "\n", 1);
}
else {

```



```

back_it_up(curr_pntr);

/* start by putting the line into the command line ring */
if (buff_pntr)
    insert_queue();

/* finish the line and send it to the child */
buff[buff_pntr] = in_buff[num_proc];
buff_flag[buff_pntr++] = 1;
buff[buff_pntr] = '\0';
buff_flag[buff_pntr] = -1;

/*
 * Instead of actually writing the Line, I have to substitute in the
 * actual characters recieved
 */
converted_num =
    convert_buffer(converted_buffer, buff, buff_flag, buff_pntr);
write(contNum, converted_buffer, converted_num);

/** reinitialize the buffer */
init_flag(buff_flag, buff_pntr);
init_buff(buff, buff_pntr);
/** reinitialize my buffer pointers */
buff_pntr = curr_pntr = 0;

/** reset the ring pointer */
current = NULL;
num_proc++;
return;
}

int
convert_buffer(char *target, char *source, int * source_flag, int num)
{
    int i, j;

    /*
     * Until I get something wierd, just keep copying
     */
    for (i = 0, j = 0; i < num; i++, j++) {
        switch (source[i]) {
            case _CARROT:
                if (source_flag[i] == 1) {
                    target[j] = source[i];
                }
                else {
                    if (source[i + 1] == _LBRACK) {
                        target[j] = _ESC;
                        i++;
                    }
                }
            }
        }
    }
}

```

```

}
else if (source[i + 1] >= 'A' && source[i + 1] <= 'Z') {
    target[j] = alpha_to_control(source[i + 1]);
    i++;
}
    }
    break;
    case '?':
    default:
        target[j] = source[i];
    }
}
return j;
}

void
insert_buff_printing(int amount)
{
    int count;

    /* This procedure takes the character at in_buff[num_proc] and adds
       it to the buffer. It first checks to see if we should be inserting
       or overwriting, and then does the appropriate thing */

    if ((buff_pntr + amount) > 1023) {
        putchar(_BELL);
        fflush(stdout);
        num_proc += amount;
    }
    else {

        if (INS_MODE) {

            forwardcopy(&buff[curr_pntr + amount],
&buff[curr_pntr],
buff_pntr - curr_pntr);
            forwardflag_cpy(&buff_flag[curr_pntr + amount],
&buff_flag[curr_pntr],
buff_pntr - curr_pntr);
            for (count = 0; count < amount; count++) {
buff[curr_pntr + count] = in_buff[num_proc + count];
buff_flag[curr_pntr + count] = 1;
            }
            ins_print(curr_pntr, amount);
            buff_pntr = buff_pntr + amount;
        }
        else {
            for (count = 0; count < amount; count++) {
if (buff_flag[curr_pntr + count] == 2) {

```

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    myputchar(buff[curr_pntr + count]);
    curr_pntr += count + 1;
    delete_current_char();
    /** fix num_proc affected by delete **/
    num_proc -= 3;
    curr_pntr -= count + 1;
    myputchar(_BKSPC);
}
buff[curr_pntr + count] = in_buff[num_proc + count];
buff_flag[curr_pntr + count] = 1;
    }
    myputchar(in_buff[num_proc]);
    if (curr_pntr == buff_pntr)
buff_pntr++;
    }
    num_proc = num_proc + amount;
    curr_pntr = curr_pntr + amount;
    fflush(stdout);
}
return;
}

void
insert_buff_nonprinting(int amount)
{
    int count;

    /* This procedure takes the character at in_buff[num_proc] and adds
       it to the buffer. It first checks to see if we should be inserting
       or overwriting, and then does the appropriate thing */

    /* it takes care of the special case, when I have an esc character */

    if ((buff_pntr + amount) > 1023) {
        myputchar(_BELL);
        fflush(stdout);
        num_proc += amount;
    }
    else {
        if (INS_MODE) {
            forwardcopy(&buff[curr_pntr + amount + 1],
&buff[curr_pntr],
buff_pntr - curr_pntr);
            forwardflag_cpy(&buff_flag[curr_pntr + amount + 1],
&buff_flag[curr_pntr],
buff_pntr - curr_pntr);
            /** now insert the special character **/
            switch (in_buff[num_proc]) {
                case _ESC:

```

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/** in this case I insert a '^[' into the string **/
buff[curr_pntr] = _CARROT;
buff_flag[curr_pntr] = 2;
buff[curr_pntr + 1] = _LBRACK;
buff_flag[curr_pntr + 1] = 0;
break;
    default:
if (control_char(in_buff[num_proc])) {
    buff[curr_pntr] = _CARROT;
    buff_flag[curr_pntr] = 2;
    buff[curr_pntr + 1] = control_to_alpha(in_buff[num_proc]);
    buff_flag[curr_pntr + 1] = 0;
}
else {
    /** What do I have ? **/
    buff[curr_pntr] = '??';
    buff_flag[curr_pntr] = 2;
    buff[curr_pntr + 1] = in_buff[num_proc];
    buff_flag[curr_pntr] = 0;
    break;
}
    }
    /** Now add the normal characters **/
    for (count = 1; count < amount; count++) {
buff[curr_pntr + count + 1] = in_buff[num_proc + count];
buff_flag[curr_pntr + count + 1] = 1;
    }
    ins_print(curr_pntr, amount + 1);
    buff_pntr = buff_pntr + amount + 1;
    }
    else {
    /** I am in the overstrike mode **/
    switch (in_buff[num_proc]) {
    case _ESC:
/** in this case I insert a '^[' into the string **/
buff[curr_pntr] = _CARROT;
buff_flag[curr_pntr] = 2;
buff[curr_pntr + 1] = _LBRACK;
buff_flag[curr_pntr + 1] = 0;
break;
        default:
if (control_char(in_buff[num_proc])) {
    buff[curr_pntr] = _CARROT;
    buff_flag[curr_pntr] = 2;
    buff[curr_pntr + 1] = control_to_alpha(in_buff[num_proc]);
    buff_flag[curr_pntr + 1] = 0;
}
else {
    /** What do I have ? **/
    buff[curr_pntr] = '??';

```

```

    buff_flag[curr_pntr] = 2;
    buff[curr_pntr + 1] = in_buff[num_proc];
    buff_flag[curr_pntr] = 0;
    break;
}
    }
    for (count = 1; count < amount; count++) {
if (buff_flag[curr_pntr + count] == 2) {
    curr_pntr += count + 1;
    delete_current_char();
    /** fix num. processed form delete **/
    num_proc -= 3;
    curr_pntr -= count + 1;
}
buff[curr_pntr + count + 1] = in_buff[num_proc + count];
buff_flag[curr_pntr + count + 1] = 1;
    }
    /** now print the characters I have put in **/
    printbuff(curr_pntr, amount + 1);
    }
    num_proc = num_proc + amount;
    curr_pntr = curr_pntr + amount + 1;
    if (curr_pntr > buff_pntr)
        buff_pntr = curr_pntr;
}
return;

}

void
prev_buff(void)
{

    /**
     * If the current command ring is NULL, then I should NOT clear the
     * current line. Thus my business is already done
     */
    if (ring == NULL)
        return;
    clear_buff();
    init_buff(buff, buff_pntr);
    init_flag(buff_flag, buff_pntr);

    if (current == NULL) {
        if (ring == NULL)
            return;
        current = ring;
    }
    else
        current = current->prev;
}

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```

strcpy(buff, current->buff);
flagcpy(buff_flag, current->flags);

/* first back up and blank the line */
fflush(stdout);
printbuff(0, strlen(buff));
curr_pntr = buff_pntr = strlen(buff);
fflush(stdout);
return ;
}

void
next_buff(void)
{
    /*
     * If the current command ring is NULL, then I should NOT clear the
     * current line. Thus my business is already done
     */
    if (ring == NULL)
        return;
    clear_buff();
    init_buff(buff, buff_pntr);
    init_flag(buff_flag, buff_pntr);
    if (current == NULL) {
        if (ring == NULL)
            return;
        current = ring->next;
    }
    else
        current = current->next;
    strcpy(buff, current->buff);
    flagcpy(buff_flag, current->flags);

    /* first back up and blank the line */
    fflush(stdout);
    printbuff(0, strlen(buff));
    curr_pntr = buff_pntr = strlen(buff);
    fflush(stdout);
    return ;
}

void
forwardcopy(char *buff1, char * buff2, int num)
{
    int count;

    for (count = num; count >= 0; count--)
        buff1[count] = buff2[count];
}

```

```

}

void
forwardflag_cpy(int *buff1,int * buff2,int num)
{
    int count;

    for (count = num; count >= 0; count--)
        buff1[count] = buff2[count];
}

void
flagcpy(int *s,int *t)
{
    while (*t >= 0)
        *s++ = *t++;
    *s = *t;
}

void
flagncpy(int *s,int *t,int n)
{
    while (n-- > 0)
        *s++ = *t++;
}

void
insert_queue(void)
{
    QueStruct *trace;
    QueStruct *new;
    int c;

    if (!ECHOIT)
        return;
    if (ring != NULL && !strcmp(buff, ring->buff))
        return;
    for (c = 0, trace = ring; trace != NULL && c < (prev_check - 1);
         c++, trace = trace->prev) {
        if (!strcmp(buff, trace->buff)) {

            /*
             * throw this puppy at the end of the ring
             */
            trace->next->prev = trace->prev;
            trace->prev->next = trace->next;
            trace->prev = ring;
            trace->next = ring->next;
            ring->next = trace;

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        trace->next->prev = trace;
        ring = trace;
        return;
    }
}

/*
 * simply places the buff command into the front of the queue
 */
if (ring_size < MAXRING) {
    new = (QueStruct *) malloc(sizeof(struct que_struct));
    if (new == NULL) {
        fprintf(stderr, "Malloc Error: Ran out of memory\n");
        exit(-1);
    }
    if (ring_size == 0) {
        ring = new;
        ring->prev = ring->next = new;
    }
    else {
        new->next = ring->next;
        new->prev = ring;
        ring->next = new;
        new->next->prev = new;
        ring = new;
    }
    ring_size++;
}
else
    ring = ring->next;

init_flag(ring->flags, MAXLINE);
init_buff(ring->buff, MAXLINE);
strcpy(ring->buff, buff);
flagncpy(ring->flags, buff_flag, buff_ptr);
(ring->buff)[buff_ptr] = '\0';
(ring->flags)[buff_ptr] = -1;
}

void
init_flag(int *flags, int num)
{
    int i;

    for (i = 0; i < num; i++)
        flags[i] = -1;
}

void

```

```

init_buff(char *flags, int num)
{
    int i;

    for (i = 0; i < num; i++)
        flags[i] = '\0';
}

void
send_function_to_child(void)
{
    /* Takes care of sending a line to the child, and resetting the
       buffer for new input */

    back_it_up(curr_pntr);
    /** start by putting the line into the command line ring ***/
    if (buff_pntr)
        insert_queue();

    /** finish the line and send it to the child **/
    buff[buff_pntr] = _EOLN;

    buff_flag[buff_pntr++] = 1;
    buff[buff_pntr] = '\0';
    buff_flag[buff_pntr] = 0;
    write(contNum, buff, buff_pntr);

    /** reinitialize the buffer ***/
    init_flag(buff_flag, buff_pntr);
    init_buff(buff, buff_pntr);
    /** reinitialize my buffer pointers **/
    buff_pntr = curr_pntr = 0;

    /** reset the ring pointer **/
    current = NULL;

    num_proc++;
    return;
}

void
send_buff_to_child(int chann)
{
    if (buff_pntr > 0)
        write(chann, buff, buff_pntr);
    num_proc += 6;
    /** reinitialize the buffer ***/
    init_flag(buff_flag, buff_pntr);
    init_buff(buff, buff_pntr);
}

```

```
/** reinitialize my buffer pointers **/  
buff_ptr = curr_ptr = 0;  
/** reset the ring pointer **/  
current = NULL;  
return;  
}
```

References

- [1] nothing