SEDIT and S/REXX

User's Guide and Reference Manual

SEDIT Release 5.20 S/REXX Release 3.20

Revision 01

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Installing SEDIT on UNIX and LINUX Systems[1]

SEDIT can be installed in any directory. In this manual, it is assumed that **SEDIT** will be installed in `/home/xed`.

First, the user must create a `/home/xed` directory. This procedure may require the user to be the superuser. Type:

```
mkdir                                                    /home/xed
cd /home/xed
```

The Linux binaries are in the downloaded file:

```
tarfile.linux64-{release}.gz
```

Create a specific directory for **SEDIT** and **S/REXX**, and move the binaries file on it.

For example, type:

```
# mkdir /home/xed
# cd /home/xed
# tar -zxvf tarfile.linux-{release}.gz
```

You need to install the required libraries with the command:

```
# sudo dnf install openmotif libXext libXt libX11 pcre -y
```

Specific instructions for each other platform can be found at:

```
https://www.sedit.com/download.htm
```

The following files will then be loaded:

- `README` This file contains up-to-date information that may not be included in the manual. Process this file carefully before continuing the installation.
- `xed` The file editor calling script (in XEDIT foreground mode).
- `sedit` The file editor calling script (in XEDIT background mode).
- `pxed` The file editor calling script (in PDF foreground mode).
- `psedit` The file editor calling script (in PDF background mode).
- `fli` The directory editor calling script.
- `tree` The tree editor calling script.
- `profile.sedit` This file will be executed as a command macro when **SEDIT** starts with the `sedit`, `xed`, `psedit`, `pxed`, `fli` or `tree` commands.
- `xedit` The file editor calling script (in full XEDIT compatibility mode).
- `prof_xedit.sedit` This file will be executed as a command macro when

1. **SEDIT** and **S/REXX** are bundled together. Installing **SEDIT** will also install **S/REXX**, although different activation keys are needed.

SEDIT starts with the xedit command.

- pdf — The file editor calling script (in full PDF compatibility mode).
- prof_pdf.sedit — This file will be executed as a command macro when **SEDIT** starts with the pdf command.
- ./xmac — A subdirectory containing useful macros.
- XF — A workspace allowing **SEDIT** to be used within Dyalog APL.
- PROFILE.sedit — This file will be executed as a command macro when **SEDIT** starts under Dyalog APL.

Using a Grey Scale Monitor

If a grey scale monitor is used, the user must include the command "color off" in the profile.sedit and/or PROFILE.sedit and/or prof_xedit.sedit files and/or prof_pdf.sedit files.

Setting the Background Color

The profile.sedit initialization file (or the prof_xedit.sedit file when starting **SEDIT** with the xedit command described on page 29, or the prof_pdf.sedit file when starting **SEDIT** with the pdf command described on page 34) sets the background color in accordance with the architecture **SEDIT** is running on. For example, on an IBM station:

```
when arch = 'ibm' then do
   'set_ibm'
    if version ~= 'curses' then do
    'color background 255 255 190'
```

To have a white background, replace 'color background 230 230 190' with 'color background 255 255 255'. See the COLOR command on page 182 for more details.

Setting the Path

SEDIT has the ability to follow the path when searching for files. If the user wants a particular path for **SEDIT** operations, an XPATH special environment variable must be created int the .cshrc file. For example, if the system uses the C-SHELL, the user can edit the .cshrc file and add the following lines:

```
#  General path
   set path = (~ . /bin /usr/bin /usr/ucb /etc /usr/etc )
# Additional path for xed
   set fpath = ($path /home/xed/font /usr/lib/fonts/fixedwidthfonts)
# Now we set XPATH
   setenv XPATH  "$fpath"
```

SEDIT may also use a XCDPATH environment variable while searching for directories, processing the commands ACCESS, CD, FLIST, TREE, and FD in a way similar to that

used by the C-SHELL using $cdpath. If the user wants to use this facility, an XCDPATH must be created in the .cshrc file. For example:

```
set cdpath = (.. ~ /home /usr /)
setenv XCDPATH "$cdpath"
```

Note that **SEDIT** ignores items which do not begin with a "/", and always searches first for directories which root in the current directory.

The DACCESS command may be used to update the cdpath within **SEDIT**.

Setting the Password for HOSTNAME Bound Licenses

The user must type the following commands:

```
% cd /home/xed      # Assuming /home/xed is the installation directory
% ./install sedit
```

The user will be prompted for the information displayed in the password sheet. The following is a typical installation example on a Linux system:

```
%FE29{xed}% install sedit

 ******** Beginning to install SEDIT

 SEDIT and S/REXX can be locked either to the CPU ID, or to the
hostname.
 If locked to the hostname, the password sheet will display an
hostname
 and an e-mail address.

 Does the password sheet display an e-mail address? y

Do you want to add a new password ? y

Enter the HOSTNAME (FE29) :
Enter the mail address () : robert@sedit.com
Enter the PASSWORD () : 11245-53424-21267-36674

You have typed the following information:

HOSTNAME: FE29
SEDITID : 701028901
PASSWORD: 11245-53424-21267-36674
Mail Address: robert@sedit.com

OK ? y

Do you want to add a new password ? n
```

HOSTAME locked passwords are the norm for SEDIT 5.20 and S/REXX 3.20.

Note for advanced users:

> `install` creates or updates the `/home/xed/passwds` file. The user can edit and modify it directly to add, remove or modify passwords.

Setting the Keyboard Mapping

Depending on the command used to start it, **SEDIT** uses one of the following `*.sedit` initialization macros:

Unix COMMAND	Initialization macro
xed	profile.sedit
sedit	profile.sedit
pxed	profile.sedit
psedit	profile.sedit
xedit	prof_xedit.sedit
pdf	prof_pdf.sedit

To simplify the keyboard mapping, the various **SEDIT** `*.sedit` initialization macros automatically call the following macros:

- `set_sun_t5` for SUN workstations using the type 5 keyboard. Please see SUN Type 5 Keyboard Layout on page 694 for more information about fully using this keyboard.
- `set_sgi` for SiliconGraphics workstations.
- `set_ibm` for IBM RS/6000 workstations.
- `set_alphapc` for a DEC Alpha station using a PC style keyboard.
- `set_hp` for HP workstations using HP style keyboard.
- `set_linux` for PCs running Linux.
- `set_sco` for PCs running SCO **UNIX**.
- `set_uxw` for PCs running Unixware.
- `set_sinix` for Siemens workstations running SINIX.

The user can redefine every keyboard key using the `KEYBOARD` command described on page 294. In addition, the keyboard can be mapped dynamically by using the menu button described on page 101.

Using SUN Type 4 or Type 3 Keyboards

When a type 4 keyboard is in use on a SUN workstation, the `set_sun_t5` statement in the `*.sedit` files in use must be replaced with the `set_sun_t4` statement. When a type 3 keyboard is in use on a SUN workstation, the `set_sun_t5` statement must be replaced with the `set_sun_t3` statement.

Using HP PC-Style Keyboard

When a PC style keyboard is in use on a HP workstation, the `set_hp` statement in the `*.sedit` files in use must be replaced with the `set_hppc` statement.

Using Native DEC Keyboard

When a native DEC keyboard is in use on an alpha workstation, the `set_alphapc` statement in the `*.sedit` files in use must be replaced with the `set_alpha` statement.

Setting the MOTIF Resources

When using the **MOTIF** version, the user can customize various colors and fonts using the X11 resources facilities, by including this resource description in the `~/.Xdefaults` file.

SEDIT provides the following `/home/xed/.Xdefaults` file to be used as a template:

```
!
! menus
!
 smenu*background:       grey90
 smenu*foreground:       black
!smenu*fontList:         courier-bold-14
!smenu*fontList:         screen-bold-14

!
! popups
!
 salert*background:      Wheat
 salert*foreground:      Black

!
! editor buttons
!
 sedit*panel*background: Wheat
 sedit*panel*foreground: Black

!
! tree buttons
!
 tree*tpanel*background: Wheat
 tree*tpanel*foreground: Black

!
! tree scroolbars
!
 tree*scrool*background: Wheat
 tree*scrool*foreground: Black
!
! dialog boxes
!
dialog*background: Wheat
dialog*foreground: Black
```

It is recommended that the contents of this file be inserted in the private `~/.Xdefaults` file.

The user can override the setting described in the `~/.Xdefaults` file by using the `-xrm` starting option at **SEDIT** invocation.

Example: `xed -xrm '"salert*background: red"'`

All the color names supported by the system are generally located in the `/usr/lib/X11/rgb.txt` file.

Setting the Keyboard Translations for an ASCII Terminal

SEDIT can run on ASCII terminals.

Such terminals send escape sequences when the user presses a function or an arrow key.

When starting in ASCII terminal mode, **SEDIT** reads the `TERM` environment variable, and then tries to load the `keyboard/terminfo/l/$TERM.esc` file describing these escape sequences, where `l` is the first `$TERM` letter. **SEDIT** checks in the current directory first, then in the home directory and finally in the installation directory.

SEDIT provides several `*.esc` files. However, if the terminal is not described by one of these files, the user will receive the message `"warning: no $TERM.esc file available"`, and the terminal function keys might not work properly. **SEDIT** provides the `mkesc` utility to easily generate such a file.

The `*.esc` files provided are derived from the usual `terminfo` files provided with **UNIX**. These `terminfo` files are often incomplete with respect to the function keys, so it is highly recommended that the user run `mkesc` for every `ASCII` terminal that will use **SEDIT**.

Using MKESC

`mkesc` will create by default a description file in the `/home/xed/keyboard` directory, so the user must have write authorization on this directory before starting. However, a description file can be written in any other directory by passing the directory name as the first argument. Every user can use a specific description file created by typing for example: `mkesc ~`

The user must use `mkesc` on the terminal that is being described. `mkesc` "looks" at each escape sequence generated in response to questions and equates these keys to the received sequence.

Type the following commands:

```
% cd /home/xed
% ./mkesc
```

This will display the following screen:

```
Press the "UP ARROW" Key



     E  EXIT

     S  SAVE

     N  Next Key
     P  Previous Key

     F  Next Key type
     B  Previous Key type

     C  Cancel key
```

The user must now press the "UP ARROW" key, as indicated on the top of the screen.

This will display (for example) the following screen:

```
Press the "RIGHT ARROW" Key

Key "UP ARROW" saved as ^[ [ A

     E  EXIT

     S  SAVE

     N  Next Key
     P  Previous Key

     F  Next Key type
     B  Previous Key type

     C  Cancel key
```

This means that the `"UP ARROW"` key has been recorded as the `"^[[A"` escape sequence.

The keywords below have the following meanings:

- `E` terminates `mkesc` without saving changes.
- `S` saves the changes.
- `N` skips the current key.
- `P` returns to the previous key.
- `F` skips the current family key. The families are the following:
  Up arrow key
  Right arrow key
  Down arrow key
  Left arrow key
  Left function keys
  Top function keys
  Right function keys
  Insert key
  Delete key
  Numerical pad Enter key
  Numerical pad + key
  Numerical pad - key
- `B` returns to the previous family key.
- `C` cancels the key. You must choose this option if your terminal does not support that key.

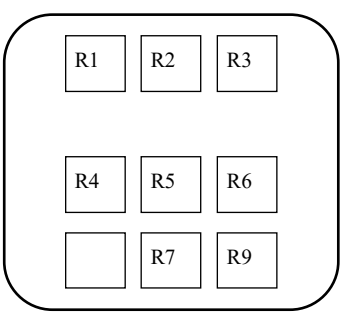
When saving the file, `mkesc` will backup the old file by appending a `%` character to the old filename.

Usage notes:

The right function keys are generally mapped as following:

```
R1  Print Screen
R2  Scroll Lock
R3  Pause
R4  Insert
R5  Home
R6  Page Up
R7  End
R9  Page Down
```

With the following physical layout:



If the escape sequence appears to be one character long, it means that the terminal does not handle this key properly. In such a case, it is recommended the user cancel the key. In these situations, `mkesc` will display a warning.

Most keyboards do not support the left keys named `Li`, so the user must type `C` to cancel them.

Some of the top `Fi` keys may be used by the emulator directly, and will not be usable by **SEDIT**.

Must emulators only support `R4`, `R5`, `R6`, `R7` and `R9` (**NOT** `R8`), so it is generally recommended to cancel all the other `Ri` keys.

When prompted for the `INSERT` key, press `INSERT`, the same key used to define `R4`.

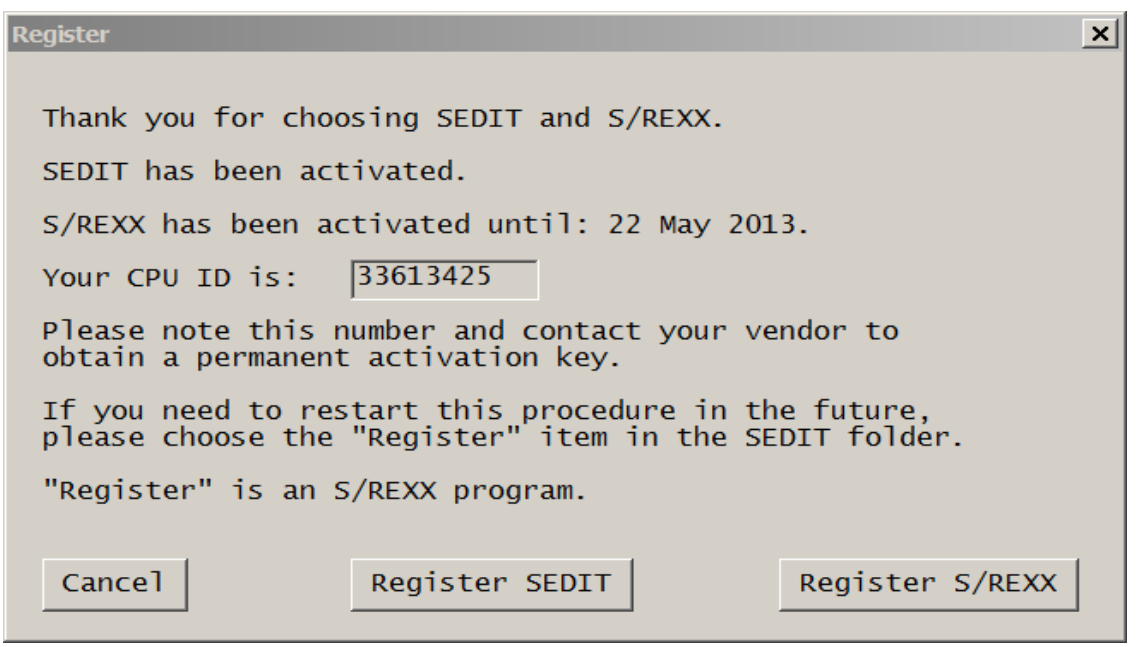
The Numerical pad keys generally need to be cancelled.

Installing SEDIT on WINDOWS Systems[1]

SEDIT can be installed in any directory. In this manual, it is assumed that **SEDIT** will be installed in "`C:\Program Files\SEDIT`".

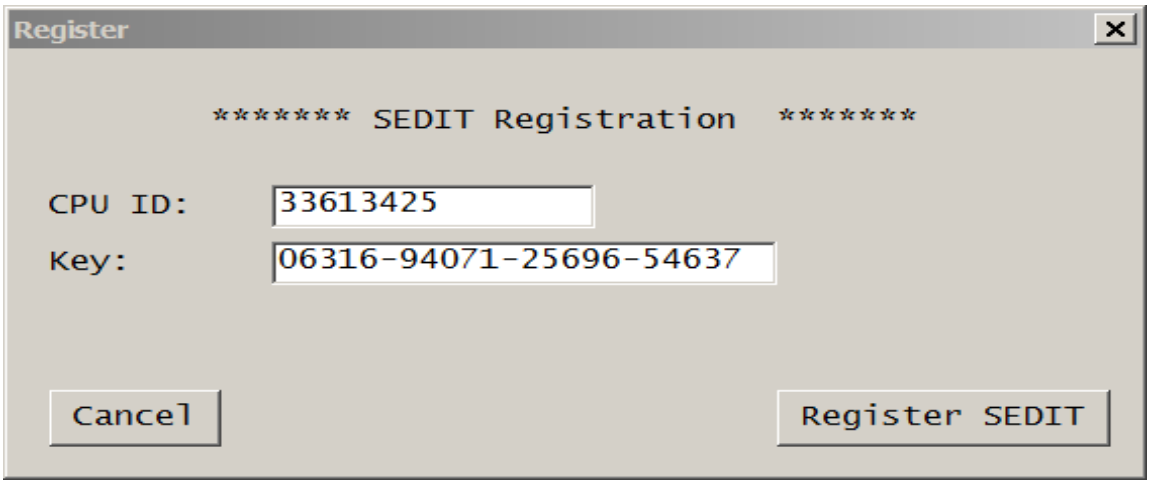
The user must run the `setup.exe` file.

Once the installation is done, `setup` displays the following screen:



1. **SEDIT** and **S/REXX** are bundled together. Installing **SEDIT** will also install **S/REXX**, although different activation keys are needed.

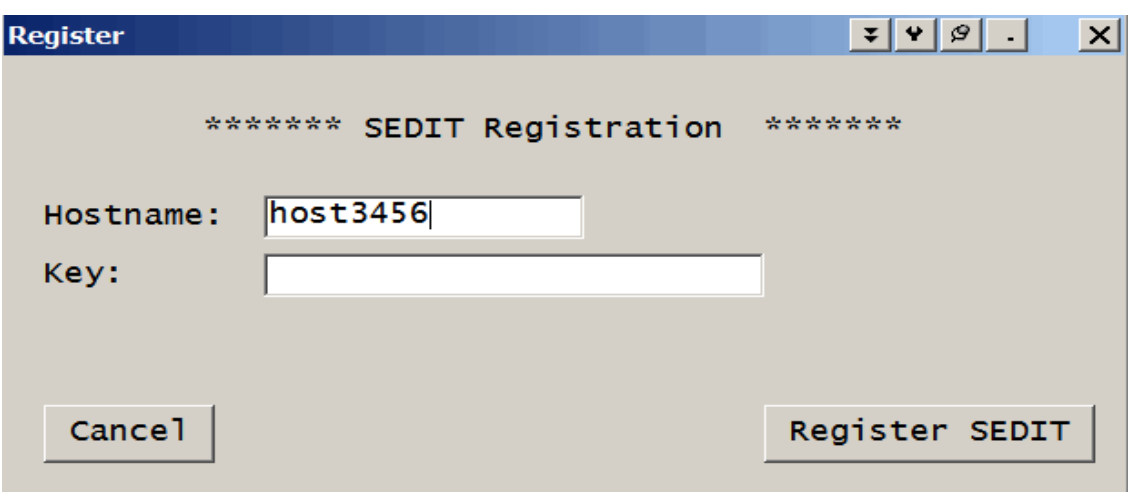
Clicking on the "`Register SEDIT with CPU ID`" button will display the following screen:



Enter the activation key, and click on the "`Register SEDIT`" button. The first dialog box is displayed again. If you do not need to register another product, click on the "`Cancel`" button.

SEDIT can also be locked with the hostname (or computer name) rather than with the CPU ID.

If you received and hostname locked key, click on the "`Register SEDIT with HOSTNAME`" button::



Note for advanced users:

> `setup` creates or updates the `C:\Program Files\SEDIT\passwds` file. The user can edit and modify it directly to add, remove or modify activation keys.

Installing S/REXX on UNIX Systems[1]

S/REXX can be installed in any directory. In this manual, it is assumed that **S/REXX** will be installed in `/home/xed`.

First, the user must create a `/home/xed` directory. This procedure may require the user to be the superuser. Type:

```
mkdir                                                    /home/xed
cd /home/xed
```

To load from a tape, use the procedure described in the `READ THIS FIRST` document.

To load from diskettes, use the procedure printed on each diskette.

1. **SEDIT** and **S/REXX** are bundled together. Installing **S/REXX** will also install **SEDIT**, although different activation keys are needed.

Setting the Password in Fixed License Mode

The user must type the following commands:

```
% cd /home/xed     # Assuming /home/xed is the installation directory
% ./install srexx
```

The user will be prompted for the information displayed in the password sheet. The following is a typical installation example on an IBM RS/6000:

```
% ./install srexx

 ******** Beginning to install S/REXX


Do you want to add a new password? y

Enter the HOSTNAME (I) :
Enter the UNAME (000003063100) :
Enter the PASSWORD () : 01455-32956-26199-54243

You have typed the following information:

HOSTNAME: I
UNAME   : 000003063100
PASSWORD: 01455-32956-26199-54243

OK ? y

Do you want to add a new password ? n
%
```

On the different workstations, the UNAME query will be replaced by one of the following **UNIX** commands:

Workstation	Query	UNIX command
SUN SunOS	HOSTID	hostid
SUN Solaris	HOSTID	/usr/ucb/hostid
Siemens SINIX	HOSTID	hostid
IBM RS/6000	UNAME	uname -m
Hewlett Packard	UNAME	uname -i
Silicon Graphics	SYSID	sysinfo -s
Linux PC	SEDITID	./seditid
SCO PC	SEDITID	./seditid
Unixware PC	SEDITID	./seditid
Digital Equipment	ETHERNET ADDRESS	see below

CPU Identifier on DEC/COMPAQ/HP TRUE64 Stations

On DEC Alpha stations, the cpu identifier is the ethernet address, which can be displayed by typing the following command:

```
% /usr/sbin/uerf -R -r 300 | more

******************************** ENTRY     1. ********************

----- EVENT INFORMATION -----

EVENT CLASS                                OPERATIONAL EVENT
OS EVENT TYPE                    300.      SYSTEM STARTUP
SEQUENCE NUMBER                    0.
OPERATING SYSTEM                           DEC OSF/1
                                  tu0: DEC TULIP Ethernet Interface,
                                 _hardware address: 08-00-2B-E4-F3-0B
                                     tu0: console mode: selecting AUI
%
```

The cpu identifier is the last four ethernet address bytes. In this example, it would be 2BE4F30B.

./seditid can also be used in the **SEDIT** installation directory to display the cpu identifier.

install may also be used to modify existing passwords or to add new passwords for different workstations, allowing the user to centralize all the password information for multiple workstations on the same network.

Example:

```
% ./install srexx

 ******** Beginning to install S/REXX


The following passwords have been installed:


1: HOSTNAME: I  UNAME: 000003063100
      PASSWORD: 01455-32956-26199-54243

Do you want to modify one of these passwords ? n

Do you want to add a new password ? y
Enter the HOSTNAME () :
```

Note for advanced users:

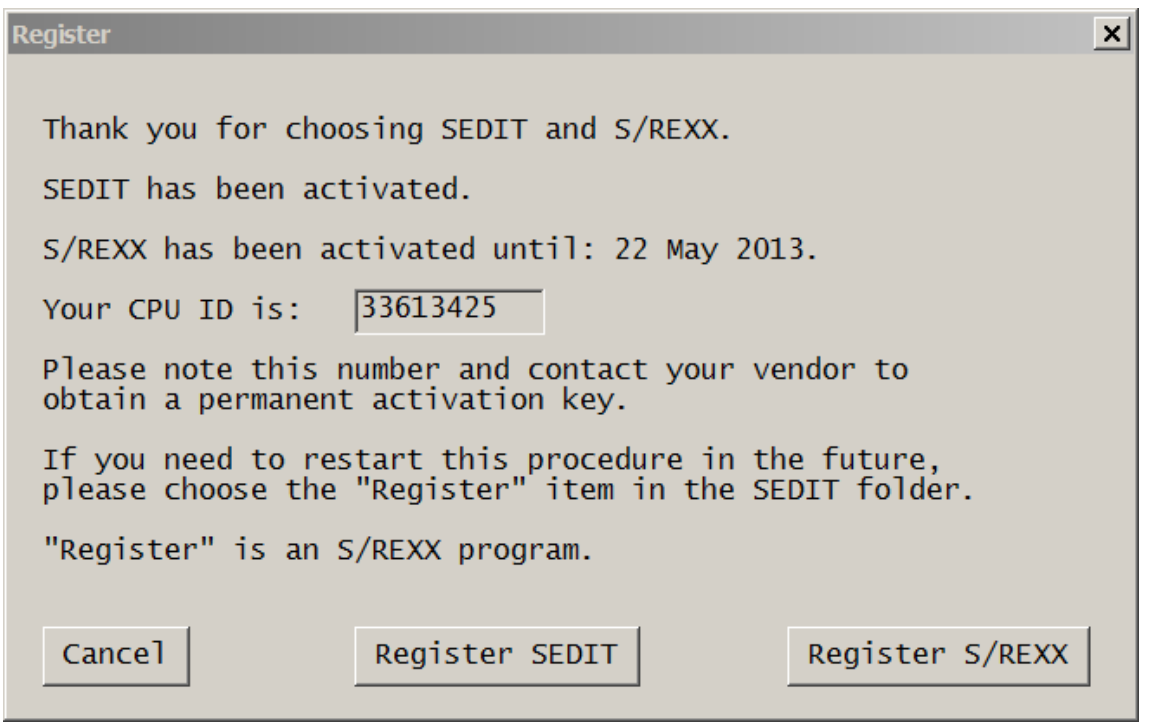
`install` creates or updates the `/home/xed/passwds` file. The user can edit and modify the `passwds` file directly to add, remove or modify passwords.

Installing S/REXX on WINDOWS Systems[1]

S/REXX can be installed in any directory. In this manual, it is assumed that **S/REXX** will be installed in "`C:\Program Files\SEDIT`".

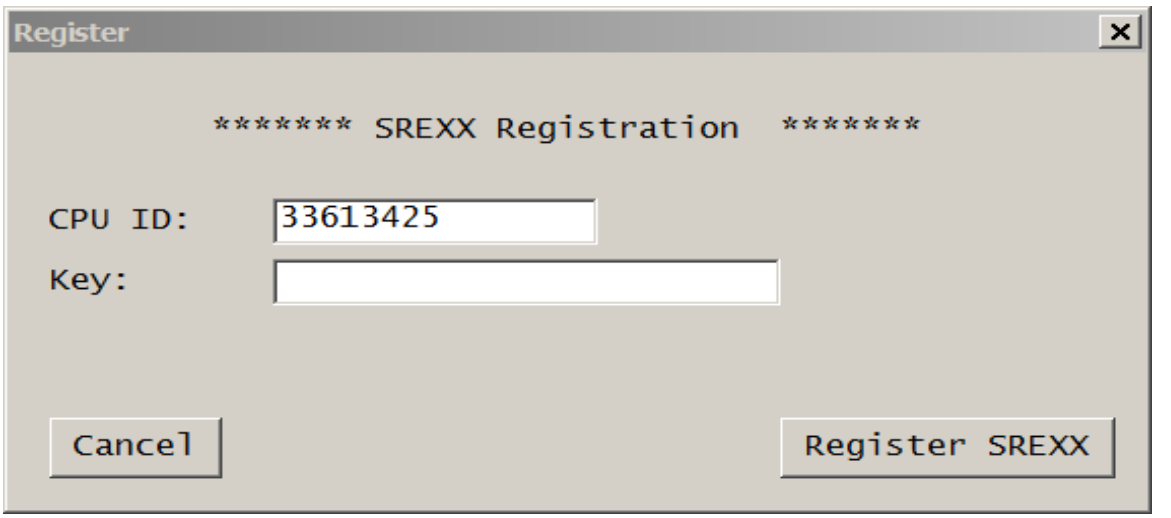
The user must run the `setup.exe` file.

Once the installation is done, `setup` displays the following screen:



1. **SEDIT** and **S/REXX** are generally bundled together. Installing **S/REXX** will also install **SEDIT**, although different activation keys are needed.

Clicking on the "Register S/REXX" button will display the following screen:



Enter the activation key, and click on the "Register S/REXX" button. The first dialog box is displayed again. If you do not need to register another product, click on the "Cancel" button.

Note for advanced users:

> setup creates or updates the C:\Program Files\SEDIT\passwds file. The user can edit and modify it directly to add, remove or modify activation keys.

Using the License Server

Note: the license server should not be installed if a fixed license is used.

The same license server is used for both **SEDIT** and/or **S/REXX**. Throughout this chapter, we will refer to the **SEDIT** software only for simplification. **S/REXX** will be mentioned only when S/**REXX** specific information is provided.

SEDIT may run with a license server named `xserv`. In this case, **SEDIT** will be installed only on one server workstation, and the other stations will have to mount the **SEDIT** filesystem from that server. We will assume that **SEDIT** is installed in the server directory `/home/xed` or `C:\Program Files\SEDIT`, but it may be installed anywhere.

Installing xserv on UNIX systems

To use `xserv`, the user must execute the following:

1) Decide which workstation to install **SEDIT** on.

   We will name this station `xserver` in the following explanations.

2) Install the password information by typing the following commands:

```
% cd /home/xed      # Assuming /home/xed is the installation directory
% ./install xserv
```

The user will be prompted for the information displayed in the password sheet.

This is a typical installation example on a SUN:

```
% ./install xserv
Do you want to install the license server for SEDIT? y

 ******** Beginning to install the license server "xserv"

Enter the HOSTNAME (sun1):
Enter the HOSTID (714021ca):
Enter the PASSWORD (): 27113-68498-24283-37166
Enter the SERIAL number (): 1202
Enter the PORT number (1112):
Enter the Expiration date (): none
Enter the VERSION (UNIX):
Enter the number of licenses (): 202
Enter the installation directory (/home/xed):

The server is configured with the following parameters:
HOSTNAME:    sun1
HOSTID:      714021ca
PASSWORD:    27113-68498-24283-37166
SERIAL:      1202
PORT:        1112
EXPIRE:      none
VERSION:     UNIX
LICENSES:    202
HOME:        /home/xed

Do you want to modify these settings ? n
Do you want to save these settings ? y

The "/home/xed/seditusers" file has been saved.

***    Warning: DO NOT install the license server for S/REXX
***             if you do not have an S/REXX license.

Do you want to install the license server for S/REXX? no
.
Do you want to start the license server ? y
... Checking for "xserv" processes; wait.
.... Starting "xserv"
xserv: checking for other servers with serial number 1202.
xserv: please wait for 10 seconds.
xserv: process 832 listening
xserv: process 836 listening
.... "xserv" started.
%
```

3) Make `xserver` start the `/home/xed/xserv` program at initialization.

   For a SUN workstation running SunOS, the following statement must be included in the `/etc/rc.local` file:

```
/home/xed/xserv /home/xed 30>/dev/console
```

   On a Sun workstation running Solaris, create the following `/etc/rc3.d/S99xserv` file:

```
#!/bin/sh
if [ -f /home/xed/xserv ]; then
   echo "Starting SEDIT license server"
  /home/xed/xserv /home/xed 30
fi
```

   For an IBM RS/6000, issue the following command:

```
% mkitab "xserv:2:once:/home/xed/xserv /home/xed 30 > /dev/console
```

   On HP systems, add the following line in the `/etc/inittab` file:

```
serv:34:once:/home/xed/xserv /home/xed 30
```

   Note that the installation directory must be passed to `xserv`. The second parameter passed to `xserv` (`30` in these examples) is a delay value in seconds. If `xserv` is started when the system is booting up, some resources may not be available, and `xserv` may fail. Making `xserv` wait 30 seconds before start-up allows the system to stabilize.

4) Make the other network workstations that have the `/home/xed xserver` directory mounted use the following command:

```
% mount xserver:/home/xed /home/xed
```

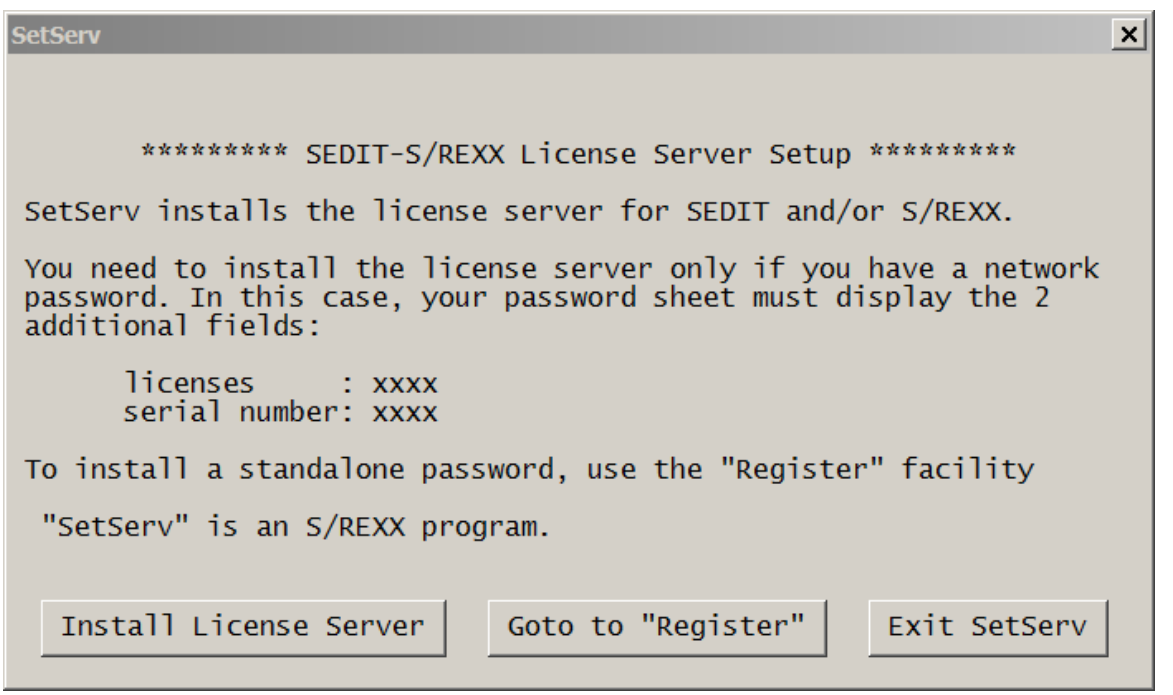
Note: A **UNIX** license server cannot be used with **WINDOWS** clients.

Installing xserv on WINDOWS systems

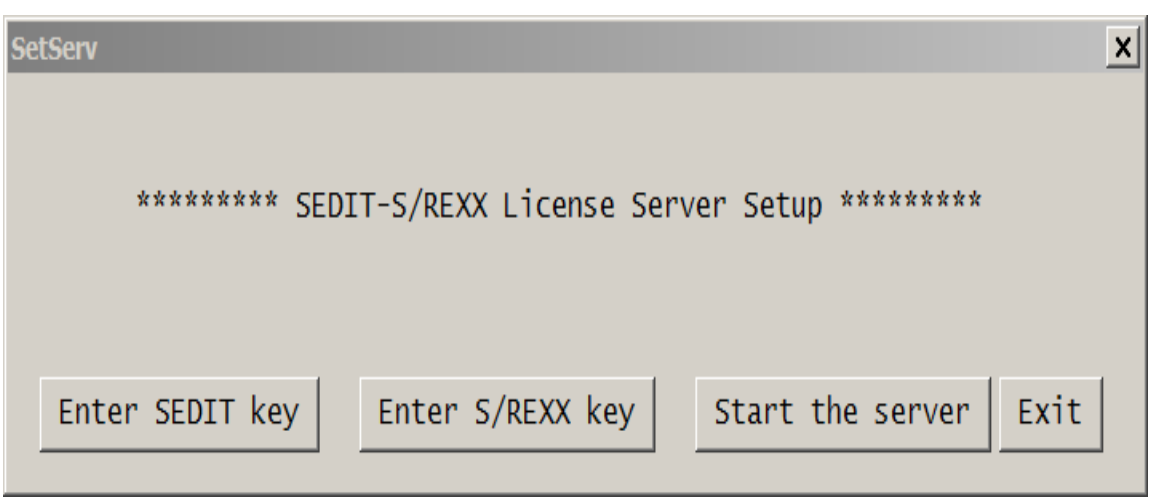
To use `xserv`, the user must execute the following:

1) Decide which workstation to install **SEDIT** and/or **S/REXX** on.
2) Install **SEDIT** and/or **S/REXX** as described page 11 and page 17.
3) Select the `Start -> Program -> SEDIT -> License Server Setup` menu item.

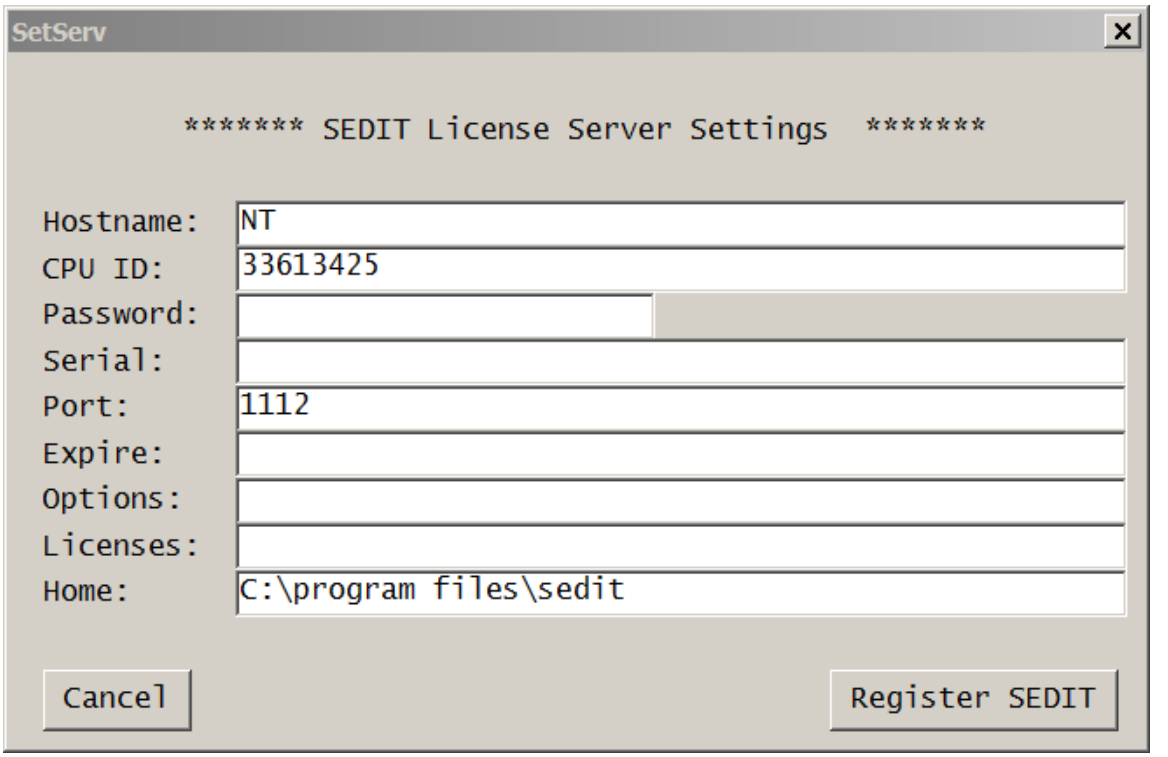
The user will be prompted with the following screen:



Click on the `Install License Server` button, to get:



Then, click on the `Enter SEDIT key` button, to get:



Once the licensing information for **SEDIT** and/or **S/REXX** has been entered, use the `Start the server` button to start `xserv`. `xserv` will be installed as a **WINDOWS** service, and will restart automatically when the server reboots.

Notes: You do not need to reboot the station when installing the license server.
WINDOWS 95 and **WINDOWS 98** cannot be used as license servers.
A **WINDOWS** license server cannot be used with **UNIX** clients.

Using an Alternate Server

The user may install **SEDIT** on an alternate server to be used, as a backup when the main server is inoperable. The installation is the same as for the main server, with only a different `hostname` and a different password. The serial number remains the same, which prevents `xserv` from being used on both servers at the same time.

The users will have to mount the **SEDIT** files from the alternate server instead of the main server.

Reserving Licenses on UNIX Systems

By adding the following statement in the `seditusers` or `srexxusers` file:

```
reserved jumbo :0.0
```

a license will be permanently allocated to the `jumbo` workstation, on the `:0.0` display.

Reserving Licenses on WINDOWS systems

By adding the following statement in the `seditusers` or `srexxusers` file:

```
reserved jumbo
```

a license will be permanently allocated to the `jumbo` workstation.

Configuring a UNIX Heterogeneous Network

`xserv` is able to support a heterogeneous network. For example, to install `xserv` on a SUN, and grant IBM users access to the floating licenses installed on a SUN, use `install` on the SUN server as described above.

When **SEDIT** is installed, `install` creates a `seditusers` file. When **S/REXX** is installed, `install` creates a `srexxusers` file.

Copying `seditusers` and/or `srexxusers` in the IBM **SEDIT** installation directory will enable the use of the SUN `xserv` server by IBM users. `install` must not be used on the IBM installation directory

Setting the SEDIT Idle Time

The following statement in the `seditusers` file:

```
idle 4
```

will make any user not using **SEDIT** for more than 4 hours lose their license. The license will then be available to other users. Do not set an idle time for **S/REXX**, since an **S/REXX** script may run for an indefinite amount of time.

Setting the S/REXX Linger Time

The default value for the linger time is 5 minutes. To change the linger time, edit the srexxusers file, and add the following line:

```
linger 10
```

Then, restart xserv. The linger time will be now set to 10 minutes. The linger time allows a user to perform several edit and debug cycles without losing the license being used. It is not recommended to set the linger time to low.

Logging Activity on UNIX systems

The license server xserv saves a log of its activity when started with the following command:

```
% /home/xed/xserv -log /tmp/xserv.logfile /home/xed
```

Every time a user starts or ends using **SEDIT**, the logfile is updated, with information in the following format:

```
xserv at 94/09/20 14:11:20:granting SEDIT license to process 8509 :0@C
xserv at 94/09/20 14:13:37:freeing SEDIT license from process 8509 @ C
```

Every time xinfo is used, the logfile is updated with the following information:

```
xserv(SEDIT): 1/2  1 available
...... hostname = C  pid(s) = 8517@:0
```

To display the information requested by xinfo in a window other than the window xserv was started from, type the following commands:

```
% xinfo
% cat /tmp/xserv.logfile
```

Usage Notes

Every time a user tries to start **SEDIT**, **SEDIT** asks the license server xserv for an authorization. If xserv has not exhausted all of the available licenses, it permits **SEDIT** to execute.

On **UNIX** systems, one **SEDIT** floating license allows any number of sessions on up to 4 displays connected to a given cpu. If the DISPLAY environment variable does not exist, and on **WINDOWS** systems, xserv takes in account the userid.

When a user terminates an **S/REXX** session, **S/REXX** sends a message to xserv to release the license. If that **S/REXX** session was the last session active on the given display, xserv

waits for a specified amount of time called the `linger` time. If no request is received during the `linger` time for that display, `xserv` will release the license.

When a user terminates an **SEDIT** session, **SEDIT** sends a message to `xserv` to release one license. If that **SEDIT** session was the last one active on the given display, `xserv` can now grant one more license to another display.

The user must not halt a workstation on which an **SEDIT** process is running. This would prevent **SEDIT** from sending a message to `xserv` to release the user's license, thus making that license permanently in use. Should this happen by inadvertent error, the user must restart the `xserv` process.

This is an example of how to kill and restart `xserv` on **UNIX** systems:

```
% cd /home/xed
% ./install xserv restart
Do you want to start the license server ? y
... Checking for "xserv" processes; wait.

The following "xserv" processes are running:

     860 ?  S     0:00 /home/xed/xserv
     861 ?  S     0:00 /home/xed/xserv

They must be killed before restarting the new license server.
Do you want to kill these processes? y
... killing 860
... killing 861
xserv: child died

.... All "xserv" processes killed; please wait for 10 seconds.

.... Starting "xserv"

xserv: checking for other servers with serial number 1001.
xserv: please wait for 10 seconds.
xserv: process 875 listening
xserv: process 879 listening
.... "xserv" started.
%
```

On **WINDOWS** systems, `xserv` is a service, and can be stopped and restarted using the service manager located on the control panel.

Using XINFO

`xinfo` is a utility that informs the user who is using **SEDIT**.

This is an example of `xinfo` usage on **UNIX** systems:

```
% cd /home/xed
% xinfo -s
C{xed}% xinfo -s
SEDIT licenses: 2/3  1 available
...... hostname = asterix  pid(s) = 881 912
...... hostname = obelix   pid(s) = 12323
```

This means that 2 **SEDIT** licenses are in use. There are two sessions on the `asterix` workstation, and one on the `obelix` workstation.

The `-s` option makes `xinfo` display the licensing information on the console. Used without option, `xinfo` opens a dialog box for display.

On **WINDOWS** systems, use the `Start -> Program -> SEDIT -> License Server Query` menu item.

Stopping the Server on UNIX Systems

`xsdown` is a utility that stops `xserv`.

This is an example of `xsdown` usage:

```
% cd /home/xed
% private/xsdown -s
xserv: exiting.
xserv: shutdown performed.
xserv: exiting with return code 0
C{xed}%
```

The `-s` option makes `xsdown` display the licensing information on the console. Used without option, `xsdown` opens a dialog box for display.

The `private` subdirectory is configured to be accessible only by the root account, in order to prevent other users from stopping the server.

Stopping the Server on WINDOWS Systems

`xserv` is a service, and can be stopped and restarted using the **WINDOWS** service manager located on the control panel.

SEDIT Compatibility issues

XEDIT Compatibility Issues

SEDIT has been designed as an **XEDIT** enhancement rather than an exact copy. These enhancements make some commands behave differently. Since experienced **XEDIT** users may find these enhancements confusing at first, **SEDIT** provides the `MODE` command to restore full **XEDIT** compatibility.

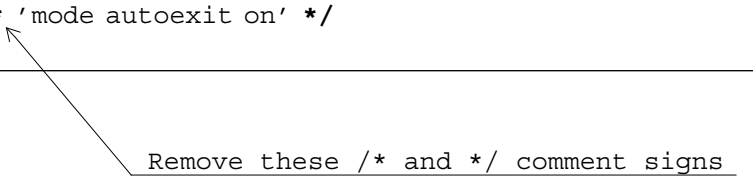
To configure **SEDIT** for full **XEDIT** compatibility, uncomment the following line in the `/home/xed/profile.sedit` (**UNIX**) or `c:\Program Files\SEDIT\profile.sedit` (**WINDOWS**) file by removing the `/*` and `*/` comment characters:

```
/* 'set_xedit' */
```

`set_xedit` is the `/home/xed/xmac/set_xedit.x` or `c:\Program Files\SEDIT\set_xedit.x` macro, which calls the **SEDIT** MODE command described on page 321.

To run **SEDIT** on ASCII terminals, uncomment the following statement:

```
/*
* If you want SEDIT to leave when quitting the last edited file,
* uncomment the following line
*/
/* 'mode autoexit on' */
```



See the MODE command on page 321 for more details.

To have the exact initial **XEDIT** key settings, the user may alternately start **SEDIT** by typing on **UNIX** systems:

```
/home/xed/xedit
```

On **WINDOWS** systems, click on the `XEDIT - Exactly icon`.

This starts **SEDIT** with the `/home/xed/prof_xedit.sedit` or `c:\Program Files\SEDIT\prof_xedit.sedit` profile.

The `prof_xedit` macro sets up **SEDIT** to be the closest to **XEDIT**, searches for a user `~/xeditprof.sedit` file, and executes it when found.

Note: On **WINDOWS** systems, the `HOME` environment variable is usually not defined. In this case, the "`~/`" or "`~\`" directory shortcut is translated into "`C:\`".

Note that on **UNIX** systems, using `xedit` rather than `sedit` to start **SEDIT** disables some useful features, such as the Cut and Paste key settings.

`xedit` will assign the following function keys:

- `F1 HELP`
- `F2 SOS LINEADD` adds a line at the cursor location.
- `F3 QUIT` exits the current file.
- `F4 SOS TABF` moves the cursor as if the `NEXT_FIELD` key had been depressed.
- `F5 XEDIT` switches to the next file in the ring.
- `F6 ?` recalls and displays previously entered commands in a circular sequence.
- `F7 BACKWARD`
- `F8 FORWARD`
- `F9 =` repeats the last command without displaying it.
- `F10 RGTLEFT` scrolls to the right, and then to the left.
- `F11 SPLTJOIN` splits or joins lines.
- `F12 CURSOR HOME` switches the cursor position between the command and the data fields.

SEDIT Differences

The following **XEDIT** commands are not implemented in **SEDIT**:

- ALTER
- CMS (replaced with the SHELL and XSHELL commands)
- CP
- EXPAND
- JOIN
- LOAD
- LPREFIX
- MODIFY
- OVERLAY
- PARSE
- RECOVER (replaced with the more powerful undo/redo feature)
- RENUM
- SET: APL BRKKEY COLPTR ESCAPE ETARCBCH ETMODE FILLER FMODE FULLREAD IMAGE MASK MSGLINE MSGMOE NONDISP NULLS PAN PACK RANGE REMOTE SERIAL SIDCODE SPILL TERMINAL TEXT TOFEOF TRANSLAT
- SI (replaced with the auto-indentation feature: typing ENTER at the end of the line when no command is displayed in the command area adds a line, and places the cursor with respect to the previous line indentation)
- SOS: NULLS PFn POP PUSH
- SPLIT (SPLITJOIN is implemented)
- STATUS (Without operands, the SET command displays the function key setting in fullscreen mode)
- TRANSFER
- TYPE

The following EXTRACT operands are not supported by **SEDIT**:

ACTION	FULLREAD	SEQ8
APL	IMAGE	SERIAL
BASEFT	INPMODE	SIDCODE
BRKKEY	LIBNAME	SPILL
COLPTR	LIBTYPE	TERMINAL
EDIRNAME	LOCK	TEXT
EFMODE	MASK	TOF
EFNAME	MEMBER	TOPEOF
EFTYPE	NBSCOPE	TOL
EOF	NONDISP	TRANSLAT
EOL	NULLS	UNIQUEID
ESCAPE	PA	UNTIL
ETARBCH	PACK	UPDATE
ETMODE	PFn	VERSHIFT
FILLER	RANGE	WINDOW
FMODE	REMOTE	

Compared to **XEDIT**, **SEDIT** features the following main differences:

- The profile.sedit macro is executed only at initialization. reprofile.sedit (or reprofile.ex) is executed every time a new file is loaded.
- Unlike **XEDIT**, in which the ALL command always refers to the complete file, the SEDIT ALL command applies only to the visible lines. This can be overridden by writing the following {install-dir}/xmac/all.sedit macro:

```
parse arg a
'command all'
'command all 'a
```

- The column targets do not support the | operand.
- COMPRESS is a completely different command, meant only for APL users.
- EMSG {message-id} is not supported. EMSG TEXT is supported.
- HEXTYPE creates a new file in the ring.
- INPUT needs an operand.
- POWERINPUT does not display a blank screen. Instead, when set to ON, the file is still displayed on the screen. When the cursor reaches the end of the MARGINS zone during typing, a new line is created starting with the unfinished word the user was typing on the previous line.
- Most of the **SEDIT** commands display their status when used without an operand, making it unnecessary to use the QUERY command. QUERY is nonetheless implemented in **SEDIT**.

- SCHANGE is a full command, to be entered with the following syntax:

  ```
  sc/str1/str2/          arg1     arg2     arg3
  ```

  The confirmation key (F12) can be changed with the SCKEYS command described on page 383.
- The SORT command does not accept a general target.
- The ? buffer is associated with the entire session instead of being associated with a file, and records only the strings entered in the command line.
- There is no End Of File prefix zone.

When the set_xedit macro is not used within the profile, **SEDIT** features many differences outlined in the description of the MODE command on page 321.

ISPF/PDF Compatibility Issues

SEDIT supports the following set of PDF commands:

```
BOUNDS                  EDIT                    RFIND
BUILTIN                 END
CANCEL*                 EXCLUDE*
CAPS                    FIND*
CHANGE*                 LOCATE*
COPY*                   RCHANGE
CREATE                  REPLACE*
DELETE*                 RESET
```

The commands marked with an `*` have the same name as **XEDIT** commands.

SEDIT uses the `MODE COMMAND` status to choose between the **ISPF/PDF** and the **XEDIT** behavior.

For example, when `MODE COMMAND XEDIT` is in effect:

- `FIND` calls the XEDIT `FIND` command.
- `PDFFIND` calls the PDF `FIND` command.

When `MODE COMMAND PDF` is in effect:

- `FIND` calls the PDF `FIND` command.
- `XEDFIND` calls the XEDIT `FIND` command.

To start **SEDIT** in **XEDIT** mode, use the following on **UNIX** systems:

`{install-dir}/xed` starts **SEDIT** in the foreground.

`{install-dir}/sedit` starts **SEDIT** in the background.

On **WINDOWS** systems, use the `SEDIT - XEDIT mode` icon.

To start **SEDIT** in PDF mode, use the following on **UNIX** systems:

`{install-dir}/pxed` starts **SEDIT** in the foreground.

`{install-dir}/psedit` starts **SEDIT** in the background.

On **WINDOWS** systems, use the `SEDIT - PDF mode` icon.

These scripts or icons use the standard `profile.sedit` initialization macro, which assigns a complete set of function keys optimized for every type of supported keyboard. See the sections "**Using function keys on xxxx keyboards**" for more information.

To have PDF-style function key settings, the user may alternately start **SEDIT** by typing on **UNIX** systems:

```
{install-dir}/pdf
```

On **WINDOWS** systems, use the `XEDIT - PDF Exactly` icon.

The `pdf` script or icon starts **SEDIT** with the `/home/xed/prof_pdf.sedit` (or `C:\Program Files\prof_pdf.sedit`) profile. This macro sets up **SEDIT** to simulate PDF as closely as possible, searches for a user `~/pdfprof.sedit` file, and executes it when found.

Note: On **WINDOWS** systems, the `HOME` environment variable is usually not defined. In this case, the "`~/`" or "`~\`" directory shortcut is translated into "`C:\`".

Note that on **UNIX** systems, using `pdf` rather than `psedit` to start **SEDIT** disables some useful features, such as the Cut and Paste key settings.

`pdf` will assign the following function keys:

- `F1 HELP`
- `F2 SCREEN 2` splits the screen.
- `F3 END` terminates the **SEDIT** session, after saving all the modified files.
- `F4 SWITCH` switches between files.
- `F5 RFIND`
- `F6 RCHANGE`
- `F7 BACKWARD`
- `F8 FORWARD`
- `F9 LEFT 40`
- `F10 RIGHT 40`
- `F11 SOS TABCMDF` moves the cursor to the next screen.
- `F12 SCREEN 1` unsplits the screen.

Usage Notes

Being derived from **XEDIT**, **SEDIT** brings to ISPF/PDF users some new, powerful features.

The Editing Ring

SEDIT is able to edit any number of files simultaneously. To edit another file, simply type `edit filename`.

To switch between files, the user may click with the left mouse button on the file name displayed at the top of the window. The `SWITCH` and `ISWITCH` commands described on page 422 and page 292 may also be used. Entering `EDIT` without an argument also switches between files, but without the priority ordering provided by the `SWITCH` command.

Note that `EDIT` is a synonym to the `XEDIT` command described on page 452.

The Current Line

Most **SEDIT** commands apply from the current line, which is the line displayed in red on a specific screen location. See the `CURLINE` command on page 207.

PDF commands do not use the current line concept. For example, `FIND` uses the argument keyword (`FIRST`, `LAST`, etc...) to determine the search starting point.

Free File Manipulation

Although the CREATE and REPLACE commands are implemented, it is easier to use the SAVE (page 379) and FN (page 274) commands to manage file names.

The FLIST utility described on page 465 is a powerful fullscreen file manager. Editing a new file within FLIST is as simple as clicking on its name, or placing the cursor on it and hitting the F4 key on ASCII terminals.

The PROFILE File

When **SEDIT** is invoked, it uses the profile.sedit REXX macro file as its initialization macro.
profile.sedit is first searched for in the current directory, then in the user's home directory, and if still not found, in the **SEDIT** installation directory.

The -p option described on page 46 may be used to start **SEDIT** with a different profile file.

See Customizing SEDIT (UNIX) on page 37 for more information.

When a reprofile macro has been loaded at initialization by using the HASH command described on page 284, reprofile will be used every time a new file is loaded.
This permits the reprofile macro to set up a different **SEDIT** environment for specific files.

reprofile may be either a reprofile.sedit REXX macro or a reprofile.ex external macro. See Using EXTERNAL Macro Commands (UNIX Only) on page 134 for more information.

Customizing SEDIT (UNIX)

Using XED, SEDIT, PXED, PSEDIT or KEDIT

When called by the XED, SEDIT, PXED, PSEDIT or KEDIT scripts, **SEDIT** uses the standard profile.sedit initialization macro, which assigns a complete set of function keys optimized for every type of supported keyboard. See "**Using function keys on xxxx keyboards**" section for more information.

To customize the **SEDIT** session, copy the {install-dir}/profile.sedit file into the user's home directory:

```
% cp /home/xed/profile.sedit ~
```

Any **SEDIT** command added in this file must be surrounded by single or double quotes. We recommend adding all user modifications at the end the file, after the comment line tagged "**START of user modification**". For example, to change the function key settings for F7 and F8:

```
/*  START of user modification */
 'set f7 pgup'
 'set f8 pgdown'
/*  END   of user modification */
```

Using XEDIT or PDF

XEDIT and PDF use a special profile file which checks for a ~/xeditprof.sedit or ~/pdfprof.sedit file and executes it when found.

Therefore, to customize the **SEDIT** session, the user must create an xeditprof.sedit or pdfprof.sedit file into the user's home directory **from scratch**.

Any **SEDIT** command in this file must be surrounded by single or double quotes.

For example, to change the function key settings for F7 and F8:

```
 'set f7 rchange'
 'set f8 rfind'
```

Customizing SEDIT (WINDOWS)

Using the XEDIT-MODE, PDF-MODE and KEDIT-MODE Icons

When **SEDIT** starts, it looks for the `profile.sedit` file in that order:

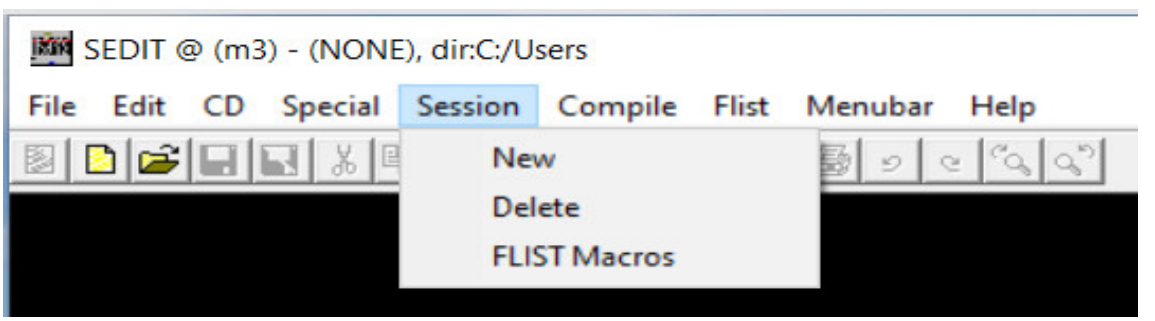
- The current directory.
- If there is a `$HOME` environment variable, **SEDIT** will look into the directory described by it.
- The `LocalAppData` folder
  usually `C:\Users\{username}\AppData\Local`
- The installation directory.

If **SEDIT** only finds the profile in the installation directory, it will prompt the user to copy the customization files into `C:\Users\{username}\AppData\Local\SEDIT`.

Clicking on `Continue` will perform the copy, and add a new `Session` item to the menubar.

SEDIT has to be restarted to use the new generated profile.

Session offers the following items:



`Session` is to be used to memorize within an **SEDIT** `{Session Name}.x` macro the names of the files currently edited. Once created, `Session Name` will be shown in this drop-down menu, allowing to re-open the same set of files.

- `New` Prompts for a session name. If a session has already been created during this **SEDIT** session, the input field will be auto-filled with its name, allowing to update the same session.
  Note that the name must use characters allowed in a macro. For the actual macro name, numbers like "`1`" will be replaced by "`one`".
  Entering "`MyFiles 12`" will create a macro named "`myfiles_one_two.x`" in the following folder:
  `{...}\AppData\Local\SEDIT\xmacU`
  `Session` will update the
  `{...)\AppData\Local\SEDIT\session.bu`
  file that describes the `Session` menu layout.
  see the `MENUBAR` command for more information.
- `Delete` will start editing the `session.bu` file, allowing the user to remove entries. Using then `Menubar > Do` will update the drop-down menu.

- `FLIST Macros`
  starts the directory editor **FLIST** showing the `xmacU` directory content, allowing the user to erase the no longer needed macros.

Further **SEDIT** customization can be done by manually editing the `C:\Users\{username}\AppData\Local\SEDIT\profile.sedit` file.

Using the XEDIT-EXACTLY Icon

When **SEDIT** starts, it looks for the `prof_xedit.sedit` file in that order:

- The current directory.
- If there is a `$HOME` environment variable, **SEDIT** will look into the directory described by it.
- The `LocalAppData` folder
  usually `C:\Users\{username}\AppData\Local`
- The installation directory.

If **SEDIT** only finds the profile in the installation directory, it will prompt the user to copy the customization files into `C:\Users\{username}\AppData\Local\SEDIT`.

Clicking on `Continue` will perform the copy, and add a new `Session` item to the menubar as described above.

Further **SEDIT** customization can be done by manually editing the `C:\Users\{username}\AppData\Local\SEDIT\prof_xedit.sedit` file.

Using the PDF-EXACTLY Icon

When **SEDIT** starts, it looks for the `prof_pdf.sedit` file in that order:

- The current directory.
- If there is a `$HOME` environment variable, **SEDIT** will look into the directory described by it.
- The `LocalAppData` folder
  usually `C:\Users\{username}\AppData\Local`

If **SEDIT** only finds the profile in the installation directory, it will prompt the user to copy the customization files into `C:\Users\{username}\AppData\Local\SEDIT`.

Clicking on `Continue` will perform the copy, and add a new `Session` item to the menubar as described above.

Further **SEDIT** customization can be done by manually editing the `C:\Users\{username}\AppData\Local\SEDIT\prof_pdf.sedit` file.

SEDIT User's Guide

The 3270 Screen Interface

SEDIT has a user interface which emulates an IBM[1] 3270 terminal device. This means that data is displayed using fields in a strictly WYSIWYG manner.

There are absolutely no invisible control characters on the screen. When the user sees a space, it is an actual space, and the user can overtype it without entering spaces before it, as required with most **UNIX** editors.

A field is an area of the screen on which alphanumeric data is written by the editor, and on which either data or commands may be written. Some fields are input fields, which allow data input, and others are output fields where data entry is prohibited. If data entry is attempted on an output field the screen will flash.

There are a few keys which make it possible to move the cursor in a way similar to that of a 3270 device:

- **NEXT FIELD** Key `TAB` will move the cursor to the next input field.
  If there is no field at the right in the same line, the cursor will be moved to the first input field on the line below.
  Note: Type `Control-TAB` to enter a tabulation, or `Control-t` when running in `ASCII` terminal mode.
- **PREV FIELD** The key `Shift-TAB` will move the cursor to the previous input field.
  If there is no field at the left on the same line, the cursor will be moved to the last input field on the line before.
  On DECstation keyboards, this function is assigned to the `SELECT` (`R6`) key.
  On HP keyboards, it is assigned to the Numerical Pad `TAB` key.
- **DOWN FIELD** On Sun keyboards, the `AltGraph` key will move the cursor to the first input field on the line below.
  On DECstation keyboards, it is assigned to the `PF4` (`L4`) key.
  On HP keyboards, it is assigned to the Right `Extended Char` key.
  On other keyboards, this function is assigned to the right `Control` key.
- **UP FIELD** On Sun type 4 keyboards, the key `Line feed` will move the cursor to the first input field on the upper line.
  On DECstation keyboards, it is assigned to the `PF3` (`L3`) key.
  On HP keyboards, it is assigned to the `Select` key.
  On other keyboards, this function is assigned to the right `Alt` key.

1. IBM is a registered trademark of International Business Machines, Inc.

- **HOME** On Sun, IBM and SiliconGraphics keyboards, the `Home` key will move the cursor to the first input field on the screen.
  On HP keyboards, it is assigned to the key labeled with a ↖. This key is defined as the `R7` key.
- **IHOME** On Sun, IBM and SiliconGraphics keyboards, the key `End` key will move the cursor to the last input field on the screen.
  On HP keyboards, it is assigned to the `Shift-R7` key.

The user can also move the cursor using the CURSOR KEYS or using the third mouse button.

The following keys are used to manage data on a field:

- **INS** On Sun type 3 keyboards, the `R11` key will toggle between `INSERT` and `REPLACE` mode.
  On HP keyboards, `INS` is assigned to the `Ins Char` key.
  On other keyboards, this function is assigned to the `Insert` key.
- **CAPS** On Sun type 3 keyboards, the `R13` key will toggle between lower case and caps-lock upper case mode. Unlike the standard `CAPS` Sun Key, every key will be treated as shifted, not only alphabetical keys.
  On other keyboards, this function is assigned to the `Caps Lock` key.
  Note that function keys are not modified by the caps-lock status.
- **APL** On Sun type 3 keyboards, the `R15` key will toggle between `STANDARD` and `APL` mode. `APL` mode is meaningless unless using an APL font.
- **ERASE EOF** On Sun keyboards, the key `L3` (usually labelled `Props`) will clear the field starting at the cursor location.
  When shifted, it will erase the entire field, and place the cursor at the beginning of the field.
  On HP keyboards, this function is assigned to the `Reset` key.
  On IBM and SiliconGraphics keyboards, this function is assigned to the `Escape` key. `Control-Escape` will erase the entire field.
  On **WINDOWS** systems, use `Escape` and `Shift-Escape`.
  On DECstation keyboards, use the `F13` key.
- **DELETE** Key `Delete` (`Remove` on DECstations and `Delete Char` on HP keyboards) will erase the character at the cursor location and shift to the left all the characters remaining on the field to the right of the cursor.
- **BACKSPACE** Key `Back Space` will erase the character at the left of the cursor location. If the user is in **INSERT** mode, **SEDIT** will shift the characters that remain to the right of the cursor to the left.

Note: Most **UNIX** editors, such as **VI,** use tabulations to indent text. **SEDIT** does not do this because using such control characters prevents using two dimensional features such as rectangular selection.
So, if the user wants to edit files previously created with tabulations, the user may use the TABEXP command to replace tabulations with spaces. The user may simulate the standard **UNIX** tabulations using the TABSET command.

The following key is also useful:

- **PRINTSCREEN** On Sun keyboards, the Meta-L3 key will print a screen copy. The meta key is labelled left or right on Sun type 3 keyboards, and ◊ on the type 4 and 5 keyboards.
On IBM and SiliconGraphics keyboards, the user must use the Shift-Control-Escape key.
On HP keyboards, the meta key is the left Extended Char key, and the user must use the Meta-Reset key.
On DECstation keyboards, the meta key is the Compose key, and the user must use the Meta-F13 key.

Getting Started (UNIX)

Starting SEDIT Within DYALOG APL

Under APL, the user must first copy the functions included in the `/home/xed/XF` workspace, and then issue the command "`XF'TEST'`" to edit the APL object `TEST`. This object may be any kind of APL object, but ☐OR object representation.

In case of a nested array, or of an object with rank greater than two, the user will see a two dimensional display representation, but the user will not be allowed to issue the `FILE` command to fix it in the active workspace.

The function `XF` maintains the last modification time in a variable named `TSOBJ`, and **SEDIT** displays this information in the first screen line.

Starting SEDIT Under UNIX

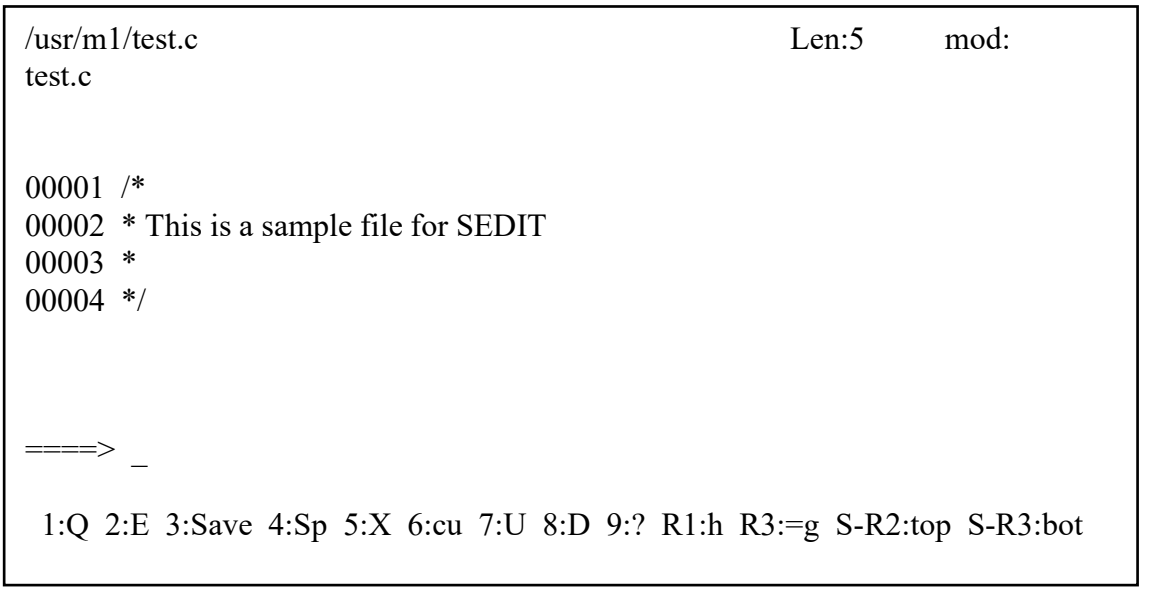
To start **SEDIT**, use one of the following commands:

`xed`	`starts` **`SEDIT`** `in the foreground` in XEDIT mode
`sedit`	`starts` **`SEDIT`** `in the background` in XEDIT mode
`pxed`	starts **SEDIT** in the foreground in PDF mode
`psedit`	`starts` **`SEDIT`** `in the` background in PDF mode
`xedit`	starts **SEDIT** in full XEDIT compatible mode
`pdf`	starts **SEDIT** in full PDF compatible mode
`kedit`	starts **SEDIT** `with a KEDIT-like keyboard layout. See page 87.`

After installing **SEDIT**, the user may type, for example:

```
% sedit test.c
```

Assuming file `test.c` exists, the screen will look like this:



Note**:** **SEDIT** looks for this `test.c` file in the current directory first. If it does not exist in this directory, **SEDIT** searches in the directories described either in the environment variable `XPATH` (if there is one) or in `PATH`, or in directories accessed by the `ACCESS` command. If the file is not found, **SEDIT** starts with an empty file.

The UNIX Command Line Options

The user can pass to **SEDIT** the following options:

`-Ww or -width`	`columns`	the number of columns.
`-Wh or -height`	`lines`	the number of lines.
`-Wf or -font`	`fontname`	the font to be used at initialization.
`-dy_font`	`fontname`	the font to be used by dialog boxes.
`-display`	`display`	the X11 display to be used.
`-Wp or -position`	`x y`	the **SEDIT** window location.
`-WP or -icon_position`	`x y`	the **SEDIT** icon location.
`-xrm`	`'"resource"'`	overrides a specific X11 resource when running in the **MOTIF** mode. See Setting the MOTIF Resources on page 6 for more details about X11 resources. `resource` must be enclosed within `'"` and `"'`.
`-p or -P`	`filename`	the profile file to be read at initialization, `profile.sedit` by default. Note that `filename` is executed **before** loading any file.
`-np`		no profile file will be read at initialization.
`-c`	`'"cmd"'`	executes the **SEDIT** command `cmd` after initialization. `cmd` must be enclosed within `'"` and `"'`.
`-batch`		starts **SEDIT** in batch mode. See Using the BATCH Option on page 144 for more information.
`-filec`	`filename`	starts **SEDIT** in batch mode, loads **first** the various files passed as parameters, and executes the `filename` macro. See Using the BATCH Option on page 144 for more information.

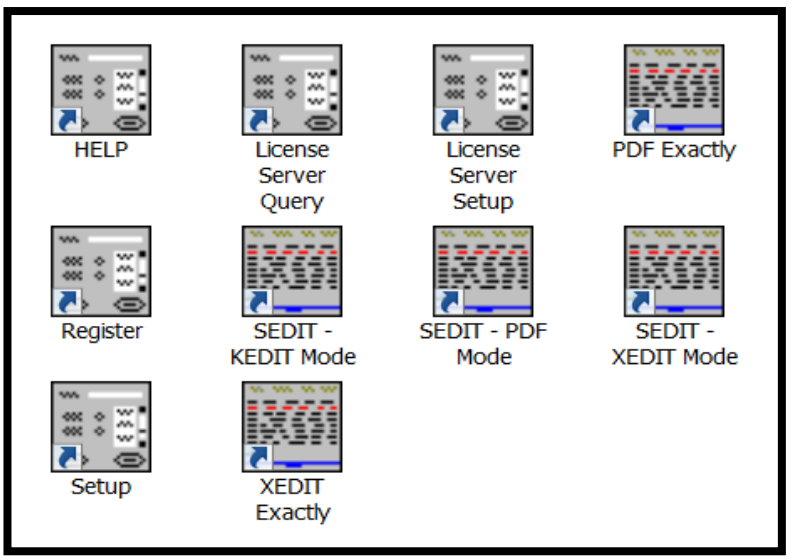
Example: `xed -c '"f * c"' foo.c`
This statement starts editing the file `foo.c`, and then calls the directory editor upon every `*.c` file.

If the `sedit` script is used to start **SEDIT** in the background, the user can pass to it the same options.

Getting Started (WINDOWS)

Starting SEDIT

`setup` creates the following icons:



SEDIT - XEDIT Mode

SEDIT starts with XEDIT defaults. The keyboard layout is descibed on page 80.

SEDIT will use the `C:\Program Files\SEDIT\profile.sedit` file as initialization profile.

SEDIT - PDF Mode

SEDIT starts with PDF defaults. The keyboard layout is also described on page 80.

SEDIT will use the `C:\Program Files\SEDIT\profile.sedit` file as initialization profile.

SEDIT - XEDIT Exactly

SEDIT starts with XEDIT defaults. The keyboard layout is similar to XEDIT, and is described in the section XEDIT Compatibility Issues on page 29.

SEDIT will use the `C:\Program Files\SEDIT\prof_xedit.sedit` file as initialization profile.

SEDIT - PDF Exactly

SEDIT starts with PDF defaults. The keyboard layout is similar to PDF, and is described in the section ISPF/PDF Compatibility Issues on page 34.

SEDIT will use the `C:\Program Files\SEDIT\prof_pdf.sedit` file as initialization profile.

SEDIT - KEDIT Mode

SEDIT starts with KEDIT-like keyboard defaults. The keyboard layout is described on page 87.

SEDIT will use the `C:\Program Files\SEDIT\profile.sedit` file as initialization profile.

After starting **SEDIT**, the user may type, for example:

```
====> xed test.c
```

Assuming file `test.c` exists, the screen will look like this:

```
C:\Program Files\SEDIT\demo\demo1\test.c                    Len:5      mod:
test.c


00001  /*
00002  * This is a sample file for SEDIT
00003  *
00004  */



====>  _

 1:Q  2:E  3:Save  4:Sp  5:X  6:cu  7:U  8:D  9:?  R1:h  R3:=g  S-R2:top  S-R3:bot
```

Note**:** `xed` looks for this `test.c` file in the current directory first. If it does not exist, **SEDIT** searches in the directories accessed by the `ACCESS` command. If the file is not found, `xed` starts with an empty file.

The WINDOWS Command Line Options

The user can pass to **SEDIT** the following options:

`-Ww or -width`	`columns`	the number of columns.
`-Wh or -height`	`lines`	the number of lines.
`-Wp or -position`	`x y`	the **SEDIT** window location.
`-p or -P`	`filename`	the profile file to be read at initialization, `profile.sedit` by default. Note that `filename` is executed **before** loading any file.
`-np`		no profile file will be read at initialization.
`-c`	`cmd`	executes the **SEDIT** command `cmd` after initialization. `cmd` must be enclosed within quotes when containing blanks.
`-noauto`		**SEDIT** normally records the font in use and its window location when exiting, and uses the recorded settings when started again. With the `-noauto` option, **SEDIT** does not use the recorded settings when starting, and does not save new ones when exiting.
`-batch`		starts **SEDIT** in batch mode. See Using the BATCH Option on page 144 for more information.
`-filec`	`filename`	starts **SEDIT** in batch mode, loads **first** the various files passed as parameters, and executes the `filename` macro. See Using the BATCH Option on page 144 for more information.

Example: `xed -c 'f * c' foo.c`
This statement starts editing the file `foo.c`, and then calls the directory editor upon every `*.c` file.

Using a UNIX Keyboard Layout

To start **SEDIT** with a **UNIX** like keyboard layout, edit the profile in use as described on page 47 and uncomment the following line by removing the `/*` and `*/` comment characters:

```
/* 'set_unix' */
```

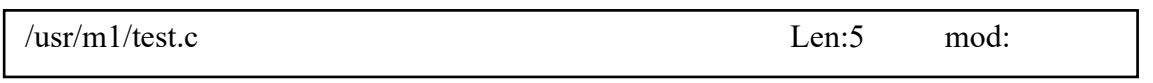
`set_unix` is the `C:\Program Files\SEDIT\xmac\set_unix.x` macro. The keyboard layout will be modified in the following way:

KEY	WINDOWS SETTINGS	UNIX SETTINGS
F2	adds a line below the cursor location	removes the selected characters
F3	saves the file	copies the selection into the clipboard
F4	splits or joins the current line	pastes from the clipboard
^a	selects all	adds a line below the cursor location
^A		selects all
^c	copies the selection into the clipboard	compiles the current file
^C	compiles the current file	
^g		compiles in debug mode
^G	compiles in debug mode	
^s	opens the SAVE AS dialog box	splits or joins the current line
^x	removes the selected characters	starts editing the file selected with the mouse
Mouse Mode	Windows (see page 127)	Open Look (see page 123)

Exploring the SEDIT SCREEN

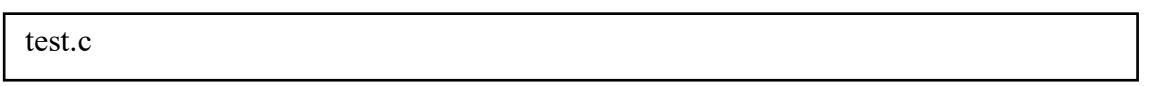
The screen is divided into 6 major types of fields:

1) The **STATUS FIELD**:



indicates the full name of the file being edited, its length and shows an `"*"` behind `"mod:"` when the file has been modified but not yet saved.

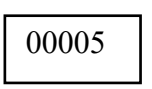
2) The **MESSAGE FIELD:**



shows either the names of different files being edited at the same time or an error message when necessary.

To switch from one file to another, click the filename in this field with the left or center mouse button (M1/M2).

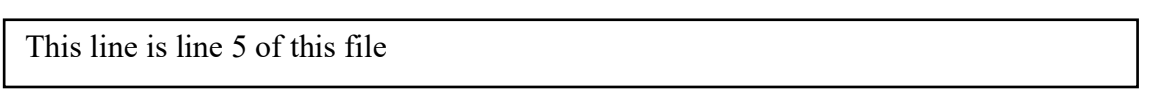
3) The **PREFIX FIELDS:**



give the number of each line displayed.

The user can type commands in these fields. The commands will affect only the corresponding line.

4) The **DATA FIELDS**:



The user can modify the data by typing over it.

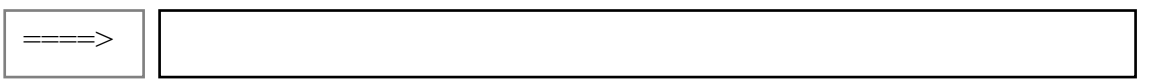
If the length of this field is not sufficient for the data, place the cursor on it and press the F2 (extend feature) key.

5) The **DIRECT INPUT FIELDS**:

These are the fields between the last data field and the COMMAND FIELD, and between the message field and the first data field.

The user can type in data directly. When the user validates the data entered by pressing `Return`, new lines will be added to the file.

6) The **COMMAND FIELD**:



is used to pass commands to the editor.

Commands generally work from the CURRENT LINE towards the end of the file.

The CURRENT LINE is the line which is displayed on the 8th physical line of the screen. If a color display is used, the current line will appear in red and the corresponding prefix field appears bold-faced.

Note that the physical location of the CURRENT LINE may be changed with the `"CURL N"` command.

The convention for command description is the following:

Add {N} means that the command ADD can be shortened by `"A"` or `"AD"`, and that the numerical parameter `"N"` may be omitted.

Note that any command may be entered in upper or lower case letters.

The user may also pass commands using buttons, or OpenLook style walking menus. See the commands `BUTTON` and `MENU` for more information.

Moving Through a File

1) Entering commands

   The user can go to line N by typing N followed by `"Return"` in the COMMAND FIELD.

   The user can scroll up N lines by typing `"Up {N}"`.

   The user can scroll down N lines by typing `"Down {N}"`.

   `"TOP"` moves the current line to the top of the file.

   `"Bottom"` moves the current line to the bottom of the file.

2) Using the function keys

   A 3270 keyboard may use up to 24 functions named PF1 to PF24.

   PF1 to PF12 are mapped on keys F1 to F12.

   On old Sun keyboards, PF10 to PF12 are mapped on keys R1 to R3.

   PF13 to PF24 are mapped on the same keys, modified by the shift key.

   Key F7 scrolls up one page: the current line becomes the last line displayed.

   Key F8 scrolls down one page: the last line displayed becomes the current line.

   Keys PF19 (Shift-F7) and PF20 (Shift-F8) scrolls the whole screen: the last line displayed becomes first, and vice versa.

3) Using the mouse in OpenLook mode (the default mode on **UNIX** systems)

   When the arrow is in a PREFIX FIELD, `M1` and `M2` (Left and Middle) keys work like F7 and F8.
   `"Control-M1"` will move the current line to the top of the file.
   `"Control-M2"` will move the current line to the bottom of the file.

   When the arrow is in the first screen line, `M1` and `M2` will scroll UP and DOWN 4 lines on the screen. When shifted, they will scroll 8 lines. When holding the `meta` key, they will scroll one page.

   `M3` (the third mouse button) is usually used to move the cursor, but when shifted, the line on which it is used will become the current line.

   Note that the same can be achieved by typing `"/"` and `"Return"` in a PREFIX FIELD.

4) Using the mouse in **WINDOWS** mode

   `M1` is the left mouse button, and `M3` is the right mouse button. When using a 3 button mouse, `M2` is the middle mouse button.

   When the arrow is in a PREFIX FIELD, `"Control-M1"` will move the current line to the top of the file.
   `"Control-M2"` will move the current line to the bottom of the file.

   `M3` is usually used to display a menu, but when shifted, the line on which it is used will become the current line.

   Note that the same can be achieved by typing `"/"` and `"Return"` in a PREFIX FIELD.

Editing Multiple Files

The basic command for editing a file is `"xed unixname"`.

If there is no directory indicator such as `"/"`, `"./"`, `"~/"` or `"\"` on **WINDOWS**, the current directory will be searched first. If not found, it will be looked for in the directories described by the environment variable XPATH, or PATH.

The user can change the current directory using the `CD` command, or add a new directory in the path by using the `ACCESS` command.

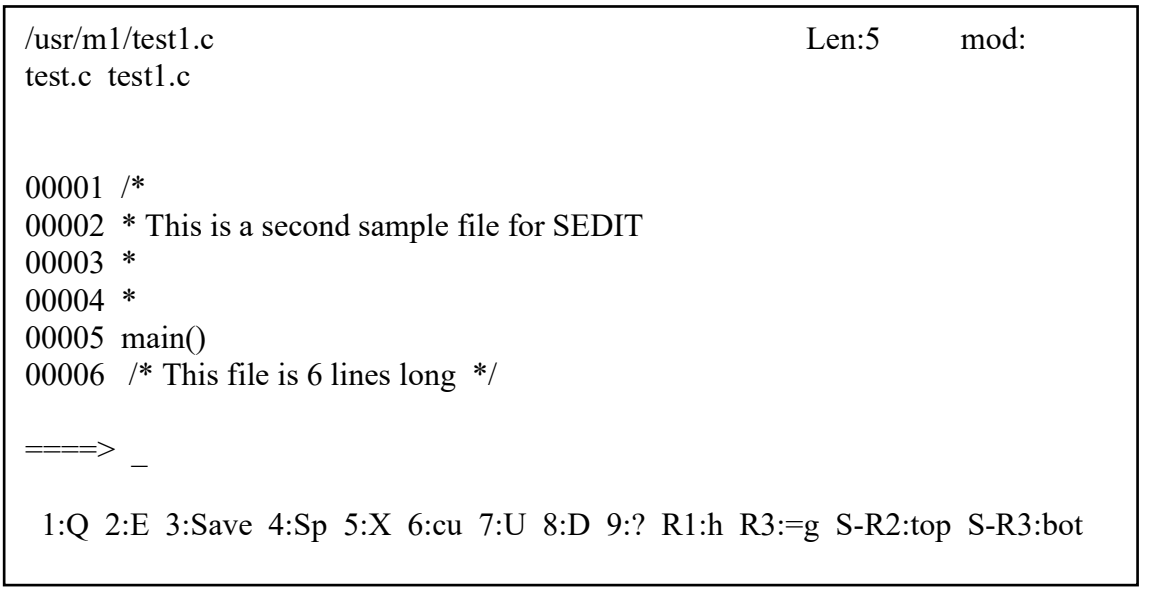
There are short-cuts to make editing another file easier. When editing a certain type of file, for example `"test.c"`, and the user wants to edit another file of the same type, for example `"test1.c"`, the user may type `"x test1"` instead of `"xed test1.c"`.

There are also several abbreviations for the most frequent unix types of files:

```
"xc test"  <===>  "xed test.c"
"xf test"  <===>  "xed test.f"
"xp test"  <===>  "xed test.p"
"xh test"  <===>  "xed test.h"
"xt test"  <===>  "xed test.txt"
"xm test"  <===>  "xed test.mem"
"xx test"  <===>  "xed test.x"
"xi"       <===>  "xed .dbxinit"
"xe test"  <===>  "xed test.ex"
"xs test"  <===>  "xed test.sedit"
```

Under APL, you edit in priority another APL object, but nothing prevents you from editing a **UNIX** file either by specifying a path with a `"/"`, `"~/"` or `"/"` starting filename, or using one of the above x{?} abbreviations.

Assume that "x test1" or "xc test1" is typed. The screen will look like this:



The message field indicates that you are editing two files, named "test.c" and "test1.c".

The user can switch between files either by using F5 or by clicking with the left or middle mouse button on the name of the file.

Using Function Keys on SUN Keyboards

Most of the SUN function keys are dedicated to execute commands.

The `Right` function keys only available on Sun type 3 and type 4 keyboards are mapped in the following way on type 5 keyboards:

- R1 Print Screen
- R2 Scroll Lock
- R3 Pause
- R7 Home
- R9 Page Up
- R13 End
- R15 Page Down

See SUN Type 5 Keyboard Layout on page 694 for more details about the right function keys.

The `Left` function keys are the following keys:

- L1 Stop
- L2 Again
- L3 Props
- L4 Undo
- L5 Front
- L6 Copy
- L7 Open
- L8 Paste
- L9 Find
- L10 Cut
- L11 Help

The principal key definitions are referenced on the last line of the window.

L2 `MATCH`
finds a matching delimiter. `{ [ ( <` matches `} ] ) >`.

L3 Erase end of field
clears the field starting at the cursor location.

Shift-L3 Erase all field
clears the entire field, and places the cursor at the beginning of the field.

L4 `UNDO`
undoes the last action.

Shift-L4 `REDO`
undoes the last undo.

L6 `S_COPY`
copies the selection into the internal buffer named shelf.

L8 `S_PASTE`
pastes the shelf contents at the cursor location.

Control-L8	`S_PASTE PRIMARY` pastes the selection content at the cursor location. May be used to retrieve the selection from another window.
Shift-L8	`S_PASTE OVERLAY` overlays the shelf contents at the cursor location.
L9	`S_FIND` searches a string matching the current selection.
L10	`S_CUT` cuts the current selection.
F1	`QUIT` is used to abandon the file without saving it. If the file has been modified during the session, the user will be prompted to confirm the key to quit.
Control-F1	`FLQUIT` will do the same as F1, and then switch to the directory editor.
F2	`C_EXT` is used to extend the length of the field selected by the cursor.
F3	`SAVE` transforms the unchanged source file into a backup file by appending a `"%"` to its name, and creates a new file with the original name from the edited memory image, without exiting it.
Shift-F3	`FILE` saves the file and then presents a new screen.
Control-F3	`FLFILE` will do the same as Shift-F3 and then switch to the directory editor.
F4	`C_SPLIT` when the cursor is before the last non-blank character, the line will be split, with indentation if the auto-indent feature is ON (See command `"AUTOI on|off")`. When the cursor is after the last non-blank character, the next line will be joined to that one.
F5	`SWITCH` moves from one file to another in a circular sequence.
Shift-F5	`ISWITCH` does the same as F5 in a reversed sequence.
F6	`C_ENDLINE` if the cursor is in a DATA FIELD, it will be moved to the end of that field.
Shift-F6	`C_ENDCURL` moves the cursor to the end of the CURRENT LINE FIELD.

F7	`BACKWARD` scrolls backward one page.
Meta-F7	`S_LSHIFT` the text from the column where the selection starts will be moved to the left.
F8	`FORWARD` scrolls forward one page.
Meta-F8	`S_RSHIFT` the text from the column where the selection starts will be moved to the right.
F9	`?` displays the previous commands executed in the COMMAND FIELD. The user can edit and re-execute them.
Shift-F9	`?I` does the same as F9 in a reversed order.
Control-F9	`XSHOWHISTORY` displays the commands memorized in the history buffer in fullscreen mode.
Meta-F9	`SHOWHISTORY` displays the commands memorized in the history buffer.
F10	`CURSOR HOME` if the cursor is in a DATA FIELD, it will be moved to the COMMAND FIELD. A subsequent action will restore its previous location.
F12	`=` repeats the last command without displaying it.
R1	`COMPLETE` allows command line filename completion.
Shift-R1	`COMPLETE REVERSE` allows command line filename completion in reverse order.
S-R2 or S-F11	`TOP` moves the current line to the beginning of the file.
S-R3 or S-F12	`BOT` moves the current line to the end of the file.
Control-R5	`filter $xhome/filters/$arch/toggle_comment` comments in or out the selected or cursor lines.
Control-Left-Arrow	moves the cursor to the previous word.
Control-Right-Arrow	moves the cursor to the next word.
Control-1	`MACRO set_bookmark 1` sets the bookmark number 1 at the cursor location.

Control-2	`MACRO set_bookmark 2` sets the bookmark number 2 at the cursor location.
Control-3	`MACRO set_bookmark 3` sets the bookmark number 3 at the cursor location.
Control-4	`MACRO set_bookmark 4` sets the bookmark number 4 at the cursor location.
Control-5	`MACRO set_bookmark 5` sets the bookmark number 4 at the cursor location.
Control-6	`MACRO goto_bookmark 1` goes to the bookmark number 1.
Control-7	`MACRO goto_bookmark 2` goes to the bookmark number 2.
Control-8	`MACRO goto_bookmark 3` goes to the bookmark number 3.
Control-9	`MACRO goto_bookmark 4` goes to the bookmark number 4.
Control-0	`MACRO goto_bookmark 5` goes to the bookmark number 5.
Meta-0	`MACRO rm_bookmarks` removes all the bookmarks on the current file.
Control-a	`C_LINEADD` adds a line below the cursor location.
Control-c	`MACRO smart_comp $name 0` compiles the current file, splits the screen, shows the error messages and sets the cursor on the first error line. See the `compile` command on page 190 for more details.
Control-C	`MACRO smart_comp $name 1` compiles a file in the background.
Control-d	`C_LINEDEL` deletes the line at the cursor location.
Control-f	equivalent to the `"f"` command (see Directory editor section).
Control-g	same as Control-c, but in debug mode.
Control-G	same as Control-C, but in debug mode.
Control-h	`C_SCRH` splits the screen horizontally at the cursor location.
Control-l	`S_LOWER` translates the characters selected with the mouse into lowercase.
Control-n	`FLIST $fn *` calls the directory editor showing all the files with the same

	filename as the current file.
Control-p	`SHELL lpr -h $name &` prints the current file.
Control-r	`TREE` calls the tree editor.
Control-u	`S_UPPER` translates the characters selected with the mouse into uppercase.
Control-U	`S_UPPER WORD` translates the first letter of each selected word with the mouse into uppercase.
Control-v	`C_SCRV` splits the screen vertically at the cursor location.
Control-w	`C_SCRJ` restarts with an unsplit screen.
Control-x	`S_XED` starts editing a file selected with the mouse or at the cursor location, after expanding the selection to a word and appending the currently edited filetype.
Control-z	`LEFT 0` resets the original `VERIFY` setting, displaying all the columns.
Control--	`NEXTERROR` after a compilation is executed with the Control-c command, the cursor moves to the next error.
Control-=	`C_DUP` duplicates the line at the cursor location.
Shift+Control-a	`MACRO adjust_cursor` sets the start of the line at the cursor position.
Shift+Control-c	`CENTER` centers the line at the cursor location.
Shift+Control-f	`FLOW` formats the paragraph at the cursor location.
Shift+Control-o	`S_PASTE OVERLAY SHELF` overlays the contents of the clipboard at the cursor location.
Shift+Control-w	`MACRO del_word` deletes the word at the cursor location.
Meta-+	`MACRO toggle_display` toggles between viewing the entire file and viewing the selected lines.
Meta-=	`MACRO dup_line` duplicates the cursor or the current line.

Meta-u	`S_SET OFF` cancels the current selection.
Meta-x	`S_XED` starts editing a file selected with the mouse or at the cursor location, after expanding the selection to a word and appending the currently edited filetype.

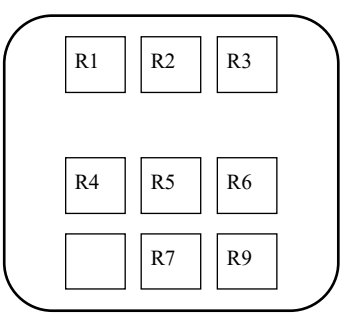
Using Function Keys on IBM, SiliconGraphics and PCs Keyboards

Most of the function keys are dedicated to execute commands.

The `Right` function keys (only available on Sun keyboards) are mapped in the following way:

- R1 Print Screen
- R2 Scroll Lock
- R3 Pause
- R4 Insert
- R5 Home
- R6 Page Up
- R7 End
- R9 Page Down

With the following physical layout:



The principal key definitions are referenced on the last line of the window.

Escape	Erase end of field clears the field starting at the cursor location.
Control-Escape	Erase all field clears the entire field, and places the cursor at the beginning of the field.
F1	`S_FIND` searches a string matching the current selection.
F2	`S_CUT` cuts the current selection.
F3	`S_COPY` copies the selection into the internal buffer named shelf.
F4	`S_PASTE` pastes the shelf contents at the cursor location.

Control-F4	`S_PASTE PRIMARY` pastes the selection content at the cursor location. May be used to retrieve the selection from another window.
Shift-F4	`S_PASTE OVERLAY` overlays the shelf contents at the cursor location.
F5	`SWITCH` moves from one file to another in a circular sequence.
Shift-F5	`ISWITCH` does the same as F5 in a reversed sequence.
F6	`C_ENDLINE` if the cursor is in a DATA FIELD it will be moved to the end of that field.
Shift-F6	`C_ENDCURL` moves the cursor to the end of the CURRENT LINE FIELD.
F7	`BACKWARD` scrolls backward one page.
Meta-F7	`S_LSHIFT` the text from the column where the selection starts will be moved to the left.
F8	`FORWARD` scrolls forward one page.
Meta-F8	`S_RSHIFT` the text from the column where the selection starts will be moved to the right.
F9	`?` displays the previous commands executed in the COMMAND FIELD. The user can edit and re-execute them.
Shift-F9	`?I` does the same as F9 in a reversed order.
Control-F9	`XSHOWHISTORY` displays the commands memorized in the history buffer in fullscreen mode.
Meta-F9	`SHOWHISTORY` displays the commands memorized in the history buffer.
F10	`CURSOR HOME` if the cursor is in a DATA FIELD, it will be moved to the COMMAND FIELD. A subsequent action will restore its previous location.
F11	`UNDO` undoes the last action.
Shift-F11	`REDO` undoes the last undo.

F12	`=` repeats the last command without displaying it.
R1	`QUIT` is used to abandon the file without saving it. If the file has been modified during the session, the user will be prompted to confirm the key to quit.
Control-R1	`FLQUIT` will do the same as R1, and then switch to the directory editor.
R2	`COMPLETE` allows command line filename completion.
Shift-R2	`COMPLETE REVERSE` allows command line filename completion in reverse order.
R3	`SAVE`[1] transforms the unchanged source file into a backup file by appending a `"%"` to its name, and creates a new file with the original name from the edited memory image, without exiting it.
Shift-R3	`FILE` saves the file and then presents a new screen.
Shift-R6	`TOP` moves the current line to the beginning of the file.
Shift-R9	`BOT` moves the current line to the end of the file.
Control-R3	`FLFILE` will do the same as Shift-R3 and then switch to the directory editor.
Control-PageUp	`filter $xhome/filters/$arch/toggle_comment` comments in or out the selected or cursor lines.
Control-Left-Arrow	moves the cursor to the previous word.
Control-Right-Arrow	moves the cursor to the next word.
Control-1	`MACRO set_bookmark 1` sets the bookmark number 1 at the cursor location.
Control-2	`MACRO set_bookmark 2` sets the bookmark number 2 at the cursor location.
Control-3	`MACRO set_bookmark 3` sets the bookmark number 3 at the cursor location.
Control-4	`MACRO set_bookmark 4` sets the bookmark number 4 at the cursor location.

1. On UNIXWARE PCs, the `R3` key is not available. The `SAVE` function is assigned to the `R2` key.

Control-5 `MACRO set_bookmark 5`
sets the bookmark number 4 at the cursor location.

Control-6 `MACRO goto_bookmark 1`
goes to the bookmark number 1.

Control-7 `MACRO goto_bookmark 2`
goes to the bookmark number 2.

Control-8 `MACRO goto_bookmark 3`
goes to the bookmark number 3.

Control-9 `MACRO goto_bookmark 4`
goes to the bookmark number 4.

Control-0 `MACRO goto_bookmark 5`
goes to the bookmark number 5.

Meta-0 `MACRO rm_bookmarks`
removes all the bookmarks on the current file.

Control-a `C_LINEAdd`
adds a line below the cursor location.

Control-c `MACRO smart_comp $name 0`
compiles the current file, splits the screen, shows the error messages and sets the cursor on the first error line. See the `compile` command on page 190 for more details.

Control-C `MACRO smart_comp $name 1`
compiles a file in the background.

Control-d `C_LINEDEL`
deletes the line at the cursor location.

Control-f equivalent to the `"f"` command (see Directory editor section).

Control-g same as Control-c, but in debug mode.

Control-G same as Control-C, but in debug mode.

Control-h `C_SCRH`
splits the screen horizontally at the cursor location.

Control-l `S_Lower`
translates the characters selected with the mouse into lowercase.

Control-m `MATCH`
finds a matching delimiter. `{ [ ( <` matches `} ] ) >`.

Control-n `f $fn *`
calls the directory editor showing all the files with the same filename as the current file.

Control-p `SHELL lpr -h $name &`
prints the current file.

Control-r	`TREE` calls the tree editor.
Control-s	`C_SPLIT` when the cursor is before the last non-blank character, the line will be split, with indentation if the auto-indent feature is `ON` (See command `"AUTOI on|off")`. When the cursor is after the last non-blank character, the next line will be joined to that one.
Control-u	`S_UPPER` translates the characters selected with the mouse into uppercase.
Control-U	`S_UPPER WORD` translates the first letter of each selected word with the mouse into uppercase.
Control-v	`C_SCRV` splits the screen vertically at the cursor location.
Control-w	`C_SCRJ` restarts with an unsplit screen.
Control-x	`S_XED` starts editing a file selected with the mouse, after expanding the selection to a word and appending the currently edited filetype.
Control-z	`LEFT 0` resets the original verify setting, displaying all the columns.
Control--	`NEXTERROR` after a compilation is executed with the Control-c command, the cursor moves to the next error.
Control-=	`C_DUP` duplicates the line at the cursor location.
Shift+Control-a	`MACRO adjust_cursor` sets the start of the line at the cursor position.
Shift+Control-c	`CENTER` centers the line at the cursor location.
Shift+Control-f	`FLOW` formats the paragraph at the cursor location.
Shift+Control-o	`S_PASTE OVERLAY SHELF` overlays the contents of the clipboard at the cursor location.
Shift+Control-w	`MACRO del_word` deletes the word at the cursor location.
Meta-+	`MACRO toggle_display` toggles between viewing the entire file and viewing the selected lines.

Meta-=	`MACRO dup_line` duplicates the cursor or the current line.
Meta-u	`S_SET OFF` cancels the current selection.
Meta-x	`S_XED` starts editing a file selected with the mouse or at the cursor location, after expanding the selection to a word and appending the currently edited filetype.

Using Function Keys on DEC/COMPAQ/HP TRUE64 station Keyboards

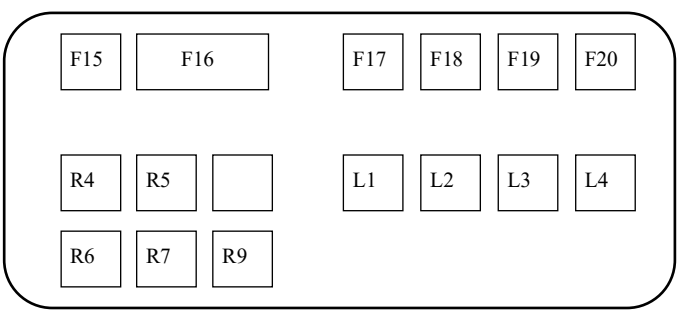
If the user is using a PC style keyboard, the user must insert in the `*.sedit` files described on page 5 the `set_alpha` statement. In this case, the function keys will match the IBM layout described on page 62.

Most of the function keys are dedicated to execute commands.

The `Right` and `Left` function keys (only available on Sun keyboards) are mapped in the following way:

- R4 Find
- R5 Insert Here
- R6 Select
- R7 Previous screen
- R9 Next screen
- L1 PF1
- L2 PF2
- L3 PF3
- L4 PF4

Using the following physical layout:



The principal key definitions are referenced on the last line of the window.

F1 `S_FIND`
searches a string matching the current selection.

F2 `S_CUT`
cuts the current selection.

F3 `S_COPY`
copies the selection into the internal buffer named shelf.

F4 `S_PASTE`
pastes the shelf contents at the cursor location.

Control-F4 `S_PASTE PRIMARY`
pastes the selection content at the cursor location. May be used to retrieve the selection from another window.

Shift-F4	`S_PASTE OVERLAY` overlays the shelf contents at the cursor location.
F5	`SWITCH` moves from one file to another in a circular sequence.
Shift-F5	`ISWITCH` does the same as F5 in a reversed sequence.
F6	`C_ENDLINE` if the cursor is in a DATA FIELD it will be moved to the end of that field.
Shift-F6	`C_ENDCURL` moves the cursor to the end of the CURRENT LINE FIELD.
F7	`BACKWARD` scrolls backward one page.
Meta-F7	`S_LSHIFT` the text from the column where the selection starts will be moved to the left.
F8	`FORWARD` scrolls forward one page.
Meta-F8	`S_RSHIFT` the text from the column where the selection starts will be moved to the right.
F9	`?` displays the previous commands executed in the COMMAND FIELD. The user can edit and re-execute them.
Shift-F9	`?I` does the same as F9 as above in a reversed order.
Control-F9	`XSHOWHISTORY` displays the commands memorized in the history buffer in fullscreen mode.
Meta-F9	`SHOWHISTORY` displays the commands memorized in the history buffer.
F10	`CURSOR HOME` if the cursor is in a DATA FIELD, it will be moved to the COMMAND FIELD. A subsequent action will restore its previous location.
F11	`UNDO` undoes the last action.
Shift-F11	`REDO` undoes the last undo.
F12	`=` repeats the last command without displaying it.

F13	Erase end of field clears the field starting at the cursor location.
Shift-F13	Erase all field clears the entire field, and places the cursor at the beginning of the field.
F14	`FILTER $xhome/filters/$arch/toggle_comment` comments in or out the selected or cursor lines.
F15	`HELP` displays the help panel.
S-F15	`HELP TASK` displays the help task panel.
F16	`SAVE` transforms the unchanged source file into a backup file by appending a `"%"` to its name, and creates a new file with the original name from the edited memory image, without exiting it.
Shift-F16	`FILE` saves the file and then presents a new screen.
L1 (Labelled PF1)	`QUIT` is used to abandon the file without saving it. If the file has been modified during the session, the user will be prompted to confirm the key to quit.
Control-L1	`FLQUIT` will do the same as L1, and then switch to the directory editor.
L2	`MATCH` finds a matching delimiter. `{ [ ( <` matches `} ] ) >`.
L3	`3270 UP FIELD` moves the cursor to the first input field on the upper line.
L4	`3270 DOWN FIELD` moves the cursor to the first input field on the lower line.
R7	`BACKWARD` scrolls backward one page.
Shift-R7	`TOP` moves the current line to the beginning of the file.
R9	`FORWARD` scrolls forward one page.
Shift-R9	`BOT` moves the current line to the end of the file.
Control-Left-Arrow	moves the cursor to the previous word.
Control-Right-Arrow	moves the cursor to the next word.

Control-1	`MACRO set_bookmark 1` sets the bookmark number 1 at the cursor location.
Control-2	`MACRO set_bookmark 2` sets the bookmark number 2 at the cursor location.
Control-3	`MACRO set_bookmark 3` sets the bookmark number 3 at the cursor location.
Control-4	`MACRO set_bookmark 4` sets the bookmark number 4 at the cursor location.
Control-5	`MACRO set_bookmark 5` sets the bookmark number 4 at the cursor location.
Control-6	`MACRO goto_bookmark 1` goes to the bookmark number 1.
Control-7	`MACRO goto_bookmark 2` goes to the bookmark number 2.
Control-8	`MACRO goto_bookmark 3` goes to the bookmark number 3.
Control-9	`MACRO goto_bookmark 4` goes to the bookmark number 4.
Control-0	`MACRO goto_bookmark 5` goes to the bookmark number 5.
Meta-0	`MACRO rm_bookmarks` removes all the bookmarks on the current file.
Control-a	`C_LINEADD` adds a line below the cursor location.
Control-c	`MACRO smart_comp $name 0` compiles the current file, splits the screen, shows the error messages and sets the cursor on the first error line. See the `compile` command on page 190 for more details.
Control-C	`MACRO smart_comp $name 1` compiles a file in the background.
Control-d	`C_LINEDEL` deletes the line at the cursor location.
Control-f	equivalent to the `"f"` command (see Directory editor section).
Control-g	same as Control-c, but in debug mode.
Control-G	same as Control-C, but in debug mode.
Control-h	`C_SCRH` splits the screen horizontally at the cursor location.
Control-l	`S_LOWER` translates the characters selected with the mouse into lowercase.

Control-n	`f $fn *` calls the directory editor showing all the files with the same filename as the current file.
Control-p	`SHELL lpr -h $name &` prints the current file.
Control-r	`TREE` calls the tree editor.
Control-s	`C_SPLIT` when the cursor is before the last non-blank character, the line will be split, with indentation if the auto-indent feature is `ON` (See command `"AUTOI on|off")`. When the cursor is after the last non-blank character, the next line will be joined to that one.
Control-u	`S_UPPER` translates the characters selected with the mouse into uppercase.
Control-U	`S_UPPER WORD` translates the first letter of each selected word with the mouse into uppercase.
Control-v	`C_SCRV` splits the screen vertically at the cursor location.
Control-w	`C_SCRJ` restarts with an unsplit screen.
Control-x	`S_XED` starts editing a file selected with the mouse, after expanding the selection to a word and appending the currently edited filetype.
Control-z	`LEFT 0` resets the original verify setting, displaying all the columns.
Control--	`NEXTERROR` after a compilation is executed with the Control-c command, the cursor moves to the next error.
Control-=	`C_DUP` duplicates the line at the cursor location.
Shift+Control-a	`MACRO adjust_cursor` sets the start of the line at the cursor position.
Shift+Control-c	`CENTER` centers the line at the cursor location.
Shift+Control-f	`FLOW` formats the paragraph at the cursor location.
Shift+Control-o	`S_PASTE OVERLAY SHELF` overlays the contents of the clipboard at the cursor location.

Shift+Control-w	`MACRO del_word` deletes the word at the cursor location.
Meta-+	`MACRO toggle_display` toggles between viewing the entire file and viewing the selected lines.
Meta-=	`MACRO dup_line` duplicates the cursor or the current line.
Meta-u	`S_SET OFF` cancels the current selection.
Meta-x	`S_XED` starts editing a file selected with the mouse or at the cursor location, after expanding the selection to a word and appending the currently edited filetype.

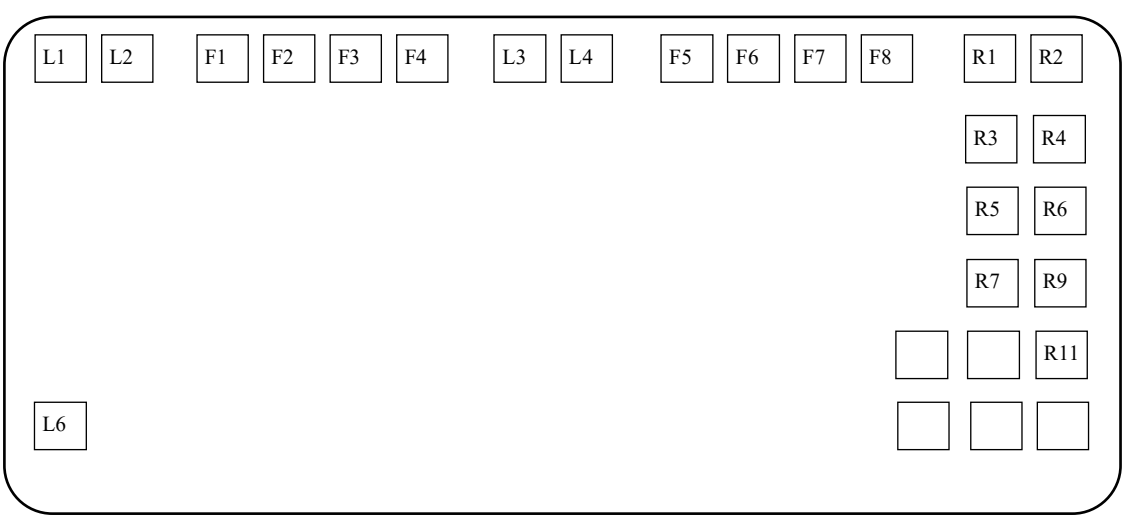
Using Function Keys on HP Keyboards

If the user is using a PC style keyboard, the user must insert in the `*.sedit` files described on page 5 the `set_hppc` statement. In this case, the function keys will match the IBM layout described on page 62.

Most of the function keys are dedicated to execute commands. The `Right` and `Left` function keys (only available on Sun keyboards) are mapped in the following way:

- L1 Reset
- L2 Stop
- L3 Menu
- L4 User
- L6 Print
- R1 Clear
- R2 Clear Display
- R3 Insert Line
- R4 Delete Line
- R5 Insert Char
- R6 Delete Char
- R7 ↖
- R9 Prev
- R11 Next
- R13 Numerical Pad Tab Key

Using the following physical layout:



The principal key definitions are referenced on the last line of the window.

L1	Erase end of field clears the field starting at the cursor location.
Shift-L1	Erase all field clears the entire field, and places the cursor at the beginning of the field.
L6	`COMPLETE` allows command line filename completion.
Shift-L6	`COMPLETE REVERSE` allows command line filename completion in reverse order.
F1	`S_FIND` searches a string matching the current selection.
F2	`S_CUT` cuts the current selection.
F3	`S_COPY` copies the selection into the internal buffer named shelf.
F4	`S_PASTE` pastes the shelf contents at the cursor location.
Control-F4	`S_PASTE PRIMARY` pastes the selection contents at the cursor location. May be used to retrieve the selection from another window.
Shift-F4	`S_PASTE OVERLAY` overlays the shelf contents at the cursor location.
F5	`SWITCH` moves from one file to another in a circular sequence.
Shift-F5	`ISWITCH` does the same as F5 in a reversed sequence.
F6	`C_ENDLine` if the cursor is in a DATA FIELD it will be moved to the end of that field.
Shift-F6	`C_ENDCURL` moves the cursor to the end of the CURRENT LINE FIELD.
F7	`BACKWARD` scrolls backward one page.
Meta-F7	`S_LSHIFT` the text from the column where the selection starts will be moved to the left.
F8	`FORWARD` scrolls forward one page.
Meta-F8	`S_RSHIFT` the text from the column where the selection starts will be moved to the right.

F9	`?` displays the previous commands executed in the COMMAND FIELD. The user can edit and re-execute them.
Shift-F9	`?I` does the same as above in a reversed order.
Control-F9	`XSHOWHISTORY` displays the commands memorized in the history buffer in fullscreen mode.
Meta-F9	`SHOWHISTORY` displays the commands memorized in the history buffer.
F10	`CURSOR HOME` if the cursor is in a DATA FIELD, it will be moved to the COMMAND FIELD. A subsequent action will restore its previous location.
F11	`UNDO` undoes the last action.
Shift-F11	`REDO` undoes the last undo.
F12	`=` repeats the last command without displaying it.
R1	`QUIT` is used to abandon the file without saving it. If the file has been modified during the session, the user will be prompted to confirm the key to quit.
Control-R1	`FLQUIT` will do the same as R1, and then switch to the directory editor.
R2	`SAVE` transforms the unchanged source file into a backup file by appending a `"%"` to its name, and creates a new file with the original name from the edited memory image, without exiting it.
Shift-R2	`FILE` saves the file and then presents a new screen.
Control-R2	`FLFILE` will do the same as Shift-R2 and then switch to the directory editor.
R9	`BACKWARD` scrolls backward one page.
Shift-R9	`TOP` moves the current line to the beginning of the file.
R11	`FORWARD` scrolls forward one page.

Shift-R11	`BOT` moves the current line to the end of the file.
Control-R9	`FILTER $xhome/filters/hp/toggle_comment` comments in or out the selected or cursor lines.
Control-Left-Arrow	moves the cursor to the previous word.
Control-Right-Arrow	moves the cursor to the next word.
Control-1	`MACRO set_bookmark 1` sets the bookmark number 1 at the cursor location.
Control-2	`MACRO set_bookmark 2` sets the bookmark number 2 at the cursor location.
Control-3	`MACRO set_bookmark 3` sets the bookmark number 3 at the cursor location.
Control-4	`MACRO set_bookmark 4` sets the bookmark number 4 at the cursor location.
Control-5	`MACRO set_bookmark 5` sets the bookmark number 4 at the cursor location.
Control-6	`MACRO goto_bookmark 1` goes to the bookmark number 1.
Control-7	`MACRO goto_bookmark 2` goes to the bookmark number 2.
Control-8	`MACRO goto_bookmark 3` goes to the bookmark number 3.
Control-9	`MACRO goto_bookmark 4` goes to the bookmark number 4.
Control-0	`MACRO goto_bookmark 5` goes to the bookmark number 5.
Meta-0	`MACRO rm_bookmarks` removes all the bookmarks on the current file.
Control-a	`C_LINEAdd` adds a line below the cursor location.
Control-c	`MACRO smart_comp $name 0` compiles the current file, splits the screen, shows the error messages and sets the cursor on the first error line. See the `compile` command on page 190 for more details.
Control-C	`MACRO smart_comp $name 1` compiles a file in the background.
Control-d	`C_LINEDEL` deletes the line at the cursor location.
Control-f	equivalent to the `"f"` command (see Directory editor section).
Control-g	same as Control-c, but in debug mode.

Control-G	same as Control-C, but in debug mode.
Control-h	`C_SCRH` splits the screen horizontally at the cursor location.
Control-l	`S_LOWER` translates the characters selected with the mouse into lowercase.
Control-m	`MATCH` finds a matching delimiter. `{ [ (< matches }] ) >`.
Control-n	`f $fn *` calls the directory editor showing all the files with the same filename as the current file.
Control-p	`SHELL lpr -h $name &` prints the current file.
Control-r	`TREE` calls the tree editor.
Control-s	`C_SPLIT` when the cursor is before the last non-blank character, the line will be split, with indentation if the auto-indent feature is `ON` (See command `"AUTOI on|off")`. When the cursor is after the last non-blank character, the next line will be joined to that one.
Control-u	`S_UPPER` translates the characters selected with the mouse into uppercase.
Control-U	`S_UPPER WORD` translates the first letter of each selected word with the mouse into uppercase.
Control-v	`C_SCRV` splits the screen vertically at the cursor location.
Control-w	`C_SCRJ` restarts with an unsplit screen.
Control-x	`S_Xed` starts editing a file selected with the mouse, after expanding the selection to a word and appending the currently edited filetype.
Control-z	`LEFT 0` resets the original verify setting, displaying all the columns.
Control--	`NEXTERROR` after a compilation is executed with the Control-c command, the cursor moves to the next error.
Control-=	`C_DUP` duplicates the line at the cursor location.

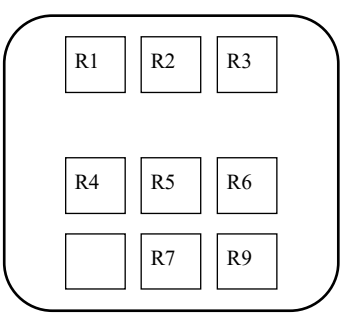
Shift+Control-a	`MACRO adjust_cursor` sets the start of the line at the cursor position.
Shift+Control-c	`CENTER` centers the line at the cursor location.
Shift+Control-f	`FLOW` formats the paragraph at the cursor location.
Shift+Control-o	`S_PASTE OVERLAY SHELF` overlays the contents of the clipboard at the cursor location.
Shift+Control-w	`MACRO del_word` deletes the word at the cursor location.
Meta-+	`MACRO toggle_display` toggles between viewing the entire file and viewing the selected lines.
Meta-=	`MACRO dup_line` duplicates the cursor or the current line.
Meta-u	`S_SET OFF` cancels the current selection.
Meta-x	`S_XED` starts editing a file selected with the mouse or at the cursor location, after expanding the selection to a word and appending the currently edited filetype.

Using Function Keys on WINDOWS

Most of the function keys are dedicated to execute commands. The `Right` function keys are mapped in the following way:

- R1 Print Screen
- R2 Scroll Lock
- R3 Pause
- R4 Insert
- R5 Home
- R6 Page Up
- R7 End
- R8 Up Arrow
- R9 Page Down
- R10 Left Arrow
- R12 Right Arrow
- R14 Down Arrow

Using the following physical layout:



The principal key definitions are referenced on the last line of the window.

Escape	Erase end of field clears the field starting at the cursor location.
Shift-Escape	Erase all field clears the entire field, and places the cursor at the beginning of the field.
F1	`S_FIND` searches a string matching the current selection.
Shift-F1	`S_FIND` searches backwards a string matching the current selection.
Control-F1	`S_FIND` searches a word matching the current selection.

F2	`C_LINEADD` adds a line below the cursor location.
Shift-F2	`C_EXT` is used to extend the length of the field selected by the cursor.
F3	`SAVE` transforms the unchanged source file into a backup file by appending a `"%"` to its name, and creates a new file with the original name from the edited memory image, without exiting it.
Shift-F3	`FILE` saves the file and then presents a new screen.
Control-F3	`FLFILE` saves the file, quits the file and then switches to FLIST.
F4	`C_SPLIT` when the cursor is before the last non-blank character, the line will be split, with indentation if the auto-indent feature is ON (See the `AUTOINDENT` command). When the cursor is after the last non-blank character, the next line will be joined to that one.
F5	`SWITCH` moves from one file to another in a circular sequence.
Shift-F5	`ISWITCH` does the same as F5 in a reversed sequence.
F6	`C_ENDLINE` if the cursor is in a DATA FIELD it will be moved to the end of that field.
Shift-F6	`C_ENDCURL` moves the cursor to the end of the CURRENT LINE FIELD.
F7	`BACKWARD` scrolls backward one page.
Shift-F7	`PGUP` scrolls backward one screen.
Control-F7	`LEFT40` scrolls left 40 columns.
Meta-F7	`S_LSHIFT` the text from the column where the selection starts will be moved to the left.
F8	`FORWARD` scrolls forward one page.
Shift-F8	`PGDOWN` scrolls forward one screen.

Control-F8	`RIGHT40` scrolls right 40 columns.
Meta-F8	`S_RSHIFT` the text from the column where the selection starts will be moved to the right.
F9	`?` displays the previous commands executed in the COMMAND FIELD. The user can edit and re-execute them.
Shift-F9	`?I` does the same as F9 in a reversed order.
Control-F9	`XSHOWHISTORY` displays the commands memorized in the history buffer in fullscreen mode.
Meta-F9	`SHOWHISTORY` displays the commands memorized in the history buffer.
F10	`CURSOR HOME` if the cursor is in a DATA FIELD, it will be moved to the COMMAND FIELD. A subsequent action will restore its previous location.
Control-F10	`DELAY.HOME` (. is the command separator) clears the command field without moving the cursor.
F11	`UNDO` undoes the last action.
Shift-F11	`REDO` undoes the last undo.
F12	`=` repeats the last command without displaying it.
PrintScreen	`AQUIT` is used to abandon the file without saving it. If the file has been modified during the session, the user will be prompted to confirm the key to quit.
Control-PrintScreen	`FLQUIT` will do the same as PrintScreen (R1), and then switch to the directory editor.
ScrollLock	`COMPLETE` allows command line filename completion.
Shift-ScrollLock	`COMPLETE REVERSE` allows command line filename completion in reverse order.

Pause	`SAVE` transforms the unchanged source file into a backup file by appending a `"%"` to its name, and creates a new file with the original name from the edited memory image, without exiting it.
Shift-PageUp	`TOP` moves the current line to the beginning of the file.
Control-PageUp	`FILTER $xhome/filters/$arch/toggle_comment` comments in or out the selected or cursor lines.
Shift-PageDown	`BOT` moves the current line to the end of the file.
Control-Left-Arrow	moves the cursor to the previous word.
Control-Right-Arrow	moves the cursor to the next word.
Control-Up-Arrow	moves the cursor line or the selected lines if any up.
Control-Down-Arrow	moves the cursor line or the selected lines if any down.
Control-1	`MACRO set_bookmark 1` sets the bookmark number 1 at the cursor location.
Control-2	`MACRO set_bookmark 2` sets the bookmark number 2 at the cursor location.
Control-3	`MACRO set_bookmark 3` sets the bookmark number 3 at the cursor location.
Control-4	`MACRO set_bookmark 4` sets the bookmark number 4 at the cursor location.
Control-5	`MACRO set_bookmark 5` sets the bookmark number 4 at the cursor location.
Control-6	`MACRO goto_bookmark 1` goes to the bookmark number 1.
Control-7	`MACRO goto_bookmark 2` goes to the bookmark number 2.
Control-8	`MACRO goto_bookmark 3` goes to the bookmark number 3.
Control-9	`MACRO goto_bookmark 4` goes to the bookmark number 4.
Control-0	`MACRO goto_bookmark 5` goes to the bookmark number 5.
Meta-0	`MACRO rm_bookmarks` removes all the bookmarks on the current file.
Control-a	`S_SET ALL` all of the file will be selected.
Control-c	`S_COPY` copies the selection into the `clipboard` (or `shelf`).

Shift-Control-c	`MACRO smart_comp $name 0` compiles the current file, splits the screen, shows the error messages and sets the cursor on the first error line.
Control-d	`C_LINEDEL` deletes the line at the cursor location.
Control-f	equivalent to the `FLIST` command (see the Directory editor section).
Shift-Control-f	`FLOW` formats the paragraph corresponding to the cursor location.
Shift-Control-g	same as Shift-Control-c, but in debug mode.
Control-h	`C_SCRH` splits the screen horizontally at the cursor location.
Shift-Control-h	`S_HELP` starts editing the help file selected with the mouse. If the selection is one character wide, it will be expanded to the word.
Control-l	`S_LOWER` translates the characters selected with the mouse into lowercase.
Shift-Control-l	`LEFTADJUST` positions the first non-blank character at the left margin defined with the `MARGIN` command.
Control-m	`MATCH` finds a matching delimiter. { [(< matches }]) >.
Shift-Control-m	`MATCH CURSOR` finds a matching delimiter. { [(< matches }]) >, and moves the cursor at that location.
Control-n	`f "$fn" *` calls the directory editor showing all the files with the same filename as the current file.
Shift-Control-n	`f "$fn" * "$fd"` calls the directory editor showing all the files with the same filename as the current file in the same directory as the current file.
Control-p	`PRINTFILE` prints the current file.
Control-q	`AQUIT` is used to abandon the file without saving it. If the file has been modified during the session, the user will be prompted to confirm the key to quit.
Control-r	`TREE` calls the tree editor.

Shift-Control-r	`RIGHTADJUST` positions the last non-blank character at the right margin defined with the `MARGIN` command.
Control-s	`DY_SAVE` calls the standard `SAVE AS` dialog box.
Control-t	`TREE` calls the TREE editor.
Control-u	`S_UPPER` translates the characters selected with the mouse into uppercase.
Control-U	`S_UPPER WORD` translates the first letter of each selected word with the mouse into uppercase.
Control-v	`S_PASTE SHELF` pastes the `clipboard` (or `shelf`) contents at the cursor location.
Control-V	`S_PASTE SHELF OVERLAY` overlays the `clipboard` (or `shelf`) contents at the cursor location.
Control-w	`C_SCRJ` restarts with an unsplit screen.
Control-x	`S_CUT` cuts the current selection, placing it in the clipboard.
Shift-Control-x	`S_XED` starts editing a file selected with the mouse, after expanding the selection to a word and appending the currently edited filetype.
Control-z	`UNDO` undoes the last action.
Control--	`NEXTERROR` after a compilation is executed with the Shift-Control-c command, the cursor moves to the next error.
Control-=	`C_DUP` duplicates the line at the cursor location.
Shift+Control-a	`MACRO adjust_cursor` sets the start of the line at the cursor position.
Shift+Control-c	`CENTER` centers the line at the cursor location.
Shift+Control-f	`FLOW` formats the paragraph at the cursor location.
Shift+Control-o	`S_PASTE OVERLAY SHELF` overlays the contents of the clipboard at the cursor location.

Shift+Control-w	`MACRO del_word` deletes the word at the cursor location.
Meta-+	`MACRO toggle_display` toggles between viewing the entire file and viewing the selected lines.
Meta-=	`MACRO dup_line` duplicates the cursor or the current line.
Meta-u	`S_SET OFF` cancels the current selection.
Meta-x	`S_XED` starts editing a file selected with the mouse or at the cursor location, after expanding the selection to a word and appending the currently edited filetype.

Using Function Keys in KEDIT Mode

The principal key definitions are referenced on the last line of the window.

On SUN stations:

L2	`MATCH` finds a matching delimiter. { [(< matches }]) >.
L3	`Erase end of field` clears the field starting at the cursor location.
Shift-L3	`Erase all field` clears the entire field, and places the cursor at the beginning of the field.
L4	`UNDO` undoes the last action.
Shift-L4	`REDO` undoes the last undo.
L6	`S_COPY` copies the selection into the internal buffer named shelf.
L8	`S_PASTE` pastes the shelf contents at the cursor location.
Control-L8	`S_PASTE PRIMARY` pastes the selection content at the cursor location. May be used to retrieve the selection from another window.
Shift-L8	`S_PASTE OVERLAY` overlays the clipboard contents at the cursor location.
L9	`S_FIND` searches a string matching the current selection.
L10	`S_CUT` cuts the current selection.

On other stations:

Escape	`Erase end of field` clears the field starting at the cursor location.
Shift-Escape	`Erase all field` clears the entire field, and places the cursor at the beginning of the field.

On all stations:

F1	`MACRO ahelp` displays the on-line PDF help.
F2	`MACRO add_line` adds a new line below the cursor or current line.

F3	`QUIT` is used to abandon the file without saving it. If the file has been modified during the session, the user will be prompted to confirm the key to quit.
F4	`SOS TABF` moves the cursor to the next tab column.
F5	`MACRO cursor_to_curr` the cursor lines becomes the current line.
F6	`?` displays the previous commands executed in the COMMAND FIELD. The user can edit and re-execute them.
F7	`MACRO beg_line` moves the cursor to the beginning of the line.
F8	`MACRO dup_line` duplicates the cursor or the current line.
F9	`=` repeats the last command without displaying it.
F10	`HOME` if the cursor is in a DATA FIELD, it will be moved to the COMMAND FIELD. A subsequent action will restore its previous location.
F11	`C_SPLIT STAY` when the cursor is before the last non-blank character, the line will be split, with indentation if the auto-indent feature is `ON` (See command `"AUTOI on|off")`. When the cursor is after the last non-blank character, the next line will be joined to that one.
F12	`CURSOR CMDLINE` moves the cursor to the command line.
PrintScreen	`AQUIT` is used to abandon the file without saving it. If the file has been modified during the session, the user will be prompted to confirm the key to quit.
Control-PrintScreen	`FLQUIT` will do the same as PrintScreen, and then switch to the directory editor.
ScrollLock	`COMPLETE` allows command line filename completion.
Shift-ScrollLock	`COMPLETE REVERSE` allows command line filename completion in reverse order.

Pause	`SAVE` transforms the unchanged source file into a backup file by appending a `"%"` to its name, and creates a new file with the original name from the edited memory image, without exiting it.
Shift-F1	`MACRO locate_redo` reissues the last `LOCATE` command.
Shift-F2	`MACRO goto_current` moves the cursor to the current line.
Shift-F3	`MATCH` finds a matching delimiter. `{ [ (< matches }] ) >`.
Shift-F4	`SWITCH` moves from one file to another in a circular sequence.
Shift-F5	`S_UPPER` translates the characters selected with the mouse into uppercase.
Shift-F6	`S_LOWER` translates the characters selected with the mouse into lowercase.
Shift-F7	`S_LSHIFT` the text from the column where the selection starts will be moved to the left.
Shift-F8	`S_RSHIFT` the text from the column where the selection starts will be moved to the right.
Shift-F9	`LEFT 40` scrolls the displayed data 40 columns to the left.
Shift-F10	`RIGHT 40` scrolls the displayed data 40 columns to the right.
Shift-F11	`TOP` the first line becomes the current line.
Shift-F12	`HOME` if the cursor is in a DATA FIELD, it will be moved to the COMMAND FIELD. A subsequent action will restore its previous location.
Control-F1	`UNDO` undoes the last action.
Control-F2	`REDO` undoes the last undo.
Control-a	`S_SET ALL` all of the file will be selected.

Control-c	`S_COPY` copies the selection into the `clipboard` (or `shelf`).
Control-f	`DY_FIND` displays the `FIND` dialog box.
Control-h	`DY_FIND` displays the `FIND` dialog box.
Control-i	`MACRO dy_fill` fills a block with a specified string.
Control-l	`LEFTADJUST` left adjusts the text at the cursor or command line location.
Control-n	`NEWFILE` initiates a new file.
Control-o	`MACRO` dy_open opens the `OPEN` dialog box.
Control-p	`PRINTFILE` on WINDOWS systems, opens the print dialog box. On UNIX systems, prints the file.
Control-r	`RIGHTADJUST` right adjusts the text at the cursor or command line location.
Control-s	`SAVE` transforms the unchanged source file into a backup file by appending a `"%"` to its name, and creates a new file with the original name from the edited memory image, without exiting it.
Control-t	`TREE` starts the `TREE` editor.
Control-u	`S_UPPER` translates the characters selected with the mouse into uppercase.
Control-U	`S_UPPER WORD` translates the first letter of each selected word with the mouse into uppercase.
Control-v	`S_PASTE INSERT SHELF` pastes the clipboard contents at the cursor location.
Control-w	`C_SCRJ` restarts with an unsplit screen.
Control-x	`S_CUT` cuts the current selection.
Control-y	`REDO` undoes the last undo.
Control-z	`UNDO` undoes the last action.

Shift+Control-a	`MACRO adjust_cursor` adjusts the text at the cursor location.
Shift+Control-c	`CENTER` centers the line at the cursor location.
Shift+Control-f	`FLOW` formats the paragraph at the cursor location.
Shift+Control-l	`LEFTADJUST` left adjusts the text at the cursor location.
Shift+Control-o	`S_PASTE OVERLAY SHELF` overlays the clipboard contents at the cursor location.
Shift+Control-p	`MACRO new_para` stars a new paragraph at the cursor location.
Shift+Control-w	`MACRO del_word` deletes one word at the cursor location.
Shift+Control-x	`FLIST * * ..` displays the parent directory.
Meta-b	`C_ENDSR` marks a rectangular selection.
Meta-c	`MACRO copy_and_paste` copies the selection into the `clipboard` (or `shelf`) and then pastes it at the cursor location. The selection is unmarked.
Meta-d	`MACRO delete_line` deletes the cursor or the current line.
Meta-g	`S_CUT` cuts the current selection.
Meta-j	`MACRO force_join` overlays the next line at the cursor location.
Meta-k	`MACRO copy_and_paste 1` copies the selection into the `clipboard` (or `shelf`) and then pastes it at the cursor location. The selection remains marked.
Meta-l	`C_ENDS` marks a linear selection.
Meta-m	`MACRO move_block` removes a marked block, and pastes it at the cursor location.
Meta-r	`UNDO` undoes the last action.
Meta-s	`MACRO split_only` splits the line at the cursor location.

Meta-u	`S_SET OFF` unmarks the current selection.
Meta-x	`S_XED` starts editing a file selected with the mouse or at the cursor location, after expanding the selection to a word and appending the currently edited filetype.
Meta-z	`C_ENDS` marks a linear selection.
Meta-+	`MACRO toggle_display` toggles between viewing the complete file and viewing selected lines.
Meta-=	`MACRO dup_line` duplicate the cursor or the current line.
Meta-0	`MACRO rm_bookmarks` removes all the bookmarks.
Meta-1	`MACRO set_bookmark 1` sets the bookmark number 1 at the cursor location.
Meta-2	`MACRO set_bookmark 2` sets the bookmark number 2 at the cursor location.
Meta-3	`MACRO set_bookmark 3` sets the bookmark number 3 at the cursor location.
Meta-4	`MACRO goto_bookmark 1` goes to the bookmark number 1.
Meta-5	`MACRO goto_bookmark 2` goes to the bookmark number 2.
Meta-6	`MACRO goto_bookmark 3` goes to the bookmark number 3.
Enter	`MACRO enter_split` when no command is present on the command line, splits the line at the cursor location.
Control-Enter	`MACRO start_nextline` goes to the start of the next line.
Shift+Control+Enter	`MACRO toggle_prefix_file` toggles between the data and the prefix area.
Control-Up-Arrow	`?` displays the previous commands executed in the COMMAND FIELD. The user can edit and re-execute them.
Control-Down-Arrow	`?i` does the same as Control-Up-Arrow in a reversed order.
Control-Left-Arrow	`PREVWORD` moves the cursor to the previous word.

Control-Right-Arrow `NEXTWORD`
moves the cursor to the next word.

Shift-Up-Arrow `MACRO extsel_up`
extends the selection up one line.

Shift-Down-Arrow `MACRO extsel_down`
extends the selection down one line.

Shift-Left-Arrow `MACRO extsel_left`
extends the selection one character left.

Shift-Right-Arrow `MACRO extsel_right`
extends the selection one character right.

Shift+Control-Left-Arrow
`MACRO extsel_leftw`
extends the selection one word left.

Shift+Control-Right-Arrow
`MACRO extsel_rightw`
extends the selection one word right.

Home `C_STARTL`
moves the cursor to the start of the line.

End `C_ENDL`
moves the cursor to the end of the line.

Shift+Home `MACRO extsel_start`
extends the selection to the start of the line.

Shift+End `MACRO extsel_end`
extends the selection to the end of the line.

Control-Home `MACRO goto_start`
moves to the beginning of the file.

Control-End `MACRO goto_end`
moves to the end of the file.

Shift+Control-Home `MACRO extsel_startf`
extends the selection to the beginning of the file.

Shift+Control-End `MACRO extsel_endf`
extends the selection to the end of the file.

Shift-Page-Up `MACRO extsel_wback`
extends the selection one window backward.

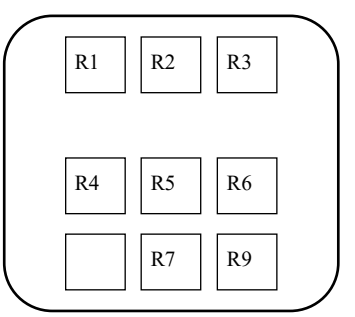
Shift-Page-Down `MACRO extsel_wfor`
extends the selection one window forward.

Using Function Keys on ASCII Terminal Keyboards

Most of the function keys are dedicated to execute commands. The `Right` function keys (only available on Sun keyboards) are generally mapped in the following way:

- R1 Print Screen
- R2 Scroll Lock
- R3 Pause
- R4 Insert
- R5 Home
- R6 Page Up
- R7 End
- R9 Page Down

Using the following physical layout:



The principal key definitions are referenced on the last line of the window.

Escape — Erase end of field
clears the field starting at the cursor location.

F1 — `QUIT`
is used to abandon the file without saving it. If the file has been modified during the session, the user will be prompted to confirm the key to quit.

F2 — `NEXTERROR`
after a compilation executed with the Control-c command, moves the cursor to the next error.

F3 — `SAVE`
transforms the unchanged source file into a backup file by appending a `"%"` to its name, and creates a new file with the original name from the edited memory image, without exiting it.

F4	`C_SPLIT` when the cursor is before the last non-blank character, the line will be split, with indentation if the auto-indent feature is `ON` (See command `"AUTOI on|off")`. When the cursor is after the last non-blank character, the next line will be joined to that one.
F5	`SWITCH` moves from one file to another in a circular sequence.
F6	`C_ENDLINE` if the cursor is in a DATA FIELD, it will be moved to the end of that field.
F7	`BACKWARD` scrolls backward one page.
F8	`FORWARD` scrolls forward one page.
F9	`?` displays the previous commands executed in the COMMAND FIELD. The user can edit and re-execute them.
F10	`CURSOR HOME` if the cursor is in a DATA FIELD, it will be moved to the COMMAND FIELD. A subsequent action will restore its previous location.
F11	`UNDO` undoes the last action.
F12	`=` repeats the last command without displaying it.
Control-a	`C_LINEADD` adds a line below the cursor location.
Control-b	`C_STARTS` starts the selection at the cursor location.
Control-c	`MACRO smart_comp $name 0` compiles the current file, splits the screen, shows the error messages and sets the cursor on the first error line. See the `compile` command on page 190 for more details.
Control-d	`C_LINEDEL` deletes the line at the cursor location.
Control-e	`C_ENDS` extends the selection at the cursor location.
Control-f	enters the `DOWN-FIELD` 3270 command. It cannot be changed.
Control-g	same as Control-c, but in debug mode.
Control-h	enters a Backspace. It cannot be changed.

Control-i	enters the `NEXT-FIELD` 3270 command. It cannot be changed.
Control-j	enters the `UP-FIELD` 3270 command. It cannot be changed.
Control-l	enters the `line-feed` command separator. It cannot be changed.
Control-m	is equivalent to the Return or the Enter key. It cannot be changed.
Control-n	`C_ENDSR` extends the selection at the cursor location, making it rectangular.
Control-o	`S_COPY` copies the selection into the internal buffer named shelf.
Control-p	`SHELL lpr -h $name &` prints the current file.
Control-r	`REFRESH Clear` redraws the whole screen.
Control-t	enters the tab character. It cannot be changed.
Control-u	`S_UPPER` translates into uppercase the characters selected with the Control-b, Control-e and Control-n commands.
Control-v	`C_SCRV` splits the screen vertically at the cursor location.
Control-w	`C_SCRJ` restarts with an unsplit screen.
Control-x	`S_XED` sets a selection at the cursor location, expands the selection to a word, appends the currently edited filetype and starts editing this file.
Control-y	`S_PASTE` pastes the shelf contents at the cursor location.
Control-z	`LEFT 0` resets the original verify setting, displaying all the columns.

Using the Keyboard

The best way to move to a distant location is to use the third mouse button.

The best way to move to the first character of a field is to use `PREV FIELD` (`R7` for Sun type 3 keyboards, and `Shift-Tab` for other ones) or `NEXT FIELD` (`Tab`) key. This is much faster and easier than using the arrow keys.

The best way to access a PREFIX FIELD is to use `DOWN FIELD` (`Line-feed` or `AltGraph` for Sun keyboards, Right `Extend-Char` for HP, Right `Control` for IBM and SiliconGraphics keyboards, and `PF4` for DECstation keyboards) or `UP FIELD` (`Alternate` for Sun keyboards, `Select` for HP, Right `Alt` for IBM and SiliconGraphics keyboards, and `PF3` for DECstation keyboards).

The best way to move to the COMMAND FIELD is to use the `CURSOR HOME` command, which is mapped to key `F10`.

Key `R6` on Sun workstations, or key `HOME` gives access to the first PREFIX field, or the first DIRECT INPUT field.

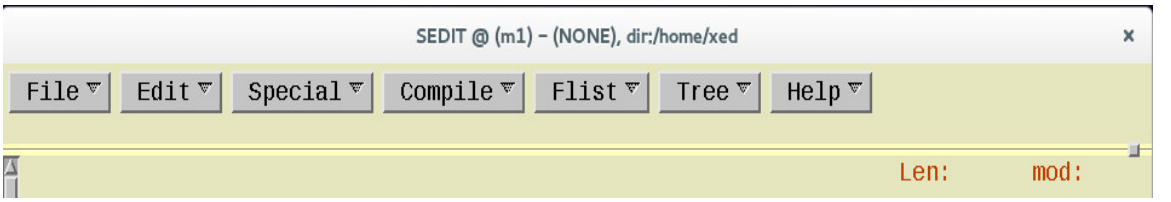
The best way to clear a field is to use the `ERASE EOF` key (`L3` on Sun workstations, `F13` on DECstations, `Reset` on HP workstations and `Escape` on others). This will clear the field from the cursor location to the end of the field.

`Shift-ERASE EOF` (or `Control-ERASE EOF` with the MWM window manager) will erase the entire field, and place the cursor at the beginning of the field.

Remember that the insert key (`R11` on Sun workstations with a type 3 keyboard) toggles between insert and replace mode.

Using the Default Buttons (UNIX)

The standard `/home/xed/profile.sedit` initialization macro creates a set of menu buttons:

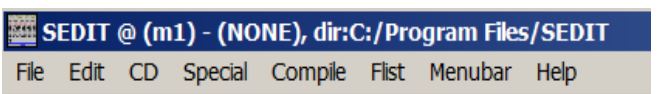


Clicking with the third mouse button displays a menu.

Clicking with the left mouse button executes directly the first menu item.

Using the Default MenuBar (WINDOWS)

The standard `C:\Program Files\SEDIT\profile.sedit` initialization macro creates the following menubar:



Clicking with the left mouse button displays a menu.

When started with the default supplied `profile.sedit` profile file, **SEDIT** will copy it and all the files related to the menu and menubar customization on `C:\Users\{username}\AppData\Local\SEDIT`. A new `Session` menubar item will be enabled allowing to save and retrieve a set of currently edited files.

The menubar can be modified by editing the `C:\Users\{username}\AppData\Local\SEDIT\sedit.menubar` file.

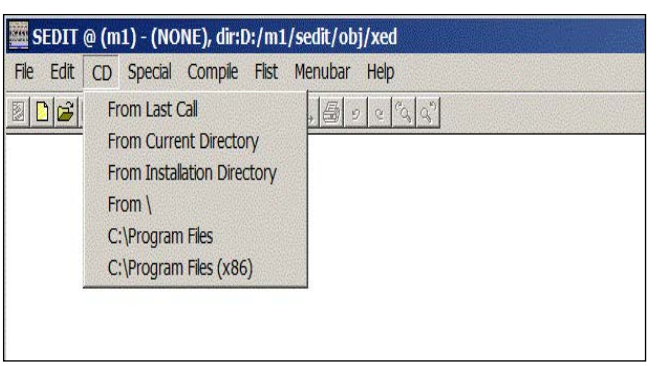
The File Menu

Save	transforms the unchanged source file into a backup file by appending a `"%"` to its name, and creates a new file from the edited memory image, without exiting it.
Save & Leave	saves the file and then presents a new screen.
Leave	is used to abandon the file without saving it. If the file has been modified during the session, the user will be prompted to confirm.
Save As ...	starts the DY_SAVE dialog box described on page 231.
Open ...	starts the DY_OPEN dialog box described on page 227.
Open <Selection>	opens the file selected with the mouse.
Exit	exits **SEDIT**.
Exit with memory	exits **SEDIT**. The next time **SEDIT** is started in the same directory, it will load the same files it was editing before it was exited.

On **UNIX** systems, the `File` menu can be customized by modifying the `/home/xed/file.bu` file.

The CD Menu

On Windows, allows to change the current directory using an extended Windows dialog box similar to the `Open File` one:



The EDIT Menu

Find	finds the selected characters.
Find ...	starts the DY_FIND dialog box described on page 225.
Copy	saves the selection.
Paste	retrieves the previously saved selection at the cursor location.
Cut	deletes the current selection, saving it for further use by the Paste facility.
Undo	undoes the last editing action.
Undo ALL	undoes all the editing actions done since the last Save.
Redo	redoes the last undone editing action.
Show ALL	shows all the file lines.
Show ...	starts the DY_ALL dialog box described on page 223.
Show more ...	starts the DY_SHOW dialog box described on page 235.
Hide ...	starts the DY_EXCLUDE dialog box described on page 224.

On **UNIX** systems, the EDIT menu can be customized by modifying the /home/xed/edit.bu file.

The SPECIAL Menu

First line	selects the first line as the current line.
Last line	selects the last line as the current line.
Print	prints the current file.
Keyboard	(**UNIX** specific) sets up various keyboards. The user will need to use it when displaying **SEDIT** on a different platform than the one it was started from.
Spell	(**UNIX** specific) creates 3 buttons for spell-checking purposes.
Tab	replaces tabulations by the appropriate number of spaces, either for the current file or for the selected lines.
Screen	splits or unsplits the screen.
AX	(**UNIX** specific) sets up the **UNIX** execution authorization upon the current file.
Toolbar	(**WINDOWS** specific) toggles ON and OFF the toolbar display.
Close Console	(**WINDOWS** specific) closes the DOS console opened by **S/REXX** when using input or output REXX statements.
Keyboard	(**WINDOWS** specific) sets up the keyboard either in **WINDOWS** mode, or in **UNIX** mode. See page 50 for more information.

When selecting the SPELL menu item, the user creates the following buttons:

Spell	spell-checks the current file, and highlights the first misspelled word in reverse video.
Next_w	highlights the next misspelled word.
Add_w	adds the highlighted word to your private dictionary.

On **UNIX** systems, the SPECIAL menu can be customized by modifying the /home/xed/sp.bu file.

The COMPILE Menu

Make	issues the **UNIX** make command upon the current file, and displays the result within **SEDIT**.
Compile Inside	compiles the current file, and displays the result within **SEDIT**.
Compile Outside	compiles the current file in a different sub-process, returning the keyboard to the user immediately. The compilation messages are displayed in the window where **SEDIT** is started from.
Next error	after a make or a compile, sets the current line to the next error line and sets the cursor on that line.
Lint Inside	runs the **UNIX** lint command within **SEDIT**.
Lint Outside	runs the **UNIX** lint command in a different sub-process, returning the keyboard to the user immediately.
Edit Macros	edits the **S/REXX** macros used to compile files.

On **UNIX** systems, the COMPILE menu can be customized by modifying the /home/xed/comp.bu file.

The FLIST Menu

The FLIST menu allows the user to start FLIST upon various directories, and can be customized on **UNIX** systems by modifying the /home/xed/f.bu file.

On **Windows**, an additional Browse item starts an extended dialog box, allowing the user to select a directory which contents will be displayed by FLIST.

The TREE Menu

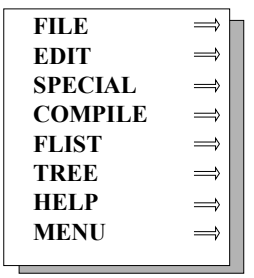
The TREE menu allows the user to start TREE upon various directories, and can be customized on **UNIX** systems by modifying the /home/xed/tree.bu file.

The HELP Menu

The HELP menu allows the user to display either command or task help, and can be customized on **UNIX** systems by modifying the /home/xed/help.bu file.

Using the DEFAULT Menu

The **SEDIT** menu is activated by depressing the third mouse button on the first or second screen line:



The seven first items are similar to the menu buttons described on page 98.

The `X` submenu of the `MENU` item edits the `sedit.menu` file, allowing the user to customize the menu. The `DO` submenu activates the changes.

Prefix Commands

The prefix commands are commands the user can type in a PREFIX FIELD in order to directly manipulate a data line. There are two types of prefix commands:

* Single prefix commands (such as `D` {`N`}) which act on `ONE` or `N` lines.
* Double prefix commands (such as `DD`) which act on a group of lines localized by the command entered in two prefix fields.

The command `MODE PREFIX XEDIT` or `MODE PREFIX ISPF` allows the user to switch between the IBM **XEDIT** editor behavior and the **ISPF/PDF** behavior. The default is the **XEDIT** behavior.

SEDIT takes into account only the characters which are entered by the user in the prefix area. These characters are decoded in the following manner:

- Any number is interpreted as an operand.
- An `*` is taken as an operand. For a built-in prefix command, an `*` is replaced by a number equal to the number of lines remaining in the file after the prefix command position. `D*` deletes all the remaining lines.
- If a prefix command name starts with a letter, it will end at the first character which is not a letter.
- If a prefix command name starts with a non-alphabetic character, it will end at the first blank, alphabetic character, or number.
- Whatever follows a name is interpreted as an operand.

For example:

PREFIX	NAME	OP1	OP2	OP3
*d	d	*	NULL	NULL
4i12	i	4	12	NULL
%zzz	%	zzz	NULL	NULL
<<4	<<	4	NULL	NULL
12d<w	d	12	<w	NULL

Single Prefix Commands

SEDIT features 16 single prefix commands:

`A`	Add (or I as "Insert")
`C`	Copy
`D`	Delete
`PU`	Put
`'` or `’`	Duplicate (' is the APL quote) (or R as "Replace" in ISPF mode)
`/`	Replace
`G`	Get
`E`	Extend
`>`	Shift right
`<`	Shift left
`M`	Move
`X`	eXclude
`S`	Show
`SCale`	Set scale line
`Tabl`	Set tabline
`.symb`	assigns the `symb` string to be a symbolic name for the matched line. If `symb` has been already assigned to another line, this older line will no longer be assigned this symbolic name.

The `M` and `C` commands need one of the following line indicators:

`F`	Following (or `A` as `After` in ISPF mode)
`P`	Previous (or `B` as `Before` in ISPF mode)
`O`	Overlay
`OO`	Overlay

A adds a specified number of lines:

```
00001 /*
00002  * This is a second sample file for SEDIT
a2003  *
00004  *
00005  main()
00006  /* This file is 6 lines long  */
```

gives:

```
00001  /*
00002   * This is a second sample file for SEDIT
00003   *
00004
00005
00006   *
00007  main()
00008  /* This file is 6 lines long  */
```

Note: Only the number the user enters in the prefix field will be used to determine the number of lines to be added. Any previous number found in the field will be ignored. On color displays, the character typed will appear in blue.

The user can insert a line by typing 'Control-A' at the cursor location as well.

When the auto-indent feature is on (command AUTOI ON), which is the default when the editor is started, the cursor is automatically placed on the first inserted line. The indentation is identical to that of the previous line.

D deletes a specified number of lines. It works in the same way as A.
D* deletes all subsequent lines.

C is used with the P(previous) or F(following) indicators to copy one line:

```
00001  /*
c0002   * This is a second sample file for SEDIT
00003   *
f0004   *
00005  main()
00006    /* This file is 6 lines long  */
```

gives:

```
00001  /*
00002   * This is a second sample file for SEDIT
00003   *
00004   *
00005   * This is a second sample file for SEDIT
00006  main()
00007    /* This file is 6 lines long  */
```

PU is used to save the contents of the lines selected in an internal buffer. These lines may be moved to the file being edited by the G prefix command.

```
00001  /*
PU202   * This is a second sample file for SEDIT
00003   *
00004   *
00005  main()
00006    /* This file is 6 lines long  */
```

and:

```
00001  /*
00002   * This is a second sample file for SEDIT
00003   *
0G004   *
00005  main()
00006    /* This file is 6 lines long  */
```

gives:

```
00001  /*
00002   * This is a second sample file for SEDIT
00003   *
00004   *
00005   * This is a second sample file for SEDIT
00006   *
00007  main()
00008    /* This file is 6 lines long  */
```

" or **'** (apostrophe) or **'** (APL quote) copies the lines selected:

```
00001  /*
 "202     * This is a second sample file for SEDIT
00003   *
00004   *
00005  main()
00006    /* This file is 6 lines long  */
```

gives:

```
00001  /*
00002   * This is a second sample file for SEDIT
00003   * This is a second sample file for SEDIT
00004   * This is a second sample file for SEDIT
00005   *
00006   *
00007  main()
00006    /* This file is 6 lines long  */
```

Note: The user can also duplicate a line by typing 'Control-=' on the cursor location.

/ (slash) chooses the selected line as the current line.
This can also be done by clicking the line with the shift-third mouse button.

G gets the lines previously saved by PU.

E extends the data field and places the cursor at the last non-blank character. Its action is similar to that of the F2 key.

```
00001  /*
00002   * This is a second sample file for SEDIT
e0003   * This is a second sample file for SEDIT
00004   *
00005   *
00006  main()
```

gives:

```
00001  /*
00002   * This is a second sample file for SEDIT
00003   * This is a second sample file for SEDIT_

00004   *
00005   *
00006  main()
```

>{N} shifts data N positions to the right on the selected line.

<{N} shifts data N positions to the left on the selected line. < sounds the alarm when the left of the line is truncated.

When the user is editing a FORTRAN file (for example `test.f`), if the first character is a tabulation or some single alphabetical character, the shifting will proceed from the second column. If the line begins with a label the shifting will proceed from the first non-blank character in order to preserve that label.

```
>6001  c          This is a comment
>4002  .           do  100 i=1,1000
>3003  100          k = k+1
```

gives:

```
00001  c               This is a comment
00002  .              do  100 i=1,1000
00003  100            k = k+1
```

M is used with the P(previous) or F(following) indicators to move one line:

```
00001  /*
m0002   * This is a second sample file for SEDIT
00003   *
f0004   *
00005  main()
00006    /* This file is 6 lines long  */
```

gives:

```
00001  /*
00002   *
00003   *
00004   * This is a second sample file for SEDIT
00005  main()
00006    /* This file is 6 lines long  */
```

X excludes a line from display:

```
00001  /*
x0002   * This is a second sample file for SEDIT
00003   *
00004   *
00005  main()
00006    /* This file is 6 lines long  */
```

gives:

```
00001  /*
00002   --------- 1 line  not displayed -------
00003   *
00004   *
00005  main()
00006    /* This file is 6 lines long  */
```

S shows excluded lines represented by a shadow line:

```
00001  /*
s0002  ----------- 1 line  not displayed --------
00003   *
00004   *
00005  main()
00006    /* This file is 6 lines long  */
```

gives:

```
00001  /*
00002   * This is a second sample file for SEDIT
00003   *
00004   *
00005  main()
00006    /* This file is 6 lines long  */
```

Sn shows the first n hidden lines.
S-n shows the last n hidden lines.

SCale sets the scale line to be displayed at this location.

Tabl sets the tabline to be displayed at this location.

.symb assigns the symb string to be a symbolic name for the matched line. If symb has been already assigned to another line, this older line will no longer be assigned this symbolic name.

Double Prefix Commands

A double prefix command is a command which acts on a sequence of lines.

The prefix must appear on the first and the last line.

SEDIT features 8 double prefix commands:

```
CC          Copy
MM          Move
DD          Delete
PP          Put
"" or ''    Duplicate (or RR in ISPF mode)
>>          Shift right
<<          Shift left
XX          eXclude
```

Note: Any prefix command which needs another prefix command to be executed, as M needs F, is called a **PENDING** command.
Pending commands remain in the prefix field and will be executed when the associated prefix command is entered. This allows the user to scroll through the file.
To erase all pending commands, type RESET in the COMMAND FIELD.
Delete a pending command by typing spaces over it.

CC copies a group of lines:

```
cc001  /*
000cc   *
00003   *
f0004   * This is a second sample file for SEDIT
00005  main()
00006    /* This file is 6 lines long  */
```

gives:

```
00001  /*
00002   *
00003   *
00004   * This is a second sample file for SEDIT
00005  /*
00006   *
00007  main()
00008    /* This file is 6 lines long  */
```

MM moves a group of lines:

```
mm001  /*
000mm   *
00003   *
f0004   * This is a second sample file for SEDIT
00005  main()
00006    /* This file is 6 lines long  */
```

gives:

```
00001   *
00002   * This is a second sample file for SEDIT
00003  /*
00004   *
00005  main()
00006    /* This file is 6 lines long  */
```

DD deletes a group of lines.

PP saves a group of lines into the internal buffer.

"" or '' duplicates a group of lines.

>> or << shifts a group of lines. <**<** sounds the alarm when the left of the line is truncated.

```
>>301  c                This is a comment
00002  .               do  100 i=1,1000
0>>03  100             k = k+1
```

gives:

```
00001  c                 This is a comment
00002  .                do  100 i=1,1000
00003  100              k = k+1
```

XX excludes a group of lines from display.

```
00001  /*
xx002  * This is a second sample file for SEDIT
00003  *
xx004  *
00005  main()
00006    /* This file is 6 lines long  */
```

gives:

```
00001  /*
00002   ------------ 3 lines not displayed -----------
00005  main()
00006    /* This file is 6 lines long  */
```

Overlaying Lines

The O or OO line commands specify the destination of data that is to be copied by the C and CC prefix commands or moved by the M and MM prefix commands.

Only blanks characters in the lines specified with O or OO are overlaid with corresponding characters from the source lines specified with the C, CC, M or MM prefix commands. Only characters within the column boundaries specified with the ZONE command are overlaid.

The number of source and receiving lines may be different. If there are more receiving lines, the source lines are repeated until all the receiving lines are processed.

```
00000
oo001 1  1234     12345    1234567
00002 2  1234     12345    1234567
00003 3  1234     12345    1234567
oo004 4  1234     12345    1234567
cc005 5 abcdefghijklmnopqrstuvwxyzABCDEFGHI
00006 ----------- 2 lines not displayed -----------
cc008 6 ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghi
```

gives:

```
00000
00001 1 a1234fghij12345pqrs1234567ABCDEFGHI
00002 2 A1234FGHIJ12345PQRS1234567abcdefghi
00003 3 a1234fghij12345pqrs1234567ABCDEFGHI
00004 4 A1234FGHIJ12345PQRS1234567abcdefghi
00005 5 abcdefghijklmnopqrstuvwxyzABCDEFGHI
00006 ----------- 2 lines not displayed -----------
00008 6 ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghi
```

Writing Prefix Macros

SEDIT allows the user to write prefix macros, which are entered in the same way the built-in prefix commands are. There are several steps to follow to create a prefix macro:

- Create an **S/REXX** or an external macro. For example, we will discuss the making of the supplied `uumac.sedit` **S/REXX** macro.
  This macro will be saved in a specific macro directory. `uumac` is the `{install-dir}/xmac/uumac.sedit` file.
- Issue a `HASH {install-dir}/xmac` (in this example) command. This `HASH` command is automatically issued by the `profile.sedit` standard initialization macro. We recommend the user create a specific directory for the user's macros.
- Create synonyms for that `uumac` macro. For example:

```
prefix synonym u  uumac
prefix synonym uu uumac
prefix synonym l  uumac
prefix synonym ll uumac
prefix synonym U  uumac
prefix synonym UU uumac
prefix synonym L  uumac
prefix synonym LL uumac
```

Once the macro terminates, **SEDIT** restores the current line and the current file.

To actually modify the current line, a prefix macro must issue a command such as:

```
:12pending on /
```

Once all the prefix macros end, the pending list is scanned and executed again: the `/` prefix command will be performed upon line `12`. Line `12` will become the current line.

uumac.sedit is the following:

```
parse arg pref ff line op1 op2 op3
if pref ~= 'PREFIX' then
 { 'emsg uumac: must be invoqued as a PREFIX macro.'
   exit
 }
select
 when ff = 'SHADOW' then
  { 'emsg uumac: not on a shadow line.'
    exit
  }
 when ff = 'CLEAR' then
  { 'msg uumac: aborted.'
    exit
  }
 when ff = 'SET' then
  { parse source . . . . . name .
    if lower(name[1]) = 'l' then cmd = 'command lowercas'
    else                         cmd = 'command uppercas'
    if length(name) = 1 then
     { /*
        * Simple form macro (L or U)
        */
        ':'line
        if op1 = '' then op1 = 1
        cmd op1
        exit
     }
    /*
     * Double form macro (LL or UU)
     */
    'extract/pending block' name ':0 :'line
    if pending.0 ~= 0 then
     { ':'pending.1' pending off'
       cmd ':'line+1
     }
    else  ':'line 'command pending block' name
    exit
  }
end
```

```
parse arg pref ff line op1 op2 op3
```

The macro receives the following arguments:

pref		
	PREFIX	flags a prefix call.
ff		
	SET	the selected line is a data line.
	SHADOW	the selected line is a shadow line. The corresponding file line is not visible.
	CLEAR	the user has cleared a pending macro by typing spaces.
line		the line number on which the prefix macro was entered.
op1, op2, op2		the macro operands, as described on the Prefix Commands section.

```
parse source . . . . . name .
if lower(name[1]) = 'l' then cmd = 'command lowercas'
else                         cmd = 'command uppercas'
```

When name starts with a `l`, the macro will translate the matched lines into lowercase, by using the LOWERCAS command. Otherwise, the UPPERCAS command will be used. When writing an external prefix macro, the user may use the EXTRACT/SOURCE/ facility to determine the name of the macro.

```
if length(name) = 1 then
 { /*
    * Simple form macro (L or U)
    */
   ':'line
   if op1 = '' then op1 = 1
   cmd op1
   exit
 }
```

When the user enters a synonym to the `uumac` macro, `name` contains this synonym, allowing the macro to know if a single form (`U`) or a double form (`UU`) was used.

The single form is handled by executing the `LOWERCAS` or `UPPERCAS` command immediately.

```
'extract/pending block' name ':0 :'line
 if pending.0 ~= 0 then
   { ':'pending.1' pending off'
       cmd ':'line+1
   }
 else  ':'line 'command pending block' name
```

Before a prefix macro starts, it is removed from the pending list. Therefore, the first time a double form macro, such as `UU`, is executed, it does not belong to the pending list, and `pending.0` is set to `0`. The `':'line 'command pending block' name` command places this macro in the pending list again.

The second time `UU` will be executed, `pending.0` will not be `0`, and `uumac` will execute the `LOWERCAS` or `UPPERCAS` command starting at the line the first `UU` string was found up to the line the second `UU` string was found. Remember that `UPPERCAS:12` means up to but not including the line `12`.

See the `EXTRACT` command on page 250 and the `PENDING` command on page 333 for more information.

Using the Mouse on UNIX systems

On **UNIX** systems, the default MOUSEMODE value is OPENLOOK.

Using the mouse to scroll is explained in the section Moving Through a File on page 53.

There is another important mouse application: moving data. This **SEDIT** feature resembles the Sun Textedit mouse move-text feature.

Making a Linear Selection

The left mouse button starts a selection. One click selects a character which will appear in reverse video.

Clicking several times in less than a .4 second interval is called a multi-click.
Multi-click twice will select a word.
Multi-click 3 times will select a line.
The user can select a line by shifting the middle mouse button as well, which is faster than clicking 3 times.

The user can cancel any selection by shifting the left mouse button.

The middle mouse button allows the user to extend a selection.

The Sun Selection Related Keys

- COPY-SELECTION L6
- PASTE-SELECTION L8
- FIND-SELECTION L9
- CUT-SELECTION L10
- META-KEY ◊ key on type 4 or 5 keyboards, and Left and Right keys on old type 3 keyboards.

The Other Workstations Selection Related Keys

- COPY-SELECTION F3
- PASTE-SELECTION F4
- FIND-SELECTION F1
- CUT-SELECTION F2
- META-KEY Left Alt key on IBM and SiliconGraphics. Compose key on DECstations. Left Extend Char key on HP keyboards.

Deleting the Selected Characters

To delete a selection, press the CUT key.

Note that there is no control character on the screen. To remove an entire line using the CUT key (L10/F2), multi-click 3 times or use the Shift-M2 mouse button.

If only the first and the last characters of the line are selected, the line will be cleared without deleting it.

Copying the Selected Characters

There are three ways to copy a selection.

- **COPY then PASTE**

  1) Make a selection.
  2) Use the COPY key (L6/F3) to store a copy of the characters selected in an internal buffer.
  3) Move the cursor to the destination.
  4) Depress the PASTE key (L8/F4).

Note that the cursor position is independent of the selection.

To copy text to the current cursor location, make a selection and depress COPY and PASTE. The cursor will be moved to the end of the text copied.

- **SELECT and COPY**

  1) Make a selection.
  2) Press and hold the COPY (L6/F3) key.
  3) Move the cursor with the LEFT mouse button.
  4) Release the COPY key.

Select and Copy is a faster way to copy selected text to a location other than where the cursor is located.

- **PASTE and SELECT**

  1) Press and hold the PASTE (L8/F4) key
  2) Make a selection.
  3) Release the PASTE key.

Paste and Select is an alternate way to copy characters to the cursor location. It resembles the Sun secondary selections, but it uses the same buffer as the two previous methods.

To **overlay** the copy instead of inserting it, hold down the shift-key when proceeding. In this case, no lines will be inserted in the file.

Moving the Selected Characters

To move a set of selected characters, do a PENDING-DELETE selection by using Control-M1 and Control-M2, and then proceed to copy the text selected.

When using a color display, the selected characters will appear in pink.

Searching for Selected Characters

Once a selection is completed, the FIND key (L9/F1) may be used in various ways:

FIND	finds the next string identical to the string selected.
Shift-FIND	finds backward the next identical string.
Control-FIND	finds the next identical name: if the user selects "i" **SEDIT** will find it in "i=3" but not in "if (".
Shift-Control-FIND	finds backward the next identical name.

Making a Rectangular Selection

A selection made holding the META key will be rectangular instead of linear.

A rectangular selection can be used in the same way as a linear one, with a few differences:

- A line cannot be deleted, only its content is deleted.
- New lines are not inserted when the selection is more than one line.
- On a color display, the first character selected appears in green and the last one in orange.

Selecting Whole Lines

Multi-click 3 times will select a line. There are two shortcuts to select lines more easily:

- Press SHIFT and the middle mouse button. Dragging the mouse then will extend the selection line by line.
- Move the mouse on the fields located between the prefix fields and the data fields, and press the first mouse button. The mouse shape changes when it is located on the line selection fields. Dragging the mouse then will extend the selection line by line.

Moving Data to Other Windows

When **SEDIT** is running in the Open Look environment, data can be moved to other windows using the COPY and PASTE method.

When running the **MOTIF SEDIT** version, use the primary selections to move data to any XTERM windows.

To move text from **SEDIT** to XTERM, select the text, move the mouse into the XTERM window and press the middle mouse button.

To move text from XTERM to **SEDIT**, select the text, move the mouse into the **SEDIT** window and press Control-PASTE (F4 or L8).

When MOUSEMODE MOTIF is in effect, the middle mouse button may be used instead of Control-PASTE.

Using the Mouse in MOTIF Mode

When adding the following statement in the `profile.sedit` initialization macro file:

```
'mousemode motif'
```

the mouse buttons perform in the following way:

`M1`	starts a selection.
`M1` (dragged)	extends a selection.
`Shift-M1`	extends a selection.
`M2`	pastes the current selection at the cursor location.
`Control-M3`	cancels the selection.

Using the Mouse on WINDOWS Systems

Note: The **UNIX** mouse settings described on page 123 are more powerful than the default **WINDOWS** settings. To use **UNIX** settings on **WINDOWS**, a 3 button mouse is needed. Then, add in the `profile.sedit` file the "`set_unix`" macro call.

Making a Linear Selection

On **WINDOWS** systems, the default `MOUSEMODE` value is `WINDOWS`.

In this mode, the keyboard and mouse behave in similar ways to most **WINDOWS** applications. The main difference is that the cursor can be moved independently of the selection. The `Delete` key removes only the character at the cursor location. To remove the selected characters, the `^x` key must be used.

Clicking the left mouse button moves the cursor, without changing the current selection.

Dragging the left mouse button starts a selection, displaying a character which will appear in reverse video.

Clicking several times in less than a .4 second interval is called a multi-click.
Multi-click twice will select a word.
Multi-click 3 times will select a line.
The user can cancel any selection by shifting the right mouse button.

Shifting the left mouse button allows the user to extend a selection.

The Selection Related Keys

- `COPY-SELECTION` `Control-c`
- `PASTE-SELECTION` `Control-v`
- `FIND-SELECTION` `F1`
- `CUT-SELECTION` `Control-x`
- `META-KEY` `Left Alt key`

Deleting the Selected Characters

To delete a selection, press the `CUT` key.

Note that there is no control character on the screen. To remove an entire line using the `CUT` key (`^x`), multi-click 3 times.

If only the first and the last characters of the line are selected, the line will be cleared without deleting it.

Copying the Selected Characters

Unlike with the OPENLOOK or MOTIF MOUSEMODE settings described on page 124, there is only one way to copy characters:

- **COPY then PASTE**
  1) Make a selection.
  2) Use the COPY key (^c) to store a copy of the characters selected in an internal buffer.
  3) Move the cursor to the destination.
  4) Depress the PASTE key (^v).

To **overlay** the copy instead of inserting it, hold down the shift-key when proceeding. In this case, no lines will be inserted in the file.

Note that the mouse and keyboard **UNIX** settings described on page 50 offer many more capabilities, but require a 3 button mouse.

Searching for Selected Characters

Once selection is accomplished, the FIND key (F1) may be used in various ways:

FIND	finds the next string identical to the string selected.
Shift-FIND	finds backward the next identical string.
Control-FIND	finds the next identical name: if the user selects "i" **SEDIT** will find it in "i=3" but not in "if (".
Shift-Control-FIND	finds backward the next identical name.

Making a Rectangular Selection

A selection made holding the Left Alt key will be rectangular instead of linear.

A rectangular selection can be used in the same way as a linear one, with a few differences:

- A line cannot be deleted, only its content is deleted.
- New lines are not inserted when the selection is more than one line.

Selecting Whole Lines

Multi-click 3 times will select a line. There are two shortcuts to select lines more easily:

- When using a 3 buttons mouse, press SHIFT and the middle mouse button. Dragging the mouse then will extend the selection line by line.
- Move the mouse on the fields located between the prefix fields and the data fields, and press the first mouse button. The mouse shape changes when it is located on the line selection fields. Dragging the mouse then will extend the selection line by line.

Scrolling

The mouse wheel allows to scroll up and down.

When Shift is depressed, **SEDIT** scrolls 4 lines at a time. The `WHEEL` command can change this setting.

When Control is depressed, **SEDIT** scrolls one page.

When Shift and Control are both depressed, **SEDIT** goes to the first or the last file line.

Undoing

On Sun workstations, the UNDO key is mapped to the L2 key. On others workstations, it is mapped to the F11 key.

Pressing the UNDO key undoes the last action. The user can undo until cancelling all modifications in the file.

Pressing Shift-UNDO restores the modifications undone by the UNDO key.

Note that all modifications undone are lost if the file is modified before pressing Shift-UNDO.

The undo memory is reset every time a file is saved.

Using MAKE

The following make.x macro is provided in the {install-dir}/xmac directory:

```
compile make $argv
```

This allows the user to call the **UNIX** make program builder by simply issuing, for example, the following command directly within **SEDIT**:

```
====> make splitfile
```

The make macro calls the COMPILE **SEDIT** command using the make splitfile string as argument.

COMPILE will run the make program in a different subprocess, split the screen, display the make output, and call directly the NEXTERROR command.

The NEXTERROR command will attempt to parse the make output in order to load the file in error, and set the cursor upon the first line in error.

For example, the following make output could be displayed:

```
/home/m1/pro/no_file.compile                                    Len:8     mod:
no_file.compile inc.h


00001 cc -c -o splitfile.o splitfile.c
00002 "./inc.h", line 5: illegal type combination
00003 "splitfile.c", line 24: syntax error at or near symbol ;
00004 Compilation failed
00005 *** Error code 1
00006 make: Fatal error: Command failed for target `splitfile.o'
====>
/home/m1/pro/inc.h                                              Len:5     mod:
no_file.compile inc.h
00001 int 1;
00002
00003 char *foo;
00004
00005 double int;




====>
 1:Q  2:E  3:Save  4:Sp  5:x  6:cu  7:U  8:D  9:?  10:h  12:=  S-11:top  S-12:bot
```

Typing ^- (Control -) when running in a windowing environment, or F2 when running with an ASCII terminal will call the NEXTERROR command, which will load the splitfile.c file, and set the cursor upon line 24.

Using ASCII Terminals

At initialization, **SEDIT** checks the environment to start in the appropriate mode.

If the `OPENWINHOME` environment variable exists, it will start in the `OPEN WINDOWS`[1] mode. If `OPENWINHOME` does not exist, but `DISPLAY` does, it will start in the **MOTIF** mode. Otherwise, **SEDIT** starts in ASCII mode.

Before being able to use the function keys in ASCII mode, the user must use the `mkesc` utility described on page 7.

The ASCII mode offers only a subset of the **SEDIT** facilities:

- There is no mouse support, and therefore no menu and no button support.
- It is not possible for **SEDIT** to know the "`shift`", "`control`" and "`meta`" key state. Therefore, it is not possible to assign a specific command to function keys when holding down these modifier keys. For example, "`set s-f1 flquit`" will not make **SEDIT** call the "`flquit`" command when hitting "`shift-f1`". For the same reason, "`set ^A command`" will not be recognized. Only "`set ^a command`" will be recognized.
- The following "`^cc`" keys cannot be changed:
  `^t` enters the `tab` character (instead of `^tab`).
  `^i` enters the `next-field` 3270 command.
  `^j` enters the `up-field` 3270 command.
  `^f` enters the `down-field` 3270 command (instead of the `Alt` key on Suns, and the right `Control` key on other workstations)
  `^h` enters a `backspace`.
  `^l` enters the `line-feed` separator character.
  `^m` is equivalent to the `Return` or `Enter` key.
- The `tree` editor is not supported.

1. Sun only.

Using INTERNAL Macro Commands

An **SEDIT** internal macro is a file with an "x" filetype which is called from the **SEDIT** environment.

In order to make a file available for such usage, the user must first enter (for example in the "profile.sedit" initialization file) the "hash {dir1 {dir2} {...}}" command.

Then, if the command searched for corresponds to the filename of one of these files, every line of this particular file will be executed as a command.

Note that macro names are case sensitive and **SEDIT** commands are not.

A macro can call another macro, but recursive calls are not allowed.

Note that if the user edits an "*.x" file, the user need not enter a "hash" command again after saving it, the internal hash table will be updated.

"hash" does not automatically start to avoid initialization delay because macro commands are optional.

Example: Assume there is a file named "/home/user1/xmac/xff.x" containing the line "x $1.F". If the user includes the command "hash /home/user1/xmac" in the "profile.sedit" file, typing "xff prog1" will start editing file "prog1.F".

Variable Substitution

When executing a macro, SEDIT will replace any string like "$i" with the argument number i passed at invocation. For a file "/usr/m1/test.f", and a macro call like "macroname arg1 arg2", the following substitutions will take place:

$0	expands to	macroname
$1	expands to	arg1
$argv	expands to	arg1 arg2
$fn	expands to	test
$lfn	expands to	/usr/m1/test
$ft	expands to	f
$fd	expands to	/usr/m1
$name	expands to	/usr/m1/test.f
$xhome	expands to	the installation directory (usually /home/xed or C:\Program Files\SEDIT)
$arch	expands to	the hardware dependent string described in Appendix B: Hardware String on page 707.

Example: "set ^p shell lpr $name &" will allow the **UNIX** user to print the currently edited file by typing "control-p".

Using EXTERNAL Macro Commands (UNIX Only)

An external macro command is a file with an `"ex"` filetype which is called from the **SEDIT** environment.

In order to make a file available for such usage, the user must first enter (for example in the `"profile.sedit"` initialization file) the `"hash {dir1 {dir2} {...}}"` command. This macro can be written in any interpreted language able to call **UNIX** commands and retrieve their result, such as the `C-SHELL` language, or in C.

`"reprofile.ex"` is a particular file which is executed every time **SEDIT** loads a new file.

Using an Interpreted Language

SEDIT provides two modules which enable communication between the `C-SHELL` language (for example) and itself:

- `sends arg1 {arg2} {...}` sends the `argi` parameters to **SEDIT** to be executed as **SEDIT** commands. A command failure will stop the process.
- `extract arg` retrieves from **SEDIT** the requested `arg` value.

`arg` may be any one of the words described on page 241.

SEDIT provides the /home/xed/xmac/Bye.sedit macro:

```
trace o
'prompt OK to quit ?'
if rc <> 0 then exit
trace e
'extract /ring'
if ring.1 <> '0' then
 { 'extract /name'
   if state('restart.x') then address unix 'rm restart.x'
   do i = 2 to ring.0
     if state(ring.i) then
      { call lineout 'restart.x', 'xed "'ring.i'"'
        'xed "'ring.i'"'
        "extract /line/rw/point*"
        do k = 1 to point.0
           parse var point.k ll names
           call lineout 'restart.x', ':'ll
           do forever
             parse var names nme names
            if nme[1] = '.' then call lineout 'restart.x',
'point'nme
             if names = '' then leave
           end
        end
        call lineout 'restart.x', ':'line.1
        call lineout 'restart.x', 'rw' rw.1
      }
   end
    if state(name.1) then call lineout 'restart.x',  'xed
"'name.1'"'
   call lineout 'restart.x'
   'cancel'
 }
'exit'
```

This macro saves every edited file name into the "restart.x" file, and then terminates the **SEDIT** session. Since the "profile.sedit" file searches for the "restart.x" file at **SEDIT** initialization, the next time the user starts **SEDIT** in the same directory, the macro "profile.sedit" will load the same files edited when the user left **SEDIT**, and set up the current line at its previous location.

Note that the user needs to process the command "hash $xhome/xmac" in the "profile.sedit" file before calling this macro.

Using the C Language (UNIX Only)

SEDIT provides the "/home/xed/lib/$arch/libex.a" library, which allows the user to write external C macros.

This library provides the following routines:

```
#include "ex_sedit.h"

int sends(com)
   char *com;

char *extract(value)
   char *value;

void extract2(r_char, r_int, value)
   char ***r_char, *value;
   int **r_int;

void free_extract(r_char, r_int)
  char ***r_char;
  int **r_int;

void ex_ini();

void ex_end(rc)
  int rc;
```

ex_sedit.h	is located in the "/home/xed/include" directory.
ex_ini	initiates the connection with **SEDIT**. It must be the first routine called.
sends	is used to send the null terminated string com to **SEDIT** to be executed as a command. sends will return the **SEDIT** return code. 0 will indicate that the command succeeded.
extract	is used to retrieve an internal **SEDIT** value. value is a keyword similar to those described in the section "Using an interpreted language". extract is an obsolete routine replaced by the more usable extract2 routine.

`extract2`	is used to retrieve an internal **SEDIT** value. `value` is a keyword similar to those described in the section "Using an interpreted language". `r_char` is allocated with the extracted values stored as characters. A NULL value may be passed when this information is not needed. `r_int` is allocated with the extracted values stored as integers. A NULL value may be passed when this information is not needed.
`free_extract`	releases previously `extract2()` allocated memory.
`ex_end`	terminates the connection with **SEDIT**, and then performs the `"exit(rc)"` system call.

The file "/home/xed/demo/demo_ex/invsel.c" is an example of such a macro:

```
/*
 *  invsel: makes every visible line invisible, and vice-versa.
 */
#include <stdio.h>
#include "ex_sedit.h"
#define DBX_SLEEP 0
main()
{
  char **r_display, buff[50], bu_vi[50], bu_invi[50];
  int *display, *line, *sele, lex;
  register i;

  ex_ini();
#if DBX_SLEEP
  fprintf(stderr, "invsel: process %d sleeping\n", getpid());
  i = 1;
  while(i)
    usleep(100000);
#endif
  sends("preserve");
  sends("scope all");    /* We need it for scanning the file line by
line */
  sends ("bot");

  extract2(&r_display, &display, "display");

  extract2(NULL, &line, "line");

  sprintf (bu_invi, "select %d", display[2] + 1);
  sprintf (bu_vi,   "select %d", display[1]);

  for (i=1; i<=line[1]; i++)
   { sprintf(buff, ":%d", i);
     sends(buff);

     extract2(NULL, &sele, "select");

     if (sele[1]>= display[1]  &&  sele[1]<= display[2])
       sends(bu_invi);
     else
       sends(bu_vi);

     free_extract(NULL, &sele);
   }

  free_extract(&r_display, &display);
  free_extract(NULL, &line);

  sends("restore");
  sends("top");
  ex_end(0);
}
```

To create the macro "invsel.ex", use the following commands:

```
% cd /home/xed/demo/demo_ex

%   cc   -o   invsel.ex   invsel.c   -I/home/xed/include
  -L/home/xed/lib/arch -lex -lc -lm

% chmod a+x invsel.ex
```

Where *arch* is the hardware dependent string described in Appendix B: Hardware String on page 707.

Then issue the command "hash /home/xed/demo/demo_ex" command within **SEDIT**. The user can now run invsel as an **SEDIT** command.

Using S/REXX Macro Commands

An **S/REXX** macro command is a file with an `sedit` filetype which is called from the **SEDIT** environment.

In order to make a macro file available for such usage, the user must first enter (for example in the `profile.sedit` initialization file) the `"HASH {dir1 {dir2} {...}}"` command described on page 284.

`profile.sedit` is a particular macro file which is searched for first in the current directory, then in the user's home directory (`C:\` on **WINDOWS** systems) and finally in the **SEDIT** installation directory. `profile.sedit` tailors **SEDIT** to satisfy the user's preferences, for example to emulate an editor with which the user is familiar and to set the function keys to conform the user's workstation.

`reprofile.sedit` is a particular file which is executed every time **SEDIT** loads a new file.

All the **S/REXX** instructions and built-in functions are available within the **SEDIT** environment. The `extract` command described in page 241 may be used to transfer information from **SEDIT** to **S/REXX** variables.

Usage notes:

- Once made available with the `HASH` command, a macro may be used by typing its filename in the command field.
- Commands to be executed by **SEDIT** must be surrounded by single or double quotes, including the `extract` command, which is an **SEDIT** command and not an **S/REXX** command.
- The default macro address value is `ADDRESS SEDIT`. It can be changed by using the `ADDRESS` command described on page 518.
- When running **S/REXX** within **SEDIT** in a **UNIX** windowing environment such as **OPEN WINDOWS** or **MOTIF**, all input and output operations are redirected to the window **SEDIT** was started from.
  In order to allow the input operations to execute properly, **SEDIT** ***must run in the foreground.***
  Starting **SEDIT** in the background with a command like "`xed &`" or "`sedit`" will make **SEDIT** hang every time a `TRACE ?` or a `PULL` instruction is executed.
- When running **S/REXX** within **SEDIT** on **WINDOWS**, all input and output operations are redirected to a console window created by **S/REXX**.This console window can be removed by the `Special-Close Console` menubar item.

The {install-dir}/xmac/bye.sedit is an **S/REXX** macro example:

```
/*
 *  Saves in the file "./restart.x" the files currently
 *  edited for further use by the "profile.sedit" macro
 */

'prompt OK to quit ?'
if rc <> 0 then exit

'extract /ring'

if ring.1 <> '0' then
 do

   'extract /name'

   if state('restart.x') then address unix 'rm restart.x'

   do i = 2 to ring.0
     call lineout 'restart.x', 'xed 'ring.i
     'xed 'ring.i
     "extract /line/rw"
     call lineout 'restart.x', ':'line.1
     call lineout 'restart.x', 'rw' rw.1
   end

   call lineout 'restart.x',  'xed 'name.1
   call lineout 'restart.x'

   'cancel'

 end

'exit'
```

The profile.sedit macro executes the restart.x macro created by the bye.sedit macro, allowing the user to restart **SEDIT** editing the same files the user was editing before leaving **SEDIT** by using the bye command.

Using EXTRACT

EXTRACT is used to retrieve information from **SEDIT**. EXTRACT can be used in 2 ways.

The command method:

```
/*
 * downline: moves the cursor down one line
 *
 *   Usage in a profile file:
 *
 *           'autoi off'
 *           'set enter ignore downline'
 *
 */
signal on novalue
'extract/cursor/size/nbfile'
if nbfile.1 = 0 then return
if cursor.3 ~= -1 then
 { line = cursor.3 + 1
   if line <= size.1 then 'cursor file 'line 1 'priority
100'
 }
else
 { /*
    * Prefix zone ??
    */
   'extract/prefix/lscreen'
   if prefix.1 ~= 'ON' then return
   if (prefix.2 = 'LEFT' & cursor.2 <= 5) |,
      (prefix.2 = 'RIGHT' & cursor.2 >= lscreen.2-5)  then
    { line = cursor.1 + 1
       if line < lscreen.1-1 then 'cursor screen 'line 1
'priority 29'
    }
 }
```

EXTRACT is used as an **SEDIT** command ('extract/cursor') which sets the variables corresponding to the requested extraction (cursor.0, cursor.1, ...).

The built-in method:

```
/*
 * downline: moves the cursor down one line
 *
 *   Usage in a profile file:
 *
 *           'autoi off'
 *           'set enter ignore downline'
 *
 */
signal on novalue
if nbfile.1() = 0 then return
if cursor.3() ~= -1 then
 { line = cursor.3 + 1
   if line <= size.1() then 'cursor file 'line 1 'priority
100'
 }
else
 { /*
    * Prefix zone ??
    */
   if prefix.1() ~= 'ON' then return
   if (prefix.2 = 'LEFT' & cursor.2 <= 5) |,
     (prefix.2 = 'RIGHT' & cursor.2 >= lscreen.2()-5)  then
    { line = cursor.1 + 1
      if line < lscreen.1()-1 then 'cursor screen 'line 1
'priority 29'
    }
 }
```

Calling any `prefix.n()` built-in performs an '`extract/prefix`' command, and returns the `prefix.n` value. The remaining `prefix.i` variables can then be used directly.

Note: When extracting an important amount of data, such as with '`extract/file`', use the built-in method only with the first call (`nb_lines = file.0()`), and then use the generated variables (`data = file.23456`). Using the built-in method every time (`data = file.23456()`) would extract the entire file repeatedely, which would result in a significant overhead.

Using the BATCH Option

When started with the `-batch` or `-filec` option, **SEDIT** runs in the following mode:

- The **SEDIT** window is not displayed.
- No profile is used at initialization. Use the "`-p filename`" option to use `filename.sedit` as initialization profile.
- Once **SEDIT** is done processing commands submitted with the "`-c command`" option, or processing the macro file submitted with the `-filec` option, **SEDIT** exits. **SEDIT** will quit all files, including unsaved modified files.
- Error messages are saved in the `sedit.@messages` file when **SEDIT** exits. The `MESSAGESDIR` command can be used to specify the location of this file.
- The following commands are silently ignored:

```
BUTTON          FLIST           SRCHANGE
COLOR           FLQUIT          TOOLBAR
COMPILE         FONT            TREE
COMPLETE        GET_PANEL       UNBUTTON
CREATE          HELP            XCSHELL
C_APLSTOP       LISTEN          XKSHELL
C_APLTRACE      MBUTTON         XSHELL
C_DUP           MENU            XTCSHELL
C_ENDCURL       MENUBAR         XWINDOWS
C_ENDLINE       NEXTERROR
C_ENDS          PDFCOPY
C_ENDSALL       PDFREPLACE
C_ENDSR         PRINTSCREEN
C_EXT           PROMPT
C_LINEADD       READ
C_LINEDEL       READSCREEN
C_SCRH          REFRESH
C_SCRJ          RFLIST
C_SCRV          SCHANGE
C_SPLIT         SCN
C_STARTLINE     SCREEN
C_STARTS        SCROLLBAR
DY_ALL          SET
DY_EXCLUDE      SETP
DY_FIND         SOS
DY_FONT         SPELL
DY_SHOW         SPELL_ADD
FLFILE          SPELL_NEXT
```

- On **WINDOWS** systems, `PRINTFILE` is also silently ignored.

- The following commands behave differently:

AQUIT	performs as PQUIT.
EXIT	unconditionally exits, without checking for modified files.
FILE and SAVE	If the file name has been changed during the editing session so that it is identical to that of an existing file, or if the file has been modified by another user, FILE and SAVE do not overwrite the existing file.
IMPCMSCP	is OFF by default.
PRINTFILE (UNIX)	needs the PRINTER, DAEMON, WIDTH and HEIGHT parameters.

UNIX Examples

```
xed -batch -c '"change/first/last"' -c file sample.c
```

first loads the sample.c file, then performs the change/first/last command, performs the file command and finally exits.

Bracketing a command with '" and "' is necessary because xed is a shell script.

xed runs in the foreground: if this command is issued from a program, the program will pause until xed exits.

Note that xed starts in **XEDIT** mode.

```
xed -batch -c '"mode command ispf"' -c '"change first last
all"' -c end sample.c
```

applies the **PDF** change command to sample.c.

```
xed -batch -c '"pdfchange first last all"' -c end sample.c
```

applies the **PDF** change command to sample.c.

```
xed -batch -p batch1
```

runs the batch1.sedit macro and exits. Note that typing "xed -batch -p batch1 sample.c" would run batch1.sedit **before** loading sample.c.

```
xed -filec batch1 sample.c
```

loads the `sample.c` file, loads the `batch1.sedit` macro, runs `batch1.sedit` and exits.

WINDOWS Examples

```
xed -batch -c "change/first/last" -c file sample.c
```

first loads the `sample.c` file, then performs the `change/first/last` command, performs the `file` command and finally exits.

`xed.exe` runs in the background: if this command is issued from a program, the program will not pause until `xed` exits.

Note that `xed` starts in **XEDIT** mode.

```
xed -batch -c "mode command ispf" -c "change first last
all" -c end sample.c
```

applies the **PDF** `change` command to `sample.c`.

```
xed -batch -c "pdfchange first last all" -c end sample.c
```

applies the **PDF** `change` command to `sample.c`.

```
xed -batch -p batch1
```

runs the `batch1.sedit` macro and exits. Note that typing "`xed -batch -p batch1 sample.c`" would run b`atch1.sedit` **before** loading `sample.c`.

```
xed -filec batch1 sample.c
```

loads the `sample.c` file, loads the `batch1.sedit` macro, runs `batch1.sedit` and exits.

Note: Windows considers single quotes as being part of an argument, so `-c 'sort'` for example will pass `'sort'` instead of sort to **SEDIT**. Use double quotes if you need to pass commands with embedded blanks.

SEDIT Command Reference Guide

Commands are entered in the COMMAND FIELD. They are executed with the "Return" or "Enter" key.

Several commands can be entered at the same time using the line-feed separator.

This character will appear as a period. You can disable this feature or change the separator with the SEP or LINEND command. The LINEND command on page 301 explains how to enter the line-feed character.

For example, "xf test./var1" will start editing the "test.f" file and then search for a "var1" string.

Throughout the command reference guide, the following file naming convention is used:

For any file such as "/usr/m1/test.f":

"/usr/m1"	is called	"filedirectory".
"test"	is called	"filename".
"f"	is called	"filetype".

Most commands assume the current line location as a starting position.

The current line is usually displayed in red at the eighth physical line of the screen, and the corresponding prefix field appears bold-faced.

Variable Substitution

For any command except "set" or "button", and for a file "/usr/m1/test.f", the following substitutions will take place:

$fn	expands to	test
$lfn	expands to	/usr/m1/test
$ft	expands to	f
$fd	expands to	/usr/m1
$name	expands to	/usr/m1/test.f
$xhome	expands to	the installation directory (usually /home/xed or C:\Program Files\SEDIT)
$arch	expands to	the hardware-dependent string described in Appendix B: Hardware String on page 707.

Avoiding Variable Substitution

When the `$` sign is escaped with a backslash, substitution does not occur:

`\$fn`	expands to	`$fn`
`\\$arch`	expands to	`\sun4` for a **SPARC** workstation.
`c/\$fd/\$arch`		changes the `$fd` string with the `$arch` string.

When ARBCHAR is set to `ON $`, variable substitution does not occur within the ALL, CHANGE, CLOCATE, CDELETE, CN, SCHANGE, SCN, /, and `-/` commands, which use `$` as arbitrary character.

The MODE EXPAND command described on page 324 allows to disable the variable substitution.

ACCess - Add Directory To the Path

`ACCess dir {dir2 {..}}`

`ACCESS` adds the various `diri` directories to the `path` in which **SEDIT** looks for files.

If `diri` does not start with a standard directory indicator (/ . ~), **SEDIT** will search first in the current directory and then through the directories described in the `cdpath`. See the `DACCESS` command for more information on the `cdpath`.

If `diri` contains blanks, it must be surrounded with quotes or double quotes. If a directory contains a quote or a double quote, the quote must be escaped with a backslash.

Examples: Assume the home directory is `"usr/m1"` and the current directory is `"/usr/m1/dir1"`.

`acc dir2` will access `/usr/m1/dir2` directory
`acc dir2` a second time will move `/usr/m1/dir2` in second position.
`acc ~/dir3` will access `/usr/m1/dir3` directory
`acc ./dir4` will access `/usr/m1/dir1/dir4` directory
`acc ../dir4` will access `/usr/dir4` directory
`acc "c:\Program Files"` will access the **WINDOWS** `Program Files` directory.
`acc ~/quote\"dir` will access the `~/quote"dir` directory.
`acc ~/foo ~/test` will access these 2 directories.

The user will receive the message `".... Accessed in xx"`.

See the directory editor **FLIST** section for `"xx"` use.

Reordering Accessed Directories

Accessing the same directory twice places it in second position in the path. The first position is always the current directory.

This may be useful when files with the same name exist in different directories, and the user wants to edit in priority files within a given directory.

For example, there may be a `wsrc` directory containing **WINDOWS** source files, and a `msrc` directory containing sources files for the same project in the **MOTIF** environment. The current directory might be either a `wobj` or a `mobj` directory.

Before working with the **MOTIF** files, issue an "`acc msrc msrc`" command. Similarly, "`acc wsrc wsrc`" would place the `wsrc` directory before the `msrc` directory.

See Also: DACCESS, DRELEASE, RELEASE, SHOWPATH, SHOWCDPATH

Add - Add Lines

`Add {N}` inserts 1 or N line(s) starting at the current line location.

Scope: `Display`

Return Codes:

0	Normal
5	Invalid Number

ALl - Global Selective Line Editing

`ALl { target }` selects the lines containing the target specified.

Scope: `Display`

If `target` is not specified, **SEDIT** will set the selection level for every line in the file to the upper value of the `DISPLAY` range, making all of them visible.

If `target` is specified, **SEDIT** will set the selection level for every line currently in the scope matching this target to the upper value of the `DISPLAY` range, and to this value plus one for all the other lines, hiding them. **SEDIT** will then put `SCOPE DISPLAY` in effect, and select the first line displayed as the current line. With `SCOPE DISPLAY` in effect, lines that are excluded from the display are also excluded from processing by most **SEDIT** commands and prefix commands. With `SCOPE ALL` in effect, all lines will be processed. If `SHADOW ON` is in effect, a shadow line appears on your display wherever lines have been excluded.

`target` may be one of the following:

- `/string{/}` will select every line containing `string`. Note that the last `/` is optional unless `string` ends with a `/` or a blank.
- `~/string{/}` will select every line not containing `string`.
- `\string{/}` will select every line containing the name `string`.
- `~\string{/}` will select every line not containing the name `string`.
- `r/exp{/}` will select every line matching the regular expression `exp`.
- `~r/exp{/}` will select every line not matching the regular expression `exp`.
- `Blank` will select every blank line.
- `~Blank` will select every non-blank line.

See the `R/` command for a complete regular expression syntax description.

It is possible to mix several `targets` by using the AND (`&`) or the OR (`|`) operator.

& and | characters are treated as logical characters when enclosed with a valid delimiter, such as '`/`' or '`r/`'.

To imbed an `&` or a `|` character within a target such as "`&/`" where the `&` is not to be considered as a logical operator, the user must escape the logical character with a `\`.

Examples:

`all \i/|\k`	will select every line containing the names `i` or `k`. `"if (j==1)"` will not be selected. `"i=3"` and `"k++"` will be.
`all /if/&\k`	will select every line containing the string `if` and the name `k`. `"if (k==3)"` will be selected.
`all ~\i`	will select every line not containing the name `i`.
`all //**//`	will select every line containing the string `/**/`. Note that the last `/` is required here because the string ends with a `/`.
`all b`	will select every blank line.
`all r/[A-Z]`	will select every line containing an uppercase letter.
`all/str/\&/a/`	will select every line containing "`str/&/a`".

Return Codes:	0	Normal
	2	Target not found
	5	Invalid Operand

See Also: DISPLAY, DY ALL, EXCLUDE, R/, SCOPE, SELECT, SHADOW, SHOW, VISIBLE

ALT - Change The Number of Alterations

`ALT {NA {NS}}` changes the number of alterations.

Scope: `File`

If `NA` is specified, the number of alterations that have been made to the file since the last `AUTOSAVE` operation is set to `NA`.

If `NS` is specified, the number of alterations that have been made to the file since the last save operation is set to `NS`. If `NS` is 0 and `SAVECLEARUNDO` is set to `ON`, the undo memory is cleared.

Used without arguments, `ALT` displays the number of alterations that have been made to the file since the last `AUTOSAVE` operation and since the last save.

See Also: AUTOSAVE, SAVECLEARUNDO

APL - Pass a Command to APL

`APL {command}`

APL transmits the `command` string to **Dyalog APL** for execution and displays the possible result in the message field.

Used without parameter, `APL` returns to **Dyalog APL**.

To get back to **SEDIT**, the user must type the `→⎕LC` APL instruction.

Note: It is not necessary to type `APL` if `command` starts with a Rho or a Quad.

ARBchar - Set Arbitrary Character

`ARBchar ON|OFF {char}` defines an arbitrary character to be used by string matching commands.

Initial value: `OFF $`
Level: `Global`

`ARBCHAR` without arguments displays the current status.

When `ARBCHAR` is `ON`, the `ALL`, `CHANGE`, `CLOCATE`, `CDELETE`, `CN`, `SCH`, `SCN`, `/`, and `-/` commands use the `char` character as an arbitrary separation character. The variable substitution described on page 148 will not occur.

Examples: `/the$plane/`
will locate `the big plane` as well as `the last plane`.

`clocate/[$]`
will locate the first bracketed expression.

Every time an arbitrary character is matched with a string in a change command, the matched string is memorized in an internal buffer, and will be used to replace the equivalent arbitrary character found in the second string passed to the change command.

Examples: If the scanned file contains the following line:

```
 all birds can fly in the sky
```

Typing:

```
  c/all$can$sky/most$may$air
```

Changes the line to:

```
 most birds may fly in the air
```

Typing:

```
  c/$string/string/
```

deletes all characters that precede `string.`

Typing:

```
  c/string$/string/
```

deletes all characters that follow `string.`

The second string may not contain more arbitrary characters than the first string.

See Also: `ALL`, `CHANGE`, `CLOCATE`, `CDELETE`, `CN`, `SCHANGE`, `SCN`, `/`, `-/`

AUTOBin - Auto-Binary Feature

`AUTOBin ON|OFF {c1 .. cn}` sets the auto-binary feature `ON` or `OFF`.

Initial value: `ON 0x09 0x0A 0x0C 0x0D 0x1A`
Level: `Global`

When `AUTOBIN` is set to `ON`, before loading a file, **SEDIT** checks the first 1024 characters of this file, and sets the `BINARY` mode to `ON` when it finds control characters not generally found within text files which value is lower than `0x20`, and different from the `ci` characters which are allowed in text files.

The `ci` characters can be specified in decimal (`nn`) or hexadecimal (`0xnn` or `x'nn'`) format.

By default, **SEDIT** removes all trailing blanks in every line when loading a file, when editing a line and when saving a file. **SEDIT** also searches for the **WINDOWS** control characters `^M` and `^Z`, and automatically removes them from display setting the loaded file `FILECONV` to `WINDOWS`.

Trailing blanks are generally meaningless within text files, but may be essential within binary files. When `BINARY` is set to `ON`, **SEDIT** does not remove trailing blanks setting `KEEPBLANKS` to `1`, does not check for **WINDOWS** file control characters and always sets the loaded file `FILECONV` to `UNIX`.

In addition, **SEDIT** does not write a new line character after the last file line. When reading a file in binary mode, if **SEDIT** finds a new line character at the end of the file, **SEDIT** displays an empty line at the end of the file.

Examples:
```
autob
autob on
autob on 9 0x0a x'0c'
```

See Also: `BINARY`, `FILECONV`, `KEEPBLANKS`, `SHBLANK`, `XBIN`, `XKB`

AUTOExp - Auto-Expand Feature

`AUTOExp ON|OFF` sets the autoexpand feature `ON` or `OFF`.

Initial value: `ON`
Level: `Global`

When autoexpand is on, the data fields expand automatically when necessary. This happens when the cursor reaches the end of a line while typing, or when the last non-blank character reaches the end of a line in insertion mode.

It is useful to disable this feature if the user does not want to be allowed to write beyond a certain column.

For example, FORTRAN users may start **SEDIT** with the parameter "`-width 78`", and set the command "`AUTOEXP OFF`" in the "`profile.sedit`" file. This will create 72 column wide data fields when `PREFIX` is on.

See Also: `POWERINPUT`

AUTOI - Auto-Indent Feature

`AUTOI ON|OFf {Stay | Nostay}`
sets the auto-indent feature ON or OFF.

Initial value: `ON STAY`
Level: `Global`

When auto-indent is `ON`:

- Typing `"Return"` when the cursor is at the end of a data line without any character located in the command field will insert a line.
- When inserting lines, the cursor is automatically placed on the first inserted line. The indentation is identical to that of the previous line, and with the same number of starting tabulations.

When `NOSTAY` is in effect, typing `"Return"` when the cursor is on a data line, but before the last non-blank character will place the cursor on the command field. This behavior mimics the IBM **XEDIT** editor behavior.

`AUTOI` without arguments displays the auto-indent status.

Note: When the `ENTER` key is defined, by using the `SET ENTER` command, the auto-indentation is disabled.

See Also: `SET`

AUtosave - Auto-Save Feature

`AUtosave N|OFF dir` sets or resets the automatic save feature.

Initial value: `OFF`
Level: `Global`

When `AUTOSAVE` is `ON`, the current file will be saved in the directory `dir` each time the specified number `N` of alterations is reached.

The file will be saved with the name "`autosave`*`ppp_fd_fn.ft`*" where:

- *`ppp`* is the current SEDIT process number.
- *`fd`* is the current file filedirectory.
- *`fn`* is the current file filename.
- *`ft`* is the current file filetype.

`AUTOSAVE` without arguments displays the autosave status.

Note: When `AUTOSAVE` is in effect, the `SAVE` and `FILE` commands will erase the previous autosaved file. `QUIT` will not.

BACKUP - Set Backup Mode

`BACKUP ON|OFF {STR}` sets backup mode `ON` or `OFF`.

Initial value: `ON %`
Level: `Global`

By default, the `FILE` and `SAVE` commands save the previous content of the current file into a backup file by appending a `%` character to the file's name.

When `BACKUP` is `OFF`, **SEDIT** erases the backup file after a successful save. Should an error happen during the save operation, the backup file would not be erased.

`STR` specifies the backup string.

If `STR` contains blanks, it must be surrounded with quotes or double quotes. If `STR` contains a quote or a double quote, the quote must be escaped with a backslash.

Examples:

```
backup off
backup on .back
backup on "% %"      the backup strings contains a blank.
backup on \'         the backup string is a simple quote.
```

See Also: `FILE`, `SAVE`

BAckward - Scroll Backward

`BAckward {N | *}` scrolls up `N` pages; the current line becomes the last line displayed. This process is repeated `N` times.

Scope: `Display`

`BACKWARD 0` makes the last file line the current line.

`BACKWARD *` makes the top of file to be the current line.

When the current line is the top of file, and when `MODE SCROLL WRAP` is in effect, `BACKWARD` makes the last line to be the current line.

This command is mapped to the `F7` key by default.

Return Codes:		
	0	Normal
	1	Top Of File Reached
	5	Invalid Operand

See Also: `MODE`

BEEP - Set Beep Mode

`BEEP {ON|OFF}` enables or disables the warning beep.

Initial value: `ON`

SEDIT sounds a warning beep when the user types an unknown command with `IMPCMSCP` set to `OFF`, and when a locate or change command does not find the target string.

`BEEP OFF` disables the warning beep.

`BEEP` without arguments displays the `BEEP` status.

BInary - Set Binary Mode

`BInary ON|OFF {FT string}` disables or enables binary mode.

Initial value: `ON FT o a (UNIX)`
`ON FT com obj lib exe dll (WINDOWS)`
`OFF FT *`

Level: `File`

By default, **SEDIT** removes all trailing blanks in every line when loading a file, when editing a line and when saving a file. **SEDIT** also searches for the **WINDOWS** control characters `^M` and `^Z`, and automatically removes them from display setting the loaded file `FILECONV` to `WINDOWS`.

Trailing blanks are generally meaningless within text files, but may be essential within binary files. When `BINARY` is set to `ON`, **SEDIT** does not remove trailing blanks setting `KEEPBLANKS` to `1`, does not check for **WINDOWS** file control characters and always sets the loaded file `FILECONV` to `UNIX`.

In addition, **SEDIT** does not write a new line character after the last file line. When reading a file in binary mode, if **SEDIT** finds a new line character at the end of the file, **SEDIT** displays an empty line at the end of the file.

When not running in character mode, when `SHBLANK` is set to `ON` (the default), and when the last character in a line is a blank, **SEDIT** displays a thin vertical bar just after that last blank character.

If you specify `FT string`, this setting will become the default for every new file with a `string` filetype. If `FT` is `*`, this will be the default for any file. A period (`.`) may be used if no filetype is required. This setting is also applied to the current file, unless its filetype does not match `FT`.

To force the opening of a file in `BINARY ON` mode, the user can use the `XBIN` command.

Examples:

`bi on`	**SEDIT** sets `BINARY` mode `ON` for files with an "`.o`" extension.
`bi on ft o`	

Notes: `KEEPBLANKS ON` is not sufficient to preserve binary files integrity. Use `BINARY ON` or `XBIN` instead.

Using `BINARY ON` on a file already loaded is not sufficient to preserve its integrity since trailing blanks removal and control character checking is done at load time before the file is actually displayed. Use either `XBIN file` or `BINARY ON FT xx` before loading `file.xx`.

When `AUTOBIN` is set to `ON`, **SEDIT** checks the file contents in order to set the binary mode automatically.

See Also: `AUTOBIN`, `FILECONV`, `KEEPBLANKS`, `SHBLANK`, `XBIN`, `XKB`

Bottom - Bottom of File

`Bottom` selects the last line as the current line.

Scope: `Display`

BOUNDS - Set the Edit Boundaries

`BOUNDS` is a synonym for the `VERIFY` command. See page 445 for more details.

BUILTIN - Process a Built-in Command

`BUILTIN` is a synonym for the `COMMAND` command. See page 189 for more details.

BUtton - Create Button

`BUtton string1 string2` creates a button using `string1` as a label.

Available on: **UNIX**
Batch Mode: `Not Available`

When selected with the left mouse button, the string `"string2"` is executed as a command. With this command, the `"Control-line-feed"` separator is disabled, allowing the user to program several commands on the same button.

Example:
```
bu COMP shell cc -g -c -o $fn.o $fn.c &
```
Clicking on `COMP` will compile the `C` program currently edited.

See Also: `MBUTTON`, `UNBUTTON`, `LINEND`, `SEP`

CANcel (XEDIT MODE)- Abandon Files

XEDCANcel

`CANcel` abandons all unmodified files.

When `MODE COMMAND XEDIT` is in effect, `CANCEL` calls the XEDIT mode `XEDCANCEL` command. `PDFCANCEL` may be used to call the ISPF/PDF mode `CANCEL` command.

CANcel (ISPF MODE)- Cancel Edit Changes

PDFCANcel

`CANcel` abandons the current file, without saving any of the changes.

When `MODE COMMAND ISPF` is in effect, `CANCEL` calls the ISPF mode `PDFCANCEL` command. `XEDCANCEL` may be used to call the XEDIT mode `CANCEL` command.

`PDFCANCEL` is identical to the XEDIT `QQUIT` command described on page 349.

CAppend - Append Text

`CAppend {text}` appends `text` to the end of the current line.

If `text` is not specified, the column pointer will be placed after the end of the current line. `text` starts after the first blank following the command `cappend`, which allows the user to enter blanks. The column pointer will be placed under the first appended character.

Example:

Current line:

```
00001  i = 3
       <...|....1....+....2....+....3....+....4....+....5....+....6

=====> CAPPEND  ;   /* This was a syntax error */

00001  i = 3 ;   /* This was a syntax error */
       <...+|...1....+....2....+....3....+....4....+....5....+....6
```

CAPS - Control Automatic Character Conversion

CAPS {ON|OFF} enables or disables case conversion.

Initial value: OFF
Level: File

CAPS without argument is the same as CAPS ON.

When CAPS ON is in effect, **SEDIT** will translate lowercase letters to uppercase whenever data is retrieved for editing.

When CAPS OFF is in effect, **SEDIT** respects the capitalization.

CAPS applies to the current file, and is an ISPF/PDF compatible subset of the XEDIT CASE command.

To automatically set CAPS ON for every new file, the user may enter the following command:

```
case u ft *
```

See Also: CASE, CHANGE, CN, SCH, SCN, S_FIND, R/, R-/, /, -/, \, -\

CASE - Case Respect

CASE {Mixed|Uppercase} {Respect|Ignore} {CRespect|CIgnore} {SRespect|SIgnore} {Ft string}

enables or disables case respect.

Initial value: `Mixed Respect CRespect SRespect ft *`
Level: `File`

If `CASE UPPERCASE` is in effect, **SEDIT** will translate lowercase letters to uppercase.

If `FT string` is specified, this setting will become the default for every new file with a `string` filetype. If `FT` is `*`, this will be the default for any file. If `FT` is a period, it will concern files with no filetype. This setting is also applied to the current file, unless its filetype does not match `FT`.

Examples:
```
case u r ft f
case r ft *
case i ft .
```
will create `FORTRAN` uppercase files.

If `CASE IGNORE` is in effect, **SEDIT** will not consider capitalization when searching strings.

Example:
```
case i
/Old/
```
will find `old`.

If `CASE CIGNORE` is in effect, **SEDIT** will not consider capitalization when changing strings.

Example:
```
case ci
c/Old/new/
```
will change `old` with `new`.

If `CASE SIGNORE` is in effect, **SEDIT** will not consider capitalization when the SORT command is applied.

Example:
```
case si
sort *
```
will sort the current file ignoring capitalization.

See Also: CAPS, CHANGE, CN, SCH, SCN, SORT, S_FIND, R/, R-/, /, -/, \, -\

CD - Change Directory

`CD directory-name` changes the current directory.
If the directory is not valid, an error message is displayed.

If `directory-name` does not start with a standard directory indicator (/ . ~), **SEDIT** will search first in the current directory and then through the directories in the `cdpath` accessed with the DACCESS command.

If `directory-name` contains blanks, it must be surrounded with quotes or double quotes. If a directory contains a quote or a double quote, the quote must be escaped with a backslash.

Examples: Assume the home directory is `/usr/m1`, and the current directory is `/usr/m1/dir1`.

`cd dir2`	will switch to	`/usr/m1/dir2`	directory
`cd ~/dir3`	will switch to	`/usr/m1/dir3`	directory
`cd ./dir4`	will switch to	`/usr/m1/dir1/dir4`	directory
`cd ../dir5`	will switch to	`/usr/m1/dir5`	directory
`cd "c:\Program Files"`	will switch to	`c:\Program Files`	

See Also: DACCESS

CDElete - Delete Characters

`CDElete c-target` deletes characters starting at the current column pointer position up to, but not including, the column target `c-target`.

Scope: `Display`

The target must be in the `ZONE` range in order to be located.

`c-target` may be one of the following:

`:N`	moves the column pointer to column `N`.
`-N`	moves the column pointer `N` columns to the left.
`{+}N`	moves the column pointer `N` columns to the right.
`/text{/}`	searches the string `text`.
`-/text{/}`	searches backward the string `text`.
`\text{/}`	searches the word `text`. `"\i/"` will spot `"i"` in `"i=3"` but not in `"if("`.
`-\text{/}`	searches backward the word `text`.

If `STREAM ON` is in effect, **SEDIT** searches each line in the file. If `STREAM OFF` is in effect, **SEDIT** searches only the current line.

Example:

Current line:

```
00001  if ( a == 1 || b == 2 )
       <...+....1..|.+....2....+....3....+....4....+....5....+....6

=====> cde / )

00001  if ( a == 1 )
       <...+....1....+....2.|..+....3....+....4....+....5....+....6
```

See Also: `STREAM`, `ZONE`

CEnter - Center Text

`CEnter {target}` centers text defined by `target` operand.

Scope: `All`

`CENTER` reformats a portion of the current file defined by the `target` operand. `CENTER` centers the text within the current margins defined with the `MARGINS` command.

`target` may be one of the following:

`All`	The entire file is formatted.
`Sel`	Centers the selected lines. If the selection is rectangular, `CENTER` centers the contents of the selected area, the text outside the selection not being modified.
`:N`	Up to but not including the line `N`.
`+N`	Down `N` lines.
`-N`	Up `N` lines.
`+*` or `*`	Down to the end of file.
`-*`	Up to the top of file.
`.symb`	Up or Down to the line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the `LOCATE` command on page 303 for a precise string expression definition.

When `target` is not specified, `CENTER` formats the line corresponding to the cursor location. When the cursor is not located upon a line of the current file, `CENTER` reformats the current line.

Examples:

```
CENTER
CENTER                                                    all
CENTER                                                    sel
CENTER /str/
```

See Also: `FLOW`, `FORMAT`, `LEFTADJUST`, `LOCATE`, `MARGINS`, `POWERINPUT`, `RIGHTADJUST`

CENTER_End - End Connection with Codecenter

`CENTER_End` terminates a connection with the CodeCenter 4.x software[1].

Available on: **UNIX**

This command makes **SEDIT** stop listening on the socket opened with the `CENTER_INIT` command. It also makes **SEDIT** stop being the current CodeCenter EDIT session.

Note that **SEDIT** will notice if the CodeCenter process it is connected to ends, and automatically execute a `CENTER_END` command.

The `CENTER_XXX` commands are intended to be used with the CodeCenter 4.x release.

Please see the `SABER_XXX` commands when running CodeCenter 3.x.

See Also: `CENTER_INIT`, `CENTER_SEND`, `LISTEN`, `SABER_END`, `SABER_INIT`, `SABER_SEND`

1. Saber-C and CodeCenter are trademarks of CenterLine Software, Inc.

CENTER_Init - Initialize Connection with CodeCenter

`CENTER_Init` starts a connection with the CodeCenter 4.x software[1].

Available on: **UNIX**

CodeCenter 4.x uses what is called a CLMS session to achieve communication between the core CodeCenter session and auxiliary services, such as an EDIT or COMPILE server.

If **SEDIT** finds that only one CLMS session is running, it will establish the connection with it immediately. If more than one CLMS session is running, **SEDIT** will display a fullscreen panel showing all the CLMS identifiers, and the user will have to click with the mouse on the identifier of the CLMS session to be talked to using the `CENTER_Send` command.

Establishing a connection with a CLMS session will make **SEDIT** the current EDIT server. All editing requests made within CodeCenter will be sent to **SEDIT**.

The `CENTER_XXX` commands are intended to be used with the CodeCenter 4.x release.

Please see the `SABER_XXX` commands when running CodeCenter 3.x.

Note that since `CENTER_Init` is dependent on another vendor's product, future releases of CodeCenter may not be compatible with this interface.

See Also: `CENTER_END`, `CENTER_SEND`, `LISTEN`, `SABER_END`, `SABER_INIT`, `SABER_SEND`

1. Saber-C and CodeCenter are trademarks of CenterLine Software, Inc. The CodeCenter integration is not available on all platforms and all operating systems.

CENTER_Send - Send Command to CodeCenter

`CENTER_Send cmd` sends `cmd` to the CodeCenter[1] CLMS session which has been recognized by the `CENTER_INIT` command.

Available on: **UNIX**

If no connection has been established with a CenterLine CLMS session, **SEDIT** executes a `CENTER_INIT` command. Then, **SEDIT** sends `cmd` to that session.

The file "`sedit.menu`" contains the following lines to uncomment if you are using CodeCenter:

```
"CENTER" MENU
       "load  "  MENU
                       ".c" center_send load $fn.c
                       ".o" center_send load $fn.o
       "load  "  END
       "unload"  center_send unload $fn
       "swap  "  center_send swap $fn
       "stop  "  MENU
                  "stop in"  center_send stop in $fn
                  "stop at"  Center_stopat
       "stop  "  END
       "ini   "  center_init
       "list  "  center_send list $fn
       "end   "  center_end
"CENTER" END
```

1. Saber-C and CodeCenter are trademarks of CenterLine Software, Inc.

Center_stopat is the "$xhome/xmac/Center_stopat.ex" macro, and sets a stop in the current file at the cursor location:

```
#! /bin/csh -f
#
#  Center_stopat: sets a stop at the cursor line
#


set cursor = `extract cursor`

if ( $cursor[4] == -1 ) then
   sends 'emsg  .... Center_stopat: invalid cursor position'
   exit 0
endif

set fname = `extract fname`
set ftype = `extract ftype`

set a = 'center_send stop "'"$fname[2]""$ftype[2]"'":'$cursor[4]
sends "$a"
```

The CENTER_XXX commands are intended to be used with the CodeCenter 4.x release.

Please see the SABER_XXX commands when running CodeCenter 3.x.

See Also: CENTER_END, CENTER_INIT, LISTEN, SABER_END, SABER_INIT SABER_SEND

CFirst - Move Column Pointer

CFirst	moves the column pointer to the beginning of the zone.

See Also: ZONE

Change (XEDIT MODE) - Change String

```
Change      /string1/string2{/{target {N|*} {P}}}
XEDChange
```

changes `string1` with `string2`.

Scope: `Display`

When `MODE COMMAND XEDIT` is in effect, `CHANGE` calls the XEDIT mode `XEDCHANGE` command. `PDFCHANGE` may be used to call the ISPF/PDF mode `CHANGE` command.

`/` may be replaced with any delimiting character that does not appear in the character strings involved in the replacement.

`target` defines the number of lines to be scanned for a match. Lines are changed starting with the current line, up to but not including the target line. `target` may be one of the following:

`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`+*` or `*`	The end of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the `LOCATE` command on page 303 for a precise string expression definition.

When `target` is omitted, all lines between the current line and the end of file will be scanned. However, if `MODE CHANGE ONE` is in effect, only the first line will be changed.

`N` is the number of occurrences of `string1` to be changed on each line.
If omitted, all occurrences of `string1` will be changed. However, if `MODE CHANGE ONE` is in effect, only the first occurrence will be changed.
If specified as `*`, all occurrences of `string1` will be changed.

`P` is the relative number of the first occurrence of `string1` to be changed in each line. Its default value is 1.

When `string1` is omitted, `string2` is inserted in the column which has a value defined by the first `ZONE` command operand (initially 1).

When `HEX ON` is in effect, the `string`*`i`* operands may be entered as hexadecimal values.

Examples:

`c /i=2/i=3/`	will turn `"i=2"` in `"i=3"`
`c .a=b/3.a=c/3.`	will turn `"a=b/3"` in `"a=c/3"`
`c ./**/..`	will delete all `"/**/"` strings
`c /test// :100 1 2`	will delete the second `"test"` occurrence in each line until line 100
`c //string`	will insert `string` in the first zone column
`c /x'31'/x'32'`	with `HEX ON` in effect, changes all "`1`" with "`2`".
`c/k/i//if`	will turn "`k`" in "`i`" until the first line containing the "`if`" string.

`arbchar on @`
`zone 25 40`
`c/@//**`
	will remove the columns 25 to 40.

If `CASE CIGNORE` is in effect, **SEDIT** will not consider capitalization when changing strings.

Example:

```
case ci
c/Old/new/
```

will change `old` with `new`.

Note: The ZONE command allows the user to choose the starting and ending columns to be scanned.

See Also: ARBCHAR, BEEP, CASE, CN, HEX, LOCATE, MODE, RCHANGE, SRCHANGE, SCHANGE, SCN, STAY, ZONE

Change (ISPF MODE)- Change String

```
Change    str1 str2 {range}{NEXT }  {CHARS } {X } {col1 {col2}
PDFChange               {ALL  }  {PREFIX} {NX}
CHG                     {FIRST}  {SUFFIX}
                        {LAST }  {WORD                  }
                        {PREV }
```

When MODE COMMAND ISPF is in effect, CHANGE calls the ISPF mode PDFCHANGE command. XEDCHANGE may be used to call the XEDIT mode CHANGE command.

CHANGE changes str1 with str2.

When CHANGE encounters a group of nonblank characters separated by more than one blank, CHANGE attempts to maintain the positional relationship between groups.

For example, the following data and commands:

```
1         abc1              def
333       zcr333            kfl

====> chg 1 AAA all
====> chg 333 B all
```

would result in:

```
AAA       abcAAA            def
B         zcrB              kfl
```

str1 and str2 may be one of the following:

***** (str1 only) The string used with the last FIND/EXCLUDE/CHANGE command.

Simple string
Any series of characters not starting with a single or double quote (' or ") and not containing any embedded blanks. The search will be case insensitive.

Delimited string
Any string enclosed by single or double quotes. The search will be case insensitive.

Hexadecimal string
Any delimited string of valid hexadecimal characters, preceded or followed by the character X, such as X'3132' or '3132'x. The search will be case sensitive.

Character string

Any delimited string, preceded or followed by the character C, such as C'ab cd' or 'ab cd'c. The search will be case sensitive.

Picture string (str1)

Any delimited string, preceded or followed by the character P, such as P'ab cd' or 'ab cd'p. The search will be case sensitive.
Within a picture string, the following special characters may be used:

=	means any character.
~	means any character that is not a blank.
.	means a character which generally cannot be displayed. **SEDIT** will consider this any character which has a decimal value of less than 32.
#	means any numeric character.
-	means any non-numeric character.
@	means any alphabetic character.
<	means any lowercase alphabetic character.
>	means any uppercase alphabetic character.
$	means any special character, neither alphabetic or numeric.

Picture string (str2)

Any delimited string, preceded or followed by the character P, such as P'ab cd' or 'ab cd'p.
Within a picture string, the following special characters may be used:

=	means the same character as in str1.
<	means the same character as in str1 translated in lowercase.
>	means the same character as in str1 translated in uppercase.

str2 must be the same length as str1.

CHANGE considers the following arguments:

range Two labels that identify the lines to be searched for.
A label may be created by typing a .xxxx string on a prefix zone, or by using the XEDIT POINT command described on page 335.
A label may also be one of the ISPF/PDF predefined labels:

.zf or .zfirst	the first line.
.zl or .zlast	the last line.
.zcsr	the cursor line

When omitted, range defaults to .zfirst .zlast.

NEXT Starts at the first position after the current cursor location and searches forward. NEXT is the default. When the cursor is not located on the data, the search starts from the first displayed line.

ALL Starts at the top of the file and searches forward to find all occurrences of the string.

FIRST Starts at the top of the file and searches forward to find the first occurrence of the string.

LAST Starts at the bottom of the file and searches backward to find the last occurrence of the string.

PREV Starts at the cursor location and searches backward to find the previous occurrence of the string. When the cursor is not located on the data, the search starts from the last displayed line

CHARS Locates `str` anywhere the characters match. This is the default.

PREFIX Locates `str` at the beginning of a word:
`find ab` matches "`abc`", but does not match "`ab`" or "`cabd`" or "`dab`".

SUFFIX Locates `str` at the end of a word:
`find ab` matches "`cab`", but does not match "`ab`" or "`cabd`" or "`abc`".

WORD Locates `str` as a whole word:
`find ab` matches "`d ab e`", but does not match "`cabd`" or "`abc`".

X Scans only lines that are excluded from the display.

NX Scans only lines that are not excluded from the display.

col1 and **col2**

The columns `FIND` is to search. When omitted, the columns are limited by the `BOUNDS` setting described on page 159.

Example:

```
chg p'>###str' p'<===abc' all
```
could change "`T123str`" with "`t123abc`".

Return Codes:

0	Normal
4	String Not Found
5	***** has been used on the first `CHANGE` call
6	Invalid Hexadecimal String
7	Invalid Label
12	Syntax Error

See Also: `BOUNDS`, `EXCLUDE`, `FIND`, `SEEK`, `VERIFY`

CInsert - Insert Characters

`CInsert text` inserts characters at the column pointer position.

The column pointer must be in the ZONE range.

Example:

Current line:

```
00001  if ( a == 1 )
       <...+....1..|.+....2....+....3....+....4....+....5....+....6

=====> ci || a == 2 (one blank typed in after the 2)

00001  if ( a == 1 || a == 2 )
       <...+....1..|.+....2....+....3....+....4....+....5....+....6
```

See Also: ZONE

CLAst - Move Column Pointer

`CLAst` moves the column pointer to the end of the zone.

Examples:

```
=====> ZONE 2 30

Current line:

00001  i = 3;
       .<..|....1....+....2....+....>....+....4....+....5....+....6

=====> CLAST

00001  i = 3 ;
       .<..+....1....+....2....+....|....+....4....+....5....+....6
```

See Also: `ZONE`

CLEARErrors - Clear Compiling Errors

`CLEARErrors` removes the line symbolic names assigned by the `COMPILE` command.

See Also: `COMPILE`

CLocate - Locate Characters

`CLocate c-target` searches for `c-target`.

Scope: `Display`

`CLOCATE` scans the file searching for the column target `c-target`, and moves the column pointer to that target. The search starts with the column following or preceding the column pointer in the current line.

The target must be in the `ZONE` range in order to be located.

`c-target` may be one of the following:

`:N`	moves the column pointer to column `N`.
`-N`	moves the column pointer `N` columns to the left.
`{+}N`	moves the column pointer `N` columns to the right.
`/text{/}`	searches the string `text`.
`-/text{/}`	searches backward the string `text`.
`\text{/}`	searches the word `text`. `"\i/"` will spot `"i"` in `"i=3"` but not in `"if("`.
`-\text{/}`	searches backward the word `text`.

If `STREAM ON` is in effect, **SEDIT** searches each line on the file. If `STREAM OFF` is in effect, **SEDIT** searches only the current line.

Example:

Current line:

```
00001  i = 3
       <|..+....1....+....2....+....3....+....4....+....5....+....6

=====> CL/3

00001  i = 3
       <...|....1....+....2....+....3....+....4....+....5....+....6
```

See Also: `STREAM`, `ZONE`

CLOSEConsole - Close the Console

Available on: WINDOWS

When an **S/REXX** macro uses a standard output statement within a **WINDOWS** environment, such as a SAY statement, **SEDIT** creates a console window to display the output.

CLOSECONSOLE removes such a console.

CMDline - Set the Command Line Position

CMDline ON | OFf | Top | Bottom changes the command line position.

Initial value: ON BOTTOM
Level: View

CMDLINE ON enables the command line on the screen at its previous location.

CMDLINE OFF removes the command line from the screen.

CMDLINE TOP sets the command line on the top of the logical screen.

CMDLINE BOTTOM sets the command line on the bottom of the logical screen.

When CMDLINE is OFF, using the HOME or CURSOR HOME command restores the command line in order to let the user process a command. Once the command is processed, the command line is removed. Using the ? command has the same effect.

The command line is always displayed when no file is currently being edited.

Note that the CURSOR HOME command is mapped to the F10 key, and the ? command is mapped to the F9 key.

Examples:
```
cmd t
cmdline off top
```

See Also: CURSOR, HOME, ?, ?I

CN - Change Name String

`CN /string1/string2{/{target {N|*} {P}}}`
changes name `string1` with `string2`.

Scope: `Display`

A name is a string which is preceded or followed by an invalid C variable character. This command is very useful in modifying a variable.

`/` may be any delimiting character that does not appear in the character strings involved in the replacement.

`target` defines the number of lines to be scanned for a match. Lines are changed starting with the current line, up to but not including the target line. `target` may be one of the following:

`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`+*` or `*`	The end of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

When `target` is omitted, all lines between the current line and the end of file will be scanned. However, if `MODE CHANGE ONE` is in effect, only the first line will be changed.

`N` is the number of occurrences of `string1` to be changed on each line.

If omitted, all occurrences of `string1` will be treated. However, if `MODE CHANGE ONE` is in effect, only the first occurrence will be changed.

If specified as `*`, all occurrences of `string1` will be treated.

`P` is the relative number of the first occurrence of `string1` to be changed in each line. Its default value is 1.

When `string1` is omitted, `string2` is inserted in the column which has a value defined by the first `ZONE` command operand (initially 1).

When `HEX ON` is in effect, the `stringi` operands may be entered as hexadecimal values.

Example: `cn /i/j/` will turn name `"i"` in `"j"` but will leave unchanged string `"if"`.

If `CASE CIGNORE` is in effect, **SEDIT** will not consider capitalization when changing strings.

Example:
```
case ci
cn/Old/new/
```
will change `old` with `new`.

Note: The `ZONE` command allows the user to choose the starting and ending columns to be scanned.

See Also: ARBCHAR, CASE, CHANGE, HEX, LOCATE, MODE, SCHANGE, SCN, STAY, ZONE

COLor - Set Color

`COlor ON|OFF`	enables / disables color.
`COlor field|* color`	associates a specific `color` with the `field` area, or with all fields when `*` is specified.
`COlor colorid r g b`	changes the red/green/blue setting for the color `colorid`.

Initial value: `ON`
Level: `Global`

`Color off` must be included in your `profile.sedit` file when you use a grey scale monitor.

`field` can be any of the fields listed below:

For the file editor:

`Arrow`	the arrow pointing to the command line.
`CMdline`	the line where the commands are entered.
`CURLine`	the current line.
`CURrent`	when no message is displayed, the message field shows the files currently in the editing ring. The file actually displayed will be highlighted with the color specified.
`CURSor`	the cursor and the display of the `INSERT` status.
`Edited`	when no message is displayed, the message field shows the files currently in the editing ring. The files not displayed will be highlighted with the color specified when modifed.
`Filearea`	the file data area, excluding the current line.
`Idline`	the file identification on line 1 on the logical screen.
`MOd`	the field indicating the number of file modifications.
`MSgline`	the field used to display messages.
`Nocurrent`	when no message is displayed, the message field shows the files currently in the editing ring. The files not displayed will be highlighted with the color specified when not modifed.
`PDelete`	the pending-delete selections.
`POint`	the symbolic names in the prefix area.
`PEnding`	the pending commands in the prefix area.
`PFline`	the function keys line.
`PRefix`	the prefix area.
`REnd`	the last character selected with a rectangular selection.
`RStart`	the first character selected with a rectangular selection.
`SCale`	the scale line.
`SHadow`	the shadow lines resulting from selective editing.
`SIze`	the field indicating the file size.
`Tabline`	the line displaying tabulations.

For the directory editor:

FL_Cmdline	the lines where the commands are entered.
FL_Directories	the lines where the accessed directories are displayed.
FL_Idline	the level identification on line 1 on the screen.
FL_MOde	the field where the file modes are displayed.
FL_MSgline	the field used to display messages.
FL_Names	the field used to display the filenames.
FL_Pfline	the function keys line.
FL_Removed	the files which have been removed by the rm command.
FL_Size	the field where the file sizes are displayed.

For the tree editor:

TR_Box	the color used to draw a box around a directory name.
TR_CPBox	the color used to draw a box after selecting it for a directory copy or move operation.
TR_CUrrent	the color used to draw a box around the current directory.
TR_HBox	the color used to highlight a box when moving the mouse pointer with a key depressed.
TR_HIdden	the color used to draw a box around a directory with hidden subdirectories.

color can be any one of the following colors:

Aquamarine	INdianred	Orange
BEige	Indigo	PALEGoldenrod
BLAck	KHaki	PALETurquoise
BLUe	LAwngreen	PInk
BRown	LEmonchiffon	PUrple
CAdetblue	LIGHTCyan	ROSybrown
CHArtreuse	LIGHTGOLDENRODYellow	ROYalblue
CHOcolate	LIGHTGoldenrod	Red
COral	LIGHTSEagreen	SADdlebrown
Cyan	LIGHTSLateblue	SALmon
DARKGOLdenrod	MAGENTA2	SIenna
DARKOLIvegreen	MAGenta	SLATEBlue
DARKSLATEBlue	MAROON2	SLATEGray
DARKSLATEGray	MARoon	SPringgreen
DEeppink	MEDIUMAquamarine	STeelblue
DImgray	MEDIUMSEagreen	TURquoise
FIrebrick	MEDIUMSPringgreen	VIOLETRed
FOrestgreen	MIdnightblue	WHEat
GOld	MOccasin	White

```
Green                OLivedrab                Yellow
HOtpink              ORchid
```

In addition, "color background r g b" and "color foreground r g b" may be used to change the background and foreground colors.

r g b can be any integer between 0 and 255. The WHITE and BLACK colors cannot be changed. WHITE is always 255 255 255, and BLACK 0 0 0.

*Initial values (***UNIX***):*

```
ARROW                PINK
CMDLINE              BLACK
CURLINE              RED
CURRENT              MAROON
EDITED               RED
FILEAREA             BLACK
IDLINE               MAROON
MOD                  BLUE
MSGLINE              RED
NOCURRENT            BLUE
POINT                RED
PDELETE              MAGENTA2
PENDING              BLUE
PFLINE               MAROON
PREFIX               MAROON2
REND                 ORANGE
RSTART               GREEN
SCALE                GREEN
SHADOW               BLUE
SIZE                 MAROON
TABLINE              BLUE
FL_CMDLINE           BLACK
FL_DIRECTORIES       MAROON2
FL_IDLINE            MAROON
FL_MODE              BLACK
FL_MSGLINE           RED
FL_NAMES             BLACK
FL_PFLINE            MAROON
FL_REMOVED           BLUE
FL_SIZE              MAROON2
TR_BOX               MAROON2
TR_CPBOX             MAGENTA
TR_CURRENT           BLUE
TR_HBOX              RED
```

```
TR_HIDDEN               MAGENTA

AQUAMARINE              127  255  212
BACKGROUND              255  255  190
FOREGROUND                0    0    0
BEIGE                   245  245  220
BLUE                      0    0  255
BROWN                   165   42   42
CADETBLUE                95  158  160
CHARTREUSE              127  255    0
CHOCOLATE               210  105   30
CORAL                   255  127   80
CYAN                      0  255  255
DARKGOLDENROD           184  134   11
DARKOLIVEGREEN           85  107   47
DARKSLATEBLUE            72   61  139
DARKSLATEGRAY            47   79   79
DEEPPINK                255   20  147
DIMGRAY                 105  105  105
FIREBRICK               178   34   34
FOREGROUND                0    0    0
FORESTGREEN              34  139   34
GOLD                    255  215    0
GREEN                     0  255    0
HOTPINK                 255  105  180
INDIANRED               205   92   92
INDIGO                    0  115  255
KHAKI                   240  230  140
LAWNGREEN               124  252    0
LEMONCHIFFON            255  250  205
LIGHTCYAN               224  255  255
LIGHTGOLDENROD          238  221  130
LIGHTGOLDENRODYELLOW    250  250  210
LIGHTSEAGREEN            32  178  170
LIGHTSLATEBLUE          132  112  255
MAGENTA                 128    0  128
MAGENTA2                255    0  255
MAROON                  232  157    0
MAROON2                 133   74    0
MEDIUMAQUAMARINE         50  100   85
MEDIUMSEAGREEN           60  179  113
MEDIUMSPRINGGREEN         0  250  154
MIDNIGHTBLUE             25   25  112
```

MOCCASIN	255	228	181
OLIVEDRAB	107	142	35
ORANGE	192	64	0
ORCHID	218	112	214
PALEGOLDENROD	238	232	170
PALETURQUOISE	175	238	238
PINK	185	125	107
PURPLE	128	0	178
RED	255	0	0
ROSYBROWN	188	143	143
ROYALBLUE	65	105	225
SADDLEBROWN	139	69	19
SALMON	250	128	114
SIENNA	160	82	45
SLATEBLUE	106	90	205
SLATEGRAY	112	128	144
SPRINGGREEN	0	255	127
STEELBLUE	70	130	180
TURQUOISE	32	112	104
VIOLETRED	8	32	144
WHEAT	245	222	179
WHITE	255	255	255
YELLOW	200	200	0

Initial values (WINDOWS):

ARROW	PINK
CMDLINE	BLACK
CURLINE	RED
CURRENT	MAROON
CURSOR	BLUE
EDITED	RED
FILEAREA	BLACK
FL_CMDLINE	BLACK
FL_DIRECTORIES	MAROON2
FL_IDLINE	MAROON
FL_MODE	BLACK
FL_MSGLINE	RED
FL_NAMES	BLACK
FL_PFLINE	MAROON
FL_REMOVED	BLUE
FL_SIZE	MAROON2
IDLINE	MAROON
MOD	BLUE

```
MSGLINE                RED
NOCURRENT              BLUE
PDELETE                MAGENTA2
PENDING                BLUE
PFLINE                 MAROON
POINT                  RED
PREFIX                 MAROON2
REND                   ORANGE
RSTART                 GREEN
SCALE                  RED
SHADOW                 BLUE
SIZE                   MAROON
TABLINE                BLUE
TR_BOX                 MAROON2
TR_CPBOX               MAGENTA
TR_CURRENT             BLUE
TR_HBOX                RED
TR_HIDDEN              MAGENTA

BACKGROUND             255 255 190
FOREGROUND               0   0   0
AQUAMARINE             127 255 212
BEIGE                    4 130  92
BLUE                     0   0 255
BROWN                  165  42  42
CADETBLUE               95 158 160
CHARTREUSE              10 184  57
CHOCOLATE              210 105  30
CORAL                  255 127  80
CYAN                   0   181 181
DARKGOLDENROD          184 134  11
DARKOLIVEGREEN          85 107  47
DARKSLATEBLUE           72  61 139
DARKSLATEGRAY           47  79  79
DEEPPINK               255  20 147
DIMGRAY                105 105 105
FIREBRICK              178  34  34
FORESTGREEN             34 139  34
GOLD                   255 215   0
GREEN                    0 255   0
HOTPINK                255 105 180
INDIANRED              205  92  92
INDIGO                   0 115 255
```

```
KHAKI                   240 230 140
LAWNGREEN               124 252   0
LEMONCHIFFON            170  58 252
LIGHTCYAN                 0 202 202
LIGHTGOLDENROD          238 221 130
LIGHTGOLDENRODYELLOW    223  26 174
LIGHTSEAGREEN            32 178 170
LIGHTSLATEBLUE          132 112 255
MAGENTA                 128   0 128
MAGENTA2                128 128   0
MAROON                   66  45  19
MAROON2                 133  74   0
MEDIUMAQUAMARINE         50 100  85
MEDIUMSEAGREEN           60 179 113
MEDIUMSPRINGGREEN         0 250 154
MIDNIGHTBLUE             25  25 112
MOCCASIN                255 228 181
OLIVEDRAB               107 142  35
ORANGE                  192  64   0
ORCHID                  218 112 214
PALEGOLDENROD           238 232 170
PALETURQUOISE           175 238 238
PINK                    185 125 107
PURPLE                  128   0 178
RED                     255   0   0
ROSYBROWN               188 143 143
ROYALBLUE                65 105 225
SADDLEBROWN             139  69  19
SALMON                  250 128 114
SIENNA                  160  82  45
SLATEBLUE               106  90 205
SLATEGRAY               112 128 144
SPRINGGREEN               0 255 127
STEELBLUE                70 130 180
TURQUOISE                32 112 104
VIOLETRED                 8  32 144
WHEAT                   245 222 179
WHITE                   255 255 255
YELLOW                  200 200   0
```

The macro `{install-dir}/xmac/resetcolor.x` may be used as a template for setting colors.

The macro `{install-dir}/xmac/reverse.x` may be used to work in reverse video mode.

COMmand - Execute a Command

`COMmand command` executes an **SEDIT** command without first checking if `command` is a macro or a synonym.

Normally, **SEDIT** gives priority to a macro or a synonym over a built-in command. `COMMAND` is useful to override a macro with the same name as a built-in command.

You may, for example, create a `cd` macro which will execute a set of `ACCESS` and `DACCESS` commands depending on the name of the directory passed to it, and then issue the real `command cd` command without calling itself recursively.

Return Codes:	nn	Return code of the command specified as operand
	-1	Command not found
	0	Normal

See Also: `MACRO`, `SYNONYM`

COMPIle - Compile a Program

`COMPIle cmd {&}`	executes the **UNIX** or **WINDOWS** command `cmd`, and displays its result in an **SEDIT** window.
`COMPIle -Load`	loads the `sedit_compile.rules` file.

Batch Mode: `Not Available`

Without a final `&`, `COMPILE` first executes the `cmd` string in a subshell, like the `shell` command would do.

If the file `sedit_compile.rules` has not yet been loaded, **SEDIT** loads it. Then, if the screen is not yet split, **SEDIT** splits the screen horizontally and displays the error messages issued by the command `cmd` in the upper screen.

SEDIT will match these error messages with the rules described in the `sedit_compile.rules` file. It will set the current line to the line containing the first error, and place the cursor on the current line.

See the `R/` command for a complete regular expression syntax description.

Note: **SEDIT** uses `LEGACY` regular expressions to parse `sedit_compile.rules`.

Calling the `NEXTERROR` command afterwards will move the current line and the cursor to the next error in the file. The `NEXTERROR` command is assigned by default to the `^-` key.

Every line in error will be assigned a symbolic name equal to its line number, displayed in red in the prefix area, and used by the `NEXTERROR` command. This allows `NEXTERROR` to find the lines in error even when the user adds or deletes lines. These symbolic names can be removed with the `CLEARERRORS` command.

With a final `&`, compile executes `cmd` in the background and displays the error messages in the window **SEDIT** was started from on **UNIX** systems[1].

On **WINDOWS** systems, the `cmd` application may create its own console.

`COMPILE -LOAD` searches for the `sedit_compile.rules` file in the current directory. If not found, **SEDIT** searches in the home directory and if still not found, in the installation directory. Once found, this file will be loaded and used as a pattern for error matching.

1. This facility is not available on **UNIX** ASCII terminals, since the `cmd` output would overwrite the **SEDIT** screen.

This is an example of the sedit_compile.rules file on SUN workstations:

```
#
#  Rules for FORTRAN files
#
f:
 line [0-9][0-9]*

F:
 line [0-9][0-9]*

#
#  Rules for C files
#
c:
 line [0-9][0-9]*
 [0-9][0-9]*: Can't

#
# A rule for lint
#

 \.c([0-9][0-9]*)

h:
 line [0-9][0-9]*
 \.c([0-9][0-9]*)
 \.c([0-9][0-9]*)
```

Blank lines or lines starting with a # are ignored.

```
f:
```

matches any file with a f filetype, or in other words, a FORTRAN file. The subsequent lines, until the next filetype descriptor, are regular expressions matching the error messages issued by the compiler. These rules must start with a blank or a tabulation, which will not be part of the rule.

For example:

```
line [0-9][0-9]*
```

matches a line with the string "`line `", followed by at least one number between 0 and 9, such as:

```
"foo.f", line 1: Error: unclassifiable statement
```

The standard profile binds the `xmac/smart_comp.sedit` macro to the `^c` key on **UNIX** stations, and on `^C` (`Shift-Control-c`) on **WINDOWS** systems.

This macro checks for the current filetype, and calls the `COMPILE` command with the usual `C`, `C++` or `FORTRAN` compiler.

The `^g` key does the same using the debug version of this macro (`xmac/smart_compd`).

`^G` and `^C` will compile the current file in the background on **UNIX** systems.

A compilation may be cancelled by hitting the `^c` key again.

The user can unsplit the screen afterwards by hitting the `^w` key.

Special Options

When finding an error, most compilers print first the name of the source file, and then the number of the line in error. Some compilers may print a line such as:

```
line23(13)
```

where `line` is not the name of the source file, and where the first number is not the error line number. To deal with such compilers, **SEDIT** accepts the following syntax within the rules file:

```
b:2 nosource
 line[0-9][0-9]*([0-9][0-9]*)
```

The numerical value after the colon, **2** in this example, indicates that the second numerical value is the line number.

The **nosource** keyword indicates that the source file is not displayed within the error message.

See Also: CLEARERRORS, C_SCRH, C_SRCRJ, C_SCRV, MESSAGESDIR, NEXTERROR, R/, SCREEN, SHELL

COMPLete - File Name Completion

`COMPLete {Reverse}` allows command line file name completion.

Batch Mode: `Not Available`

The `COMPLETE` command must be assigned to a function key, which is called here the trigger. When a partial file name is typed in the command field, hitting the trigger will make **SEDIT** try to fill in the remaining characters of a matching file name from the current directory, or from the directory typed in the command field when the partial file name contains a "/" character.

If several matches are possible, **SEDIT** will beep and display the first match. Hitting again the trigger will display the next match. Hitting Shift-trigger, which must be assigned the "`COMPLETE REVERSE`" command, will reverse the display order.

`COMPLETE` is assigned to the following keys, according to the workstation in use:

SUN	R1 (PrintScreen)
IBM RS/6000	R2 (ScrollLock)
SiliconGraphics	R2 (ScrollLock)
DecStations	L3
HP	L6
HP with PC keyboards	R2 (ScrollLock)
WINDOWS	R2 (ScrollLock)

COMPRess - Compress Data

`COMPRess` compresses data for an APL function or operator in the same way ☐FX would do, but in respect to trailing comments position.

Scope: `All file`

This command is mapped to the `F11` key by default when running under APL.

Example:

Before using `F11`:

```
[66]   GDTEST fsqury 4 1 8
[67]   LAF HTF LAC HTC LEFT TOP LA HT←RC[2 3 4 5 6 7 8 9]
[68]
[69]   LAD    HTD←DIM[2   1]+  0 1          ⍝ This is a trailing comment
[70]   ⍋  (LAD <0)/   'LAD←¯1+⌊LAF÷LAC'     ⍝ This is another trailing comment
[71]   ⍋  (HTD  ≤0) /'HTD←¯1+⌊HTF÷HTC'      ⍝ Zoom
[72]   PX PY←DIM[3 4]
```

After using `F11`:

```
[66]   GDTEST fsqury 4 1 8
[67]   LAF HTF LAC HTC LEFT TOP LA HT←RC[2 3 4 5 6 7 8 9]
[68]
[69]   LAD HTD←DIM[2 1]+0 1                  ⍝ This is a trailing comment
[70]   ⍋(LAD<0)/'LAD←¯1+⌊LAF÷LAC'            ⍝ This is another trailing comment
[71]   ⍋(HTD≤0)/'HTD←¯1+⌊HTF÷HTC'            ⍝ Zoom
[72]   PX PY←DIM[3 4]
```

COpy (XEDIT MODE) - Copy File Lines

```
COpy target1 target2
XEDCOpy target1 target2
```

When MODE COMMAND XEDIT is in effect, COPY calls the XEDIT mode XEDCOPY command. PDFCOPY may be used to call the ISPF/PDF mode COPY command.

COPY copies the number of lines defined by target1, starting from the current line, at the location defined by target2.

The last copied line becomes the current line.

target may be one of the following:

:N	Up to but not including the Nth line.
N or +N	N lines.
-N	Up N lines.
+* or *	The end of file.
-*	The top of file.
.symb	The line which has been assigned the .symb symbolic name by using the POINT command, or a .symb prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

Examples:

```
copy 2 :5
copy /str /main
```

copies 2 lines after the line 5.
copies the lines up to but not including the str string after the line including the main string.

Return Codes:

0	Normal
2	Target Not Found
5	Invalid Operand

COpy (ISPF MODE) - Copy Data

```
COpy     {file}     {AFTER label}
PDFCOpy             {BEFORE label}
```

Batch Mode: Not Available

When MODE COMMAND ISPF is in effect, COPY calls the ISPF mode PDFCOPY command. XEDCOPY may be used to call the XEDIT mode COPY command.

COPY specifies a file to be copied into the data being edited.

`file` A file. **SEDIT** will first search for it in the current directory, and then in the directories described in the PATH environment variable, or accessed by using the ACCESS command.
When `file` is omitted, **SEDIT** displays the following fullscreen panel:

```
------------------------------ COPY ------------------------------

Copy from file ===>

First line     ===>

Last  line     ===>


Press Enter to copy, F3 or ^c to cancel
```

The user must specify the file name, and the first and last line to be copied.

`AFTER label`
The data will be copied after the specified label.
A label may be created by typing a `.xxxx` string on a prefix zone, or by using the XEDIT POINT command described on page 335.
A label may also be one of the ISPF/PDF predefined labels:

`.zf` or `.zfirst`	the first line.
`.zl` or `.zlast`	the last line.
`.zcsr`	the cursor line.

`BEFORE label`
The data will be copied before the specified label.

When a destination label is not specified, the user must enter an A (or F when MODE PREFIX XEDIT in effect) or an B (or P) in a prefix zone to specify the destination.
Specifying a prefix destination can be done either before or after using the COPY command.

Examples:
```
copy ./foo1 after .a
copy
copy before .zcsr
```

COUnt - Count String Occurrences

```
COUnt /str{/} {target}
```

COUNT displays the number of times a the str string appears in the lines defined by target, starting from the current line.

/ is the first non-blank character found after the COUNT command.

target may be one of the following:

:N	Up to but not including the Nth line.
N or +N	N lines.
-N	Up N lines.
+* or *	The end of file.
-*	The top of file.
.symb	The line which has been assigned the .symb symbolic name by using the POINT command, or a .symb prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

When omitted, target defaults to the value of 1.

COUNT displays the following message:

```
Found nn occurrences.
```

In a macro, the EXTRACT/LASTMSG/ command may be used to retrieve the number of occurrences.

Examples:

```
count/foo//main
```

counts the occurrences up to but not including the line including the `main` string.

```
count;/**/;:5
```

Return Codes:

0	Normal
2	Target Not Found
5	Invalid Operand

See Also: STAY

COVerlay - Selectively Replace Characters

`COVerlay text` selectively replaces characters in the current line with `text`.

An underscore character in the `text` operand replaces the corresponding character in the current line with a blank.

A blank character in the `text` operand does not alter the corresponding character in the current line.

No replacement will take place if the column pointer is out of the ZONE range.

The column pointer will not be moved.

Example:

Current line:

```
00001  i = 3; \* This is a bad comment */
       <...|....1....+....2....+....3....+....4....+....5....+....6

=====> cov 4_;/

00001  i = 4 ;/* This is a bad comment */
       <...|....1....+....2....+....3....+....4....+....5....+....6
```

See Also: ZONE

CREAte - Create a New File

`CREAte {file} {range}` saves data into a new file.

Batch Mode: `Not Available`

`CREATE` saves the data being edited into a file.

`file` A file which does not exist. Use the `REPLACE` ISPF/PDF command when updating an existing file.
When `file` is omitted, **SEDIT** displays the following fullscreen panel:

```
------------------------------ CREATE ------------------------------

Create file ===>


Press Enter to create, F3 or ^c to cancel
```

`range` Two labels that identify the lines to be saved.
A label may be created by typing a `.xxxx` string on a prefix zone, or by using the XEDIT `POINT` command described on page 335.
A label may also be one of the ISPF/PDF predefined labels:

`.zf` or `.zfirst`	the first line.
`.zl` or `.zlast`	the last line.
`.zcsr`	the cursor line

When a range is not specified, the user must enter either a `C`, `CC`, `M` or a `MM` prefix command in a prefix zone to specify the lines to be copied.
Specifying a prefix origin can be done either before or after using the `CREATE` command.

Examples:

```
create ~/foo .a .zl
create .a .b
create
```

See Also: `FILE`, `REPLACE`, `SAVE`

CReplace - Replace Characters

`CReplace text` replaces characters in the current line with `text`.

No replacement will take place if the column pointer is out of the ZONE range.

The column pointer will not be moved.

Example:

Current line:

```
00001  i = 3; \* This is a bad comment */
       <...|....1....+....2....+....3....+....4....+....5....+....6

=====> cr 4;  /

00001  i = 4;  /* This is a bad comment */
       <...|....1....+....2....+....3....+....4....+....5....+....6
```

See Also: ZONE

CTags - Use a Tags File

`CTags ON|OFF {tag_file}` enables or disables the use of `tag_file` as a target file.

Initial value: `ON tags`
Level: `Global`

`CTAGS` without arguments displays the current status.

Very often, programmers include several functions in the same file. For example, the user could have the following `"test.c"` file:

```
main()
{
    printf ("main called\n");
    sub1();
}

sub1()
{
   printf ("sub1 called\n");
}
```

The **UNIX** `"ctags"` command (and *not* the **SEDIT** one) is used to create a `tags` file giving the locations of specified objects in a group of files.

Typing in a terminal window the command `"ctags test.c"` will create the following `"tags"` file:

```
Mtest    test.c  /^main()$/
sub1     test.c  /^sub1()$/
```

This file indicates that the target function `"sub1"` is located in the "`test.c`" file.

If `"ctags"` is `ON`, when starting a new file `"sub1.c"`, **SEDIT** proceeds as follows:

- First, **SEDIT** searches for that file in the current directory.
- If not found**, SEDIT** searches for a file `"tag_file"`.
  If `"tag_file"` is found, **SEDIT** scans it for the target `"sub1"`. The file associated with this target (`"test.c"` in this example), must have the same filetype as the new file (`"c"` in this example).
  If the new file has a `"c"` filetype, the associated file may also have a `"h"` filetype.
- Then, if not found, **SEDIT** will repeat this process in each directory described in the PATH or XPATH environment variable.
- If not found at all, **SEDIT** will create a new file in the editing ring.

Note that unlike the **UNIX** editor **VI**, the user need not specify a `tags` file to be processed when starting a new file.

The user may, for example, just select a letter in the word `sub1`, and use the `S_XED` command (by typing `Control-X`) to load the `"test.c"` file, even if located in another directory. Then, **SEDIT** will set the current line at the location given by the `tags` file searching pattern (here `"/^sub1()$/"`).

If **SEDIT** does not find this pattern, it will display an error message.

CTLCHAR - Define Control Character

```
CTLchar cmd   cc    Escape
                    OFF
                    Protect    {color} {exthi} {Hight|Nohigh|Invisible} {PSs}
                    Noprotect  {color} {exthi} {Hight|Nohigh|Invisible} {PSs}
              OFF
```

Initial value: OFF
Level: Global

CTLCHAR defines a control character which specifies the color, extended highlighting, protection and visibility of a portion of a line reserved with the RESERVED command.

The operands are the following:

cc	is any ASCII character, which will be used as a control character.
OFF	resets all control characters (CTLCHAR OFF), or a specified character (CTLCHAR cc OFF).
Escape	specifies that cc is an escape character: when cc appears in the text, the next character is a control character.
Protect	specifies that the string following cc cannot be modified by the user.
Noprotect	specifies that the string following cc can be modified by the user .
color	the color to be used, as described by the COLOR command. In addition, color may be:

White	same as BLACK
Turquoise	same as MAGENTA

exthi	may be:

BLink	Maintained for **XEDIT** compatibility, but not supported within **SEDIT**.
REVvideo	Displays in reverse video.
Underline	Underlines the displayed characters.
None	No extended highlighting. This is the default.

High	specifies that the string following cc is to be displayed in bold.
Nohigh	specifies that the string following cc is not to be displayed in bold. This is the default.
Invisible	specifies that the string following cc is not to be displayed .

PSs	Maintained for **XEDIT** compatibility, but not supported within **SEDIT**.

Without operands, CTLCHAR displays the control characters in usage.

Examples:

```
ctlchar @ escape
```

defines @ as an escape character.

```
ctlchar & noprotect red revvideo nohigh
reserved m+1 noh Enter your name: @&
```

defines an input red field displayed in reverse video.

See Also: MODE, READ, RESERVED

CURLine - Change Current Physical Line

`CURLine {ON} line`	selects the physical screen `line` to display the current line.

Initial value: `8`
Level: `View`

`ON` is an optional parameter with no special meaning.

`line` can be specified in three ways:

`CUrline n|+n`	selects the line `n` of the view to display the current line, where the first line is line 1.
`CUrline -n`	selects the line `n` from the bottom of the view, where the last line is line -1.
`CUrline M+n|M-n`	selects the line `n` lines above or below the middle line of the view.

Examples:

```
CURLINE                                    2
CURLINE                                   -3
CURLINE                    ON              M
CURLINE M+2
```

CURsor - Move Cursor

```
CURsor |   CMdline          {colno{Priority N}}
       |   Column                 {Priority N}
       |   File             lineo {colno{Priority N}}
       |   Home                   {Priority N}
       |   Screen           lineo {colno{Priority N}}
```

CURSOR moves the cursor to the specified position.

CMdline
: moves the cursor to the command line in the column colno relative to the first command field column. If not specified, colno will be set to 1.

Column
: moves the cursor to the current line in the current column position.

File
: moves the cursor to the specified file line and column position. If colno is not specified and the cursor is within the file area, the cursor will be placed in the same column. Otherwise, the cursor is placed in the first column. If colno is specified as 0, the cursor is placed in the first column of the corresponding prefix field.

Home
: if the cursor is on a data field, it will be moved to the command line. If it is on the command line, it will move to its last position in the file if possible. CURsor Home is a synonym for the HOME command. When CMDLINE is OFF, using the CURSOR HOME command restores the command line to allow the user to pass a command. Once the command is processed, the command line is removed.

Screen
: moves the cursor relative to the beginning of the split screen. If colno is not specified, the cursor will be placed in the same column where it was.

Priority N
: is the priority number assigned to the cursor displacement. When **SEDIT** updates the screen, the highest priority will define the position of the cursor. N should be specified as greater than or equal to 0, and lower than 256. When omitted, N defaults to 257.

When using either Enter or a function Key, the cursor position on the screen is memorized with a priority set to 20.

The various prefix commands move the cursor using the following priorities:

```
A or I    60
E         60
/         50
" or '    40
M         30
C         30
S         30
```

```
< or >    30
G         30
Scale     30
Tabl      30
PU        30
X         30
D         10
```

The set_xedit macro assigns the "ignore cursor cmdline 1 priority 30" string to the Enter (or Return on some keyboards) key.

Note: the screen will be updated only when using the REFRESH command.

See Also: CMDLINE, HOME, REFRESH

C_APLStop - Reverse APL Stop Setting

C_APLStop — reverse the stop setting for the APL function currently edited at the cursor location.

Scope: Display
Batch Mode: Not Available

The prefix command field will be underlined when the stop is on.

This command is mapped to the ^s key by default.

C_APLTrace - Reverse APL Trace Setting

C_APLTrace — reverse the trace setting for the APL function currently edited at the cursor location.

Scope: Display
Batch Mode: Not Available

The data field will be underlined when the trace is on.

This command is mapped to the ^e key by default.

C_Dup - Duplicate Cursor Line

`C_Dup` duplicates the line at the cursor location.

Scope: `Display`
Batch Mode: `Not Available`

This command is mapped to the `^=` key by default.

C_ENDCurl - Goto End of Current Line

`C_ENDCurl` the cursor will be moved to the end of the CURRENT LINE FIELD.

Scope: `Display`
Batch Mode: `Not Available`

This command is mapped to the `S-F6` (`PF18`) key by default.

C_ENDLine - Goto End of Cursor Line

C_ENDLine

If the cursor is in a DATA FIELD or in the command line, it will be moved to the end of the data displayed on that field. If not, it will be moved to the end of the data displayed on the CURRENT LINE FIELD.

Scope: `Display`
Batch Mode: `Not Available`

This command is mapped to the `F6` key by default.

C_ENDS - End Selection

`C_ENDS` extends the selection at the cursor location.

Batch Mode: `Not Available`

If the selection already ends at the cursor location, the selection will be cancelled.

`C_ENDS` is intended to replace the second mouse button when running in ASCII mode.

This command is mapped to the `^e` key by default when running in ASCII mode.

See Also: C_ENDSALL, C_ENDSR, C_STARTS

C_ENDSAll - End Selection at End of Line

C_ENDSAll	extends the selection at the end of the line where the cursor is located.

Batch Mode: Not Available

C_ENDSALL is intended to replace the shifted second mouse button when running in ASCII mode.

See Also: C_ENDS, C_ENDSR, C_STARTS

C_ENDSR - End Rectangular Selection

C_ENDSR	extends the selection at the cursor location, making it rectangular.

Batch Mode: Not Available

If the selection already ends at the cursor location, the selection will be cancelled.

C_ENDSR is intended to replace the second mouse button when running in ASCII mode.

This command is mapped to the ^n key by default when running in ASCII mode.

See Also: C_ENDSALL, C_ENDS, C_STARTS

C_EXT - Extend Field

C_EXT	extends the length of the field selected by the cursor.

Scope: Display
Batch Mode: Not Available

This command is mapped to the F2 key by default.

C_LINEAdd - Add Line

`C_LINEAdd` adds a line below the cursor location.

Scope: `Display`
Batch Mode: `Not Available`

This command is mapped to the `^a` key by default.

C_LINEDel - Delete Line

`C_LINEDel` deletes the line at the cursor location.

Scope: `Display`
Batch Mode: `Not Available`

This command is mapped to the `^d` key by default.

C_SCRH - Split Screen Horizontally

`C_SCRH` splits the screen horizontally at the cursor location.

Batch Mode: `Not Available`

This command is mapped to the `^h` key by default.

See Also: SCREEN

C_SCRJ - Unsplit Screen

`C_SCRJ` restarts with an unsplit screen.

Batch Mode: `Not Available`

This command is mapped to the `^w` key by default.

See Also: SCREEN

C_SCRV - Split Screen Vertically

`C_SCRV` splits the screen vertically at the cursor location.

Batch Mode: `Not Available`

This command is mapped to the `^v` key by default.

See Also: `SCREEN`

C_SPlit - Split/Join Lines

`C_SPLIT {Stay|Nostay}` when the cursor is before the last non-blank character, the line will be split, with indentation if the auto-indent feature is on. When the cursor is after the last non-blank character, the next line will be joined to the current location.

Scope: `Display`
Batch Mode: `Not Available`

If `STAY` is specified, the cursor remains at the same location. Otherwise, the cursor is moved to the new line with proper indentation respect.

This command is mapped to the `F4` key on Sun keyboards, and to the `^s` key on other ones.

See Also: `AUTOI`, `SPLTJOIN`

C_STARTLine - Goto Start of Cursor Line

`C_STARTLine` if the cursor is in a DATA FIELD it will be moved to the start of that field. If not, it will be moved to the start of the CURRENT LINE FIELD.

Scope: `Display`
Batch Mode: `Not Available`

C_STARTS - Start Selection

`C_STARTS` starts the selection at the cursor location.

Batch Mode: `Not Available`

`C_STARTS` is intended to replace the first mouse button when running in ASCII mode.

This command is mapped to the `^b` key when running in ASCII mode.

See Also: `C_ENDS`, `C_ENDSALL` `C_ENDSR`

DACCess- Add Directory to the CDPATH

`DACCess dir {dir2 {..}}` add directories to the `cdpath`.

`DACCESS` adds the `diri` directories to the `cdpath` in which **SEDIT** searches for directories.

When searching for directories, **SEDIT** uses the `cdpath` content. `DACCESS` extends dynamically the `cdpath`.

Note that if a `XCDPATH` environment variable exists when **SEDIT** starts, it is used to initialize the `cdpath`.

If `diri` does not start with a standard directory indicator (/ . ~), **SEDIT** will search first in the current directory and then through the directories described in the `cdpath`.

If `diri` contains blanks, it must be surrounded with quotes or double quotes. If a directory contains a quote or a double quote, the quote must be escaped with a backslash.

Example: Assume your home directory is `"usr/m1",` and `"/usr/m1/dir2"` exists.

`dacc dir2` will add the `"/usr/m1/dir2"` directory.
Then, if "`/usr/m1/dir2/dir3`" exists, typing "`cd dir3`" will change the current directory to it without the need to specify the whole pathname.

`dacc "c:/Program Files"`
Quotes are used to specify a directory with embedded blanks.

See Also: ACCESS, CD, DRELEASE, FLIST, FD, RELEASE, SHOWPATH, SHOWCDPATH

DELete (XEDIT MODE) - Delete Line

`DELete {target}` will delete lines starting with the current line.
`XEDDELete`

Scope: `Display`

When `MODE COMMAND XEDIT` is in effect, `DELETE` calls the XEDIT mode `XEDDELETE` command. `PDFDELETE` may be used to call the ISPF/PDF mode `DELETE` command.

`target` defines the number of lines to be deleted. Lines are deleted starting with the current line, up to but not including the target line. `target` may be one of the following:

`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`-N`	Up `N` lines.
`+*` or `*`	The end of file.
`-*`	The top of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the `LOCATE` command on page 303 for a precise string expression definition.

If `target` is omitted, a value of 1 is assumed.

On a forward delete, the line following the last deleted line becomes the current line. On a backward delete, the line preceding the last deleted line becomes the current line.

Examples:

```
del      deletes one line.
del:5    deletes all lines up to line 4.
del*     deletes the rest of the file.
```

See Also: `ALL`, `SCOPE`, `SELECT`

DELete (ISPF MODE) - Delete Line

```
DELete {ALL} {X} {NX} {range}
PDFDELete
```

deletes lines from the currently edited file.

When MODE COMMAND ISPF is in effect, DELETE calls the ISPF mode PDFDELETE command. XEDDELETE may be used to call the XEDIT mode DELETE command.

DELETE deletes lines from the currently edited file.

ALL deletes all the lines, from the start to the bottom of the file.

range Two labels that identify the lines to be deleted.
A label may be created by typing a .xxxx string on a prefix zone, or by using the XEDIT POINT command described on page 335.
A label may also be one of the ISPF/PDF predefined labels:

.zf or .zfirst	the first line.
.zl or .zlast	the last line.
.zcsr	the cursor line

X deletes only lines that are excluded from the display.

NX deletes only lines that are not excluded from the display.

Examples:

```
delete all
delete all x
delete all nx
delete .a .zcsr x
```

Return Codes:

0	Normal
1	End Of File Reached
5	Invalid Operand

DELAY - Display a String

`DELAY {string}` displays a string in the command field.

This command displays a string in the command field, allowing further editing. Its main usage is with the SET command. If `string` is missing, the command field will be cleared.

Examples: `set r5 delay fn test`

Pressing key `R5` will display "`fn test`" in the command field and set the cursor after "`test`".

`set r1 delay.cursor home`
(`.` is the Control-Line-Feed separator)

Pressing key `R1` will clear the command field, and then restore the cursor position.

DFlist - Call Directory Editor

`DFlist { FN {FT {FM}}}` will call the directory editor upon directories.

Batch Mode: `Not Available`

`DFLIST` only displays directories. See The Directory Editor FLIST on page 465 for further explanations.

See Also: DACCESS, DFLIST, FLIST, FLATH, FLPP, FMACRO, RFLIST

DISPlay - Set Display Range

`DISPlay {n1 {n2}}` will display lines whose selection level falls into the range `n1` through `n2`.

Initial value: `0 0`
Level: `View`

Each line in the file has a number associated with it, called its selection level, which is set to zero by default and may be modified by the commands `ALL` and `SELECT`, and by the prefix commands `X` and `S`. When a line selection level does not fall in the range `n1` through `n2`, it will not be displayed.

If `n2` is omitted, it will assume the value of `n1`.

If `n2` is `*`, it will assume the maximum value `2147483648`.

If both `n1` and `n2` are omitted, the current setting will be displayed.

With `SHADOW ON` (by default) excluded lines are shown by a shadow line indicating the number of excluded lines. With `SHADOW OFF`, excluded lines are not represented.

With `SCOPE DISPLAY` (by default) most **SEDIT** commands and prefix commands will not apply to the excluded lines. With `SCOPE ALL`, commands will apply to all lines.

See Also: `ALL`, `SCOPE`, `SELECT`, `SHADOW`, `VISIBLE`

Down/Next - Scroll Down

`Down {N|*}` will scroll down N lines.

Scope: `Display`

If `N` is omitted, a value of 1 is assumed. `Down *` makes the End Of File the current line.

`Next` is a synonym to the `Down` command.

Return Codes:	0	Normal
	1	End Of File Reached
	5	Invalid Operand

DUPlicat - Current Line Duplication

`DUPlicat {N {target}}` duplicates `N` times the lines defined by `target`.

`DUPLICAT` duplicates `N` times the lines defined by `target` starting with the current line. When `N` or `target` is omitted, a value of 1 is assumed. The last line duplicated becomes the current line.

`target` defines the number of lines to be duplicated. Lines are duplicated starting with the current line, up to but not including the target line. `target` may be one of the following:

`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`+*` or `*`	The end of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

See Also: `C_DUP`

DRELEase - Removes a Directory from the CDPATH

```
DRELEase {dir1 {dir2 ...}}
```

DRELEASE removes from the cdpath directories accessed with the DACCESS command.

If the *diri* directory is not accessed, or is the home directory, DRELEASE silently ignores it.

DRELEASE * removes all the directories from the cdpath, except the home directory.

DRELEASE without arguments scans the cdpath, and removes nonexistent directories.

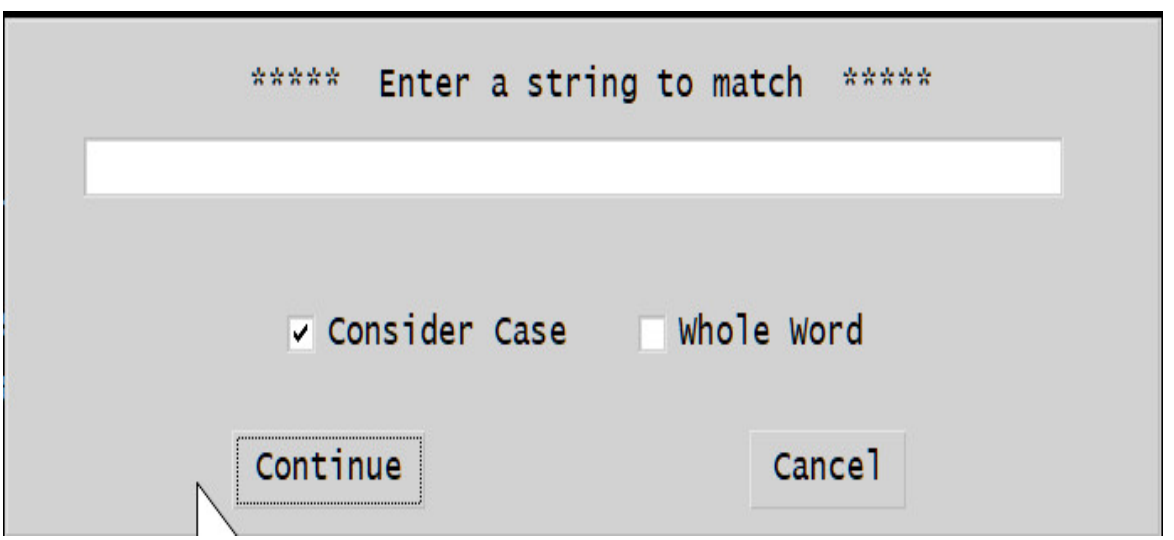
See Also: DACCESS, SHOWCDPATH

DY_All - Start the ALL Dialog Box

`DY_All` uses a dialog box to search for lines containing specified text string.

Batch Mode: `Not Available`

`DY_ALL` displays the following dialog box:



The user must enter a target string in the input field.

SEDIT will set the selection level for every line currently in the scope matching this target to the upper value of the `DISPLAY` range, and to this value plus one for all the other lines, hiding them. **SEDIT** will then put `SCOPE DISPLAY` in effect, and select the first line displayed as the current line. With `SCOPE DISPLAY` in effect, lines that are excluded from the display are also excluded from processing by most **SEDIT** commands and prefix commands. With `SCOPE ALL` in effect, all lines will be processed. If `SHADOW ON` is in effect, a shadow line appears on your display wherever lines have been excluded.

When `Consider Case` is not checked, **SEDIT** will ignore capitalization when matching the target.

When `Whole Word` is checked, **SEDIT** will match a whole word. For example, if `target` is the string "`i`", **SEDIT** will match "`i = 3`", but will not match "`if ()`".

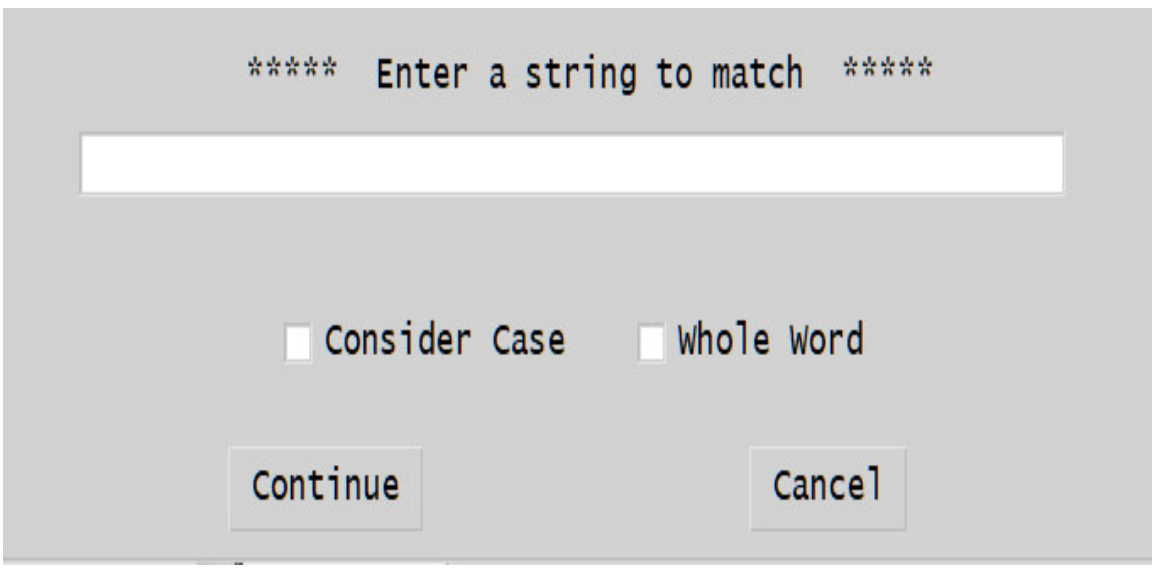
See Also: `ALL`, `DISPLAY`, `DY_EXCLUDE`, `DY_FONT`, `DY_SHOW`, `SCOPE`, `SELECT`, `SHADOW`, `VISIBLE`

DY_Exclude - Start the EXCLUDE Dialog Box

`DY_Exclude` uses a dialog box to search for every line that does not have text matching specified text string.

Batch Mode: `Not Available`

`DY_EXCLUDE` displays the following dialog box:



The user must enter a target string in the input field.

SEDIT will set the selection level for every line currently in the scope **not** matching this target to the upper value of the `DISPLAY` range, and to this value plus one for all the other lines, hiding them. **SEDIT** will then put `SCOPE DISPLAY` in effect, and select the first line displayed as the current line. With `SCOPE DISPLAY` in effect, lines that are excluded from the display are also excluded from processing by most **SEDIT** commands and prefix commands. With `SCOPE ALL` in effect, all lines will be processed. If `SHADOW ON` is in effect, a shadow line appears on your display wherever lines have been excluded.

When `Consider Case` is not checked, **SEDIT** will ignore the capitalization when matching the target.

When `Whole Word` is checked, **SEDIT** will search for whole words. For example, if `target` is the string "`i`", **SEDIT** will not match "`i = 3`", but will match "`if ()`".

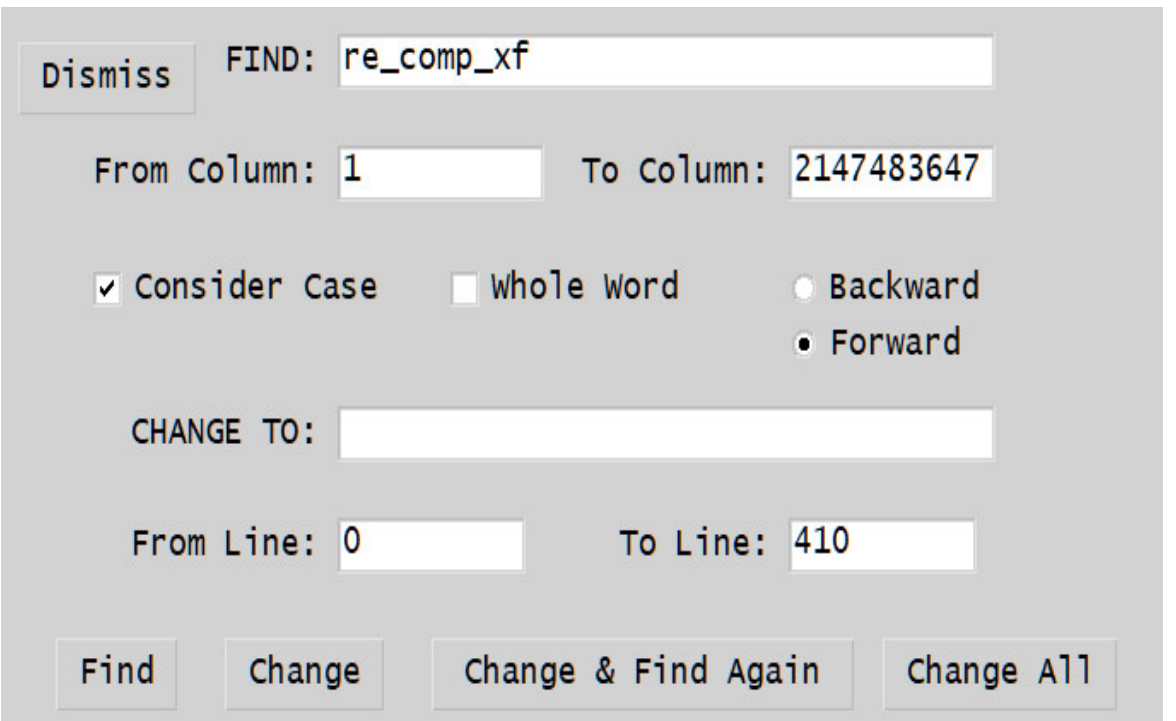
See Also: `ALL`, `DISPLAY`, `EXCLUDE`, `DY_ALL`, `DY_FONT`, `DY_SHOW`, `SCOPE`, `SELECT`, `SHADOW`

DY_FInd - Start the FIND Dialog box

DY_FInd

Batch Mode: Not Available

DY_FIND displays the following dialog box:



The user must enter a target string in the FIND input field.

Clicking on the Find button will select the first matching string in the current file.

Clicking on the Change button will change the selected string with the string entered in the CHANGE TO input field.

The Change & Find Again button does the change, and searches for the next occurrence of the target.

The Change All button changes all the occurrences.

The user may restrict the columns to be searched for by entering values in the From Column and To Column fields. The lines to be searched for are specified in the From Line and in the To Line fields.

See Also: CHANGE, SCHANGE, CN, DY_FONT, SCN, S_FIND

DY_FILL - Start the FILL dialog box

DY_FILL	opens a dialog box to enter a text string which will be used to fill a rectangular area.

The user must make a rectangular selection before calling DY_FILL. See Making a Rectangular Selection on page 125 and on page 128 for more information.

DY_FILL is the /home/xed/xmac/dy_fill.sedit macro.

DY_FOnt - Set the Dialog Font

DY_FOnt fontname	make the various dialog boxes use the fontname font.

Batch Mode: Not Available

See Also: DY_ALL, DY_EXCLUDE, DY_FIND, DY_OPEN, DY_SAVE, DY_SHOW, DY_EXCLUDE, DY_SHOW

DY_LASTFILES - Display Last Edited Files

DY_LASTFILES {ht_scrl {la_scrl}}

DY_LASTFILES is the {install-dir}/xmac/dy_lastfiles.sedit macro, which displays the last opened files, allowing the user to open them again.

ht_scrl	the number of rows used by the scrolled list to display the files. ht_scrl defaults to 15 when omitted.
la_scrl	the width of the scrolled list. la_scrl defaults to 50 when omitted.

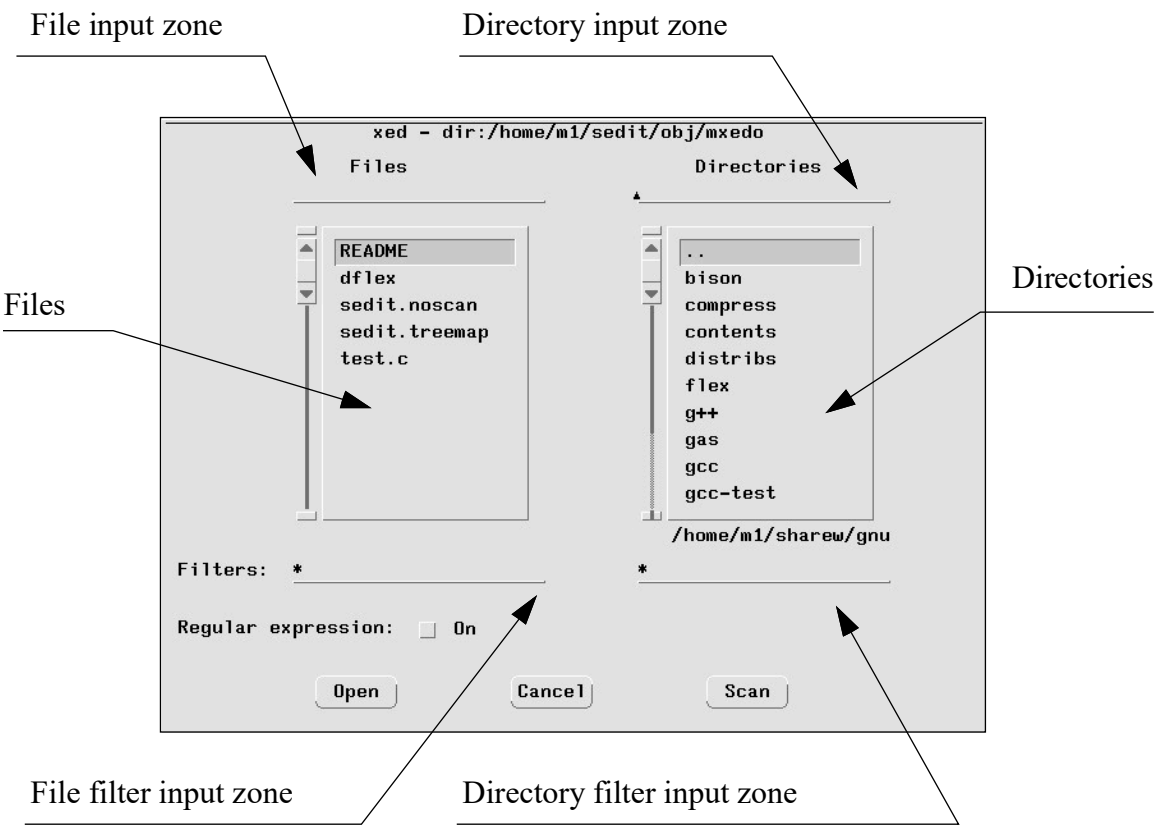
See Also: LASTFILES

DY_OPEN (UNIX) - Start the OPEN Dialog Box

`DY_OPEN {dir {filt-f {filt-d {lg_reg}}}}`
opens a dialog box to match text strings contained in files and directories.

Unlike with the **SEDIT** 4.0 release, `DY_OPEN` is not an **SEDIT** command, but the `/home/xed/xmac/dy_open.sedit` macro.

`DY_OPEN` displays the following dialog box:



`dir` is the directory to be scanned. When omitted, the current directory will be scanned. When `dir` is the special `//last` string, the directory of the last opened file with the `DY_OPEN` macro will be scanned.

`filt_f` is the filter used to select which files are to be displayed. When omitted, it defaults to `*`, which means any file. When the regular expression switch is off, `*` means any set of characters. `a*df*` would for example match `a_123.dfte`. Several filters can be specified by using a `;` separator. Example:`*.c;*.h`

`filt_d` is the filter used to select which directories are to be displayed.

`lg_reg` when set to 1, toggles on the regular expression search. When omitted, or set to 0, toggles off the regular expression search.

A regular expression is a character string used to describe, in an extended way, a string to be matched. It uses special characters, called meta characters to describe the match to be done.

The meta characters are the following:

^	matches only at the beginning of a line.
$	matches only at the end of a line.
\<	matches only at the beginning of a word.
\>	matches only at the end of a word.
.	matches any single character.
[]	matches any character in a character class.
\(	delimits the start of a subexpression. It is available for VI compatibility, but has no special meaning.
\)	delimits the end of a subexpression. It is available for VI compatibility, but has no special meaning.
*	repeats the preceding 0 or more times.

If you want to use a meta character as an ordinary character, you must precede it with a backslash (\) character.

Examples:

```
^af
```

matches the string "af" only at the beginning of a line.

```
af$
```

matches the string "af" only at the end of a line.

```
dc.......is
```

matches the string "dc" followed by any 7 characters followed by the string "is".

```
[A-Z][a-z]
```

[A-Z]	means any character from A to Z.
[a-z]	means any character from a to z.

The whole expression above matches any alphabetical string starting with a capital letter.

The string "File001" will be matched. "F001" will not.

Note that the meta characters are not treated specially when enclosed in brackets:

```
[.$]
```

matches the string ".$". Without brackets, the user should type:

```
\.\$
```

for the same match.

Supported User Actions

The user can perform the following actions:

- Clicking once with the left mouse button upon a displayed file selects this file, and displays its name in the file input zone.
- With the **MOTIF** version, holding the Shift key down while clicking extends the selection to several contiguous files. Holding the Control key down extends the selection to another, possibly non-contiguous, file.
- Double clicking on a file makes DY_OPEN return. This file will be opened.
- Clicking once with the left mouse button upon a displayed directory selects this directory, and displays its name in the directory input zone.
- Double clicking on a displayed directory initiates a scan of this directory.
- Using the Return or Enter key when the keyboard focus is in the File input zone makes DY_OPEN return. The file displayed in that File input zone will be opened.
- Using the Return or Enter key when the keyboard focus is in the Directory input zone initiates a scan of the directory displayed in that zone. When this directory name does not start with a / or a ~, it will be considered as a subdirectory of the previously scanned directory.
- Using the Return or Enter key when the keyboard focus is in the File or Directory filter zone initiates a new scan of the previously scanned directory.
- Clicking on the OPEN button makes DY_OPEN return. The selected files will be opened.
- Clicking on the CANCEL button makes DY_OPEN return without further action.
- Clicking on the SCAN button initiates a new scan of the previously scanned directory.

See Also: ACCESS, DY_LASTFILES, XEDIT

DY_OPEN (WINDOWS) - Start the OPEN Dialog Box

`DY_OPEN {dir {filt-f}}` opens a dialog box to match text strings contained in files and directories.

`DY_OPEN` is not an **SEDIT** command, but the `C:\Program Files\SEDIT\xmac\dy_open.sedit` macro.

`DY_OPEN` displays the standard **WINDOWS** `OPEN FILE` dialog box.

`dir` is the directory to be scanned. When omitted, the current directory will be scanned. When `dir` is the special `//last` string, the directory of the last opened file with the `DY_OPEN` macro will be scanned.

`filt_f` is the filter used to select which files are to be displayed. When omitted, it defaults to `*.*`, which means any file. Several filters can be specified by using a ; separator. Example:`*.c;*.h`

See Also: ACCESS, DY_LASTFILES, XEDIT

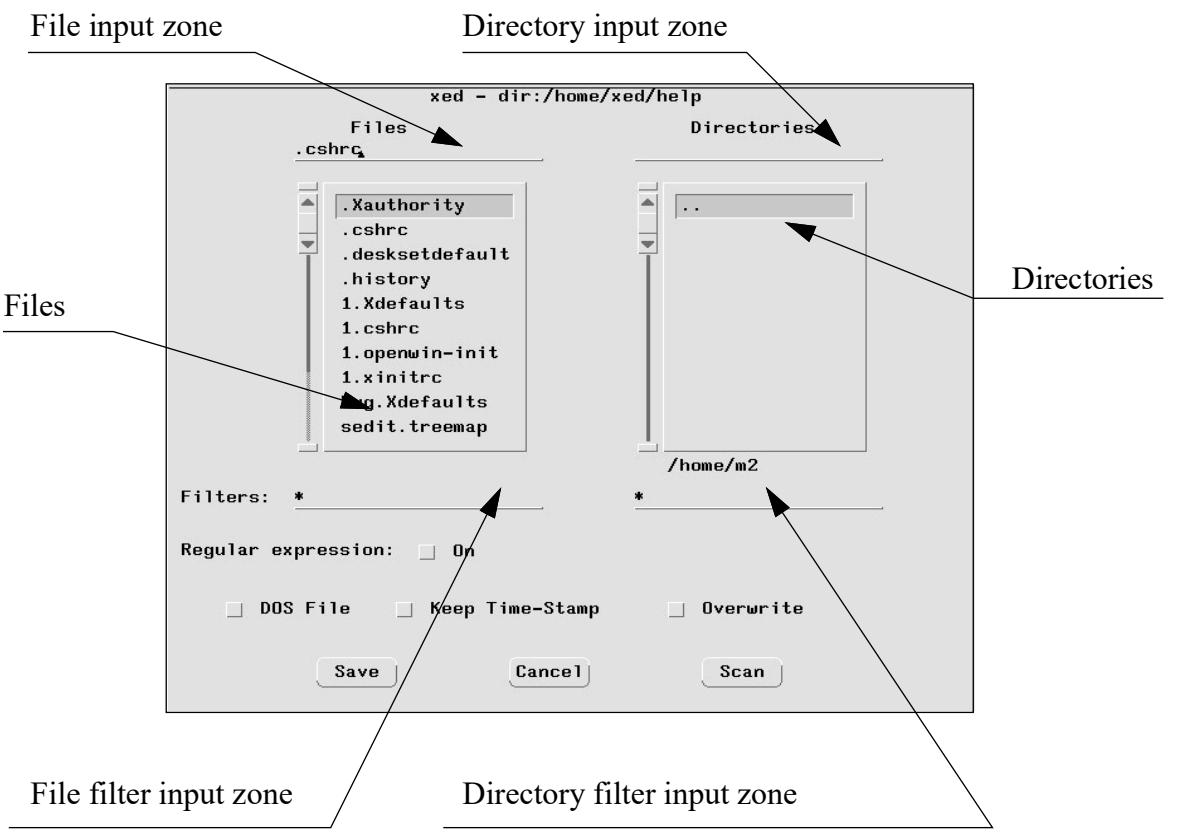
DY_SAVE (UNIX) - Start the SAVE Dialog Box

```
DY_SAVE {dir {filt-f {filt-d {lg_reg}}}}
```

opens a dialog box to save the current file.

Unlike with the **SEDIT** 4.0 release, DY_SAVE is not an **SEDIT** command, but the /home/xed/xmac/dy_save.sedit macro.

DY_SAVE displays the following dialog box:



dir	is the directory to be scanned. When omitted, the directory of the current file will be scanned.
filt_f	is the filter used to select which files are to be displayed. When omitted, it defaults to *, which means any file. When the regular expression switch is off, * means any set of characters. a*df* would for example match a_123.dfte.
filt_d	is the filter used to select which directories are to be displayed.
lg_reg	when set to 1, toggles on the regular expression search. When omitted, or set to 0, toggles off the regular expression search.

A regular expression is a character string used to describe, in an extended way, a string to be matched. It uses special characters, called meta characters to describe the match to be done.

The meta characters are the following:

^	matches only at the beginning of a line.
$	matches only at the end of a line.
\<	matches only at the beginning of a word.
\>	matches only at the end of a word.
.	matches any single character.
[]	matches any character in a character class.
\(	delimits the start of a subexpression. It is available for VI compatibility, but has no special meaning.
\)	delimits the end of a subexpression. It is available for VI compatibility, but has no special meaning.
*	repeats the preceding 0 or more times.

If you want to use a meta character as an ordinary character, you must precede it with a backslash (\) character.

Examples:

```
^af
```

matches the string "af" only at the beginning of a line.

```
af$
```

matches the string "af" only at the end of a line.

```
dc.......is
```

matches the string "dc" followed by any 7 characters followed by the string "is".

```
[A-Z][a-z]
```

[A-Z]	means any character from A to Z.
[a-z]	means any character from a to z.

The whole expression above matches any alphabetical string starting with a capital letter.

The string "File001" will be matched. "F001" will not.

Note that the meta characters are not treated specially when enclosed in brackets:

```
[.$]
```

matches the string ".$". Without brackets, the user should type:

```
\.\$
```

for the same match.

When DOS File is checked, **SEDIT** adds a ^M character at the end of each line, and a ^Z character at the end of the file, thus making the file compatible with personal computers using the DOS operating system.

When Keep Time-Stamp is checked, **SEDIT** leaves unchanged the saved file timestamp.

When Overwrite is checked, **SEDIT** does not check for an existing file before saving the file.

Supported User Actions

The user can perform the following actions:

- Clicking once with the left mouse button upon a displayed file selects this file, and displays its name in the file input zone.
- Double clicking on a file makes DY_SAVE return. The current file will be renamed accordingly to the selected file, and saved.
- Clicking once with the left mouse button upon a displayed directory selects this directory, and displays its name in the directory input zone.
- Double clicking on a displayed directory initiates a scan of this directory.
- Using the Return or Enter key when the keyboard focus is in the File input zone makes DY_SAVE return. If the name of the file is displayed in the File input zone, the current file will be renamed accordingly to this name, and saved.
- Using the Return or Enter key when the keyboard focus is in the Directory input zone initiates a scan of the directory displayed in that zone. When this directory name does not start with a / or a ~, it will be considered as a subdirectory of the previously scanned directory.
- Using the Return or Enter key when the keyboard focus is in the File or Directory filter zone initiates a new scan of the previously scanned directory.
- Clicking on the SAVE button makes DY_SAVE return. If the name of the file is displayed in the File input zone, the current file will be renamed accordingly to this name, and saved.

- Clicking on the CANCEL button makes DY_SAVE return without performing further action.
- Clicking on the SCAN button initiates a new scan of the previously scanned directory.

See Also: FILE, SAVE

DY_SAVE (WINDOWS) - Start the SAVE Dialog Box

`DY_SAVE {dir {filt-f}}` opens a dialog box to save the current file.

DY_SAVE is not an **SEDIT** command, but the C:\Program Files\SEDIT\xmac\dy_save.sedit macro.

DY_SAVE displays the standard **WINDOWS** SAVE FILE dialog box

dir	is the directory to be scanned. When omitted, the directory of the current file will be scanned.
filt_f	is the filter used to select which files are to be displayed. When omitted, it defaults to *.*, which means any file.

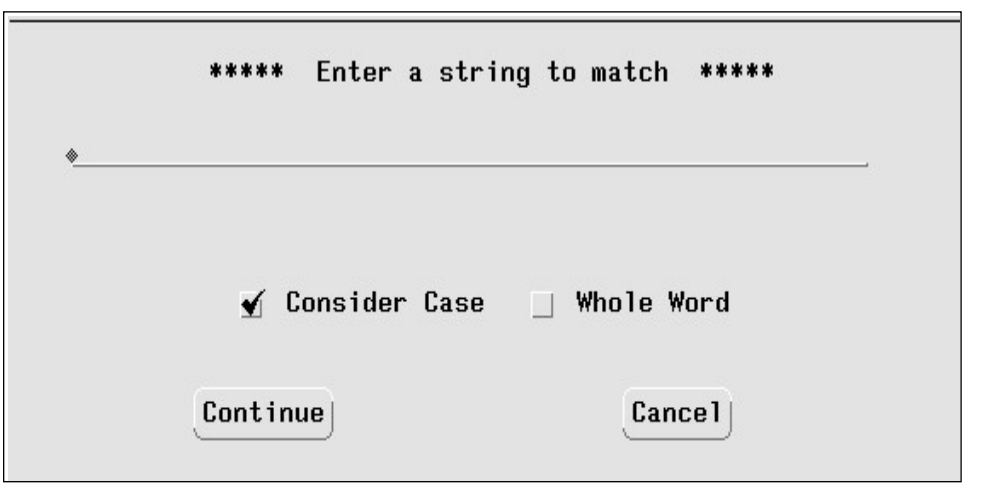
See Also: FILE, SAVE

DY_SHow - Start the SHOW Dialog Box

DY_SHow

Batch Mode: Not Available

DY_SHOW displays the following dialog box:



The user must enter a target string in the input field.

SEDIT will scan all the lines **not** displayed matching the target in order to display them.

When Consider Case is not checked, **SEDIT** will ignore the capitalization when matching the target.

When Whole Word is checked, **SEDIT** will search for whole words. For example, if target is the string "i", **SEDIT** will match "i = 3", but will not match "if ()".

See Also: ALL, DISPLAY, DY_ALL, DY_EXCLUDE, SCOPE, SELECT, SHADOW, SHOW

EDIT

EDIT is an ISPDF/PDF synonym to the XEDIT command described on page 452.

EMSG - Display Text

`EMSG text` displays `text` in the message field and sounds the alarm.

See Also: `MSG`

END - End the Edit Session

`END`

`END` saves all the modified files, and terminates the **SEDIT** session.

See Also: `EXIT`, `EEXIT`, `FILE`, `SAVE`

ESCAPEdelay - Set Escape Sequence Time-out

`ESCAPEdelay {nn}` sets ASCII terminals escape sequence time-out.

Initial value: `4`

`ESCAPEDELAY` without argument displays the current value.

ASCII terminals send to **SEDIT** an escape sequence every time the user hits a function key, such as the `F1` key.

An escape sequence starts with the `^[` escape character, and is followed by an arbitrary length set of characters. For example, a VT100 ASCII terminal sends a `^[OP` string to identify the `F1` key.

In order to decide when the escape sequence is complete, **SEDIT** uses a time-out of `nn` tenths of a second. When no more characters are received during this elapsed time, **SEDIT** decides that the escape sequence has ended, and treats the following characters as user typed characters.

The default `ESCAPEDELAY` value is generally a good choice. However, when using **SEDIT** with a very slow connection, such as a `SLIP` connection using a 9600 baud modem, it may be necessary to increase the `ESCAPEDELAY` value.

`ESCAPEDELAY` is ignored when **SEDIT** is not in ASCII terminal mode.

EXClude (XEDIT MODE) - Global Selective Line Editing

```
EXClude        {target}      selects the lines not containing the target specified.
XEDEXClude
```

Scope: Display

When MODE COMMAND XEDIT is in effect, EXCLUDE calls the XEDIT mode XEDEXCLUDE command. PDFEXCLUDE may be used to call the ISPF/PDF mode EXCLUDE command.

EXCLUDE is like the ALL command, except that the matched lines are excluded from display, instead of being kept.

See the ALL command on page 151 for a description of the target operand.

See Also: ALL, SHOW

EXCLude (ISPF MODE) - Exclude Lines from Display

```
EXCLude     str {range} {NEXT } {CHARS } {X   }  {col1   {col2}
PDFEXCLude              {ALL  } {PREFIX} {NX}
                        {FIRST} {SUFFIX}
                        {LAST } {WORD                        }
                        {PREV }
```

When MODE COMMAND ISPF is in effect, EXCLUDE calls the ISPF mode PDFEXCLUDE command. XEDEXCLUDE may be used to call the XEDIT mode EXCLUDE command.

EXCLUDE searches lines that contains the str PDF string and then excludes those lines from display.

A PDF string may be the following kind of string:

***** The string used with the last FIND/EXCLUDE/CHANGE/SEEK command.

Simple string
Any series of characters not starting with a single or double quote (' or ") and not containing any embedded blanks. The search will be case insensitive.

Delimited string
Any string enclosed by single or double quotes. The search will be case insensitive.

Hexadecimal string
Any delimited string of valid hexadecimal characters, preceded or followed by the character X, such as X'3132' or '3132'x. The search will be case sensitive.

Character string

Any delimited string, preceded or followed by the character C, such as C'ab cd' or 'ab cd'c. The search will be case sensitive.

Picture string

Any delimited string, preceded or followed by the character P, such as P'ab cd' or 'ab cd'p. The search will be case sensitive.
Within a picture string, the following special characters may be used:

=	means any character.
~	means any character that is not a blank.
.	means a character which generally cannot be displayed. **SEDIT** will consider this any character which has a decimal value of less than 32.
#	means any numeric character.
-	means any non-numeric character.
@	means any alphabetic character.
<	means any lowercase alphabetic character.
>	means any uppercase alphabetic character.
$	means any special character, neither alphabetic or numeric.

EXCLUDE considers the following arguments:

range Two labels that identify the lines to be searched for.
A label may be created by typing a .xxxx string on a prefix zone, or by using the XEDIT POINT command described on page 335.
A label may also be one of the ISPF/PDF predefined labels:

.zf or .zfirst	the first line.
.zl or .zlas	tthe last line.
.zcsr	the cursor line

When omitted, range defaults to .zfirst .zlast.

NEXT Starts at the first position after the current cursor location and searches forward. NEXT is the default. When the cursor is not located on the data, the search start from the first displayed line.

ALL Starts at the top of the file and searches forward to find all occurrences of the string.

FIRST Starts at the top of the file and searches forward to find the first occurrence of the string.

LAST Starts at the bottom of the file and searches backward to find the last occurrence of the string.

PREV Starts at the cursor location and searches backward to find the previous occurrence of the string. When the cursor is not located on the data, the search start from the last displayed line

CHARS Locates str anywhere the characters match. This is the default.

PREFIX Locates str at the beginning of a word:
find ab matches "abc", but does not match "ab" or "cabd" or "dab".

SUFFIX Locates str at the end of a word:
find ab matches "cab", but does not match "ab" or "cabd" or "abc".

WORD Locates str as a whole word:
find ab matches "d ab e", but does not match "cabd" or "abc".

X Scans only lines that are excluded from the display.

NX Scans only lines that are not excluded from the display.

col1 and **col2**

The columns EXCLUDE is to search. When omitted, the columns are limited by the BOUNDS setting described on page 159.

Examples:

exclude 'ab cd'	matches 'ab cd' as well as 'Ab Cd'.
exclude c'ab cd'	matches only 'ab cd'.
exclude x'31' last	matches the last '1' character.
exclude p'>###"	could match 'A123'.

Return Codes:

0	Normal
4	String Not Found
5	* has been used on the first EXCLUDE call
6	Invalid Hexadecimal String
7	Invalid Label
12	Syntax Error

See Also: BOUNDS, CHANGE, FIND, SEEK, VERIFY

EXIT / EEXIT - Exit

`EXIT {Save|Nosave}`	will terminate **SEDIT** if no modified file is currently active in the editor. When **SEDIT** runs in batch mode, `EXIT` will unconditionally terminate **SEDIT**.
`EEXIT {Save|Nosave}`	will unconditionally terminate **SEDIT**.

On **WINDOWS** systems, **SEDIT** normally records the font in use and its window location when exiting, and uses the recorded settings when started again. When `Nosave` is specified, **SEDIT** does not save these settings. When **SEDIT** has been started with the `-noauto` option, **SEDIT** does not record its settings by default. Using the `Save` option will make `EXIT` and `EEXIT` save these settings.

If one or more files have been modified, `EXIT` will be displayed as a prompt in an alert box.

Note that you can use the frame menu for the same purpose only if no modified file is currently edited.

EXTract - Retrieve Information

`EXTract arg` is used within **S/REXX** or external macros to retrieve information from **SEDIT**.

`EXTRACT` may only be used within an external or an **S/REXX** macro. The syntax used depends on the macro language. See the examples discussed in the Using EXTERNAL Macro Commands (UNIX Only) section on page 134 and in Using S/REXX Macro Commands on page 140.

`EXTRACT` returns a string we will name `str`. The first `str` word named `str[0]` is a number indicating the `str` length.

arg may be any one of the following words:

ALT	HIghlight	SCALE
ARBchar	IMPcmscp	SCOPE
ARCH	INSert	SELECTION
AUTOExpand	KEEPBlanks	SElect
AUTOI	LASTLorc	SEP
AUtosave	LASTmsg	SET
BInary	LENgth	SHBlank
CASE	LFName	SHADow
CDpath	LIne	SIZe
CLipboard	LRecl	SOftbench
CMDline	LScreen	SOURCE
COLOR	MACRO	SPAN
CRing	MARgins	STAY
COLumn	MATCH	STReam
CTags	MOUSEMODE	SYNonym
CTLchar	NAme	TABLine
CURLine	NBFile	TABS
CURSor	NBSCope	TARGet
DISPlay	NUMber	TRUnc
=	PENDing	VARblank
ENTer	Point	Verify
ENViron	POWerinput	VIsible
EXTRACT	PREfix	VERsion
FDirectory	PROFile	Width
FILE	PWD	WRap
FLscreen	RECLevel	XEDlast
FName	RESERved	Xhome
FONt	REXX	XSHell
FORMAT	RING	Zone
FType	RMATCH	
HEX	RW	

ALT
returns the number of alterations that have been made to the file.

```
str[0]      number of variables returned
str[1]      number of modifications since the last
            autosave
str[2]      number of modifications since the last save
```

ARBchar
returns the current ARBCHAR setting defined by the ARBCHAR command.

```
str[0]      number of variables returned
str[1]      ON | OFF
str[2]      arbitrary character.
```

ARCH
returns the hardware-dependent string described in Appendix B: Hardware String on page 707.

```
str[0]      number of variables returned
str[1]      hardware dependent string
```

AUTOExpand
returns the current AUTOEXPAND status defined by the AUTOEXPAND command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

AUtosave
returns the current autosave status defined by the AUTOSAVE command.

```
str[0]      number of variables returned
str[1]      OFF | N
str[2]      autosave file full name
str[3]      number of modifications since the last
            autosave
str[4]      autosave directory
```

AUTOI
returns the current auto-indent status defined by the AUTOI command.

```
str[0]      number of variables returned
str[1]      ON | OFF
str[2]      STAY | NOSTAY
```

BInary
returns the current binary status defined by the BINARY command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

CASE
returns the current CASE setting defined by the CASE command.

```
str[0]      number of variables returned
str[1]      RESPECT | IGNORE
```

CDpath
returns the directories described in the cdpath accessed by the DACCESS command.

```
str[0]      number of variables returned
str[i]      directory name
```

CLipboard {Raw}[1]
returns the contents of the clipboard. When Raw is not specified, the contents will be split line by line, and any ^M character found at the end of a line will be discarded.

```
str[0]      number of variables returned
str[i]      line number i contents
```

CMDline
returns the current command line location defined by the CMDLINE command.

```
str[0]      number of variables returned
str[1]      TOP|BOTTOM|OFF
str[2]      line number on the logical screen. Not
            returned when CMDLINE is OFF.
str[3]      content of the command line. Not returned
            when the command line is empty.
```

COLOR {field | color-id | *}
returns the color associated with field, or the RGB value associated with color-id or all information about all fields and color-ids. See the color command for more information about field and color-id.

```
str[0]      number of variables returned
str[i]      color or R G B values
```

CRing
returns the current file ring number. If N files are currently edited, str[1] ranges from 1 to N.

```
str[0]      number of variables returned
str[1]      current file ring number
```

COLumn
returns the column number of the column pointer

```
str[0]      number of variables returned
str[1]      current column pointer
```

CTags
returns the current TAGS setting defined by the CTAGS command.

```
str[0]      number of variables returned
str[1]      ON | OFF
str[2]      TAGFILE
```

CTLchar
returns the escape character, and all control characters, if any, defined by the CTLCHAR command.

1. Only available in the S/REXX environment.

```
str[0]      number of variables returned
str[1]      ON|OFF
str[2]      escape character
str[3]      list of control characters (if any)
```

CURLine
: returns the line number of the current line defined by the CURLine command.

```
str[0]      number of variables returned
str[1]      line number on the screen
str[2]      line number on the screen
str[3]      line content
```

CURSor
: returns the current and the previous position of the cursor to the logical screen, the current and the previous position of the cursor in the file, the current mouse file ring number and the current position of the mouse in the file.

```
str[0]      number of variables returned
str[1]      line position of the cursor on screen
str[2]      column position of the cursor on screen
str[3]      line position of the cursor in file, or -1
            when not on a data field
str[4]      column position of the cursor in file, or -1
            when not on a data field
str[5]      previous line position of the cursor on
            screen
str[6]      previous column position of the cursor on
            screen
str[7]      previous line position of the cursor in file
str[8]      previous column position of the cursor in
            file
str[9]      current mouse file ring number
str[10]     line position of the mouse in file
str[11]     column position of the mouse in file
str[12]     line position of the cursor in file when the
            cursor is on the corresponding prefix field,
            or -1 when not on a prefix field
```

DISPlay
: returns the range of selection levels defined by the DISPLAY command.

```
str[0]      number of variables returned
str[1]      start of display range
str[2]      end of display range
```

=
: returns the command which will be executed when using the = command.

```
str[0]      number of variables returned
str[1]      the command in the = buffer
```

ENTer[1]
returns the ENTER, Shift-ENTER, Control-ENTER, Meta-ENTER, Shift+Control-ENTER, Shift+Meta-ENTER, Control+Meta-ENTER, Shift+Control+Meta-ENTER keys definitions.

```
str[0]      number of variables returned
str[1]      BEFORE|AFTER|ONLY|IGNORE
str[2]      ENTER definition
str[3]      BEFORE|AFTER|ONLY|IGNORE
str[4]      SHIFT-ENTER definition
str[5]      BEFORE|AFTER|ONLY|IGNORE
str[6]      CONTROL-ENTER definition
str[7]      BEFORE|AFTER|ONLY|IGNORE
str[8]      META-ENTER definition
str[9]      BEFORE|AFTER|ONLY|IGNORE
str[10]     SHIFT+CONTROL-ENTER definition
str[11]     BEFORE|AFTER|ONLY|IGNORE
str[12]     SHIFT+META-ENTER definition
str[13]     BEFORE|AFTER|ONLY|IGNORE
str[14]     CONTROL+META-ENTER definition
str[15]     BEFORE|AFTER|ONLY|IGNORE
str[16]     SHIFT+CONTROL+META-ENTER definition
```

ENViron VARNAME
returns the VARNAME environment variable.

```
str[0]      number of variables returned, or 0 if VARNAME
            is empty or does not exists.
str[1]      VARNAME content.
```

EXTRACT
returns this keyword list.

```
str[0]      number of variables returned
str[i]      keyword
```

FDirectory
returns the current file filedirectory.

```
str[0]      number of variables returned
str[1]      filedirectory
```

FILE[2]
returns the contents of all file lines.

```
file.0      number of variables returned
file.i      content of the line number i
```

FLscreen
returns the first and last line number of the current file displayed on the screen.

1. Only available in the S/REXX environment.
2. Only available in the S/REXX environment.

```
str[0]      number of variables returned
str[1]      first line
str[2]      last line
```

FName
: returns the current file filename

```
str[0]      number of variables returned
str[1]      filename
```

FONt
: returns the current active font name.

```
str[0]      number of variables returned
str[1]      active font name
```

FORMAT
: returns the current FORMAT settings defined by the FORMAT command.

```
str[0]      number of variables returned
str[1]      JUSTIFY or NOJUSTIFY
str[2]      BLANK or EXTENDED
str[3]      SINGLE or DOUBLE
```

FType
: returns the current file filetype preceded with a period if the current file has an extension (such as ".c"), or "0" if it does not. Note that this is slightly different from the $ft expansion within an internal macro.

```
str[0]      number of variables returned
str[1]      extension
```

HEX
: returns the current HEX setting defined by the HEX command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

HIghlight
: returns the current HIGHLIGHT status defined by the HIGHLIGHT command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

IMPcmscp
: returns the current IMPCMSCP setting defined by the IMPCMSCP command.

```
str[0]      number of variables returned
str[1]      ON | OFF | XON
```

INSert
: returns the keyboard insertion mode status.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

KEEPBlanks
: returns the current status defined by the KEEPBLANKS command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

LASTLorc
: returns the string passed to the LOCATE, CHANGE, SCHANGE, CN, SCN, FIND, FINDUP, NFIND and NFINDUP commands. This string can be modified by the SET LASTLORC command.

```
str[0]      number of variables returned
str[1]      string parameter
```

LASTmsg
: returns the last message issued by **SEDIT**.

```
str[0]      number of variables returned
str[1]      last message
```

LENgth
: returns the current line length. Note that **SEDIT** always deletes the trailing blanks.

```
str[0]      number of variables returned
str[1]      current line length
```

LFName
: returns the current file filename preceded with its filedirectory.

```
str[0]      number of variables returned
str[1]      long filename
```

LIne
: returns the current line number in the file.

```
str[0]      number of variables returned
str[1]      line number
```

LRecl
: returns the current LRECL status defined by the LRECL command.

```
str[0]      number of variables returned
str[1]      * | N
```

LScreen
: returns the following information about the split screens:

```
str[0]      number of variables returned
str[1]      number of lines of the split screen
str[2]      number of columns of the split screen
str[3]      top left line number
str[4]      top left column number
str[5]      number of lines
str[6]      number of columns
```

MACRO
: returns the current MACRO setting defined by the SET MACRO command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

MARGINS
returns the current MARGINS settings defined by the MARGINS command.

```
str[0]      number of variables returned
str[1]      left margin
str[2]      right margin
str[3]      indent margin
```

MATCH[1]
returns the strings matched with the arbitrary character when the last string matching command was performed with ARBCHAR set to ON.

```
match.0     number of variables returned
match.i     content of the match number i
```

Example:

If the file contains the following line:

```
all birds can fly in the sky
```

The following S/REXX macro:

```
'arbchar on #'
'/all#fly#sky'
'extract/match'
'say "'match.0'" "' match.1'" "' match.2'"'
```

will print the following:

```
"2" " birds can " " in the "
```

MOUSEMode
returns the current MOUSEMODE setting defined by the MOUSEMODE command.

```
str[0]      number of variables returned
str[1]      OPENLOOK | MOTIF | FULLMOTIF | WINDOWS
```

NAme
returns the complete file name.

```
str[0]      number of variables returned
str[1]      name
```

NBFile
returns the number of files in the editing ring.

```
str[0]      number of variables returned
str[1]      number of files
```

NBScope
When SCOPE is set to DISPLAY, returns the number of lines within the current scope,

1. Only available in the S/REXX environment.

and the offset of the current line within that number.
When SCOPE is set to ALL, returns the number of lines of the file, and the current line number.
When the Top Of File is the current line, then str[2] = 0

```
str[0]      number of variables returned
str[1]      number of lines within the current scope
str[2]      position of the current line within the scope
```

NUMber
returns the current NUMBER status defined by the NUMBER command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

PENDing {BLOCK} {OLDNAME} name|* {target1 {target2}}
returns information about the pending lists described in the PENDING command on page 333.

BLOCK indicates that only the block pending list is to be searched for.
OLDNAME indicates that the specified name is the original name of the prefix command or macro. When OLDNAME is not specified, name is assumed to be a synonym defined by the PREFIX SYNONYM command.
name is the prefix command or macro to be searched for. When specified as *, the first pending list entry will be searched for.
target1 indicates the beginning of the range in the file where the associated prefix command or macro must be located. target1 will be located starting at the top of the file. When omitted, target1 defaults to 0.
target2 indicates the end of the range in the file where the associated prefix command or macro must be located. target2 will be located starting at the line defined by target1. When omitted, target2 defaults to the end of file.

```
str[0]      7, or 0 when no pending entry is found
str[1]      line number in the file
str[2]      newname - the name entered in the prefix area
str[3]      oldname - the real macro name
str[4]      BLOCK when the matching entry belongs to the
            block list, or null string otherwise
str[5]      op1, or null string when the first operand
            does not exist
str[6]      op2, or null string when the second operand
            does not exist
```

```
str[7]      op3, or null string when the third operand
            does not exist
            Within an external macro, the null string is
            the "" string.
```

`Point`
returns the symbolic names associated with the current line.

```
str[0]      1, or 0 when no symbolic name is associated
str[1]      line number followed by the symbolic names
```

`Point *`[1]
returns all the symbolic names.

```
str[0]      number of variables returned
str[i]      line number followed by the symbolic names
```

`POWerinput`
returns the current input mode status defined by the `POWERINPUT` command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

`PREfix`[2]
returns the current prefix setting defined by the `PREFIX` command.

```
str[0]      number of variables returned
str[1]      ON | OFF
str[2]      LEFT | RGHT
```

`PREfix Synonym newname`
returns the original `oldname` associated with `newname` defined by the `PREFIX SYNONYM` command.

```
str[0]      number of variables returned
str[1]      oldname
```

`PREfix Synonym *`
returns both the `newname` and the `oldname` associated with every prefix macro synonym defined by the `PREFIX SYNONYM` command.

```
str[0]      number of variables returned
str[i]      newname oldname
```

`PROFile`[3]
returns the name of the file used at initialization as the profile.

```
str[0]      number of variables returned
str[1]      profile file name
str[2]      set to 1 if the profile "-p" option has been
            used to start SEDIT.
```

---

1. Only available in the S/REXX environment.
2. Only available in the S/REXX environment.
3. Only available in the S/REXX environment.

`PWD`

returns the current **SEDIT** directory. Note that since an external macro executes in a different process, its current directory may be different from **SEDIT**'s directory.

```
str[0]      number of variables returned
str[1]      current directory
```

`RECLevel`[1]

returns the recursion level of the **S/REXX** macro currently running.

```
str[0]      number of variables returned
str[1]      recursion level
```

`RESERved`

returns a list reserved line numbers.

```
str[0]      number of variables returned
str[1]      list of reserved line numbers
```

`RESERved *`[2]

returns the status of every reserved line.

```
str[0]      number of variables returned
str[i]      linenum color exthi PSs HIGH|NOHIGH text
```

`REXX`

returns information about the availability of **S/REXX** macros.

```
str[0]      number of variables returned
str[1]      0 when S/REXX macros are not available
            1 when S/REXX macros are available
```

`RING`

returns information about the files currently being edited.

```
str[0]      number of variables returned
str[1]      number of files in the ring
str[i]      full file name
```

`RMATCH`

returns the matching line and column numbers, and the string matched with the last regular expression search performed by the R/ command.

```
str[0]      number of variables returned
str[1]      matching line number
str[2]      matching column number
str[3]      string matched
```

Example:

Assuming line 7 of the current file is:

1. Only available in the S/REXX environment.
2. Only available in the S/REXX environment.

```
0007 na       102
```

and the following command has been issued:

```
====> r/a *[1-9][0-3]
```

```
rmatch.1 will contain: 7
rmatch.2 will contain: 2
rmatch.3 will contain: a       10
```

RW
: returns the current RW status defined by the RW command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

SCALE
: returns information about the scale line defined by the SCALE command.

```
str[0]      number of variables returned
str[1]      ON | OFF
str[2]      scale line
str[3]      scale line
```

SCOPE
: returns information about the scope status defined by the SCOPE command.

```
str[0]      number of variables returned
str[1]      ALL | DISPLAY
```

SELECTION
: returns information about the current selection.

```
str[0]      number of variables returned
str[1]      the full name of the file holding the
            selection
str[2]      LINEAR | RECTANGULAR
str[3]      PENDING | NOPENDING
str[4]      starting line
str[5]      starting column
str[6]      ending line
str[7]      ending column (-1 if including the ending
            virtual newline "\n" line termination)
str[8]      selection content. Each line is delimited by
            a newline "\n" character
```

SElect
: returns the current line selection level and the maximum file selection level defined by the SELECT command.

```
str[0]      number of variables returned
str[1]      current line selection level
str[2]      maximum file selection level
```

```
str[3]1     a string of numbers showing the selection
            level for every line of the file.
```

SEP
returns information about the separator defined by the SEP command.

```
str[0]      number of variables returned
str[1]      ON | OFF
str[2]      separator character
```

SET
returns the current keyboard function key settings defined by the SET command.

```
str[0]      number of variables returned
str[i]      key description
```

SHBlank
returns the current status defined by the SHBLANK command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

SHADow
returns the current shadow status defined by the SHADOW command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

SIZe
returns the current file length.

```
str[0]      number of variables returned
str[1]      file length
```

SOftbench
returns 1 when the current **SEDIT** session is a WorkBench EDIT session.

```
str[0]      number of variables returned
str[1]      0 | 1
```

SOURCE
returns the name of the currently executed macro or prefix macro.

```
str[0]      number of variables returned
str[1]      macro name
```

SPAN
returns the current span setting defined by the SPAN command.

```
str[0]      number of variables returned
str[1]      ON|OFF
str[2]      BLANK|NOBLANK
str[3]      N or *
```

STAY
returns the current STAY setting defined by the STAY command.

1. Only available in the S/REXX environment.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

STReam
: returns the current STREAM status defined by the STREAM command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

SYNonym[1]
: returns the current SYNONYM status.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

SYNonym name1
: returns the information about the name synonym.

```
str[0]      number of variables returned
str[1]      name
str[2]      length of minimum abbreviation
str[3]      definition
str[4]      linend character if specified, or an empty
            string
```

SYNonym *1
: returns the information about all the synonyms.

```
str[0]      number of variables returned
str[i]      name abbreviation {linend character}
            definition
```

TABLine
: returns information about the tabulation line defined by the TABLINE command.

```
str[0]      number of variables returned
str[1]      ON | OFF
str[2]      tab line
str[3]      tab line
```

TABS
: returns the tabulation column numbers defined by the TABS command.

```
str[0]      number of variables returned
str[1]      tabulation columns
```

TARGet
: returns the following data after a character string match with a LOCATE or CLOCATE target: line and column number of the first and last character in the string.
After a target specification as an absolute line number, a relative displacement or a line name, returns the line number and current column position.
When a target is specified with a logical & operator, the last match will be taken into account.

1. Only available in the S/REXX environment.

```
str[0]      number of variables returned
str[1]      line number of the first character
str[2]      column number of the first character
str[3]      line number of the last character
str[4]      column number of the last character
```

TRUnc
returns the current TRUNC status defined by the TRUNC command.

```
str[0]      number of variables returned
str[1]      * | N
```

VARblank
returns the current VARBLANK status defined by the VARBLANK command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

Verify
returns the verify columns defined by the VERIFY command.

```
str[0]      number of variables returned
str[1]      OFF
```

VIsible
returns the number of visible lines.

```
str[0]      number of variables returned
str[1]      number of visible lines
str[2]      fisrt visible line
str[N]      Nth-1 visible line
```

VERsion
returns the current **SEDIT** version identifier.

```
str[0]      number of variables returned
str[1]      identifier:
            xview when running the Open Windows version.
            motif when running the MOTIF version.
            curses when running in ASCII terminal mode.
            windows when running the WINDOWS version.
```

XEDLast
returns the argument passed to the last XEDIT command.

```
str[0]      number of variables returned
str[1]      argument
```

Xhome
returns the **SEDIT** installation directory.

```
str[0]      number of variables returned
str[1]      installation directory
```

Width
returns the length of the longest line in the current file.

```
str[0]      number of variables returned
str[1]      length of the longest line
```

`WRap`
returns the current `WRAP` setting as defined by the `WRAP` command.

```
str[0]      number of variables returned
str[1]      ON | OFF
```

`XSHell`
returns the name of the last file created by the `XSHELL`, `XCSHELL` or `XKSHELL` commands.

```
str[0]      number of variables returned
str[1]      name of the file
```

`Zone`
returns the zone columns as defined by the ZONE command.

```
str[0]      number of variables returned
str[1]      starting zone column
str[2]      ending zone column
```

FBUtton - Set Directory Editor Buttons

FBUtton ON|OFf

When FBUTTON is set to ON, the directory editor supports its own set of buttons.

See Using the Buttons on page 473 for more information.

FD - Change File Directory

`FD directory-name` renames the filedirectory component of the file being edited.

If `directory-name` does not start with a standard directory indicator (/ . ~), **SEDIT** will search first in the current directory and then through the directories in the `cdpath` initialized with the DACCESS command.

If `directory-name` contains blanks, it must be surrounded with quotes or double quotes. If a directory name contains a quote or a double quote, the quote must be escaped with a backslash.

Examples: when editing `/usr/m1/test.f`:

`fd /usr/m2` will change the name to `/usr/m2/test2.f`

`fd essai` will change the name to `/home/m1/essai/test.f`, if this directory exists and the `cdpath` initialized with the `DACCESS` command contains the string `/home/m1`.

`fd "Program Files"` will change the name to `c:\Program Files\test.f` if this directory exists and the `cdpath` initialized with the `DACCESS` command contains the string `c:\`.

`fd` is not allowed alone.

See Also: DACCESS

FIle / FFile / KFIle / DOSFile - Save and Leave File

FIle / FFile / KFIle/ DOSFile {fn {ft {fd}}

These commands transform the unchanged source file into a backup file by appending a `"%"` to its name, creating a new file with the original name from the edited memory image, and then discontinuing the editing session. When `SAVECLEARUNDO` is set to `ON` (the default), the undo memory is reset.

When **SEDIT** is not running in batch mode, if the file name has been changed during the editing session so that it is identical to that of an existing file, or if the file has been modified by another user, `FILE` will ask for a confirmation to overwrite the existing file. `FFILE` will not. When **SEDIT** is running in batch mode, `FILE` does not overwrite the existing file.

The `KFILE` command performs the same function as the `FILE` command, but leaves the saved file timestamp unchanged. This may be useful, for example, when the modified file is an include file. Using `KFILE` will prevent a following `make` command from recompiling every file which relies on the saved file.

The `DOSFILE` command performs the same function as the `FILE` command, but adds a `^M` character at the end of each line, and a `^Z` character at the end of the file, thus making the file compatible with personal computers using the `DOS` operating system.

If `fn` is specified, the filename of the file will be changed before saving.
If `ft` is specified, the filetype of the file will be changed before saving.
If `fd` is specified, the filedirectory of the file will be changed before saving.

Under APL, the APL object will be fixed in the workspace. Should an error occur, the line at which the error occurred becomes the current line.

Warning: When `KEEPBLANKS` is set to `OFF`, **SEDIT** removes all trailing blanks in every line before saving a file. Do not save a file (such as an `"*.o"` file) where trailing blanks are part of the data.

See Also: `BACKUP`, `KEEPBLANKS`, `DY_SAVE`, `RW`, `SAVE`, `SAVECLEARUNDO`, `VERIFY_SAVE`

FILECONV - File Conversion

```
FILEConv CurrentFile {HowToRead {HowToCreate}
```

Initial value (UNIX):	UNIX	AUTO	UNIX
Initial value (WINDOWS):	WINDOWS	AUTO	WINDOWS

HowToRead *Level:*	Global
HowToCreate *Level:*	Global
CurrentFile *Level:*	File

Every file in the **SEDIT** ring has a **UNIX** or **WINDOWS** status.

Within a **UNIX** file, lines are separated by the newline `\n` character.

Within a **WINDOWS** file, lines are separated by the `^M` character followed by the newline `\n` character.

CurrentFile `Windows|Unix`

`WINDOWS`	When the file is saved to disk, lines are separated by the `^M` character followed by the newline `\n` character.
`UNIX`	When the file is saved to disk, lines are separated by the newline `\n` character.
`.`	A period can be used as a place holder. This allows to specify `HowToCreate` or `HowToRead` without changing `CurrentFile`.

HowToRead `Auto|Unix`

`AUTO`	**SEDIT** determines automatically the type of the file read from storage by checking the existence of `^M` characters. `^M` characters preceding a newline character are not displayed on the screen.
`UNIX`	**SEDIT** always considers the file a **UNIX** file. `^M` characters are displayed on the screen.
`.`	A period can be used as a place holder. This allows to specify `HowToCreate` without changing `HowToRead`.

HowToCreate `Windows|Unix`

`WINDOWS`	A new file is a **WINDOWS** file. This is the default on **WINDOWS** systems.
`UNIX`	A new file is a **UNIX** file. This is the default on **UNIX** systems.

Without parameters, `FILECONV` displays its current status.

Notes: The OpenLook, **MOTIF** and **WINDOWS** versions of **SEDIT** display on the upper border of the window a `[U]` symbol when the current file is a **UNIX** file, and a `[W]` symbol when the current file is a **WINDOWS** file.
On **UNIX** systems, the name of a **WINDOWS** file displayed on the first screen line is followed with a `[W]` symbol.
On **WINDOWS** systems, the name of a **UNIX** file displayed on the first screen line is followed with a `[U]` symbol.

Examples:
```
FILEC U A U
FILEC W
```
changes only the `HowToCreate` parameter.

See Also: `FILE`, `SAVE`

FILTer - Filter the Selection Contents

`FILTer {time-out nn} filtername {options}`
sends the selection content to an external filter.

`filtername` must be an external program, able to retrieve data from its standard input, process it in some way and then send it back using its standard output.

`nn` is an optional time-out. If not specified, it will be set to 10 seconds.

`options` may be any option passed to `filtername`.

If the current file has no selection, **SEDIT** will select the cursor line.

SEDIT proceeds in the following manner:

- It deletes the selection, as if the `CUT` key had been used.
- It sends the shelf (the cut buffer) to `filtername`.
- It retrieves the data sent by `filtername` into the shelf.
- It does a paste, as if the `PASTE` key had been used.

A filter example is `{install-dir}/filters/toggle_comment.c`.

This filter is useful within C programs, allowing the user to comment in or out the selected or cursor lines.

On Sun workstations, the standard `profile.sedit` file assigns `toggle_comment` to `Control-R5` in the following manner:

```
set c-r5 filter $xhome/filters/$arch/toggle_comment
```

On HP workstations, it is assigned to the `Control-R9` (or `Control-Prev`) key:

```
set c-r9 filter $xhome/filters/toggle_comment
```

On other workstations, it is assigned to the `Control-R6` (or `Control-Page-Up`) key:

```
set c-r6 filter $xhome/filters/toggle_comment
```

Note: use the `-Bstatic` flag when compiling a filter on a SunOS Sun workstation for shorter response time.

FINd (XEDIT MODE) - Find a Starting String

FINd	str	searches forward for a line that starts with str.
XEDFINd	str	

When MODE COMMAND XEDIT is in effect, FIND calls the XEDIT mode XEDFIND command. PDFFIND may be used to call the ISPF/PDF mode FIND command.

FIND searches forward for a line that starts with str.

When str contains imbedded blanks, those character positions in the file line are ignored.

When str contains underscore characters (_), those character positions in the file line must be blank.

When WRAP is set to OFF, the search continues down to the end of the file.

When WRAP is set to ON, the search will wrap to the first line in the file, and continue down to the current line.

See Also: FINDUP, NFIND, NFINDUP, STAY, WRAP

FINd (ISPF MODE) - Find a Data String

```
FINd      str {range}  {NEXT } {CHARS } {X    }   {col1   {col2}
PDFFINd                {ALL  } {PREFIX} {NX}
                       {FIRST} {SUFFIX}
                       {LAST } {WORD                        }
                       {PREV }
```

When MODE COMMAND ISPF is in effect, FIND calls the ISPF mode PDFFIND command. XEDFIND may be used to call the XEDIT mode FIND command.

FIND searches a line that contains the str PDF string. A PDF string may be the following kind of string:

***** The string used with the last FIND/EXCLUDE/CHANGE/SEEK command.

Simple string
Any series of characters not starting with a single or double quote (' or ") and not containing any embedded blanks. The search will be case insensitive.

Delimited string
Any string enclosed by single or double quotes. The search will be case insensitive.

Hexadecimal string
Any delimited string of valid hexadecimal characters, preceded or followed by the character X, such as X'3132' or '3132'x. The search will be case sensitive.

Character string
Any delimited string, preceded or followed by the character C, such as C'ab cd' or 'ab cd'c. The search will be case sensitive.

Picture string
Any delimited string, preceded or followed by the character P, such as P'ab cd' or 'ab cd'p. The search will be case sensitive.
Within a picture string, the following special characters may be used:

=	means any character.
~	means any character that is not a blank.
.	means a character which generally cannot be displayed. **SEDIT** will consider this any character which has a decimal value of less than 32.
#	means any numeric character.
-	means any non-numeric character.
@	means any alphabetic character.
<	means any lowercase alphabetic character.
>	means any uppercase alphabetic character.
$	means any special character, neither alphabetic or numeric.

FIND considers the following arguments:

range Two labels that identify the lines to be searched for.
A label may be created by typing a `.xxxx` string on a prefix zone, or by using the XEDIT `POINT` command described on page 335.
A label may also be one of the ISPF/PDF predefined labels:

`.zf` or `.zfirst`	the first line.
`.zl` or `.zlast`	the last line.
`.zcsr`	the cursor line

When omitted, `range` defaults to `.zfirst .zlast`.

NEXT Starts at the first position after the current cursor location and searches forward. `NEXT` is the default. When the cursor is not located on the data, the search start from the first displayed line.

ALL Starts at the top of the file and searches forward to find all occurrences of the string.

FIRST Starts at the top of the file and searches forward to find the first occurrence of the string.

LAST Starts at the bottom of the file and searches backward to find the last occurrence of the string.

PREV Starts at the cursor location and searches backward to find the previous occurrence of the string. When the cursor is not located on the data, the search start from the last displayed line

CHARS Locates `str` anywhere the characters match. This is the default.

PREFIX Locates `str` at the beginning of a word:
`find ab` matches "`abc`", but does not match "`ab`" or "`cabd`" or "`dab`".

SUFFIX Locates `str` at the end of a word:
`find ab` matches "`cab`", but does not match "`ab`" or "`cabd`" or "`abc`".

WORD Locates `str` as a whole word:
`find ab` matches "`d ab e`", but does not match "`cabd`" or "`abc`".

X Scans only lines that are excluded from the display.

NX Scans only lines that are not excluded from the display.

col1 and **col2**

The columns `FIND` is to search. When omitted, the columns are limited by the `BOUNDS` setting described on page 159.

Examples:

`find 'ab cd'`	matches '`ab cd`' as well as '`Ab Cd`'.
`find c'ab cd'`	matches only '`ab cd`'.
`find x'31' last`	matches the last '`1`' character.
`find p'>###"`	could match '`A123`'.

Return Codes:	0	Normal
	4	String Not Found
	5	* has been used on the first FIND call
	6	Invalid Hexadecimal String
	7	Invalid Label
	12	Syntax Error

See Also: BOUNDS, EXCLUDE, CHANGE, SEEK, VERIFY

FINDUp - Find a Starting String

FINDUp	str	searches backward for a line that starts with str.
FUp	str	

When str contains imbedded blanks, those character positions in the file line are ignored.

When str contains underscore characters (_), those character positions in the file line must be blank.

When WRAP is set to OFF, the search continues up to the start of the file.

When WRAP is set to ON, the search will wrap to the last file line, and continue up to the current line.

See Also: FIND, NFIND, NFINDUP, STAY, WRAP

FLAth - Directory Editor Permissions Display

`FLAth {ON|OFF}`

Initial value: `ON`

`FLATH` without argument displays the current value.

When `FLATH` is `ON`, the `FLIST` directory editor displays the file related permissions:

```
 Level 0    40 Files                                          1 OF 40

-rw-rw-rw- test          .f    a   ............................   1207    16/02/88  01:19
-rw-rw-rw- test1         .f    a   ............................    457    06/02/88  13:31
-rw-rw-rw- include       .h    a   ............................  11111    11/01/88  18:44
-rw-rw-rw- command*           a   ............................   9870    16/04/87  21:44
 a  :  /usr/m1        |
 b  :  /usr/m1/cmd    |
 c  :  /usr/bin       |
 d  :  /usr/etc       |
 e  :  /etc
  1:/SN  3:END  4:XED  5:SWITCH  6:/SB  7:U  8:D  9:/SD  10:/ST  11:->  12:CAN
```

When `FLATH` is `OFF`, the **FLIST** directory editor does not display the file related permissions:

```
 Level 0    40 Files                                          1 OF 40

test                .f    a   ......................................   1207    16/02/88  01:19
test1               .f    a   ......................................    457    06/02/88  13:31
include             .h    a   ......................................  11111    11/01/88  18:44
command*                  a   ......................................   9870    16/04/87  21:44
 a  :  /usr/m1        |
 b  :  /usr/m1/cmd    |
 c  :  /usr/bin       |
 d  :  /usr/etc       |
 e  :  /etc
  1:/SN  3:END  4:XED  5:SWITCH  6:/SB  7:U  8:D  9:/SD  10:/ST  11:->  12:CAN
```

allowing more space for displaying long file names.

When **FLIST** is running, typing `^a` (Control-a) switches the `FLATH` mode.

FLDATE - Directory Editor Date Format

`FLDATE {Europe|Us}` defines if date is displayed in European or American format.

Initial value: `EUROPE`

When `FLDATE` is set to `EUROPE`, `FLIST` displays dates using the `DD/MM/YY` format.

When `FLDATE` is set to `US`, **FLIST** displays dates using the `MM/DD/YY` format.

FLFile - File + FLIST

`FLFile` executes a FILE command and then switches to the directory editor.

Batch Mode: `Not Available`

This command is mapped to the `^F3` key on Sun workstations, and `^R3` (`^Pause`) on other workstations. See The Directory Editor FLIST on page 465 for further explanations.

Warning: Being a text editor, **SEDIT** removes all trailing blanks in every line before saving a file. Do not save a file (such as an `"*.o"` file) where trailing blanks are part of the data.

FFList - Call Directory Editor

`FFList { FN {FT {FM}}}` will call the directory editor upon non-directories files.

Batch Mode: `Not Available`

`FFLIST` only displays non-directories. See The Directory Editor FLIST on page 465 for further explanations.

See Also: `DACCESS`, `DFLIST`, `FLIST`, `FLATH`, `FLPP`, `FMACRO`, `RFLIST`

Flist - Call Directory Editor

`Flist { FN {FT {FM}}}  will call the directory editor.`

Batch Mode: `Not Available`

This command is mapped to the `^f` key by default. See The Directory Editor FLIST on page 465 for further explanations.

See Also: DACCESS, DFLIST, FFLIST, FLATH, FLPP, FMACRO, RFLIST

FMACRO - Execute FLIST Macro

`FMAcro  ON|OFF`

Initial value: `OFF`
Level: `Global`

When `FMACRO` is `OFF`, **FLIST** looks for native commands before looking for macros. When `FMACRO` is `ON`, **FLIST** looks for macros before looking for native commands. See Using S/REXX Macros Within FLIST section on page 484 for more information.

FLOW - Reformats Text

`FLOW {target}` left justifies text and sets text within margins.

Scope: `All`

This command is mapped to the `Shift-Control-F` (`^F`) key by default.

`FLOW` reformats a portion of the current file defined by the `target` operand. `FLOW` adjusts the text within a paragraph so that all lines start at the left margin column (the first line starts at the paragraph indent column though), and all lines end before the right margin.

According to the settings defined by the `FORMAT` command described on page 276, `FLOW` may justify every line, and insert one or two spaces at the end of each sentence.

The margins and paragraph indent values are set with the `MARGINS` command described on page 310.

`target` may be one of the following:

`All`	All of the file is formatted.
`Cursor`	Has a special meaning. See below.
`CURSOR_Strict`	Has a special meaning. See below.
`:N`	Up to but not including the line `N`.
`+N`	Down `N` lines.
`-N`	Up `N` lines.
`+*` or `*`	Down to the end of file.
`-*`	Up to the top of file.
`.symb`	Up or Down to the line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the `LOCATE` command on page 303 for a precise string expression definition.

When `target` is not specified, `FLOW` formats the paragraph corresponding to the cursor location. When the cursor is not located upon a line of the current file, `FLOW` reformats the paragraph corresponding to the current line. If the cursor or the current line is a blank line, `FLOW` searches for the next non-blank line to locate the start of the paragraph to format.

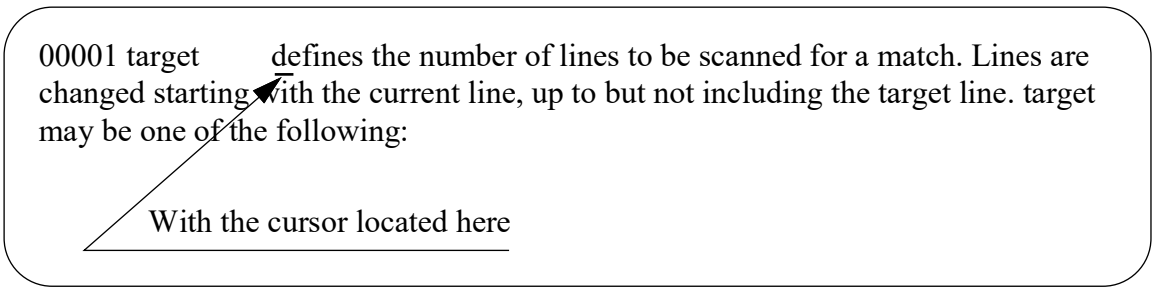
The cursor is moved to the line below the last line processed by the `FLOW` command.

Examples:

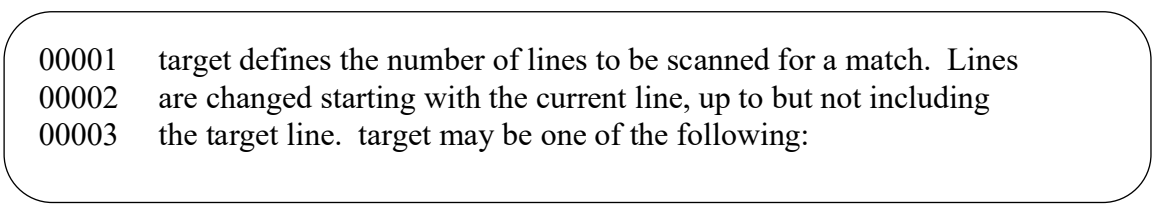
```
FLOW
FLOW                                    all
FLOW                                 cursor
FLOW                             cursor_strict
FLOW /str/
```

Using the CURSOR Operand

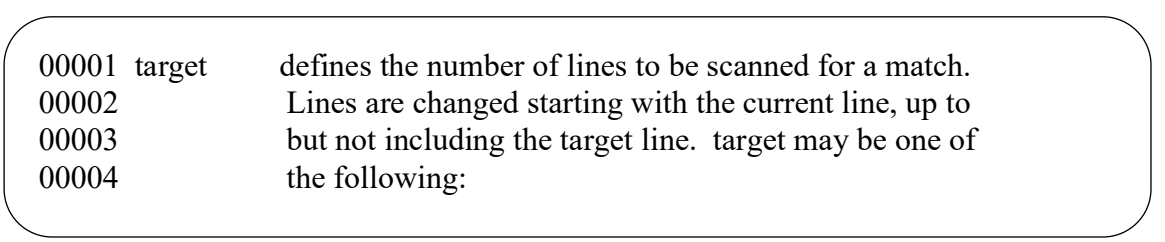
Consider the following text:



With MARGINS set to "5 72 +0", FLOW will reformat that text in the following way:



FLOW CURSOR does not modify the part of the data line located at the left of the cursor, and aligns the following lines between the cursor location and the right margin:



Using the CURSOR_STRICT Operand

The CURSOR_STRICT operand is similar to the CURSOR operand. The only difference is that **SEDIT** considers that the phrase starts at the cursor line instead of looking backwards for the start of the phrase.

See Also: CENTER, FORMAT, LEFTADJUST, LOCATE, MARGINS, POWERINPUT, RIGHTADJUST, TRUNC

FLPP - Directory Editor Parent Directory Display

`FLPP {ON|OFF}`

Initial value: `ON`

`FLPP` without argument displays the current value.

When `FLPP` is `ON`, the `FLIST` directory editor displays a "`..`" string. Clicking on this string opens a new **FLIST** level on the parent directory.

FLQuit - AQUIT + F

`FLQuit` executes a `AQUIT` command and then switches to the directory editor.

Batch Mode: `Not Available`

This command is mapped to the `^F1` key on Sun workstations, and `^R1` (`^Print-Screen`) on other workstations.

FN - Change Filename

`FN {filename}` renames the filename component of the file being edited.

If `filename` contains a period ("."), the filetype will be changed too.

If `filename` contains blanks, it must be surrounded with quotes or double quotes. If a filename contains a quote or a double quote, the quote must be escaped with a backslash.

Example: assume `/usr/m1/test.f` is the file currently being edited:

`fn test2` will change the name to `/usr/m1/test2.f`
`fn` will change the name to `/usr/m1/.f`
`fn test2.c` will change the name to `/usr/m1/test2.c`
`fn "a b"` will change the name to `/usr/m1/a b.c`

FOLLOW - Follow Links

```
FOLLOW {ON | OFF}
```

Initial value: ON
Level: Global

When FOLLOW is ON, **SEDIT** checks to see if a loaded file is a symbolic link, and replaces it with the file to which the symbolic link points.

FOLLOW OFF disables this behavior. This may be useful when using automounted directories, in which real names are often confusing for the end user.

Without parameters, FOLLOW displays its current setting.

Examples: FOLLOW OFF
FOLLOW

See Also: XEDIT

FONt - Change Font

FONt {fontname}

Query FONt

Batch Mode: Not Available

With no parameters, the command FONT shows in a fullscreen manner the available fonts on the server.

A font may be selected by clicking on its name with the left mouse button.

A return to the editor is achieved by pressing the F1 key.

Depressing the F2 key or ^m adds a fonts.files file in the editing ring, containing all the font names.

QUERY FONT displays the active font.

FORMAT - Set Formatting Parameters

```
FORMAT          {Justify|Nojustify}
                {Blank|Extended|DOT|DOTExtended
                {NONE|Single|DOUble}
```

Initial value: NOJUSTIFY BLANK DOUBLE
Level: File

FORMAT affects how paragraphs are formatted by the FLOW command, and how FLOW determines the start and the end of a paragraph.

Justify	the paragraphs are justified within the margins defined with the MARGINS command.
Nojustify	the paragraphs are not justified.
Blank	paragraphs are separated with a blank line.
Extended	paragraphs may also be separated with a blank line. In addition, a new paragraph is encountered if the left margin value is 1, and a line starts with a tabulation character, a blank character, a colon or a period.
DOT	paragraphs may also be separated with a blank line. In addition, a new paragraph is encountered if the previous line ends with one of the following characters: ! . ?
DOTExtended	combines the DOT and EXTENDED rules.
Single	one space is inserted after each sentence. A sentence is a string of characters within a paragraph ending with one of the following characters: ! . ? and followed by an uppercase character.
DOUble	two spaces are inserted after each sentence.
NONE	no spaces are inserted after each sentence.

These arguments can be entered in any order.

Without an argument, FORMAT displays the current setting.

Examples:
```
FORMAT B N S
FORMAT
```

See Also: CENTER, FLOW, LEFTADJUST, MARGINS, POWERINPUT, RIGHTADJUST, TRUNC

FORward - Scroll Forward

`FORward {N | *}` scrolls down `N` pages: the last line displayed becomes the current line `N` times.

Scope: `Display`

`FORWARD 0` makes the first line in the file become the current line.

`FORWARD *` makes the end of file the current line.

When the current line is the end of file, and when `MODE SCROLL WRAP` is in effect, `FORWARD` makes the first line the current line.

This command is mapped to the `F8` key by default.

Return Codes:		
	0	Normal
	1	End Of File Reached
	5	Invalid Operand

See Also: `MODE`

FT - Change Filetype

`FT {filetype}` renames the filetype component of the file being edited.

If `filetype` contains blanks, it must be surrounded with quotes or double quotes. If a filetype contains a quote or a double quote, the quote must be escaped with a backslash.

Examples: assume `/usr/m1/test.f` is the file currently being edited:

`ft p` will change the name to `/usr/m1/test2.p`
`ft` will change the name to `/usr/m1/test`
`ft "c d"` will change the name to `/usr/m1/test/c d`

GET - Insert Data

`Get {fn {ft {fd{ firstrec{ numrec}}}}}` inserts data.

`Get {fn{ firstrec{ numrec}}}`

Without parameters, `GET` inserts data previously saved either by a `PUT` command or by a `PU/PP` prefix command at the current line location.

With parameters, `GET` will construct the file name to be searched for according to `fn`, `ft` and `fd`.

`fn` is the filename part of the file. However, if `fn` starts with "`~`", "`/`", "`./`" or "`../`", `fn` will be considered as a full **UNIX** or **WINDOWS** name, and `ft` and `fd` must not be specified.

`ft` is the filetype part of the file. When `ft` is omitted, the filetype of the current edited file will be used. When `ft` is specified as a period (`.`), no filetype will be used.

`fd` is the directory to be searched for. When not specified, or specified as a question mark (`?`), all the directories described in the `PATH` (or `XPATH`) environment variable, or accessed with the `ACCESS` command, will be searched for.

`firstrec` is the first line number to be inserted. When not specified, the first line in the file will be the first inserted line.

`numrec` specifies the number of lines to be inserted. When not specified, or specified as `*`, all the lines following the line `firstrec` will be inserted.

When `MODE GET NOSTAY` is in effect, the last inserted line becomes the current line.

Examples: If "`test.f`" is the file currently being edited:

`get test1`	will load `test1.f`
`get test1 F`	will load `test1.F`
`get test1 .`	will load `test1`
`get ./test1`	will load `./test1`
`get test1 . ? 2 5`	will load 5 lines starting at line 2 of the `test1` file, searching for this file in the accessed directories.
`get ~/test1 2 5`	does the same with `~/test1`.
`get`	will insert data previously saved by a `PUT` command.

Under APL, "`get LIST`" will insert the APL object "`LIST`".

See Also: `ACCESS`, `MODE`, `PUT`

GET_Panel - Fullscreen User Interface

```
GET_Panel      |   panelfile
               |   refresh                          panelfile
               |   cursor            nme            panelfile
               |   refresh cursor nme panelfile
```

Batch Mode: Not Available

When the refresh option is specified, GET_PANEL displays the panel without waiting for a user action.

When the cursor nme option is specified, GET_PANEL places the cursor on the nme field.

If panelfile does not start with a directory indicator, like "/", "./", "~/", it will be searched for in the current directory first.

If not found, it will be searched for in the directories described by the environment variable XPATH, or PATH, or in the directories accessed by the command ACCESS.

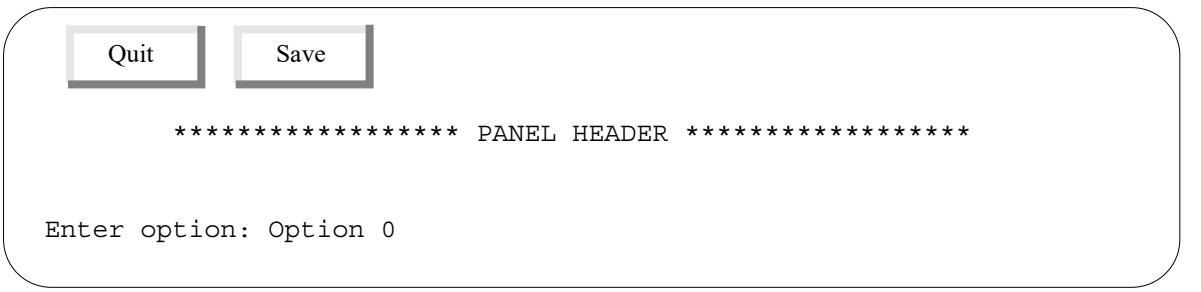
Then, a fullscreen panel instance of panelfile will be displayed. The user will be able to fill in the input fields, and enter an action keystroke such as "return" or "F2".

After this action keystroke, **SEDIT** will save the contents of each input field into an environment variable whose name is the field name, save the action keystroke in the RETURN environment variable, save the mouse position in the MOUSE environment variable, save the cursor position in the CURSOR environment variable and return to the editor.

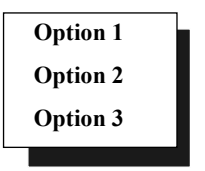
The file {install-dir}/demo/sample_panel is an example of such a file:

```
*
*   Sample panel for the "get_panel" command
*

Button "Quit"  "Save"

name     header
start    2 1
size     1 90
color    maroon
hi       normal
type     output
content  "          **********************  PANEL HEADER
      **********************"

*
* Sample output field
*
name     output1
start    4 1
size     1 13
color    black
hi       normal
type     output
content  Enter option:

*
* Sample input field
*
name      OPTION
start     4 15
size      1 20
color     red
hi        normal
type      input
intensity 1
content   Option 0
menu      "Option 1" "Option 2" "Option 3"
```

Typing `get_panel {install-dir}/demo/sample_panel` will display the following screen:



Clicking with the third mouse button on the `Option 0` field will bring up the following menu:



Releasing the mouse will fill this field with the selected option.

Typing `^r` will redraw the original screen.

Typing `^c` will cancel the `get_panel` command without further reading.

Clicking on the first button `(Quit)` will fill the `RETURN` variable with the string `B1`.

Each field is described by the following attributes:

`Name nme` — `nme` is the environment variable which will be used to store the field content.

`STart y x` — the line and column starting location. Upper-left corner is `1 1`.

`SIze ll cc` — the field size: `ll` is the number of lines, `cc` is the number of columns.

`Color col` — col is the field color. See the `COLOR` command on page 182 for a complete list of all available colors.

`Hightlight hlt` — `hlt` is the hightlight which will be used:

`Normal`	No hightlight.
`Underline`	The field will be underlined.
`Reverse`	The field will be displayed in reverse video.

`Type tpe` — `tpe` may be one of the following:

`Input`	You are allowed to type any character.
`Output`	You are not allowed to type anything. The field content will not be saved in the `nme` environment variable.

	`Numerical`	You are allowed to type any numeric character.
`Menu`	`string1 {string2 ..}`	A menu made with the different strings will be displayed each time the user clicks on the field with the third mouse button. The field will be filled with the selected string.
`Intensity 0|1|2`		A `0` intensity allows the user to create a field whose contents are not displayed. A `2` intensity displays characters in bold.
`CONtent cnt`		The original field content. If the `nme` environment variable already exist, its contents will override the `cnt` value. `cnt` may start with an optional `"`. The `content cnt` field may be omitted.

Note: The created environment variables will be defined in the **SEDIT** main process. Since external macros run on different processes, the user cannot call the `get_panel` command within an external macro, and then get the results directly in the same macro. The user must use the `extract environ` facility to retrieve the **SEDIT** environment variables.

GLOBALCase - Global File Case Handling

```
GLOBALCase {Respect|Ignore}
```

Initial value (UNIX): RESPECT
Initial value (WINDOWS): IGNORE

The GLOBALCASE setting is used on the following occasions:

- When the XEDIT command is used, **SEDIT** checks if the requested file is in the editing ring before attempting to load it from disk. When GLOBALCASE is set to IGNORE, the checking is not case sensitive.
- When loading a new file in the editing ring, **SEDIT** checks the filetype of the file to match a filetype described with the SYNTAX command to apply the corresponding syntactic rules. When GLOBALCASE is set to IGNORE, the checking is not case sensitive.

Without parameters, GLOBALCASE displays its current setting.

HAsh - Scan Directories

```
HAsh {dir1 {dir2} {..}}
```

HASH scans every directory passed as an argument, searching and loading in memory every *.x, *.ex and *.sedit file. These files will then be available as macro commands.

If no directory is specified, every directory described in the PATH or XPATH environment variables will be scanned.

Any of the dirn entries may also be a file instead of a directory.

Help - Fullscreen Help

`Help`	Shows in fullscreen mode all the available **SEDIT** commands help files.
`Help helpfile`	Displays the command related `helpfile` help file. If `helpfile` is not a command related help file, the `TASK` and the `REXX` related help files will be searched for.
`Help TASK`	Shows in fullscreen mode all the available task related help files.
`HELP Task helpfile`	Displays the `TASK` related `helpfile` file.
`Help REXX`	Shows in fullscreen mode all the available **S/REXX** related help files.
`HELP Rexx helpfile`	Displays the **S/REXX** related `helpfile` file.
`Help -dir drd`	The directory *drd* will be used when scanning for help files. By default, `HELP` uses the `$xhome/help` directory.

Batch Mode: `Not Available`

`HELP` without arguments displays the following screen:

```
          *****   Click or Tab+Return to display help   *****

     #              autosave       c_starts       compile
     *              backup         cancel         complete
     +*             backward       cappend        compress
     +              bottom         caps           copy
     -*             bounds         case           count
     -              builtin        cd             coverlay
     -/             button         cdelete        create
     -\             c_aplstop      center         creplace
     /              c_apltrace     center_end     ctags
     :              c_dup          center_init    ctlchar
     =              c_endcurl      center_send    curline
     ?              c_endline      cfirst         cursor
     ?i             c_ends         change         daccess
     \              c_endsr        chg            delay
     access         c_ext          cinsert        delete
     add            c_lineadd      clast          display
     all            c_linedel      clearerrors    down
     apl            c_scrh         clocate        duplicat
     aquit          c_scrj         cmdline        dy_all
     arbchar        c_scrv         cn             dy_exclude
     autoexp        c_split        color          dy_find
     autoi          c_startline    command        dy_font

     1/^c:QUIT  5:task 7:Scroll up  8:Scroll down  S-F11:top  S-F12:bot
```

Clicking on any item such as "cursor" loads the corresponding help file in Read Only mode. To customize and save this help file, you must issue the RW ON command before issuing the SAVE command.

On ASCII terminals, move the cursor (using the TAB key for example) and depress the Return or Enter key.

Depressing the F5 key shows a similar task help panel.

Depressing the F5 key again shows a similar **S/REXX** help panel.

HELP cmd immediately loads the cmd related file. The command cmd can be abbreviated in the same way it can be used within **SEDIT**.

HELP task displays the task fullscreen panel.

HELP rexx displays the **S/REXX** help fullscreen panel.

Examples:		
	h h	displays these help manual pages.
	help	
	help task	
	help hi	displays the HIGHLIGHT help file.
	help rexx	displays the **S/REXX** help files.
	help prefix	displays the PREFIX command help file.
	help t prefix	displays the PREFIX task help file.

On Sun workstations, the command HELP is mapped to the L11/HELP key by default. HELP TASK is mapped to Shift-HELP, and HELP REXX to Control-HELP.

See Also: RW

HEX - Hexadecimal Target

`HEX ON|OFF`

Initial value: `OFF`

When `HEX` is set to `ON`, targets and string operands may be specified in hexadecimal notation.

Examples:

`hex on`	
`c /x'31'/x'32'`	changes all "`1`" with "`2`".
`/x'31'`	searches for "`1`".

See Also: `CHANGE`, `/`

HEXType - Hexadecimal Display

`HEXType { target }` creates a new file displaying the current file content in both hexadecimal and ASCII representation.

When `target` is not specified, the current line will be typed.

`target` defines the number of lines to be typed. Lines are typed starting with the current line, up to but not including the target line. `target` may be one of the following:

`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`+*` or `*`	The end of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

The last typed line becomes the current line.

The new file will be named `$fn.hextype`, where `$fn` is the currently edited file filename.

Example: assume the user is editing the following "`test.c`" file:

```
/usr/m1/test.c                                  Len:6  mod:
test.c


00001 /*
00002  * test file
00003  */
00004 main()
00005 {
00006 }
```

Typing `hextype /{/` will create the following `test.hextype` file:

```
/usr/m1/test.hextype                          Len:6  mod:
test.c test.hextype


00001 2F2A
00002  / *
00003 202A2020 74657374 2066696C 65
00004    *      t e s t    f i l  e
00005 202A2F
00006    * /
00007 6D61696E 2829
00008  m a i n  ( )
```

HIghlight - Disable Highlight

`HIghlight ON|OFF` sets the highlight feature ON or OFF.

Initial value: `ON`
Level: `Global`

Some ASCII terminals do not properly display reverse video characters. In such cases, review the "`profile.sedit`" macro to execute the "`highlight off`" command when running **SEDIT** on that terminal.

Example:

If your are running a "`wyse50`" terminal, type the following bold-faced line:

```
if version = 'curses' then
 do
  /*
   * If your terminal does not handle reverse video characters,
   * ucomment and update the following lines
   */

   /* if $TERM = '??my-terminal??' then "highlight off" */
      if $TERM = 'wyse50' then "highlight off"
```

`HIGHLIGHT` without arguments displays the highlight status.

HIStory - Set the History Length Buffer

HIStory {N}

Initial value: `10`
Level: `Global`

`HISTORY` sets to `N` the length of the history buffer where the commands entered in the command field are saved. These commands may be redisplayed by using the `?` and `?I` commands, generally assigned to the `F9` and `Shift F9` keys.

When `N` is not specified, the current value will be displayed.

See Also: `SHOWHISTORY`, `XSHOWHISTORY`, `?`, `?I`

HOme - Switch Cursor Position

`HOme` — If the cursor is in a DATA FIELD, it will be moved to the COMMAND FIELD. A subsequent action will restore its previous location.

This command is a shortcut for the `"cursor home"` command and is mapped to the `F10` key by default.

When `CMDLINE` is `OFF`, using the `HOME` or `CURSOR HOME` command restores the command line in order to let the user enter a command. Once the command is processed, the command line is removed.

See Also: `CMDLINE`, `CURSOR`

IMPcmscp - Implicit UNIX or WINDOWS Execution

`IMPcmscp` `ON|XON|OFF`

Initial value: `XON (non-batch mode)`
`OFF (batch mode)`
Level: `Global`

When `IMPCMSCP` is `OFF`, **SEDIT** issues an error message when the user types an unknown command. If `BEEP` is `ON` (the default), **SEDIT** sounds a warning beep.

On **UNIX** systems, when `IMPCMSCP` is `ON`, **SEDIT** passes to the Bourne Shell `sh` any unknown command, and displays its results in the window **SEDIT** was started from. If the command ends with an `&` sign, this command will run in the background.

When `IMPCMSCP` is `XON`, **SEDIT** also passes the unknown command to `sh`, but retrieves its results within an editable file. A final `&` sign will be ignored.

On **WINDOWS** systems, `ON` and `XON` execute the unknown command directly in a similar way.

See Also: `BEEP`, `MESSAGESDIR`, `SHELL`, `XSHELL`

Input- Add a Text Line

`Input {text}` adds a line after the current line.

A new line will be inserted after the current line. If `text` is omitted, the line will be a blank line.

ISOConv - Set ISO Conversion

`ISOConv ON|OFF` sets the automatic `ISO` conversion `ON` or `OFF`.

Initial value: `ON`
Level: `Global`

On some architectures, the keyboard always sends to the application ISO8859-1 characters, while the environment setting may require the use of native font sets, such as `IBM-850` characters on IBMs and `Roman8` on HPs.

When `ISOCONV` is set to `ON`, automatic conversion between `ISO8859-1` set and native set will take place.

The `README FIRST` document explains what architectures currently support this conversion.

A side effect of the `ISOCONV ON` command is that it will unload any translation table loaded with the `KEYBOARD` command.

See Also: `KEYBOARD`

ISwitch - Switch Between files

ISwitch allows the user to switch from one file to another in a circular sequence in reversed order.

This command is mapped to the `S-F5` key by default.

When the user is editing multiple files, using `F5` and `Shift-F5` will toggle between two of them without visiting others.

See Also: `SWITCH`

KEEPBLanks - Trailing Blanks Removal

`KEEPBLanks ON|OFF {FT string}`
disables or enables the automatic removal of trailing blanks.

Initial value: `OFF FT *`
Level: `File`

By default, **SEDIT** removes all trailing blanks in every line when loading a file, when editing a line and when saving a file.

Trailing blanks are generally meaningless within text files, but may be essential within binary files. When `KEEPBLANKS` is set to `ON`, **SEDIT** does not remove trailing blanks.

In addition, when not running in character mode, when SHBLANK is set to `ON` (the default), and when the last character in a line is a blank, **SEDIT** displays a thin vertical bar just after that last blank character.

If you specify `FT string`, this setting will become the default for every new file with a `string` filetype. If `FT` is `*`, this will be the default for any file. A period (`.`) may be used if no filetype is required. This setting is also applied to the current file, unless its filetype does not match `FT`.

To force the opening of a file in `KEEPBLANKS ON` mode, the user can use the `XKB` command.

Examples:
`keepbl on`
`keepbl on ft o` **SEDIT** will not remove blanks on files with an "`.o`" extension.

Notes: `KEEPBLANKS ON` is not sufficient to preserve binary files integrity. Use `BINARY ON` or `XBIN` instead.

Using `KEEPBLANKS ON` on a file already loaded is not sufficient to preserve its integrity since trailing blanks removal is done at load time before the file is actually displayed. Use either `XKB file` or `KEEPBLANKS ON FT xx` before loading `file.xx`

See Also: AUTOBIN, BINARY, SHBLANK, XBIN, XKB

KEYboard - Redefine Keyboard

`KEYboard filename {type}` redefines the keyboard according to the file `filename`.

`type` is an optional parameter specifying the keyboard type:

- 1 means an older style Sun keyboard with 9 top keys.
- 2 means a newer style Sun keyboard with 12 top keys.

`"filename"` is a file describing the keyboard mapping.
If the file name does not start with a directory indicator such as `"."`, `"/"` or `"~"`, the current directory will be searched first, and then the directories described either in the environment variable `XPATH` (if there is one) or in `PATH`, or in directories accessed by the `ACCESS` command.

If `filename` is a single period, it will be ignored, allowing the user to specify the keyboard type without redefining the keyboard.

A blank line or a line starting with `"*"`, `"#"` or `"+"` will be ignored.

Every line must contain three fields separated by a colon:

- The rank
  0 means non-APL standard mode.
  1 means non-APL shifted mode.
  2 means non-APL meta mode.
  3 means APL standard mode.
  4 means APL shifted mode.
  5 means APL meta mode.
  6 describes the real physical keyboard. It must be used only if the keyboard is not an English `QWERTY` keyboard. In this case, all the keys must be described.
- The emitted character is the character sent by the standard keyboard in non-APL mode.
- The displayed character is the character mapped on the key corresponding to the emitted character as described above. A 0x00 value will inhibit the key. If the rank is 6, it must be the standard upper character.

A character may be described either quoted or in hexadecimal. The `meta` key is labelled `left` or `right` on Sun type 3 keyboards, and ◊ on the new type 4 keyboards.

Examples:
`0:'0':'0'` maps the `'0'` character to the `'0'` sun keyboard key in the non-APL standard mode.

`4:'i':0xD4` maps the `iota` APL character to the `shift-i` key in the APL shifted mode.

The hexadecimal value for a character is the value it has in the font used to display it.
Note that the `"Escape"` key may be redefined for that usage by setting `"0x1B"` in the emitted character field.

SEDIT on **UNIX** systems is distributed with two keyboard translation samples:

- /home/xed/keyboard/STANDARD.TRANS

  This file redefines the keyboard mapping to its original built-in setting. If the user wants to use this setting (described in Appendix A), the user must start DYALOG APL with the script `"/home/xed/aplsedit"` in order to have the same keyboard mapping within APL.

  This setting is more logical than the default DYALOG APL setting because almost every character common to APL and non-APL modes is mapped to the same location.

- /home/xed/keyboard/DYALOG.TRANS

  This file redefines the keyboard mapping according to the usual DYALOG APL Sun keyboard mapping.

To use either one of these files, the user may include the command `KEYBOARD` in the `"PROFILE.sedit"` file for APL usage, and in the "`profile.sedit`" file for **UNIX** or **WINDOWS** usage.

Examples:
```
keyboard                          DYALOG.TRANS
keyboard                    .                2
keyboard STANDARD.TRANS 1
```

Using MKTRANS

`mktrans` is only available on **UNIX** systems.

`mktrans` is a utility which automatically generates a `./keyboard/$1.TRANS` keyboard translation table, where `$1` is the first argument passed to `mktrans`. The user must have write authorization on the current directory before starting.

The user must run `mktrans` using the keyboard the translation table is meant to.

For example, to create a `/home/xed/keyboard/MY.TRANS` translation table, type the following commands:

```
% cd /home/xed
% ./mktrans MY
```

This will display the following screen:

```
                    Use every key and then type ^n



                          Type ^c to cancel
```

The user must now use every ASCII key available on the keyboard. The functions or control keys, such as `F1` or `Shift` must not be used.

When all the keys are typed in, the user must type Control-n (hold down the control key, and then type n while the control key is down).

When running on an ASCII terminal, the user will then have to hold down the shift key, and while keeping this key down, use again every ASCII key in same order. This step is not necessary when running the **MOTIF** `mktrans` version.

This translation table may now be used within the `profile.sedit` initialization file in the following manner:

```
'keyboard $xhome/keyboard/MY.TRANS'
```

LASTFiles - Set the LASTFILES Parameters

`LASTFiles {ON|OFF {N {loc}}}`

Initial value: `ON 30 ~/sedit.lastfiles`
Level: `Global`

When `LASTFILES` is `ON`, **SEDIT** saves in the `loc` file the names of the `N` last opened files.

The `{install-dir}/xmac/dy_lastfiles.sedit` macro can be used to display the last opened files, allowing the user to open them again.

`dy_lastfiles` is assigned by default to the `File - Open Last files` menu.

Note: On **WINDOWS** systems, the `HOME` environment variable is usually not defined. In this case, the "`~/`" or "`~\`" directory shortcut is translated into "`C:\`".

See Also: `DY_LASTFILES`

LASTLorc - Set LASTLORC Buffer

`LASTLorc {string}`	sets the `LASTLORC` buffer.
`QUERY LASTLorc`	displays the `LASTLORC` buffer.

Initial value: `Empty string`
Level: `Global`

The `LASTLORC` buffer memorizes the string passed to the `LOCATE`, `CHANGE`, `SCHANGE`, `CN`, `SCN`, `FIND`, `FINDUP`, `NFIND` and `NFINDUP` commands.

When `string` is not specified, the `LASTLORC` buffer is set to a zero length string.

See Also: `LOCATE`, `CHANGE`, `SCHANGE`, `CN`, `SCN`, `FIND`, `FINDUP`, `NFIND`, `NFINDUP`

LEft - Scroll Left

`LEft {N}` is used to alter the columns that are to be displayed.

`"startc"` is the first column.

`"endc"` is the last column.

If `N` is omitted a value of 1 is assumed.

If `N` is 0, the original setting will be restored.

In all other cases, `"startc"` and `"endc"` will be decremented by `N`, shifting the data to the right by N positions.

The command `"Left 40"` is mapped to the `C-F7` key by default.

See Also: `RIGHT`, `VERIFY`

LEFTAdjust - Left-Adjusting Text

```
LEFTAdjust {target}
```

Scope: All

This command is mapped to the Shift-Control-L (^L) key by default.

LEFTADJUST reformats a portion of the current file defined by the target operand. LEFTADJUST positions the first non-blank character at the left margin defined with the MARGINS command.

target may be one of the following:

All	All the file is formatted.
Sel	Left-adjusts the selected lines. If the selection is rectangular, LEFTADJUST left-adjusts the contents of the selected area, the text outside the selection not being modified.
:N	Up to but not including the line N.
+N	Down N lines.
-N	Up N lines.
+* or *	Down to the end of file.
-*	Up to the top of file.
.symb	Up or Down to the line which has been assigned the .symb symbolic name by using the POINT command, or a .symb prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

When target is not specified, LEFTADJUST formats the line corresponding to the cursor location. When the cursor is not located upon a line of the current file, LEFTADJUST reformats the current line.

Examples:

```
LEFTADJUST
LEFTADJUST                                    all
LEFTADJUST                                    sel
LEFTADJUST /str/
```

See Also: CENTER, FLOW, FORMAT, LOCATE, MARGINS, POWERINPUT, RIGHTADJUST

LIMIT - Set File Size Limit

`LIMIT {nn{m}}`

Initial value: `0`
Level: `Global`

The `m` modifier may be one of the following:

`K`	Kilobyte. One kilobyte is 1024 bytes.
`M`	Megabyte. One megabyte is 1024 kilobytes.
`G`	Gigabyte. One gigabyte is 1024 megabytes.
`T`	Terabyte. One terabyte is 1024 gigabytes.

When `LIMIT` is set to `0`, **SEDIT** accepts any file to edit.

When `LIMIT` is set to *nn*, **SEDIT** will not open a file larger than *nn* bytes.

Examples:		
	`limit`	displays the current limit.
	`limit 0`	removes any size limitation.
	`limit 1e6`	forbids editing any file larger than 1000000 bytes.
	`limit 100m`	forbids editing any file larger than 104,857,600 bytes.

Large Files support

A large file is a file larger than 2,147,483,647 bytes. **SEDIT** supports large files on the operating systems displayed when typing `HELP LARGEFILES`.

However, the length of a line is limited to 2,147,483,647 characters, and the number of lines is also limited to 2,147,483,647 lines.

The amount of memory needed by **SEDIT** to edit a file increases when the average line size decreases. Editing a file of 1GB whose average line size is 80 bytes requires 2GB of memory.

See Also: `XEDIT`

LINECol

`LINECol {ON|OFF}` sets the line/column display ON or OFF.

Initial value: `ON`
Level: `Global`

When `LINECOL` is on, **SEDIT** displays the line and column number corresponding to the cursor position when the cursor is placed on a data field.

LINENd - Separator Change

`LINENd ON|OFF {value}` enables or disables the character separator when passing commands.

Initial value: `line-feed`
Level: `Global`

`value` is an optional parameter specifying the separator between commands. It is originally set to `line-feed`.

`line-feed` is assigned to the following keys, depending on the workstation in use:

SUN Type 4 keyboard	Control-line-feed
SUN Type 5 keyboard	Control-AltGraph
IBM RS/6000	Control-Right-Alt
SiliconGraphics	Control-Right-Alt
DecStations	Control-PF3
DecStations with PC keyboards	Control-Right-Alt
HP	Control-Select
HP with PC keyboards	Control-Right-Alt
ASCII terminals	Control-l
Windows systems	Control-Right-Alt

The `SEP` command is a synonym to the `LINEND` command.

Examples:

```
linend on ;
```
sets the separator to `";"`.

```
top;c /i/j/
```
changes every `"i"` to `"j"` from the beginning of the file.

See Also: SEP

LIsten - Listen for External Commands

Available on: `UNIX`

Batch Mode: `Not Available`

`LIsten` *nnn*	makes **SEDIT** listen on a socket for commands sent by another application program. The socket port number will be *nnn*.
`LIsten OFF`	stops **SEDIT** listening.

The "`$xhome/saber/send_sedit.c`" file is an example of how to communicate with **SEDIT** from another application.

Locate (XEDIT MODE) - Locate a Target

```
XEDLocate
Locate      target          {cmd}
:           end-target
/           end-target
+           end-target
-           end-target
~           end-target
.           end-target
*
N
```

When MODE COMMAND XEDIT is in effect, LOCATE calls the XEDIT mode XEDLOCATE command. PDFLOCATE may be used to call the ISPF/PDF mode LOCATE command.

The LOCATE command scans the file looking for the specified target.

When the target is reached, cmd will be executed as a standard **SEDIT** command.

When target starts with one of the ":/+-~.*" special characters, or with a digit, the LOCATE keyword may be omitted.

target may be one of the following:

:N	The Nth line becomes the current line.
N	When MODE NUMBER GOTO is in effect, the Nth line becomes the current line. The is the **SEDIT** default behavior. When MODE NUMBER SCROLL is in effect, **SEDIT** scrolls down N lines. This mode is the default when **SEDIT** is started with the /home/xed/xedit command. When used as another command operand, such as delete N, N always means N lines.
+N	Scrolls down N lines.
-N	Scrolls up N lines.
+* or *	The end of file.
-*	The top of file.
.symb	The line which has been assigned the .symb symbolic name by using the POINT command, or a .symb prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

The search direction is toward the end of the file (+), which is the default, or toward the top of the file (-).

The not (~) symbol means that **SEDIT** is to locate a file line which does not contain the specified string.

string may be a character string, such as Hello, or a hexadecimal string, such as x'313233' when HEX ON is in effect. The ARBCHAR command allows the user to specify strings with imbedded arbitrary characters.

The trailing / delimiter is necessary only when string ends with blanks, or when a logical operator is following.

The / delimiter is in fact the first non-blank character found after the locate command. It must be a slash when the LOCATE keyword is omitted. /Hello or LOCATE;Hello is the same command. The delimiter cannot be a period.

The OR | symbol means that the matched line must match the target before the |, or the target after the |.

The AND & symbol means that the matched line must match the target before the &, and the target after the &.

Notes: The ZONE command allows the user to choose the starting and ending columns to be scanned.
When MODE LOCATE NOSTAY is in effect (the **SEDIT** default), these columns are also restricted by the VERIFY column definition: the user can only scan the visible part of the file. The cursor will be moved to the beginning of the target. A subsequent search will start at the cursor location.
When MODE LOCATE STAY is in effect (the **XEDIT** behavior), the cursors stays in the command line, the search is not restricted by the VERIFY setting, and the next search will start on the next (or previous) line.
When WRAP is set to ON, **SEDIT** continues the search up to the line preceding the current line within the / or +/ commands. The search is continued following the current line within the -/ command.
When WRAP is set to OFF, the search ends at the end (of top) of file.

Examples:		
	`/test`	searches for the `test` string.
	`/`	searches again for the `test` string.
	`/test /add`	searches for the "`test` " string, and adds one line after the matched line.
	`/a=b/cf/`	searches for the `a=b/cf` string.
	`/a=b/cf`	searches for the `a=b` string, and executes the `cf` command.
	`///`	searches for the `/` character.
	`3`	the line `3` becomes the current line, or scrolls down 3 lines when `MODE NUMBER SCROLL` is in effect.
	`:4add3`	adds 3 lines after the line `4`.
	`/str/&/x'31'`	searches for a line containing both `str` and `1`. `x'31'` is the ASCII value of the "`1`" character.
	`.part1 add2`	adds 2 lines after the line which has been assigned the `.part1` symbolic name.

Return Codes:		
	0	Normal
	1	TOF or EOF reached
	2	Target Not Found
	5	Invalid Operand

See Also: ARBCHAR, BEEP, CASE, MODE, POINT, STAY, ZONE, WRAP, R/, R-/, \, -\

Locate (ISPF MODE) - Locate a Line

```
Locate      {FIRST }   {COMMAND }    {range}
PDFLocate   {LAST  }   {ERROR   }
            {NEXT  }   {EXCLUDED}
            {PREV  }   {X       }
                       {LABEL   }

Locate      .xxxx

Locate      number
```

When MODE COMMAND ISPF is in effect, LOCATE calls the ISPF mode PDFLOCATE command. XEDLOCATE may be used to call the XEDIT mode LOCATE command.

LOCATE positions the current line to the targeted line.

.xxxx positions the current line on the line labelled .xxxx.

number positions the current line on the line number.

FIRST to search from the first line, proceeding forward.

LAST to search from the last line, proceeding backward.

NEXT to search from the first displayed line, proceeding forward. NEXT is the default.

PREV to search from the first displayed line, backward.

COMMAND to search for a line with a pending prefix command.

ERROR to search for a line with a compilation error.

EXCLUDED or **X**
to search for an excluded line.

LABEL to search for a line with any label.

range Two labels that identify the lines to be searched for.
A label may be created by typing a .xxxx string on a prefix zone, or by using the XEDIT POINT command described on page 335.
A label may also be one of the ISPF/PDF predefined labels:

.zf or .zfirst	the first line.
.zl or .zlast	the last line.
.zcsr	the cursor line.

Examples:

```
l3                      goes to line 3.
l command last          searches for the last pending command.
l first error .a .b
```

See Also: COMPILE, NEXTERROR

LOWercas - Translate Into Lowercase

LOWercas {target}

Scope: Display

`target` defines the number of lines to be translated into lowercase. Lines are translated starting with the current line, up to but not including the target line. `target` may be one of the following:

`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`-N`	Up `N` lines.
`+*` or `*`	The end of file.
`-*`	The top of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

If `target` is omitted, a value of 1 is assumed.

Examples:		
	`low`	translates one line.
	`low:5`	translates all lines up to line 4.
	`lowercas*`	translates the rest of the file.

See Also: STAY, S_LOWER

LRecl - Set Record Length

`LRecl *|N {FT string}` sets the line length.

Initial value: `*`
Level: `File`

When the record length is set to the `*` value, no change will occur to the file when it is written to disk.

When the record length is set to the `N` value, saving a file will create a file in which every line length will be `N` bytes.

Lines longer than `N` will be truncated, and lines shorter than `N` will be padded with spaces.

If `FT string` is specified, this setting will become the default for every new file with a `string` filetype.

If `FT` is `*`, this will be the default for any file.

If `FT` is a period, this will become the default for files with no filetype. This setting is also applied to the current file, unless its filetype does not match `FT`.

Examples:

```
lrecl 80 ft f
```
will create 80 character wide `FORTRAN` files.

```
lrecl *
lr 92 ft .
```

See Also: `TRUNC`

MACRO - Execute a Macro

`MACRO`	`mac`	
`SET MACRO`	`ON|OFF`	
`QUERY MACRO`		displays ON or OFF.

Initial value: `OFF`
Level: `Global`

When `SET MACRO` is `OFF`, **SEDIT** looks for native commands before looking for macros.

When `SET MACRO` is `ON`, **SEDIT** looks for macros before looking for native commands.

`MACRO mac` allows the `mac` macro to execute without checking for native commands or for synonyms.

`MACRO` also allows calls to a macro ending with non-alphabetic characters. For example, "`PUT2`" usually means "`PUT 2`". `MACRO PUT2` means "execute the macro named `PUT2`".

In particular, the macros `set_sun_t3`, `set_sun_t4` and `set_sun_t5` must be executed by entering "`macro set_sun_ti`".

See Also: `COMMAND`

MAN - Display UNIX Reference Manual Pages

`MAN string`	displays the **UNIX** reference manual pages in the same format as the **UNIX** `man` command.

`MAN` creates a new file *`word`*`.man` in the editing ring, where *`word`* is `string` with spaces replaced by the `_` underscore character. If *`word`*`.man` already exists, it will be overwritten.

Examples:	`man open`	creates the `open.man` file.
	`man -k file`	creates the `-k_file.man` file.

See Also: `MESSAGESDIR`, `S_MAN`

MARgins - Set Text Margins

```
MARgins left right|* { {+|-} indent}
```

Initial value: 1 72 +0
Level: File

The MARGINS settings are used by the CENTER, FLOW, FORMAT, LEFTADJUST, POWERINPUT and RIGHTADJUST commands.

`left` is the left margin. The left margin must be less than or equal to the right margin.

`right` is the right margin. When specified as an asterisk, the right margin is set to the same value as the truncation column defined with the TRUNC command.

`indent` is the paragraph indent column. `indent` may be specified as an absolute column number ("2"), or as a displacement relative to the left margin ("`+3`" or "`-5`").
If `indent` has been specified as a displacement, when the `left` and `right` margins are changed again, using the MARGIN command without specifying an `indent` parameter, the paragraph indent column is reset to the new `left` value plus the previous `indent` value.

The scale line defined with the SCALE command displays a `^` character at the left margin position, a `@` character at the first line indent position and a `$` character at the right margin position.

Without any argument, MARGINS displays the current setting.

Examples:

```
MAR 2 75
```
The left margin is set to 2, the right margin is set to 75, and the paragraph indent column is unchanged.

```
MAR 2 75 +10
```
The paragraph indent column is set to 12.

```
MAR 10 50
```
The left margin is set to 10, the right margin is set to 50, and the paragraph indent column is set to 20.

```
MAR 2 75 10
```
The paragraph indent column is set to 10.

```
MAR 12 55
```
The left margin is set to 10, the right margin is set to 55, and the paragraph indent column remains unchanged, keeping the previous absolute 10 value.

```
MAR
```
displays the current settings.

See Also: CENTER, FLOW, FORMAT, LEFTADJUST, POWERINPUT, RIGHTADJUST, SCALE, TRUNC

MAtch - Match Delimiters

`MAtch {Sel | Cursor}` finds a matching delimiter.

`MATCH SEL` If there is a selection within the current file, **SEDIT** attempts to match the first selected character. If not, **SEDIT** attempts to match the character at the current cursor position. If this character is one of the '`{ [ (<`' delimiters, **SEDIT** searches for its matching delimiter ('`} ] ) >`'), and sets a rectangular selection displaying the bounds between delimiters.

`MATCH CURSOR` **SEDIT** attempts to match the character at the current cursor position. If this character is one of the '`{ [ (<`' delimiters, **SEDIT** searches for its matching delimiter ('`} ] ) >`'), and moves the cursor to the matching delimiter, scrolling the file if necessary.

`MATCH` is mapped to the `L2` key on Sun workstations by default, and to `^m` on other workstations.

`MATCH CURSOR` is assigned to `Shift-L2`, and `^M` (`Shift-Control-m`).

MBUtton - Create a Menu Button

`MBUtton string1 ff` creates a button using `string1` as a label. The menu described by the `ff` file will be attached to that button.

Available on: `UNIX`
Batch Mode: `Not Available`

Using the left mouse button selects the first menu choice directly. Using the right mouse button displays the menu.

Example: `mbu FILE /home/xed/ff`

where `/home/xed/ff` is the following:

```
" Save current file           "   save
" Save and leave current file "   file
" Abandon current file        "   MENU
          " quit   " quit
          " qquit " qquit
" Abandon current file        "   END
```

The first string (for instance `" Save and leave current file "`) is displayed within the menu, and the second string (for instance `file`) is executed as a command when the first one is selected with the third mouse button. When the second string is the string `MENU`, it starts a pullright menu which must end with a matching `END` string.

`ff` may reference another file as described on page 314.

See Also: BUTTON

MENu - Create a Menu

`MENu filemenu` creates a walking menu described by the file `filemenu`.

Batch Mode: `Not Available`

`filemenu` is a file with a specific format.
If it does not start with a directory indicator such as `"./"`, `"/"` or `"~"`, it will be searched for in the current directory first, and then in the directories described either in the environment variable `XPATH` (if there is one) or in `PATH`, or in directories accessed by the `ACCESS` command.

Once this command is completed, there will be two ways to activate the menu:

- Pressing the right mouse button, while holding the meta-key[1].
- Moving the mouse cursor to one of the first two screen lines, and pressing the right mouse button.

Example:

```
" FILE "    MENU
" Save current file           "   save
" Save and leave current file "   file
" Abandon current file        "   MENU
        " quit   " quit
        " qquit " qquit
" Abandon current file        "   END
" FILE "    END
"Special"   MENU $xhome/sp.bu
```

The first string (for instance `" Save and leave current file "`) is displayed within the menu, and the second string (for instance `file`) is executed as a command when the first one is selected with the right mouse button. When the second string is the string `MENU`, it starts a pullright menu which must end with a matching `END` string.

1. See page 123 (**UNIX**) or page 127 (**WINDOWS**) for the meta-key definition.

Including the Contents of a Different File

The following syntax:

```
"LABEL" MENU filename
```

will create a `LABEL` pullright menu, using the contents of the `filename` file. If `filename` starts with `$xhome/`, `$xhome/` will be replaced with the actual **SEDIT** installation directory.

If the `$xhome/sp.bu` file contains the following data:

```
"First line"    top
"Last line"     bot
"Print"         shell lpr $name &
```

the example on page 313 will expand to:

```
" FILE "    MENU
" Save current file           "   save
" Save and leave current file "   file
" Abandon current file        "   MENU
        " quit  " quit
        " qquit " qquit
" Abandon current file        "   END
" FILE "    END
"Special" MENU
"First line"    top
"Last line"     bot
"Print"         shell lpr $name &
"Special" END
```

The following syntax:

```
INCLUDE filename
```

will include the contents of the `filename` file.

An included file may reference another file using the same syntax.

MENUBar - Create a Menubar

`MENUBar filemenu` creates a menubar described by the file `filemenu`.

Available on: `WINDOWS`
Batch Mode: `Not Available`

`filemenu` is a file with a specific format.
If it does not start with a directory indicator such as `".\"`, `"\"` or `"~\"`, it will be searched for in the current directory first, and then in the directories accessed by the ACCESS command.

The `C:\Program Files\SEDIT\sedit.menubar` file is an example of such a file:

```
"File"  MENU
   "Save"                 save
   "Save && Leave"        file
   "Leave"                MENU
                                    "If not modified"   quit
                                    "Anyway"            qquit
   "Leave"                END
   "Save As ..."          dy_save
   "Open ..."             MENU
                          "Last"     dy_open //last
                          "Current"  dy_open .
                          "C:\"      dy_open C:\
   "Open ..."             END
   "Open <Selection>"     s_xed
   "Last Edited Files ..."  dy_lastfiles
   "Print File ..."       printfile
   "Print Screen ..."     printscreen
   "Exit"                 prompt_exit
   "Exit with memory"     bye
"File"  END
"Edit" MENU
   "Find"             s_find
   "Find ..."         dy_find
   "Copy"             s_copy
   "Paste"            s_paste
   "Cut"              s_cut
   "Undo"             undo
   "Undo all"         undo all
   "Redo"             redo
   "Show ALL"         all
   "Show ..."         dy_all
   "Show more ..."    dy_show
   "Hide ..."         dy_exclude
   "Exchange ..."     dy_exch
"Edit"  END
```

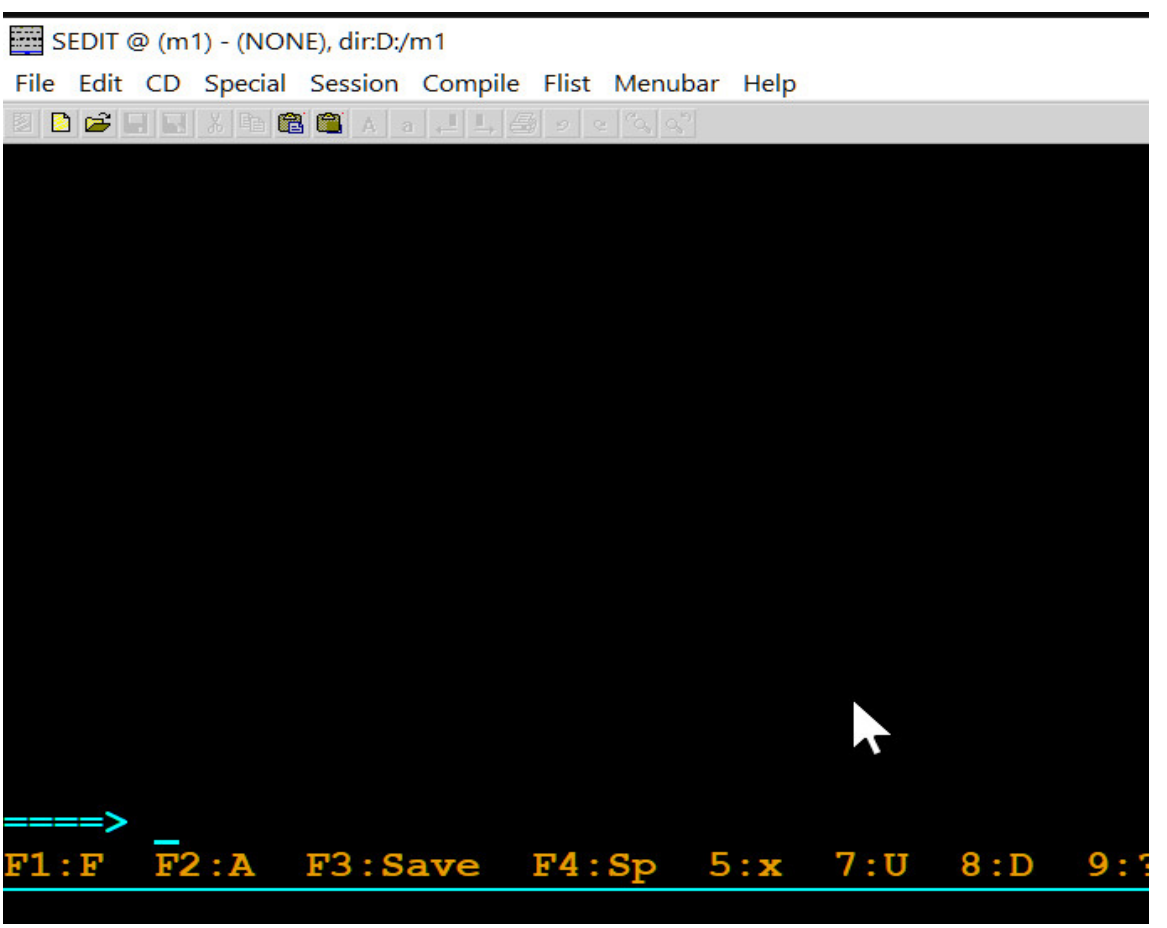
The first string (for instance `"Save"`) is displayed within the menu, and the second string (for instance `save`) is executed as a command when the first one is selected with the first mouse button. When the second string is the string `MENU`, it starts a pullright menu which must end with a matching `END` string.

`filemenu` may reference another file as described on page 314.

Note that when started with the default supplied `profile.sedit` profile file on Windows, **SEDIT** will copy it and all the files related to the menu and menubar customization on `C:\Users\{username}\AppData\Local\SEDIT`. A new `Session` menubar item will be enabled allowing to save and retrieve a set of currently edited files.

On Windows, the menubar can be modified by editing the `C:\Users\{username}\AppData\Local\SEDIT\sedit.menubar` file.

The menubar displayed will be the following:



MErge - Merge Two Set of Lines

```
MErge target1 target2 {col}
```

MERGE overlays the set of lines starting from the current line up to the line defined by target1 on the set of lines starting with the line defined by target2.

The first set of lines is first shifted to the right to the column defined by the col value. When omitted, col defaults to the value of 1.

When the column position of the first set of lines contains a blank, the contents of the same column on the second set of line remains unchanged.

The two set of lines are not allowed to overlap.

The last merged line becomes the current line, and the first set of lines is deleted.

target may be one of the following:

:N	Up to but not including the Nth line.
N or +N	N lines.
-N	Up N lines.
+* or *	The end of file.
-*	The top of file.
.symb	The line which has been assigned the .symb symbolic name by using the POINT command, or a .symb prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

Example:

Assuming the following file, with line 7 being the current line:

```
00000
00001   123456789
00002   12345678901234
00003   123456789012345678
00004 aa
00005 aa
00006 aa
00007 a b c dA B C D
00008  b c dA B C D a
00009 b c dA B C D a b c d e f g h i j
```

Typing

```
merge 3 :1 2
```

will display:

```
00000
00001  a1b3c5dA8B C D
00002   b2c4dA7B9C1D3a
00003  b1c3dA6B8C0D2a4b6c8d e f g h i j
00004 aa
00005 aa
00006 aa
```

Line 3 will be the new current line.

MESsagesdir

`MESsagesdir {dirname}` changes the internal messages directory.

Initial value: .

When more than one error message is to be displayed, or when using the MAN, COMPILE or various SHELL commands, **SEDIT** creates a new file in the editing ring. The directory of this file is the current "." directory by default, and can be changed with the MESSAGESDIR command.

Without any argument, MESSAGESDIR displays the current setting.

See Also: COMPILE, IMPCMSCP, MAN, WINDOWS, XCSHELL, XKSHELL, XSHELL

METAKey - Set the Meta Key

`METAKey hexval` changes the meta key definition.

Available on: `UNIX, MOTIF` *version.*

The meta key is described in the "Using the Mouse" sections on page 123 and page 127

The meta key is automatically set by the `set server xxx` command. The `set` command is used by the `set_xxx` macros, such as `set_sunt5` or `set_ibm`, called by the `profile.sedit` initialization macro.

However, when running the **MOTIF SEDIT** version on a non-standard X terminal, it is possible that the code emitted by the terminal meta key does not match the workstation standard keyboard meta key code.

The METAKEY command allows the user to register the hexadecimal value sent by the terminal when the meta key is used. This value can be determined by starting the X11 `xev` program, and by using the meta key upon the `xev` window.

Example:

```
% xev

            { using the meta key upon the xev window }

KeyRelease event, serial 17, synthetic NO, window 0x1700001,
   root 0x80079, subw 0x0, time 1160548353, (102,115), root:(107,141),
    state 0x8, keycode 127 (keysym 0xffe7, Meta_L), same_screen YES,
    XLookupString gives 0 characters:  ""
```

would lead to the following METAKEY usage:

```
====> metakey ffe7
```

See Also: SET

MODE - Set Various Modes

`MODE keyword values` set `values` according to `keyword`.

Initial values: *Locate Nostay*
Prefix Xedit
Autoexit Off
Number Goto
Change All
Redisplay On
Topline 0
CUrsor 1
Get Nostay
NOtimp On
SCroll Nowrap
REServed Skip
COmmand Xedit
EXpand On Noenv

`MODE` provides a way to customize the behavior of various **SEDIT** commands.

`keyword` may be one of the following:

`MODE Locate Stay|Nostay` changes the cursor behavior when using the various locate commands.

When `locate nostay` is in effect, searching for a string using the commands `/, -/, \, -\` places the cursor upon the first matching string. In addition, the search columns are also restricted by the `VERIFY` column definition; the user can only scan the visible part of the file

When `locate stay` is in effect, the cursor remains in the command field. The search columns are only restricted by the `ZONE` column definition. This mode is mainly provided for **XEDIT** compatibility.

`MODE Prefix Xedit` makes the prefix commands similar to the IBM XEDIT editor.

`MODE Prefix Ispf` makes the prefix commands similar to the IBM ISPF editor.
See Prefix Commands on page 105 for more details.

Since `ISPF` users generally use the "`e`" command to start editing a file, when "`mode prefix ispf`" is on, the user cannot use the "`e`" command to delete a file within the directory editor. Only the "`rm`" command can be used for that purpose. See page 481 for more details.

`MODE Topline 0|1`

When `topline 0` is in effect, **SEDIT** uses a virtual line 0 as TOP OF FILE line.
This allows the user, for example, to insert data *before* the first line in the file by typing:

```
top
get
```

When `topline 1` is in effect, **SEDIT** uses the first line in the file as TOP OF FILE line.
This mode is mainly provided for previous **SEDIT** release compatibility, since a macro behavior may be affected when `topline 0` is in effect.

`MODE CUrsor Wrap|N`

When `cursor wrap` is in effect, the cursor wraps around the screen when it reaches the top or the bottom of the screen.
When `cursor N` is in effect, **SEDIT** scrolls `N` lines when the cursor reaches the top or the bottom of the displayed file data.

`MODE Get Stay|Nostay`

When `get stay` is in effect, the current line is not modified by a `GET`, a `PUT` or a `PUTD` command.

`MODE Autoexit ON|OFf` `ON` makes **SEDIT** exit after a `QUIT` or a `FILE` command is applied to the last edited file.

This mode is mainly provided for **XEDIT** compatibility. If the user desires to set it when running in ASCII terminal mode, the command "`mode autoexit on`" must be included in the "`/home/xed/profile.sedit`" **S/REXX** macro:

```
/*
 * If you want SEDIT to leave when quitting the last edited file,
 * uncomment the following line
 */
/* 'mode autoexit on' */
```

Remove the /* and */ comment signs

`MODE Number Goto|Scroll` changes the **SEDIT** behavior when entering a single number on the command line.

When `Number Goto` is in effect, entering `N` makes the current line become the `Nth` file line.

When `Number Scroll` is in effect, entering `N` makes the current line increased by `N`. This mode is mainly provided for **XEDIT** compatibility.

`MODE Change All|One` changes the **SEDIT** behavior when entering a change command without specifying the number of items to be changed.

When `Change All` is in effect, entering `"c /i/j/"` will turn every `i` into `j`.

When `Change One` is in effect, entering `"c /i/j/"` will turn the first `i` into `j`.
This mode is mainly provided for **XEDIT** compatibility.

`MODE Redisplay ON|OFf` `ON` makes **SEDIT** redisplay a command in error in the command field.
`OFF` is mainly provided for **XEDIT** compatibility.

`MODE NOtimp On|OFf`

When `MODE NOTIMP` is `ON`, **SEDIT** recognizes the following **XEDIT** commands:

```
SET ALT             SET NULls
SET APL             SET PA1
SET BRKkey          SET PA2
SET COLPtr          SET PA3
SET ESCape          SET PACK
SET ETARBCH         SET RANge
SET ETMODE          SET RECfm
SET FILler          SET REMOte
SET FMode           SET SERial
SET FULLread        SET SIDcode
SET IMage           SET SPILL
SET LASTLorc        SET TERMinal
SET MASK            SET TEXT
SET MSGLine         SET TOPEOF
SET MSGMode         SET TRANSLat
SET NONDisp
```

This mode is mainly provided for **XEDIT** compatibility, allowing existing **XEDIT** macros to run without error messages.
Note that these commands, which are not implemented, do not perform any action.

`MODE Get Stay|Nostay`

When `get stay` is in effect, the current line is not modified by a `GET`, a `PUT` or a `PUTD` command.

`MODE Scroll Wrap|Nowrap`

When `scroll wrap` is in effect, the `BACKWARD`, `FORWARD`, `PGUP` and `PGDOWN` commands wrap when they reach the end of the file.

`MODE REServed Skip|Noskip`

Sets the way **SEDIT** handles control characters. See the `RESERVED` command on page 364 for more details.

`MODE COmmand Xedit`

makes the commands similar to the IBM XEDIT editor.

`MODE COmmand Ispf`

makes the commands similar to the IBM ISPF/PDF editor.

`MODE EXpand ON|OFf {Env|Noenv}`

When `MODE EXPAND` is `ON`, the variable substitutions described on page 147 take place.

In addition, if `MODE EXPAND ON ENV` is in effect, all strings starting with a `$` not previously substituted will be replaced by the contents of the **UNIX** or **WINDOWS** environment variable with the same name.

Example:
```
setenv mydir /home/proj1/vital
cd $mydir      (makes /home/proj1/vital current)
```

See Also: `AUTOI`, `CHANGE`, `CN`, `FILE`, `FFILE`, `LOCATE`, `QUIT`, `QQUIT`, `R/`, `R-/`, `\`, `-\`

MOUSEMode - Set Mouse Buttons

```
MOUSEMode {Openlook||OPENLOOKW|Motif|Fullmotif|Windows}
```

Initial value (UNIX): Openlook
Initial value (WINDOWS): Windows
Level: Global

When MOUSEMODE is set to OPENLOOK, the mouse buttons function in the following way:

M1	starts a selection.
M1 (dragged)	moves the selection start.
Shift-M1	cancels the selection.
M2	extends the selection.
Shift-M2	selects a line.
M3	moves the cursor, or displays the menu created with the MENU command when the mouse pointer is located on one of the two first screen lines.
Shift-M3	makes a line the current line.
Control-M3	cancels the selection.

When MOUSEMODE is set to OPENLOOKW, the mouse buttons function in the following way:

M1	starts a selection.
M1 (dragged)	extends a selection.
Shift-Control-M1	cancels the selection.
Shift-M1	selects a line.
M2	extends the selection.
Shift-M2	extends the selection line by line.
M3	moves the cursor, or displays the menu created with the MENU command when the mouse pointer is located on one of the two first screen lines.
Shift-M3	makes a line the current line.
Control-M3	cancels the selection.

MOUSEMODE OPENLOOKW is better suited to using a mouse with a wheel than MOUSEMODE OPENLOOK.

When MOUSEMODE is set to MOTIF, the mouse buttons function in the following way:

M1	starts a selection.
M1 (dragged)	extends a selection.
Shift-M1	extends a selection.
M2	pastes the current selection at the cursor location.

Shift-M2	selects a line.
M3	moves the cursor, or displays the menu created with the MENU command when the mouse pointer is located on one of the two first screen lines.
Shift-M3	makes a line the current line.
Control-M3	cancels the selection.

When MOUSEMODE is set to FULLMOTIF or WINDOWS, the mouse buttons function in the following way:

M1	moves the cursor.
M1 (dragged)	starts and extends the selection.
Shift-M1	extends the selection.
M2	pastes the current selection at the cursor location.
Shift-M2	selects a line.
M3	always displays the menu created with the MENU command.
Shift-M3	makes a line the current line.
Control-M3	cancels the selection.

Without any argument, MOUSEMODE displays the current setting.

MOve - Move File Lines

```
MOve target1 target2
```

MOVE moves the number of lines defined by target1, starting from the current line, to the location defined by target2. The last moved line becomes the current line.

target may be one of the following:

:N	Up to but not including the Nth line.
N or +N	N lines.
-N	Up N lines.
+* or *	The end of file.
-*	The top of file.
.symb	The line which has been assigned the .symb symbolic name by using the POINT command, or a .symb prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

Examples:	`move 2 :5`	moves 2 lines after the line 5.
	`move /str /main`	moves the lines up to but not including the `str` string after the line including the `main` string.

Return Codes:	0	Normal
	2	Target Not Found
	5	Invalid Operand

MVLINEDOWN (Macro)

`MVLINEDOWN` is the `$xhome/xmac/mvlinedown.sedit` macro. It is mapped to the `Control-Up-Arrow` key by default.

When there is no selection and the cursor is not on a data field, it moves the current line down.

When there is no selection and the cursor is on a data field, it moves the cursor line down.

When there is selection, it moves the selected lines down.

MVLINEDUP (Macro)

`MVLINEUP` is the `$xhome/xmac/mvlineup.sedit` macro. It is mapped to the `Control-Down-Arrow` key by default.

When there is no selection and the cursor is not on a data field, it moves the current line up.

When there is no selection and the cursor is on a data field, it moves the cursor line up.

When there is selection, it moves the selected lines up.

MSG - Display Text

`MSG {text}` displays `text` in the message field.

`MSG` does not sound the alarm. `EMSG` does.

If `text` is omitted, `MSG` clears all the pending messages.

When more than one message is issued from a macro, **SEDIT** creates a new file in the editing ring showing all the messages.

See Also: `EMSG`

N - Goto Nth Line

N

Scope: `Display`

If `MODE NUMBER GOTO` is in effect, the Nth lines becomes the current line.

If `MODE NUMBER SCROLL` is in effect, the current line is increased by `N`.

Examples:

`3`	goes to line `3` (or scrolls down 3 lines)
`4put5`	goes to line `4` and executes the command `put5`.

See Also: `DOWN`, `MODE`, `NEXT`

NEXTError - Error Scanning

`NEXTError` scans the file `$fn.compile`.

Batch Mode: `Not Available`

The command `COMPILE` creates a file with the same filename as the compiled file but with the filetype `compile`.

`NEXTERROR` scans this file looking for patterns matching the error rules described in the file `sedit_compile.rules`. See the command COMPILE on page 190 for more details about this file.

If found, **SEDIT** sets the current line to the error line and places the cursor on that line.

This command is mapped to the `^-` key, or to the `F2` key when running in ASCII terminal mode.

See Also: `COMPILE`, `R/`, `R-/`

NEXTWord - Cursor Moving to Next Word

`NEXTWord` moves the cursor to the next word.

Available on: OPENLOOK, MOTIF and WINDOWS

When the cursor is located on a data field, `NEXTWORD` scans to the right of the cursor position. If `NEXTWORD` finds the start of a word, the cursor is moved onto that position. When the end of the line is reached without a match, the process is repeated on the next lines.

`NEXTWORD` is mapped to the `Control-Right-Arrow` (`C-R12`) key when not running in ASCII terminal mode.

See Also: `PREVWORD`

NFind - Find a Missing Starting String

```
NFind str
```

NFIND searches forward for a line that does not start with str.

When str contains imbedded blanks, those character positions in the file line are ignored.

When str contains underscore characters (_), those character positions in the file line must be blank.

When WRAP is set to OFF, the search continues down to the end of the file.

When WRAP is set to ON, the search will wrap to the first line in the file, and continue down to the current line.

See Also: FIND, FINDUP, NFINDUP, WRAP

NFINDUp - Find a Missing Starting String

```
NFINDUp          str
NFUp             str
```

NFINDUP searches backward for a line that does not start with str.

When str contains imbedded blanks, those character positions in the file line are ignored.

When str contains underscore characters (_), those character positions in the file line must be blank.

When WRAP is set to OFF, the search continues up to the start of the file.

When WRAP is set to ON, the search will wrap to the last file line, and continue up to the current line.

See Also: FIND, FINDUP, NFIND, WRAP

NIS - Use NIS Users Database

```
NIS                {ON|OFF {cmd}}
```

Initial value: OFF ypcat passwd
Level: Global
Available on: UNIX

By default, **SEDIT** searches for the home directories of users (such as ~john) scanning the /etc/passwd file. **FLIST** also uses this file to display the owner names of files.

When a NIS data base is in usage, the contents of /etc/passwd is irrelevant. With NIS ON, **SEDIT** issues a ypcat passwd command to retrieve the list of users.

When cmd is provided, **SEDIT** will use cmd instead of ypcat passwd.

Without any argument, NIS displays the current setting.

Examples:
```
nis                                                    off
nis                                                     on
nis      on      ypcat      -d      domain2      passwd
nis
```

See Also: NISG

NISG - Use NIS Groups Database

```
NISG               {ON|OFF {cmd}}
```

Initial value: OFF ypcat group
Level: Global
Available on: UNIX

By default, **FLIST** searches for group names of files scanning the /etc/group file.

When a NIS data base is in usage, the contents of /etc/group is irrelevant. With NIS ON, **FLIST** issues a ypcat group command to retrieve the list of groups.

When cmd is provided, **FLIST** will use cmd instead of ypcat group.

Without any argument, NISG displays the current setting.

Examples:
```
nisg                                                   off
nisg                                                    on
nisg      on      ypcat      -d      domain2      group
nisg
```

See Also: NIS

NUMber / NUMBER_Screen - Display File Line Numbers

`NUMber` `ON|OFF`

Initial value: `ON`
Level: `File and View`

`NUMBER_Screen` `ON|OFF`

Initial value: `ON`
Level: `View`

SEDIT maintains a separate `NUMBER` setting for each file and each view of this file defined with the `SCREEN` command.

The `NUMBER_SCREEN` command updates the default `NUMBER` setting of the current view, which is applied to every newly loaded file.

The `NUMBER` command applies to the current file on the current view.

When `NUMBER` is `ON`, the prefix area displays the corresponding file line number.

When `NUMBER` is `OFF`, the prefix area displays equal signs (`=====`).

See Also: `PREFIX`

PENDing - Update the Pending List

```
PENDing          ON|BLOCK|ERROR      string
                 OFF
Query PENDing    {BLOCK} {OLDNAME} name|*
```

Level: File

SEDIT manages the prefix macros and commands which have not yet been executed within 3 pending lists:

- The immediate pending list, which records the single prefix macros, such as A or D.
- The block pending list, which records the double prefix macros, such as DD or MM.
- The error pending list, which records invalid prefix commands.

PENDING applies to the current line.

PENDING ON str adds str to the immediate pending list.

PENDING BLOCK str adds str to the block pending list.

PENDING ERROR str adds str to the error pending list.

PENDING OFF removes any pending prefix command or macro related to the current line.

QUERY PENDING displays information about the pending lists.

BLOCK indicates that only the block pending list is to be checked.

OLDNAME indicates that the specified name is the original name of the prefix command or macro.

name is the name of the prefix command or macro. When OLDNAME is not specified, name is assumed to be a synonym defined by the PREFIX SYNONYM command.
When name is specified as *, information about all pending prefix commands and macros will be displayed. The information is displayed in the following form:

```
Line n:'name', Oldname='oldname', OP1='op1', OP2='op2', OP3='op3'
```

See Also: PREFIX

PGDown - Scroll Down

`PGDown {N | *}` scrolls down `N` screens: the last line displayed becomes the first line displayed `N` times.

Scope: `Display`

`PGDOWN 0` makes the first line in the file the current line.

`PGDOWN *` makes the end of file the current line.

When the current line is the end of file, and when `MODE SCROLL WRAP` is in effect, `PGDOWN` makes the first line to be the current line.

This command is mapped to the `S-F8` key by default.

Return Codes:		
	0	Normal
	1	End Of File Reached
	5	Invalid Operand

See Also: `MODE`

PGUp - Scroll up

`PGUp {N | *}` scrolls up `N` screens: the first line displayed becomes the last line displayed `N` times.

Scope: `Display`

`PGUP 0` makes the last file line the current line.

`PGUP *` makes the top of file the current line.

When the current line is the top of file, and when `MODE SCROLL WRAP` is in effect, `PGUP` makes the last line to be the current line.

This command is mapped to the `S-F7` key by default.

Return Codes:		
	0	Normal
	1	Top Of File Reached
	5	Invalid Operand

See Also: `MODE`

POINT - Assign a Symbolic Name

```
Point {.symb {OFF}}
Point * {OFF}
```

Level: File

POINT is used to assign a symbolic name to the current line. This symbolic name can be used as a general target operand within the commands supporting targets, such as LOCATE or CHANGE.

POINT .symb assigns the name .symb to the current line.

POINT .symb OFF removes the symbolic name .symb without changing the current line.

POINT * displays all the symbolic names.

POINT * OFF removes all the symbolic names.

POINT without operands displays the current line's symbolic name, or a white string when no symbolic name has been assigned to that line.

A symbolic name may also be assigned by typing .symb in the corresponding prefix area.

Notes: The COMPILE command creates symbolic names which do not start with a period. The NEXTERROR command uses these symbolic names to set the cursor on the line with the error, even when the file has been edited by adding or removing lines.

It is possible to assign several names to the line.

The prefix area displays the first assigned symbolic name instead of the line number. The COLOR command allows the user to choose the color for displaying symbolic names.

Examples:

p.start1	assigns .start1 to the current line.
p*off	removes all the symbolic names.
point *	displays all the symbolic names.

See Also: COLOR, COMPILE, CLEARERRORS, NEXTERROR, LOCATE

POWerinput - Set Power Input Mode

```
POWerinput {ON|OFf} {Previous|Noprevious} {Move|NOMove} {Ft
                                                    xxx}
```

Initial value: OFF PREVIOUS MOVE
Level: File

When POWERINPUT is ON and when the cursor reaches the right column defined with the MARGINS column, or the data field end of line, a new line is automatically created. If POWERINPUT is ON MOVE, the last word of the cursor line is moved to the new line at the left column defined with the MARGINS command, and the cursor is moved to the end of this word. Then, the current line number is increased by one. When POWERINPUT is ON, the AUTOEXP feature is disabled.

Inserting a character within a line will have the same effect when the last line character spills after the right column defined with the MARGINS command or the end of field.

When POWERINPUT is ON PREVIOUS, **SEDIT** checks the lines before the cursor's line, searching for the start of the paragraph. A paragraph ends with a . : ; ? or ! punctuation sign, or is followed by an empty line. **SEDIT** moves as many words as possible from the beginning of the cursor's line to the end of the previous line up to the right margin column. If the keyboard is in INSERT mode, **SEDIT** searches the following lines to find the end of the paragraph in order to properly insert the word at the cursor location.

When POWERINPUT is ON NOPREVIOUS, **SEDIT** does not move words to the end of the previous line nor does it search for the end of the current paragraph.

When POWERINPUT is ON NOMOVE, **SEDIT** does not move the word at the cursor's location. **SEDIT** creates a new line, and moves the cursor at the left column defined with the MARGINS command.

If Ft xxx is specified, this setting will become the default for every new file with a xxx filetype.

If Ft is *, this will become the default for every file.

If Ft is a period, it will select files with no filetype. This setting is also applied to the current file, unless its filetype does not match Ft.

POWERINPUT without arguments displays the current power input mode.

Examples

Assuming the following commands:

```
MARGINS 5 50
POWERINPUT ON PREVIOUS MOVE
```

```
00009
00010     When POWERINPUT is ON and when the cursor
00011     reaches the data field end of line, a
00012     new line is automatically created, the last word of the
      |...^....1....+....2....+....3....+....4....+....$....+....6
00013     cursor line  is moved to the new line, and th
00014     cursor is moved to the end of this
00015
```

Typing an "e" will produce the following result:

```
00009
00010     When POWERINPUT is ON and when the cursor
00011     reaches the data field end of line, a  new
00012     line is automatically created, the last word
00013     of the cursor line  is moved to the new line,
      |...^....1....+....2....+....3....+....4....+....$....+....6
00014     and the
00015     cursor is moved to the end of this
00016
```

The POWERINPUT ON NOPREVIOUS NOMOVE mode is suited for source files similar to **COBOL** files, when typing over the column 72 requires the creation of an empty new line, and the cursor to be moved on this new line column 7.

Assuming the following commands:

```
MARGINS 7 72
POWERINPUT ON NOPREVIOUS NOMOVE
VERIFY 7 72
```

```
00000
      ^..1....+....2....+....3....+....4....+....5....+....6....+....7.$
00001 0x"202020205768656E20504F574552494E505554206973204F4E20616E642077
00002                                                                  -
```

Typing a "0" will produce the following result:

```
00000
      ^..1....+....2....+....3....+....4....+....5....+....6....+....7.$
00001 0x"202020205768656E20504F574552494E505554206973204F4E20616E6420770
00002
00003 -
```

Using the reprofile.sedit Facility

When a reprofile macro has been loaded at initialization by using the HASH command described on page 284, reprofile will be used every time a new file is loaded. This permits the reprofile macro to set up a different **SEDIT** environment for specific files.

To set up the MARGINS and POWERINPUT according to specific files, the user could write the following reprofile.sedit macro:

```
signal on novalue
'extract/name'

select
  when ft(name.1) = '.txt' then
   { 'margins 1 70'
     'powerinput on previous move'
     'verify 1 *'
   }
 when ft(name.1) = '.cobol' then
   { 'margins 7 72'
     'powerinput on noprevious nomove'
     'verify 7 72'
   }
 otherwise nop
end
```

See Also: AUTOEXP, MARGINS

PREfix/ PREFIX_Screen - Change Prefix Mode

PREfix ON|OFF|Nulls {Left | Right}

Initial value: ON LEFT
Level: File and View

PREFIX_Screen ON|OFF|Nulls {Left | Right}

Initial value: ON LEFT
Level: View

SEDIT maintains a separate PREFIX setting for each file and each view of this file defined with the SCREEN command.

The PREFIX_SCREEN command updates the default PREFIX setting of the current view, which is applied to every newly loaded file.

The PREFIX command applies to the current file on the current view.

With PREFIX ON, **SEDIT** displays a five-character prefix area for each file line on the screen, which may be before that line (PREFIX ON LEFT), or after that line (PREFIX ON RIGHT). PREFIX NULLS is identical to PREFIX ON.

Prefix commands can be entered in the prefix area.

When the mouse is in the prefix area, buttons M1 and M2 are used to scroll the file.

When no prefix area is displayed, the user can scroll with the mouse by positioning the mouse cursor on the first logical screen line. See the “Using the mouse” section for more information about scrolling.

PREfix Synonym newname oldname

defines a newname synonym to the oldname prefix macro.

PREfix Synonym *|newname

PREFIX SYNONYM * displays all the defined newnames/oldnames values.

PREFIX SYNONYM oldname displays the defined newname/oldname value. When no newname synonym is defined, PREFIX SYNONYM oldname displays:

```
oldname oldname
```

See Also: NUMBER

PREServe - Settings Preservation

PREServe

PRESERVE is meant to be used within an **SEDIT** macro to save several settings until a subsequent RESTORE command is issued.

The following global settings are saved:

AUTOEXPAND
AUTOINDENT
AUTOSAVE
ARBCHAR
COLOR
CTAGS
HEX
IMPCMSCP
LIMIT
LINEND
MACRO
MODE
SEP
SPAN
STAY
STREAM
SYNONYM[1]
VARBLANK
WRAP

The following file related settings are saved:

CASE
FD
FN
FT
LRECL
PREFIX
RELOAD
RW
TABSET
TRUNC
VERIFY
ZONE

File related settings are always restored to the file which was the current file at the time the PRESERVE command was issued.

1. Only the ON | OFF setting is saved.

The following screen-related settings are saved:

```
CMDLINE                ZONE_SCREEN
CURLINE
DISPLAY
NUMBER
PREFIX_SCREEN
SCALE
SCOPE
SHADOW
TABLINE
VERIFY_SCREEN
```

The RESTORE command applies the screen-related settings to the current screen.

See Also: RESTORE, SCREEN

PREVWord - Cursor Moving to Previous Word

PREVWord moves the cursor to the previous word.

Available on: OPENLOOK, MOTIF and WINDOWS

When the cursor is located on a data field, PREVWORD scans to the left of the cursor position. If PREVWORD finds the start of a word, the cursor is moved onto that position. When the start of the line is reached without a match, the process is repeated on the previous lines.

PREVWORD is mapped to the Control-Left-Arrow (C-R10) key when not running in ASCII terminal mode.

See Also: NEXTWORD

PRINTFile (UNIX) - Print a File Hardcopy

Scope: Display

PRINTFile {ON|OFF|ONEJ|OFFEJ {printer daemon width height}}

PRINTFILE prints the contents of the current file. PRINTFILE uses the internal **SEDIT** image of the file.

When running **SEDIT** in character mode, the six parameters must be specified.

When the four last parameters are not specified, **SEDIT** displays a print dialog box.

on	print line numbers. This is the default value.
onej	print line numbers and start a new page whenever an "eject" string is found. The "eject" string must be followed and preceded with a blank or tabulation character to be recognized.
off	do not print line numbers.
offej	do not print line numbers and start a new page whenever an "eject" string is found.
printer	the printer to be used.
daemon	the command to be used to print. Typically lp or lpr.
width	the number of columns of the printer.
height	the number of lines by page.

When **SEDIT** is running in batch mode, the PRINTER, DAEMON, WIDTH and HEIGHT parameters are not optional.

See Also: ALL, PRINTSCREEN

PRINTFile (WINDOWS) - Print a File Hardcopy

Scope: Display

PRINTFile {ON|OFF|ONEJ|OFFEJ {width {height} {printer {raw}}}}

Batch Mode: Not Available

PRINTFILE prints the contents of the current file. PRINTFILE uses the internal **SEDIT** image of the file.

on	print line numbers. This is the default value.
onej	print line numbers and start a new page whenever an "eject" string is found. The "eject" string must be followed and preceded with a blank or tabulation character to be recognized.
off	do not print line numbers.
offej	do not print line numbers and start a new page whenever an "eject" string is found.
width	the number of columns of the printer. When not specified, **SEDIT** uses the default value provided by the system.
height	the number of lines by page. When not specified, **SEDIT** uses the default value provided by the system.
printer	the name of the printer to be used. If not specified, **SEDIT** will display the standard PRINT dialog.
raw	when specified, the printer will be opened in RAW mode, bypassing the printer driver.

See Also: ALL, PRINTSCREEN

PRINTScreen (UNIX) - Print a Screen Hardcopy

PRINTScreen {printer {daemon}}

Initial value: `lp lpr` on BSD systems
`lp lp` on System V systems

Scope: `Global`
Batch Mode: `Not Available`

When `printer` is not specified, `PRINTSCREEN` prints a hardcopy of the screen.

When `printer` is specified, it becomes the default printer for both the `PRINTSCREEN` facility and for `TREE`. No printing occurs.

When `daemon` is also specified, it becomes the default **UNIX** command used to print. No printing occurs.

When not running in ASCII terminal mode, this command is mapped to the `meta-L3` key on Sun Workstations, to the `Compose-F13` key on DECstations and to the `Shift-Control-Escape` key on other workstations.

These keys are not available when running in ASCII terminal mode, so the user must either enter the `PRINTSCREEN` command in the command field, or assign it to any available function key.

See Also: `PRINTFILE`

PRINTScreen (WINDOWS) - Print a Screen Hardcopy

PRINTScreen prints a hardcopy of the screen.

Batch Mode: Not Available

See Also: PRINTFILE

PRNOPAR - Workaround on a Print Dialog Windows bug

PRNOPAR ON|OFF

Initial value: *OFF*
Level: *Global*

On some Windows systems, randomly, the usual print dialog crashes when called to be displayed.

Setting PRNOPAR to ON switches to an older dialog which may not present the same problem.

PRompt - Prompt user

PRompt string prompts the user with the message string.

Batch Mode: Not Available

string will appear in an alert box, with the two buttons "Continue" and "Cancel". If the user chooses "Continue", the return code will be 0. Otherwise, it will be 1.

It is possible to display up to 4 lines by using the "\n" separator within string.

Example:

```
prompt Do you really want\nto exit?
```

PUT - Save Data

`PUT {target {fn {ft {fd}}}}` inserts lines from the currently edited file.

Scope: `Display`

`target` defines the number of lines to be inserted, starting from the current line. `target` may be one of the following:

`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`+*` or `*`	The end of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the `LOCATE` command on page 303 for a precise string expression definition.

If `target` is omitted, a value of 1 is assumed.

When `MODE GET NOSTAY` is in effect, the target line becomes the current line.

When `fn ft fd` are omitted, the lines are saved into a temporary buffer used by the `GET` command, or the `G` prefix command, allowing the user to copy data.

`fn` specifies the filename part of the file into which lines will be inserted. When specified as `=`, the current file filename will be used. When specified as a period (`.`), no filename will be used.
If `fn` starts with "`~`", "`/`", "`./`" or "`../`", and `ft` are `fd` are not specified, `fn` will be considered as a full **UNIX** or **WINDOWS** name.

`ft` specifies the filetype (such as `c` for a `foo.c` file) part of the file into which lines will be inserted. When omitted or specified as `=`, the current file filetype will be used.When specified as a period (`.`), no extension will be used.

`fd` specifies the directory part of the file into which lines will be inserted. When omitted or specified as `=`, the current file directory will be used.

When the specified file exists, the lines are added to the end of that file. Otherwise, **SEDIT** displays the following message:

```
Creating new file: "xxxxxxxx"
```

Examples: If line 10 is the current line, and `foo.c` is the current file:

`P 5`	will save lines 10 through 14.
`P :20`	will save lines 10 through 19.
`P*`	will save up to the end of the file.
`P;main;==~/pro`	will insert the lines up the `main` string into the `~/pro/foo.c` file. Note that you must not use the `/` as the string target `main` delimiter, because it appears into the `~/pro` filename.
`P1 = . =`	will insert one line in the `foo` file.
`P* ~/pro/a`	will insert lines into the `~/pro/a` file.

See Also: GET, MODE, PUTD

PUTD - Save Data

`PUTD {target {fn {ft {fd}}}}` inserts lines from the currently edited file.

Scope: `Display`

`PUTD` executes a `PUT` command, and then deletes the lines which have been saved.

See Also: GET, MODE, PUT

PURge - Clear Macros

`PURge {macroname | *}` removes from storage the macro `macroname`.

If you specify `*`, all the macros will be cleared.

Without parameters, `PURGE` will prompt the user for a confirmation before removing all the macros.

PWD/W - Display Current Directory

`PWD or W` displays the current directory in the message field.

Note that this directory is displayed at the window top border as well.

Query - Query About Editing Options

`Query setting`

Within **SEDIT**, using a command without parameters displays its setting. For example, typing `VERIFY` displays the verify setting.

Within the IBM **XEDIT** editor, you *must* use the QUERY command for that purpose, typing for example `QUERY VERIFY`.

The **SEDIT** `QUERY` command allows the prefix `QUERY` as well, in order to maintain strict compatibility with **XEDIT**.

QUIT / AQUIT / PQUIT / QQuit - Abandon File

AQUIT {N}

abandons the file being edited if it has not been modified since last stored. If the file has been modified, AQUIT will ask for an F1 key confirmation. If this command is called by a button, the prompt will be displayed in an alert box.

When **SEDIT** runs in batch mode, AQUIT performs as PQUIT.

PQUIT {N}

abandons the file being edited if it has not been modified since last stored. Otherwise, it does not quit the modified file, and issues the following message:

```
File has been changed; type QQUIT to quit anyway
```

In addition, PQUIT clears the **S/REXX** stack.

QUIT {N} or QQuit {N}

unconditionally abandons the file being edited.

By default, **SEDIT** defines the following synonym:

```
synonym quit 4 aquit
```

Therefore, using QUIT will in fact call the AQUIT command. Use COMMAND QUIT or QQUIT to override this synonym and issue the command QUIT.

The optional N value specifies the QUIT return code, overriding the default return code as described below.

Return Codes:		
	0	Normal
	1	Only one file was edited
	5	Invalid parameter
	12	File has been changed (PQUIT only)
	N	The number specified as operand

RChange (XEDIT MODE) - Regular Expression Change

```
RChange      /regex/string{/{target          {N|*}          {P}}}
XEDRChange
```

changes the regular expression `regex` with `string`.

Scope: `Display`

When `MODE COMMAND XEDIT` is in effect, `RCHANGE` calls the XEDIT mode `XEDRCHANGE` command. `PDFRCHANGE` may be used to call the ISPF/PDF mode `CHANGE` command.

`/` may be replaced with any delimiting character that does not appear in the character strings involved in the replacement.

A regular expression is a character string used to describe, in an extended way, a string to be matched. It uses special characters, called `meta` characters to describe the match to be done. See the `R/` command on page 369 for a complete description of regular expressions.

`target` defines the number of lines to be scanned for a match. Lines are changed starting with the current line, up to but not including the target line. `target` may be one of the following:

`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`+*` or `*`	The end of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the `LOCATE` command on page 303 for a precise string expression definition.

When `target` is omitted, all lines between the current line and the end of file will be scanned. However, if `MODE CHANGE ONE` is in effect, only the first line will be changed.

`N` is the number of occurrences of `regex` to be changed on each line.

If omitted, all occurrences of `regex` will be changed. However, if `MODE CHANGE ONE` is in effect, only the first occurrence will be changed.

If specified as `*`, all occurrences of `regex` will be changed.

`P` is the relative number of the first occurrence of `string` to be changed in each line. Its default value is 1.

When regex is omitted, string is inserted in the column which has a value defined by the first ZONE command operand (initially 1).

When ARBCHAR is ON, all occurrences of the arbitrary character in string will be changed with the string matching regex.

Examples:

```
rc/[0-9]/?/
```
will turn every number into a ?

```
arbchar on @
rc/[a-z]/(@)/**
```
will enclose every lowercase alphabetical character within parenthesis.

```
rc/$/.123/**
```
will add the '.123' string at the end of each line.

If CASE CIGNORE is in effect, **SEDIT** will not consider capitalization when changing strings.

Example:

```
case ci
rc/Old/new/
```
will change old with new.

Note: The ZONE command allows the user to choose the starting and ending columns to be scanned.

See Also: ARBCHAR, CASE, CHANGE, CN, HEX, LOCATE, MODE, R/, SCHANGE, SCN, SRCHANGE, STAY, ZONE

RChange (ISPF MODE) - Repeat Last Change

RChange

PDFRChange

RCHANGE repeats the last ISPF/PDF PDFCHANGE command described on page 173.

When MODE COMMAND ISPF is in effect, RCHANGE calls the ISPF mode PDFRCHANGE command. XEDCHANGE may be used to call the XEDIT mode RCHANGE command.

READ - Place Terminal Information in the STACK

```
READ   Cmdline                |{Tag|Notag}
       All         {Number}   |
       Nochange    {Number}   |
```

Batch Mode: Not Available

READ waits for a user action. It is intended to be called from an **S/REXX** macro, placing information in the REXX stack. READ does not perform any operation when the stack is not empty.

The operands are the following:

Cmdline	only the command input area is to be stacked. This is the default.
All	all lines changed on the screen are to be stacked. In addition, the file currently edited will be updated with these changes.
Nochange	all lines changed on the screen are to be stacked. The file currently edited will not be updated with these changes.
Number	the stacked information relative to changed lines will be prefixed by the corresponding file number.
Tag	a tag identifying the origin of the line will be added at the beginning of each stacked line.
Notag	no tags are added. This is the default.

Using READ CMDLINE

If a string str was entered on the command line:

- Using the Enter or Return key will stack str.
- Using a function key, such as F1, L2, R6 or ^a will stack the definition of that key, or nothing when this key is not defined. str will be ignored. **SEDIT** function keys are equivalent to **XEDIT** 'ONLY' keys.

If nothing was entered on the command line:

- Using the Enter or Return key will stack nothing.
- Using a function key will stack the definition of that key, or nothing when this key is not defined.

Using READ ALL Or READ NOCHANGE

Each modified field is stacked as a separate line. The stack will contain:

1) The definition of the function key pressed, when this key is defined. The `Enter` key definition is always ignored within **SEDIT**.
2) The lines, prefix and input reserved areas changed on the screen.
3) The command line, when not empty.

Using the TAG Operand

With the `TAG` operand, each stacked line is preceded by a string tag, which identifies the modified field:

`CMD`	identifies the command line.
`FIL`	identifies a file line.
`PFK`	identifies a top function key, such as `F1` or `PF12`.
`PFR`	identifies a right function key, such as `R2`.
`PFL`	identifies a left function key, such as `L3`.
`PRF`	identifies a prefix area.
`CTL`	identifies a control key, such as `^a`.
`RES`	identifies a reserved input field.
`MOU`	identifies the use of a mouse button.
`CLI`	identifies the use of the left mouse button on a sensitive field. When `READ` is waiting for a user action, the file data fields and the reserved fields are mouse sensitive: they display in reverse video when selected with the left mouse button, and make READ return when the mouse button is released.

The tag is followed by additional information, and by the `str` modified field content:

`CMD str`
`str` is the string entered in the command line.

`FIL n1 n2 {n3} str`
`n1 n2` are the line and column number of the beginning of the field on the screen.
`n3` is the corresponding file line number. `n3` is returned only when the `NUMBER` option has been specified.

`PFK n str, PFR n str, PFL n str`
`n` is the number of the function key that was pressed.
`str` is the key definition.
Function keys are stacked LIFO.

`CTL n str`

`n` is the ASCII value of the key that was pressed. For example, if `^a` was entered, `n` value is `a`.

`str` is the key definition.

Control keys are stacked LIFO.

`RES n1 n2 str`

`n1 n2` are the line and column number of the reserved field on the screen. `str` is the field content.

`MOU n`

`n` is the number of the mouse button that was pressed.

`CLI n1 n2 {n3}`

`n1 n2` are the line and column number of the beginning of the field on the screen.

`n3` is the corresponding file line number, or `0` when clicking over a field which is not a file data field. `n3` is returned only when the `NUMBER` option has been specified.

See Also: `CTLCHAR`, `MODE`, `READSCREN`, `RESERVED`

READScreen - Read User Action

READScreen

Batch Mode: Not Available

READSCREEN waits for a user action, allowing input only in the command field when called from an external macro. When called from an **S/REXX** macro, READSCREEN also allows input in the data fields.

When issued from a external macro, READSCREEN creates the following environment variables:

RDS_ACTION	the action keystroke, such as "return" or "F2".
RDS_CMD	the command line content.
RDS_MOUL	when the user clicks on a data field, this variable is set to the corresponding line number. Otherwise, it is set to -1.
RDS_MOUC	the corresponding column line number, or -1.
RDS_CUL	the cursor file line number, or -1 when the cursor is not on a data field.
RDS_CUC	the corresponding column line number, or -1.

Note: The created environment variables will be defined in the **SEDIT** main process. Since external macros run on different processes, the user cannot call the READSCREEN command within an external macro, and use directly the environment variables in the same macro. The user must use the EXTRACT ENVIRON command instead.

When issued from an S/REXX macro, READSCREEN creates REXX variables instead of creating environment variables. In addition, all modified lines and prefix fields are recorded in the following variables:

rds_num.0	the number of modified data fields.
rds_num.i	the corresponding file line number.
rds_cnt.i	the corresponding line content modified by the user.
rds_num_pre.0	the number of modified prefix fields.
rds_num_pre.i	the corresponding file line number.
rds_cnt_pre.i	the corresponding prefix content modified by the user.

When reserved fields have been created with the RESERVED command, READSCREEN creates also the following variables:

rds_res.0	the number of modified reserved data fields.
rds_res.i	the corresponding field content: the first word is the screen line number, the second word is the screen column number, and the following is the data typed in the field.

The current file is not modified. It is the responsibility of the calling macro to acknowledge the modifications, by using for example the REPLACE command, or to ignore them.

RECYCLE - Use the Recycle Bin

Initial value: ON
Level: Global

RECycle {ON | OFF} sets ON or OFF the recycle bin facility.

On **WINDOWS** systems, when RECYCLE is ON, removing files from FLIST, or files and directories from TREE, moves then into the recycle bin.

RECYCLE without arguments displays the RECYCLE status.

REDo - Cancel Last Undo

REDo cancels the last undo operation.

The redo memory is reset every time the file is modified by the user.

This command is mapped to the S-L4 key on Sun workstations, and to the S-F11 key on other workstations.

REGtype - Regular Expressions Type

`REGtype {Legacy|Ecmascript|Pcre}` selects the type of regular expressions to be used.

Initial value: `ECMASCRIPT (WINDOWS)`
`PCRE (LINUX)`
Level: `Global`

SEDIT commands related to regular expressions can use two different libraries:

`Ecmascript`	`ECMAScript` is an advanced regular expression standard which features are described in the `R/` section available on **WINDOWS**
`Pcre`	`PCRE` is an advanced regular expression standard which features are described in the `R/` section available on **LINUX**
`Legacy`	This library was used by previous **SEDIT** releases and is now deprecated. It is still available for compatibility with previous macros if needed.

`ECMASCRIPT` used on **LINUX** will set the `PCRE` mode.

`PCRE` used on **WINDOWS** will set the `ECMASCRIPT` mode.

See Also: `ALL`, `CASE`, `COMPILE`, `EXTRACT`, `MODE`, `R/`, `RCHANGE`, `R-/`, `VERIFY`, `WRAP`, `ZONE`, `/`, `-/`, `\`, `-\`

REFRESH - Screen Update

`REFRESH {Clear}` updates the display.

Batch Mode: `Not Available`

`REFRESH` is intended to be used within external macros in order to update the display.

When running in ASCII terminal mode, the `clear` option allows you to clear the screen before updating it. In this mode, "`REFRESH CLEAR`" is mapped to the `^r` key.

RELEase - Removes a Directory From the PATH

```
RELEase {dir1 {dir2 ...}}
```

RELEASE removes from the path directories accessed with the ACCESS command.

If the *diri* directory is not accessed, or is the current directory, RELEASE silently ignores it.

RELEASE * removes all the directories from the path, except the current directory and, on **UNIX** systems, the following set of standard directories:

```
/usr/bin /bin /usr/lib /etc /usr/etc /usr/ucb
```

RELEASE without arguments scans the path, and removes nonexistent directories.

See Also: ACCESS, SHOWPATH

RELoad - Automatic Reload Feature

`RELoad ON|OFF {*}` sets the automatic reload feature `ON` or `OFF`.

Initial value: `ON`
Level: `File`

When `RELOAD` is set to `ON`, **SEDIT** checks all the currently loaded files under the following circumstances:

- When **SEDIT** loses the keyboard focus, and then receives it again.
- When the user switches from one file to another.
- When the user loads a new file.

If **SEDIT** determines that a file has been externally modified, **SEDIT** saves the previous image of the file that it had loaded into memory (after appending to its name the `%` character), and then reloads the newly modified file.

A file is determined to be modified when its time stamp is older than the time stamp **SEDIT** memorized when loading that file. With mounted file systems, especially between a **UNIX** system and a **WINDOWS** system when using a CIFS **UNIX** client like the Sharity™ software, there may be a discrepancy between the time stamp memorized by **SEDIT**, and the actual time stamp on the **WINDOWS** file system. The `STAMPDELAY` command allows **SEDIT** to ignore a given amount of discrepancy between time stamps in order to avoid spurious reloads.

When `*` is specified, the supplied reload status will be used for every new file.

`RELOAD OFF *` disables the reload facility for every newly loaded file.

See Also: `STAMPDELAY`

REPEat - Repeat a Command

`REPEat {target}` repeats the last entered command.

Scope: `Display`

`target` defines the number of times the current line pointer will be moved.

`:N`	Up to the `Nth` line.
`N` or `+N`	`N` lines.
`-N`	Up `N` lines.
`+*` or `*`	The end of file.
`-*`	The top of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

If `target` is omitted, a value of 1 is assumed.

When `target` is in a forward direction, `REPEAT` is equivalent to:

```
next 1
=
```

When `target` is in a backward direction, `REPEAT` is equivalent to:

```
up 1
=
```

`REPEATS` ends when the specified target is reached, or when the executed command returns a non-zero value, or when the top or bottom of file is reached.

Examples:

`repeat`	repeats the last command on the next line.
`repeat/main`	repeats the last command until finding a `main` string.

See Also: `?`, `=`

REPEATDelay - Set Auto-repeat Time-out

REPEATDelay {key1 key2 mouse1 mouse2}

Initial values: `120 30 30 30 (UNIX)`
`400 50 60 60 (WINDOWS)`

`REPEATDELAY` without arguments displays the current values.

When the user depresses a function key, such as `F1` or `R9`, **SEDIT** performs the command assigned to that key, and then waits for `key1` milliseconds. If that key has not been released during this interval, **SEDIT** performs the command again. Then, the command will be performed again every `key2` milliseconds until the key is released.

`mouse1` and `mouse2` control in the same way the auto-repeat time-out associated with the mouse buttons when they are used to scroll the file, as described page 53.

`REPEATDELAY` is ignored when **SEDIT** is in ASCII terminal mode.

Note: On some platforms, there is a keyboard native auto-repeat feature which takes precedence over the **SEDIT** auto-repeat feature.

Replace (XEDIT MODE) - Replace Current Line

`Replace text` replaces the current line with `text`.
`XEDReplace`

When `MODE COMMAND XEDIT` is in effect, `REPLACE` calls the XEDIT mode `XEDREPLACE` command. `PDFREPLACE` may be used to call the ISPF/PDF mode `REPLACE` command.

Replace (ISPF MODE)- Replace Data

```
Replace      {file}                                        {range}
PDFReplace
```

Batch Mode: Not Available

When MODE COMMAND ISPF is in effect, REPLACE calls the ISPF mode PDFREPLACE command. XEDREPLACE may be used to call the XEDIT mode REPLACE command.

REPLACE saves the data being edited into a **UNIX** file.

`file` A file which may exist.

When `file` is omitted, **SEDIT** displays the following fullscreen panel:

```
----------------------------- REPLACE ------------------------------

Replace file ===>


Press Enter to replace, F3 or ^c to cancel
```

`range` Two labels that identify the lines to be saved.
A label may be created by typing a `.xxxx` string on a prefix zone, or by using the XEDIT POINT command described on page 335.
A label may also be one of the ISPF/PDF predefined labels:

`.zf` or `.zfirst`	the first line.
`.zl` or `.zlast`	the last line.
`.zcsr`	the cursor line

When a range is not specified, the user must enter either a C, CC, M or a MM prefix command in a prefix zone to specify the lines to be copied.
Specifying a prefix origin can be done either before or after using the CREATE command.

Examples:

```
r ~/foo .a .zl
replace .a .b
replace
```

See Also: CREATE, FILE, SAVE

RESERved - Reserve a Specified Line on the Screen

```
RESERved   M{+n|-n}  {color} {exthi} {PSs} High     {text}
           {+|-} n                        Nohigh
                     Off
```

Level: File

RESERVED reserves a given line of the logical screen, specifying the color, extended highlighting, and visibility of that line.

The operands are the following:

M{+n|-n}	M stands for the middle of the screen, rounded up for odd-sized screens, with an optional offset to that position.
{+}n	specifies n lines from the top of the screen.
-n	specifies n lines from the bottom of the screen.
OFF	frees a previously reserved line.
color	the color to be used, as described by the COLOR command. In addition, *color* may be:

White	same as BLACK
Turquoise	same as MAGENTA

exthi	may be:

BLink	Maintained for **XEDIT** compatibility, but not supported within **SEDIT**.
REVvideo	Displays in reverse video.
Underline	Underlines the displayed characters.
None	No extended highlighting. This is the default.

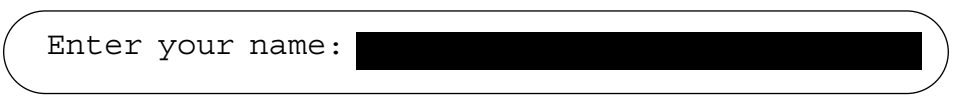
High	specifies that the string text is to be displayed in bold.
Nohigh	specifies that the string text is not to be displayed in bold. This is the default.
PSs	maintained for **XEDIT** compatibility, but not supported within **SEDIT**.
text	is the text to be displayed. It may imbed control characters defined by the CTLCHAR command.

Example:
```
ctlchar @ escape
ctlchar & noprotect red revvideo nohigh
reserved m+1 noh Enter your name: @&
```
allows the user to define an input red field displayed in reverse video.

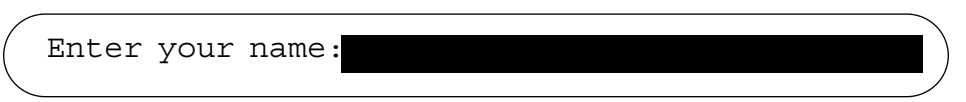
Without operands, RESERVED displays the line numbers reserved.

Usage Notes

- On 3270 devices, a control character occupies one blank space. Thus, a command such as `reserved m+1 noh Enter your name:@&John` would display:

  This limitation is implemented for strict **XEDIT** compatibility. However, it is possible to remove it by using the `MODE RESERVED NOSKIP` command, which would allow the user to display:

- `RESERVED +N`, `RESERVED M{+|-}N` and `RESERVED -N` are treated as different lines, even if they fall on the same line. In order to be removed, a reserved line must be specified in the same way it was specified when it was reserved.
- Reserved lines are file specific. To reserve lines every time a new file is loaded, the `RESERVED` command must be used within the `reprofile.ex` or `reprofile.sedit` macro. `reprofile` is executed every time a new file is loaded, while `profile` is only executed at initialization.
- The `SETP` command allocates permanently one or more lines of the screen, and is more suitable for displaying non-file related function keys information. `SETP` without arguments frees the previously allocated line.

See Also: CTLCHAR, MODE, READ, SETP

RESet - Reset the Data Display

```
RESet    {COmmand}
         {ERror}
         {EXcluded}
         {X}
         {Label}
```

RESET clears line-related conditions.

COmmand removes all pending prefix commands.

ERror removes the line symbolic names assigned by the COMPILE command.

EXcluded or **X**redisplays any excluded line.

Label removes .xxxx labels

When MODE COMMAND ISPF is in effect, RESET without argument is the same as RESET COMMAND ERROR EXCLUDED.

When MODE COMMAND XEDIT is in effect, RESET without argument is the same as RESET COMMAND.

See Also: ALL, CLEARERRORS, POINT

RESTore - Settings Retrieval

```
RESTore
```

RESTORE retrieves the settings saved by the PRESERVE command.

See the PRESERVE command for a list of the settings affected by the RESTORE command.

See Also: PRESERVE

RFlist - Call Directory Editor

`RFlist { FN {FT {FM}}}` will call the directory editor.

Batch Mode: `Not Available`

`RFLIST` uses regular expressions to match files. See The Directory Editor FLIST on page 465 for further explanations.

See Also: `DACCESS`, `DFLIST`, `FFLIST`, `FLIST`

RFINd - Repeat Last Find

`RFINd`

`RFIND` repeats the last ISPF/PDF `PDFFIND` command described on page 265.

RIght - Scroll Right

`RIght {N}` is used to alter the columns that are to be displayed.

`"startc"` is the first column.

`"endc"` is the last column.

If N is omitted a value of 1 is assumed.

If N is 0, the original setting will be restored.

In all other cases, `"startc"` and `"endc"` will be increased by N, shifting the data to the left by N positions

The command `"RIGHT 40"` is mapped to the `C-F8` key by default.

See Also: `LEFT`, `VERIFY`

RIGHTAdjust - Right-adjusting Text

```
RIGHTAdjust {target}
```

Scope: All

This command is mapped to the Shift-Control-R (^R) key by default.

RIGHTADJUST reformats a portion of the current file defined by the target operand. RIGHTADJUST positions the last non-blank character at the right margin defined with the MARGINS command.

target may be one of the following:

All	All the file is formatted.
Sel	Right-adjusts the selected lines. If the selection is rectangular, RIGHTADJUST right-adjusts the contents of the selected area, the text outside the selection not being modified.
:N	Up to but not including the line N.
+N	Down N lines.
-N	Up N lines.
+* or *	Down to the end of file.
-*	Up to the top of file.
.symb	Up or Down to the line which has been assigned the .symb symbolic name by using the POINT command, or a .symb prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

When target is not specified, RIGHTADJUST formats the line corresponding to the cursor location. When the cursor is not located upon a line of the current file, RIGHTADJUST reformats the current line.

Examples:

```
RIGHTADJUST
RIGHTADJUST                                          all
RIGHTADJUST                                          sel
RIGHTADJUST /str/
```

See Also: CENTER, FLOW, FORMAT, LEFTADJUST, LOCATE, MARGINS, POWERINPUT

RTLF - Specific display mode for left to right fonts (Windows)

RTLF { ON | OFF }

Initial value: OFF
Level: Global

On Windows, some fonts meant to be used right to left (for example, some Hebrew fonts) are not displayed properly by **SEDIT**.

RTLF ON enables a specific write mode that corrects this problem. Display can be slower when RTLF is ON over slow RDP connections.

See Also: WRTL

RW - Enable Read/Write Mode

RW { ON | OFF } enables or disables the save and file commands.

Initial value: ON
Level: File

When RW is OFF, the associated file cannot be saved. This is the default when loading a file using the HELP command.

See Also: FILE, SAVE

R/ - Regular Expression Search

`R/regex{/}`	searches for the first string matching the regular expression `regex` starting from the current line and proceeding in descending order.

Scope: `Display`

The cursor will be moved to the beginning of the string.

The last `/` is optional, unless the string ends with a / or a space.

A regular expression is a character string used to describe, in an extended way, a string to be matched. It uses special characters, called `meta` characters to describe the match to be done.

SEDIT can use 2 different regular expression modes:

REGTYPE LEGACY

This mode as been superseded by the `ECMASCRIPT` mode on Windows and the `PCRE` mode on Linux, both described below. It is kept for compatibility with previous **SEDIT** releases, and can be used if the `REGTYPE LEGACY` command has been issued before, for example in the profile.

Note: the `COMPILE` command parses its rules file using the `LEGACY` mode.

The `meta` characters are the following:

`^`	matches only at the beginning of a line.
`$`	matches only at the end of a line.
`\<`	matches only at the beginning of a word.
`\>`	matches only at the end of a word.
`.`	matches any single character.
`[]`	matches any character in a character class.
`\(`	delimits the start of a subexpression. It is available for `VI` compatibility, but has no special meaning.
`\)`	delimits the end of a subexpression. It is available for `VI` compatibility, but has no special meaning.
`*`	repeats the preceding 0 or more times.

If you want to use a `meta` character as an ordinary character, you must precede it with a backslash (`\`) character.

Examples:

`r/^The` matches the string "`The`" only at the beginning of a line.

`r/The$` matches the string "`The`" only at the end of a line.

`r/\<i\>` matches the string "`i`" in "`i=3`" but not in "`if( k == 2)`".

`r/The.......is`
matches the string "`The`" followed by any 7 characters followed by the string "`is`".
"`The color is`" will be matched. "`The moon is`" will not..

`r/[A_Z][a-z]`
`[A-Z]` means any character from `A` to `Z`.
`[a-z]` means any character from `a` to `z`.

The whole expression above matches any alphabetical string starting with a capital letter.

The string "`The`" will be matched. "`L12`" will not

Note that the `meta` characters are not treated specially when enclosed in brackets:

`r/[.]` matches the string "`.`". Without brackets, the user should type "`r/\.`" for the same match.

`r/[0-9][0-9]*\.[0-9][0-9]*`

`[0-9]` means at least one character between 0 and 9.
`[0-9]*` means 0 or more characters between 0 and 9.
`\.` means a period. The period must be preceded with a `\`, otherwise it would mean any character.

The whole expression above matches numbers like "`12.32`". It does not match "`.32`" or "`12.`".

REGTYPE ECMAScript (Windows)

This mode is the new default mode on Windows.

A regular expression is a sequence of characters that define a search pattern, mainly for use in pattern matching with strings, or string matching, i.e., "find and replace" operations.

By default, matches are case-sensitive, but you can make them case-insensitive using the `CASE` **SEDIT** command before using `R/`.

Syntax Overview

Pattern Construction

A regular expression pattern in `ECMAScript` is enclosed in forward slashes /.../.

Here's the basic structure:

/pattern/

pattern — The actual regex pattern you want to match.

Basic Patterns

Literals — Match exact characters. For example, /abc/ matches the string "abc".

Character Classes

Match any one character from a set:

[abc]	matches "a", "b", or "c".
[^abc]	matches any character except "a", "b", or "c".
[0-9]	matches any digit from 0 to 9.

Predefined Character Classes

\d	for any digit, equivalent to [0-9].
\D	non-digit.
\w	for any word character (alphanumeric plus underscore), equivalent to [a-zA-Z0-9_].
\W	(non-word character).
\s	for any whitespace character (space, tab, newline, etc.).
\S	non-whitespace.
Escaping	Use \ to escape special characters. For instance, /\$/ matches the dollar sign.
Quantifiers	Specify how many times a character or group should match:
?	matches 0 or 1 occurrence of the preceding character or group.
*	matches 0 or more occurrences.
+	matches 1 or more occurrences.
{n}	matches exactly n occurrences.
{n,}	matches n or more occurrences.
{n,m}	matches at least n and at most m occurrences.
.	any character.

Greedy vs. Lazy Matching:

By default, quantifiers are greedy (they match as much as possible).

Adding `?` makes them lazy (matches the minimum possible).
Example: `a+?` matches the shortest sequence of "`a`"s.

Anchors

^	matches the start of the line.
$	matches the end of the line.

Grouping and Capturing

(abc)	captures "abc".
(?:abc)	non-capturing group.
\1, \2, ...	backreferences to captured groups.

Example: `/(\d{3})-(\d{3})-(\d{4})/` for matching an US phone number format.

Non-capturing groups
can be created with (?:*pattern*) instead of (*pattern*) for when you need grouping without capturing.

Alternation & Word Boundaries:

a|b	matches "a" or "b".
\b	word boundary, matches between \w and \W.
\B	non-word boundary, matches inside words.

Assertions (Lookahead & Lookbehind):

(?=abc)	positive lookahead, ensures "abc" follows.
(?!abc)	negative lookahead, ensures "abc" does NOT follow.
(?<=abc)	positive lookbehind, ensures "abc" precedes.
(?<!abc)	negative lookbehind, ensures "abc" does NOT precede.

Escape Sequences:

\.	literal dot.
\n	newline.
t	tab.
\\	literal backslash.

Examples:

Matching a simple string	/hello/
Matching any digit	/\d/
Matching 3 to 5 'a' characters	/a{3,5}/
Matching email-like patterns	/[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}/

The examples in the `legacy` section also apply.

REGTYPE PCRE (Linux)

This mode is the new default mode on Linux.

PCRE is similar with ECMAScript, with the following key differences:

1) Additional Quantifiers in PCRE
   ECMAScript supports
   *, +, ?, {n}, {n,}, {n,m}.
   PCRE supports the same quantifiers plus
   *+, ++, ?+, {n,m}+ → Possessive Quantifiers (no backtracking).

2) Word Boundaries Enhancement
   ECMAScript supports
   \b (word boundary) and \B (non-word boundary).
   PCRE also supports
   \G start of the match attempt (not the start of the string).

3) Additional Character Classes
   ECMAScript supports
   [abc], \d, \w, \s, etc.
   PCRE adds:
   \h horizontal whitespace (\t, space).
   \v vertical whitespace (\n, \r, \f).
   \R any newline sequence (\n, \r\n, \r).

4) More Advanced Lookarounds
   ECMAScript supports
   (?=...), (?!...), (?<=...), (?<!...).
   PCRE supports the same plus
   Conditional Lookarounds: (?(?=condition)yes|no)

5) Additional Escape Sequences
   ECMAScript
   \n, \t, \\, \..
   PCRE also supports
   \e escape character (ESC)
   \K resets match start (everything before \K is ignored in the final match).

Notes for all modes

The ZONE command allows the user to choose the starting and ending columns to be scanned.

When MODE LOCATE NOSTAY is in effect (the **SEDIT** default), these columns are also restricted by the VERIFY column definition; the user can only scan the visible part of the file. The cursor will be moved to the beginning of the target. A subsequent search will start at the cursor location.

When MODE LOCATE STAY is in effect (the **XEDIT** behavior), the cursor stays in the command line, the search is not restricted by the VERIFY setting, and the next search will start on the next (or previous) line.

When WRAP is set to ON, **SEDIT** continues the search up to the line preceding the current line within the R/ command. The search is continued following the current line within the R-/ command.

When WRAP is set to OFF, the search ends at the end (of top) of file.
The EXTRACT/RMATCH/ command can be used within a macro to retrieve the matched string.

See Also: ALL, CASE, COMPILE, EXTRACT, MODE, REGTYPE, RCHANGE, R-/, VERIFY, WRAP, ZONE, /, -/, \, -\

R-/ - Regular Expression Search

`R-/regex{/}` searches for the first string matching the regular expression `regex` starting from the current line and proceeding in ascending order.

Scope: `Display`

The cursor will be moved to the beginning of the string.

The last `/` is optional, unless the string ends with a / or a space.

See the `R/` command on page 369 for a complete regular expression syntax description.

See Also: ALL, CASE, COMPILE, MODE, R/, VERIFY, ZONE, /, -/, \, -\

SABER_End - End Connection with Saber-C

`SABER_End` terminates a connection with the Saber-C 3.x software[1].

This command makes **SEDIT** stop listening on the socket opened with the `SABER_INIT` command.

Note that **SEDIT** will notice if the Saber process to which it is connected ends, and automatically execute a `SABER_END` command without notifying the user.

The `SABER_XXX` commands are intended to be used with the Saber-C or CodeCenter 3.x release.

Please see the `CENTER_XXX` commands when running CodeCenter 4.x.

See Also: CENTER_END, CENTER_INIT, CENTER_SEND, LISTEN, SABER_INIT, SABER_SEND

1. Saber-C and CodeCenter are trademarks of CenterLine Software, Inc.

SABER_Init - Initialize Connection with Saber-C

`SABER_Init` starts a connection with the Saber-C 3.x software[1].

Saber-C 3.01 and 3.1 listens for commands on a socket whose number is described in the files "`/tmp/saber.socket.`*nnn*" or "`/tmp/sabsocket`*nnn*", where *nnn* is the Saber-C process number.

If **SEDIT** finds that only one Saber-C process is running, it will establish the connection with it immediately. If more than one Saber-C process is running, SEDIT will display a fullscreen panel showing all the Saber-C process numbers, and the user will have to click with the mouse on the process to be communicated with to using the `SABER_Send` command.

The `SABER_XXX` commands are intended to be used with the Saber-C or CodeCenter 3.x release.

Please see the `CENTER_XXX` commands when running CodeCenter 4.x.

See Also: `CENTER_END`, `CENTER_INIT`, `CENTER_SEND`, `LISTEN`, `SABER_END`, `SABER_SEND`

1. Saber-C and CodeCenter are trademarks of CenterLine Software, Inc.

SABER_Send - Send Command to Saber-C

`SABER_Send cmd` sends `cmd` to the Saber-C[1] process which has been recognized by the `SABER_INIT` command.

If no connection has been established with a Saber-C process, SEDIT executes a `SABER_INIT` command. Then, **SEDIT** sends `cmd` to that process, and listens on the socket opened. If Saber-C returns a string, **SEDIT** prints it in the window it was started from.

Note that the user can continue to use **SEDIT** normally, even if Saber-C does not answer.

The user may insert the following lines in the file "`sedit.menu`" in order to be able to send commands using the mouse:

```
"SABER" MENU
       "load  "  MENU
                       ".c" saber_send load $fn.c
                       ".o" saber_send load $fn.o
       "load  "  END
       "unload"  saber_send unload $fn
       "swap  "  saber_send swap $fn
       "stop  "  MENU
                  "stop in"  saber_send stop in $fn
                  "stop at"  Saber_stopat
       "stop  "  END
       "ini   "  saber_init
       "list  "  saber_send list $fn
       "read  "  MENU
                  "ON  "  listen 1999
                  "OFF "  listen  off
       "read  "  END
       "end   "  saber_end
"SABER" END
```

1. Saber-C and CodeCenter are trademarks of CenterLine Software, Inc.

Saber_stopat is the "$xhome/xmac/Saber_stopat.ex" macro, and sets a stop in the current file at the cursor location:

```
#! /bin/csh -f
#
#  Saber_stopat: sets a stop at the cursor line
#


set cursor = `extract cursor`

if ( $cursor[4] == -1 ) then
   sends 'emsg  .... Saber_stopat: invalid cursor position'
   exit 0
endif

set fname = `extract fname`
set ftype = `extract ftype`

set a = 'saber_send stop "'"$fname[2]""$ftype[2]"'":'$cursor[4]
sends "$a"
```

The SABER_XXX commands are intended to be used with the Saber-C or CodeCenter 3.x release.

Please see the CENTER_XXX commands when running CodeCenter 4.x.

See Also: CENTER_END, CENTER_INIT, CENTER_SEND, LISTEN, SABER_END, SABER_INIT

SAve / SSave / KSAve/ DOSSave - Save File

SAve / SSave / KSAve / DOSSAve {fn {ft {fd}}

These commands transform the unchanged source file into a backup file by appending a "%" to its name, and create a new file from the edited memory image, and continue the editing session. When SAVECLEARUNDO is set to ON (the default), the undo memory is reset.

When **SEDIT** is not running in batch mode, if the file name has been changed during the editing session so that it is identical to that of an existing file, or if the file has been modified by another user, SAVE will ask for a confirmation to overwrite the existing file. SSAVE will not. When **SEDIT** is running in batch mode, SAVE does not overwrite the existing file.

The KSAVE command performs the same function as the SAVE command, but leaves unchanged the saved file timestamp. This may be useful, for example, when the modified file is an include file. Using KSAVE will prevent a following make command from recompiling every file which relies on the saved file.

The DOSSAVE command performs the same function as the SAVE command, but adds a ^M character at the end of each line, and a ^Z character at the end of the file, thus making the file compatible with Personal Computers using the DOS operating system.

Under APL, **SEDIT** will first create a "./APLOBJ" directory and then try to save the current object in this directory. This save may fail if the object name contains APL characters not allowed in a **UNIX** or **WINDOWS** name.

If fn is specified, the filename of the file will be changed before saving.
If ft is specified, the filetype of the file will be changed before saving.
If fd is specified, the filedirectory of the file will be changed before saving.

Warning: When KEEPBLANKS is set to OFF, **SEDIT** removes all trailing blanks in every line before saving a file. Do not save a file (such as a "*.o" file) where trailing blanks are part of the data.

See Also: BACKUP, KEEPBLANKS, DY_SAVE, FILE, RW, VERIFY_SAVE, SAVECLEARUNDO

SAVECLEARUNDO - Set Clear Undo Status

SAVEClearundo {ON | OFF}

Initial value: ON
Level: Global

When SAVECLEARUNDO is ON, the undo memory is reset every time the file is saved.

SCALe / SCALE_Screen - Set Scale Line

SCALe ON|OFF {line}

Initial value: `OFF 3`
Level: `File and View`

SCALE_Screen ON|OFF {line}

Initial value: `OFF 3`
Level: `View`

SEDIT maintains a separate `SCALE` setting for each file and each view of this file defined with the `SCREEN` command.

The `SCALE_SCREEN` command updates the default `SCALE` setting of the current view, which is applied to every newly loaded file.

The `SCALE` command applies to the current file on the current view. `SCALE` selects the physical line on which the scale line is to be displayed.

With `SCALE ON` in effect, **SEDIT** displays a scale line in the input field area, which shows column indications according to the `verify` setting. It indicates where every fifth column is located. The left and right `zone` columns are indicated by `<` and `>`. The column pointer is indicated with a `|`. If the `tabline` is set on the same location as the `scale line`, the tab information will also appear on the `scale line`.

The scale line displays also a `^` character at the left margin position, a `@` character at the first line indent position and a `$` character at the right margin position.

Clicking with the first mouse button on the scale line changes the first `VERIFY` setting to the corresponding column. This allows to scroll the file display to the right up to this column.

`line` can be specified in three ways:

`n|+n`	selects the line `n` of the view to display the current line, where the first line is line 1.
`-n`	selects the line `n` from the bottom of the view, where the last line is line -1.
`M+n|M-n`	selects the line `n` lines above or below the middle line of the view.

Examples:

```
SCALE                ON                2
SCALE                ON               -3
SCALE                ON                M
SCALE OFF M+2
```

See Also: `CLOCATE`, `MARGINS`, `TABLINE`, `VERIFY`

SChange - Selective String Change

`SChange /string1/string2{/{target {N|*} {P}}}`
changes `string1` with `string2` asking for confirmation at each occurrence.

Scope: `Display`
Batch Mode: `Not Available`

`/` may be any delimiting character that does not appear in the character strings involved in the replacement.

`target` defines the number of lines to be scanned for a match. Lines are changed starting with the current line, up to but not including the target line. `target` may be one of the following:

`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`+*` or `*`	The end of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

When `target` is omitted, all lines between the current line and the end of the file will be scanned. However, if `MODE CHANGE ONE` is in effect, only the first line will be changed.

`N` is the number of occurrences of `string1` to be changed on each line.

If omitted, all occurrences of `string1` will be changed. However, if `MODE CHANGE ONE` is in effect, only the first occurrence will be changed.

If specified as `*`, all occurrences of `string1` will be changed.

`P` is the relative number of the first occurrence of `string1` to be changed in each line. Its default value is 1.

When `string1` is omitted, `string2` is inserted in the column which value is defined by the first `ZONE` command operand (initially 1).

When `HEX ON` is in effect, the `string`*`i`* operands may be entered as hexadecimal values.

Every time `string1` is found, **SEDIT** will pause.

Pressing the `F12` key will make the change and the command will resume execution.

Pressing `F1` will terminate the command.

Pressing `Control-F12` will make all of the requested changes asked for without pausing again.

Pressing any other key will proceed to the next occurrence of `string1` without processing a change.

During a pause, the last window line will indicate the above key's definition. All fields will be turned into output fields, preventing any typing in them, and the `"undo"` feature will be disabled.

Examples:

`sc /i=2/i=3/`	will turn `"i=2"` to `"i=3"`
`sc .a=b/3.a=c/3.`	will turn `"a=b/3"` to `"a=c/3"`
`sc ./**/..`	will delete all `"/**/"` strings
`sc/te//:100 1 2`	will delete the second `"te"` occurrence in each line until line 100
`sc //string`	will insert `string` in the first zone column
`sc /x'31'/x'32'`	with `HEX ON` in effect, changes all "`1`" with "`2`".
`sc/k/i//if`	will turn "`k`" in "`i`" until the first line containing the "`if`" string.

If `CASE CIGNORE` is in effect, **SEDIT** will not consider capitalization when changing strings.

Example:

```
case ci
sch/Old/new/
```

will change `old` with `new`.

Notes: The `ZONE` command allows the user to choose the starting and ending columns to be scanned.

The `SCKEYS` command allows the user to modify the confirmation keys.

See Also: ARBCHAR, CASE, CHANGE, CN, HEX, LOCATE, MODE, SCKEYS, SCN, SRCHANGE, STAY, ZONE

SCKeys - Selective Change Confirmation Keys

SCKeys {key_quit key_do}

Initial values: `1` `12`
Level: `Global`

`SCKEYS` modifies the confirmation keys used by the `SCHANGE`, `SRCHANGE` and `SCN` commands.

`key_quit` The top function key used to stop the changes.

`key_do` The top function key used to confirm a change.

`SCKEYS` without arguments displays the current values.

Example: `sckeys 3 4`

See Also: `SCHANGE`, `SRCHANGE`, `SCN`

SCN - Selective Name String Change

`SCN /string1/string2{/{target {N|*} {P}}}`
changes name `string1` with `string2`, asking for confirmation at each occurrence of `string1`.

Scope: `Display`
Batch Mode: `Not Available`

A name is a string which is preceded or followed by an invalid C variable character. This command is very useful in modifying a variable.

`/` may be any delimiting character that does not appear in the character strings involved in the replacement.

`target` defines the number of lines to be scanned for a match. Lines are changed starting with the current line, up to but not including the target line. `target` may be one of the following:

`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`+*` or `*`	The end of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

When `target` is omitted, all lines between the current line and the end of file will be scanned. However, if `MODE CHANGE ONE` is in effect, only the first line will be changed.

`N` is the number of occurrences of `string1` to be changed on each line.

If omitted, all occurrences of `string1` will be treated. However, if `MODE CHANGE ONE` is in effect, only the first occurrence will be changed.

If specified as `*`, all occurrences of `string1` will be treated.

`P` is the relative number of the first occurrence of `string1` to be changed in each line. Its default value is 1.

When `string1` is omitted, `string2` is inserted in the column which has a value defined by the first `ZONE` command operand (initially 1).

When `HEX ON` is in effect, the `string`*`i`* operands may be entered as hexadecimal values.

Every time `string1` is found, **SEDIT** will pause.

Pressing the `F12` key will make the change and the command will resume execution.

Pressing `F1` will terminate the command.

Pressing Control-F12 will make all the changes without pausing.

Pressing any other key will pass to the next occurrence of string1 without processing a change.

During a pause, the last window line will indicate the above key's definition. All fields will be turned into output fields, preventing any typing in them, and the "undo" feature will be disabled.

Example: scn /i/j/ will turn name "i" in "j" but will leave unchanged string "if".

If CASE CIGNORE is in effect, **SEDIT** will not consider capitalization when changing strings.

Example:
```
case ci
scn/Old/new/
```
will change old with new.

Notes: The ZONE command allows the user to choose the starting and ending columns to be scanned.

The SCKEYS command allows the user to modify the confirmation keys.

See Also: ARBCHAR, CASE, CHANGE, CN, HEX, LOCATE, MODE, SCHANGE, SCKEYS, STAY, ZONE

SCOpe - Set Selective Editing Scope

`SCOpe {All | Display}` selects the selective editing scope.

Initial value: `DISPLAY`
Level: `View`

Each line in the file has a number associated with it, called its selection level, which is set to zero by default and may be modified by the commands `ALL` and `SELECT`, and by the prefix commands `X` and `S`. When a line selection level does not fall in the `DISPLAY` range, it will not be displayed.

With `SCOPE DISPLAY` (the default) most **SEDIT** commands and prefix commands will not apply to the excluded lines. With `SCOPE ALL`, **SEDIT** commands will apply to all lines.

With no argument, `SCOPE` will display the current setting.

See Also: `ALL`, `DISPLAY`, `SELECT`, `SHADOW`

SCReen - Split Screen

```
SCReen        N{Horizontal              |              Vertical}

              Sizel1          {l2          {l3          ...}}
              Linesl1          {l2          {l3          ...}}

              Widthc1          {c2          {c3          ...}}
              Columnsc1         {c2          {c3          ...}}

              Define ll1 cc1 y1 x1 {ll2 cc2 y3 x2 {....}}
```

Batch Mode: `Not Available`

`SCREEN N` or `SCREEN N HORIZONTAL`
creates `N` horizontally arranged identical screens.

`SCREEN N VERTICAL`
creates `N` vertically arranged identical screens.

`SCREEN SIZE` or `SCREEN LINES`
creates horizontally arranged screens, where `li` is the number of lines in each screen. The last screen will extend to the **SEDIT** window bottom.

`SCREEN WIDTH` or `SCREEN COLUMNS`
creates vertically arranged screens, where `ci` is the number of columns in each screen. The last screen will extend to the **SEDIT** window right side.

`SCREEN DEFINE`
creates screens according to the specified layout:

- `lli` is the number of lines.
- `cci` is the number of columns.
- `yi` is the line number of the screen upper-left corner.
- `xi` is the column number of the screen upper-left corner.

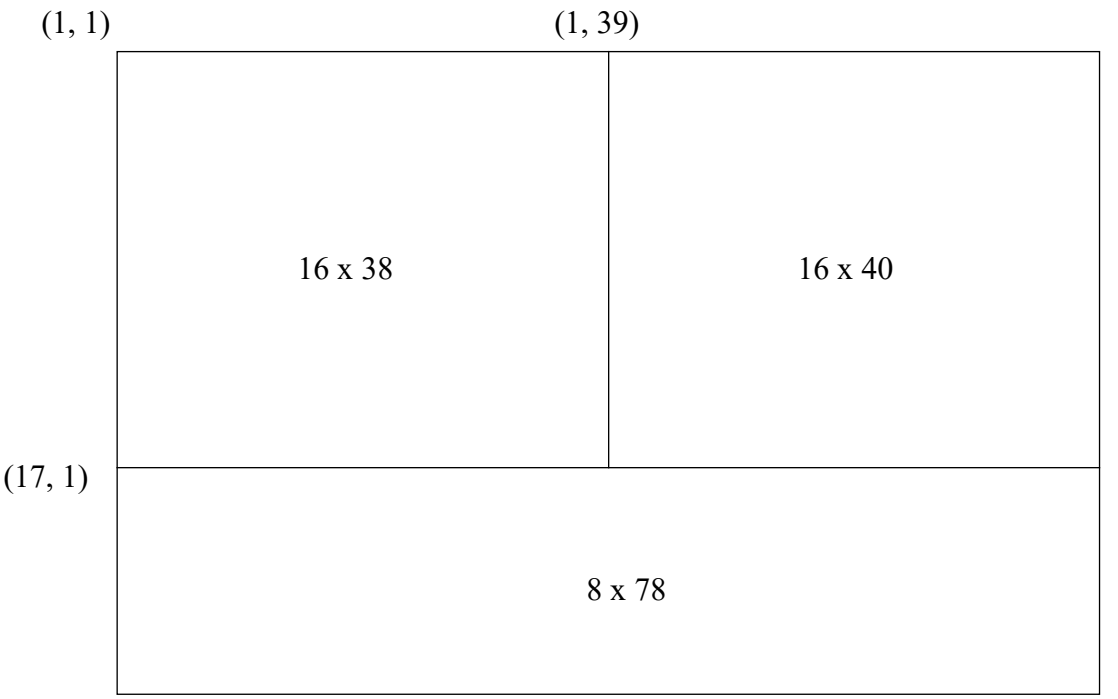
Examples:

`screen 2 v` creates 2 identical vertical screens.

`screen s 12 15 8` creates 3 horizontal screens.

`screen w 39 49` creates 2 vertical screens

`screen d 16 38 1 1 16 40 1 39 8 78 17 1`
creates 3 screens with the following layout:



See Also: C_SCRH, C_SCRJ, C_SCRV

SCROllbar - Set Scrollbar

`SCROllbar ON | OFF` enables or disables scrollbar usage.

Initial value: `ON`
Level: `Global`
Available on: `UNIX`
Batch Mode: `Not Available`

When `SCROLLBAR` is `ON`, and when running the **MOTIF** or OpenLook **SEDIT** version, a vertical scrollbar is displayed on the main window. This scrollbar allows the user to scroll through current file.

When the screen has been split, the scrollbar scrolls through the file which contains the cursor.

See Also: `C_SCRH`, `C_SCRJ`, `C_SCRV`, `SCREEN`

SELect - Set Selection Level

`SELect {+|-}N {target}` sets the selection level of lines in the current file.

Initial value: `0`
Level: `File`
Scope: `Display`

Each line in the file has a number associated with it, called its selection level, which is set to zero by default and may be modified by the commands `ALL` and `SELECT`, and by the prefix commands `X` and `S`. When a line selection level does not fall in the `DISPLAY` range, it will not be displayed.

With `SCOPE DISPLAY` (by default) most **SEDIT** commands and prefix commands will not apply to the excluded lines. With `SCOPE ALL`, commands will apply to all lines.

With `SHADOW ON`, **SEDIT** will display a shadow line to represent each group of excluded lines. With `SHADOW OFF`, **SEDIT** will not display these lines at all.

The first argument is the value to set to the lines described by the second argument:

- `N` will set the value to `N`.
- `+N` will add `N` to the current selection level.
- `-N` will substract `N` to the current selection level.

`target` describes the file area to be modified:

`All`	will set the selection level for all lines in the file.
`Sel`	will set the selection level for all lines selected with the mouse.
`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`-N`	Up `N` lines.
`+*` or `*`	The end of file.
`-*`	The top of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

If `target` is omitted, a value of 1 is assumed.

See Also: `ALL`, `DISPLAY`, `SCOPE`, `SELECTALL`, `SHADOW`, `STAY`, `VISIBLE`

SELECTall - Set Selection Level on All Lines

`SELECTAll {N1 {N2{..}}}` sets the selection level of all lines in the current file.

Initial value: `0`
Level: `File`
Scope: `Display`

Each line in the file has a number associated with it, called its selection level, which is set to zero by default and may be modified by the commands `ALL` and `SELECT`, and by the prefix commands `X` and `S`. When a line selection level does not fall in the `DISPLAY` range, it will not be displayed.

`SELECTALL` uses the `Ni` arguments to set the selection level of all the lines. If there are less `Ni` arguments than lines in the file, `SELECTALL` uses the `Ni` arguments cycliquelly.

Example: `selecta 1 0`
hides every other line.

See Also: `ALL`, `DISPLAY`, `SCOPE`, `SELECT`, `SHADOW`, `STAY`, `VISIBLE`

SEP - Separator Change

`SEP ON|OFF {value}` enables or disables the character separator when passing commands.

Initial value: `line-feed`
Level: `Global`

`value` is an optional parameter specifying the separator between commands. It is originally set to `line-feed`.

`line-feed` is assigned to the following keys, depending on the workstation in use:

SUN Type 4 keyboard	Control-line-feed
SUN Type 5 keyboard	Control-AltGraph
IBM RS/6000	Control-Right-Alt
SiliconGraphics	Control-Right-Alt
DecStations	Control-PF3
DecStations with PC keyboards	Control-Right-Alt
HP	Control-Select
HP with PC keyboards	Control-Right-Alt
ASCII terminals	Control-l
Windows systems	Control-Right-Alt

The `LINEND` command is a synonym to the `SEP` command.

Examples:

```
sep on ;
```
sets the separator to ";".

```
top;c /i/j/
```
changes every `"i"` to `"j"` from the beginning of the file.

See Also: `LINEND`

SEt - Set Function Keys

Batch Mode: Not Available

First Mode:

```
SET    |                    PFk    { {keyword} string}
       |  {modifier}        Fk
       |  {modifier}        Rk
       |  {modifier}        SymbName
       |  {modifier}        Lk
       |  {modifier}        enter
       |                    ^cc
       |                    M-cc
SET    ?
```

The first mode is used to assign a function key to a string which is executed as a command when this key is pressed.

When used without `string`, it will clear the key definition.

`modifier` may be one of the following:

`s-`	specifies that the `Shift` key must be held down.
`c-`	specifies that the `Control` key must be held down.
`m-`	specifies that the `Meta` key must be held down. The `Meta` key is labelled `Left` or `Right` on old Sun type 3 keyboards, and ◊ on the Sun type 4 or type 5 keyboards. On DECstations, the meta key is the `Compose` key. On HP keyboards, the meta key is the Left `Extend Char` key. On most other keyboards, the meta key is the left `Alt` key.
`s+c-`	specifies that the `Shift` and the `Control` keys must be held down.
`s+m-`	specifies that the `Shift` and the `Meta` keys must be held down.
`m+c-`	specifies that the `Meta` and the `Control` keys must be held down.
`s+m+c-`	specifies that the `Shift`, `Control` and `Meta` keys must be held down

Note: when specifying several modifiers, the order is irrelevant. `set s+c-f1` is the same as `set c+s-f1`.

SymbName may be one of the following:

UpArrow	specifies the up arrow key. UpArrow is internally changed to R8.
DownArrow	specifies the down arrow key. DownArrow is internally changed to R14.
LeftArrow	specifies the left arrow key. LeftArrow is internally changed to R10.
RightArrow	specifies the right arrow key. RightArrow is internally changed to R12.
Home	specifies the key labelled Home on PC-like keyboards. The corresponding Ri value depends on the platform.
End	specifies the key labelled End on PC-like keyboards. The corresponding Ri value depends on the platform. End is not available with **DEC/COMPAQ/HP ALPHA TRUE64** keyboards.
PrintScreen	specifies the key labelled PrintScreen on PC-like keyboards. PrintScreen is internally changed to R1.
ScrollLock	specifies the key labelled ScrollLock on PC-like keyboards. ScrollLock is internally changed to R2.
Pause	specifies the key labelled Pause on PC-like keyboards. Pause is internally changed to R3.

Note: SymbName is not case sensitive. uparrow is the same as UpArrow.

With the SET command, the separator defined with the SEP or LINEND command is disabled, which allows the user to program several commands on the same key.

PFk means a 3270 equivalent PF key function.

PF1 - PF9 are mapped to F1 - F9 top keys.

PF10 - PF12 are mapped to R1 - R3 Sun right keys with the old Sun 9 top keys keyboard, and to F10 - F12 top keys with the other keyboards. The user must use the KEYBOARD . 1 command in its profile.sedit or PROFILE.sedit file to specify the old keyboard.

PF13 - PF24 are the same as PF1 - PF12 with the shift key held down.

PF25 - PF36 are the same as PF1 - PF12 with the control key held down.

PF37 - PF48 are the same as PF1 - PF12 with the meta key held down.

R1 - R15 are Sun right keys.

L1 - L10 are Sun left keys. L11 is the Sun HELP key.

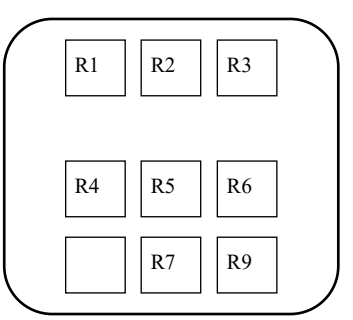
The `Left` function keys are the following keys:

- L1 Stop
- L2 Again
- L3 Props
- L4 Undo
- L5 Front
- L6 Copy
- L7 Open
- L8 Paste
- L9 Find
- L10 Cut
- L11 Help

On IBM, SiliconGraphics and HP PC-like keyboards, and on **WINDOWS** systems, the right keys are mapped in the following way:

- R1 Print Screen
- R2 Scroll Lock
- R3 Pause
- R4 Insert
- R5 Home
- R6 Page Up
- R7 End
- R8 Up Arrow
- R9 Page Down
- R10 Left Arrow
- R12 Right Arrow
- R14 Down Arrow

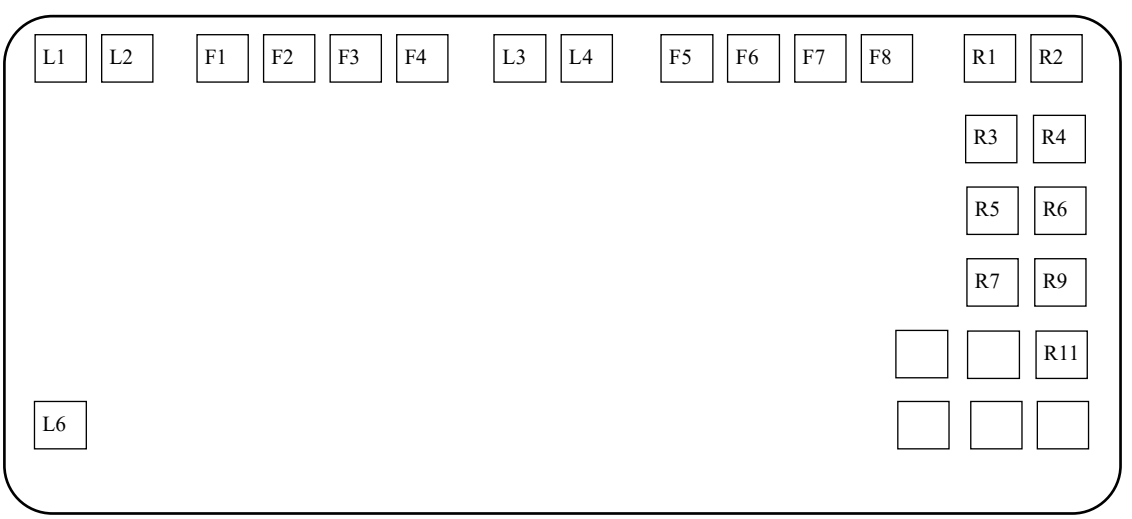
With the following physical layout:



On HP keyboards, the right and left keys are mapped in the following way:

- L1 Reset
- L2 Stop
- L3 Menu
- L4 User
- L6 Print
- R1 Clear
- R2 Clear Display
- R3 Insert Line
- R4 Delete Line
- R5 Insert Char
- R6 Delete Char
- R7 ↖
- R9 Prev
- R11 Next
- R13 Numerical Pad Tab Key

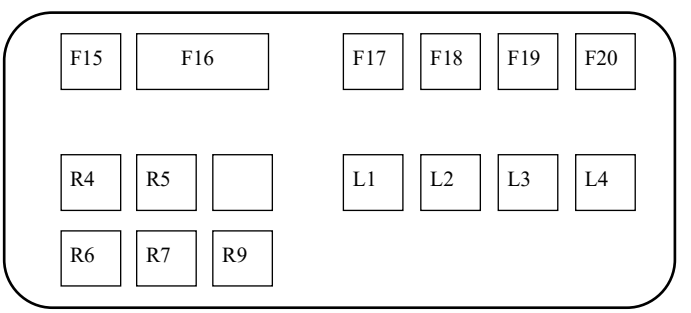
With the following physical layout:



On DECstation keyboards, the mapping is the following

- R4 Find
- R5 Insert Here
- R6 Select
- R7 Previous screen
- R9 Next screen
- L1 PF1
- L2 PF2
- L3 PF3
- L4 PF4

With the following physical layout:



The user can specify a `shift`, `control` or `meta` condition by adding a `"S-"`, `"C-"` or `"M-"` prefix to the `Rk` or `Lk` definition.

`^cc` sets `"Control-cc"`, where `cc` is any character. However, when running in ASCII terminal mode, the user can only use characters ranging from '`a`' to '`z`', with the exceptions described below.

`M-cc` sets `"Meta-cc"`, where `cc` is any character. This facility is not supported on ASCII terminals.

? or no argument at all displays the key setting in a fullscreen manner.

The user can edit them directly. Once edited, the user must first depress the `Enter` or `Return` key to validate the changes, and then return to the editor by depressing the `F1` key.
Depressing the `F2` key adds a `setkey.sedit` file in the editing ring, containing all the key definitions and all the other editor settings.

When running in ASCII terminal mode, the following restrictions apply:

- It is not possible to know the "shift", "control" and "meta" key state. Therefore, it is not possible to assign a specific command to function keys when holding down these modifier keys. For example, "set s-f1 flquit" will not make **SEDIT** call the "flquit" command when hitting "shift-f1".
  For the same reason, "set ^A command" will not be recognized. Only "set ^a command" will be.
- The following "^cc" keys cannot be changed:
  ^t enters the tab character (instead of ^tab).
  ^i enters the next-field 3270 command.
  ^j enters the up-field 3270 command.
  ^f enters the down-field 3270 command.
  ^h enters a backspace.
  ^l enters the line-feed separator character.
  ^m is equivalent to the Return or Enter key.
- "set M-cc" is not supported.

Examples:

```
set pf15 cn /i/il/

set s-f3 cn /i/il/

set m-r4 \i
```

set ^q /i.del (. means "line-feed" separator)
Control-q will search and delete the next line containing "i" character. Note that an error condition (like not finding "i") will stop the process.

```
set ^Q QQUIT
```
Shift-Control-q will quit the current file, even if modified.

`set c-r12 c_endl`	Control-Right-Arrow moves the cursor to the end of the line.
`set s-r8 top`	Shift-Up-Arrow selects the first line as the current line.
`set s-uparrow top`	is the same as `set s-r8 top`
`set m-r14 bot`	Meta-Down-Arrow selects the last line as the current line.
`set m-a s_set all`	Meta-a selects all of the current file.

Note: When the ENTER key is defined, by using the SET ENTER command, the auto-indentation is disabled. See the AUTOI command on page 155 for more details.

Second Mode:

```
SET     |  HOME              |      PFk
        |  IHOME             |      {S-} {C-} {M-}Fk
        |  PREV_FIELD        |      {S-} {C-} {M-}Rk
        |  INS               |      {S-} {C-} {M-}Lk
        |  CAPS              |      {S-} {C-} {M-}SymbName
        |  APL               |      ALT
        |  DOWN_FIELD        |      LF
        |  UP_FIELD          |      ESCAPE
        |  EOF               |      ^cc
```

The second mode is used to modify the 3270 simulation keys.

SymbName is described on page 394.

ALT is the key labelled Alt on Sun keyboards, the right Extend Char key on HP keyboards, and the right Control key on other workstations.

LF is the key labelled Line Feed on Sun keyboards, the Select key on HP keyboards, and the right Alt key on other workstations.

ESCAPE is the Esc key.

^cc sets "Control-cc", where cc is any character between 'a' and 'z'.

For a Sun workstation, the original setting is:

```
HOME          R6
IHOME         R9
PREV_FIELD    R7
INS           R11
CAPS          R13
APL           R15
DOWN_FIELD    ALT
UP_FIELD      LF
EOF           L3
```

See The 3270 Screen Interface on page 41 for a full 3270 functions description.

Note: with non-US keyboards, it is necessary to remove the default right ALT key "down_field" assignment.
This is achieved by adding in the profile the "set down_field" command after the architecture dependent "set_xxx" keyboard setting macro has been called.
On IBM stations for example, the keyboard setting macro is "set_ibm".

Examples:

set APL	disables the R15 APL key
set HOME R6	sets the 3270 HOME command to key R6
set HOME set R6 CURSOR HOME	sets the **SEDIT** CURSOR HOME command to R6

Third Mode:

`SET BACKSPACE ^h | ^?`

Depending on the ASCII terminal in use, the `BackSpace` key may send either the `^h` or the `^?` character.

By default, **SEDIT** recognizes the `^h` character as the `BackSpace` character, and `^?` as the `Delete` character.

Issuing the "`SET BACKSPACE ^?`" command reverses its behavior.

If a terminal such as this is in use, edit the "`/home/xed/profile.sedit`" macro, and add the following bold-faced line:

```
if version = 'curses' then
 do
    if $TERM = 'MyTerminal' then 'set backspace ^?'
```

`SET SERVER serv`

When running the **MOTIF** version, this command allows the user to start **SEDIT** on a particular workstation (for example an IBM workstation), and to display it on another one (for example a DEC workstation) using the `-display hostname:0` option, letting **SEDIT** know about the peculiarities of the remote server.

`serv` may be one of the following:

Display Workstation	`serv` value
Sun Sparc	`sun`
PC with Solaris X86	`i86pc`
SiliconGraphics	`sgi`
Ultrix DecStation	`dec`
Digital Unix TRUE64 DecStation	`alpha`
Digital Unix TRUE64 DecStation with a PC keyboard	`alphapc`
IBM RS/6000	`ibm`
Hewlett Packard	`hp`
Hewlett Packard with a PC keyboard	`hppc`
PC with Linux	`linux`
PC with SCO	`sco`
PC with Unixware	`unixware`

Display Workstation	`serv` value
Siemens	`siemens`

`SET NBKEYS nb_left nb_top nb_right`

This command makes **SEDIT** aware of the real number of left, top and right keys, so it can handle the shift, control and meta modifiers properly.

The macros `/home/xed/xmac/set_xxxx` use these 3 `SET` commands, so the user should never have to worry about them. Just use `set_dec` to display on a DEC/COMPAQ/HP, `set_ibm` to display on an IBM, and so on.

Fourth Mode:

Within the IBM **XEDIT** editor, the `SET` command allows the user to set various editing modes, such as the verify mode, by typing, for example, "`set verify 1 3`" instead of "`verify 1 3`".

The **SEDIT** `SET` command allows the prefix `SET` as well in order to maintain strict compatibility with **XEDIT**.

See Also: `METAKEY`, `XTESTCHARS`

SETEnv - Set Environment Variable

`SETEnv var {expr}`	sets the environment variable `var` to the value `expr`.

Without `expr`, `SETENV` sets the environment variable `var` to an empty (null) value.

See Also: `UNSETENV`

SETP - Set Display String

`SETP {string}` will display `string` at the last window line every time **SEDIT** pauses.

Batch Mode: `Not Available`

This command is intended to be used in the `"profile.sedit"` macro when the original key setting is modified.

If `string` contains the "`\n`" line separator, it will be split into several lines according to the number of separators.

When `string` is omitted, the last window line is returned to the editor.

Examples:

```
setp "1:Q  2:Ne 3:S  4:Sp"
```
displays one help line.

```
setp "1:Q  2:Ne 3:S  4:Sp\n6:cu 7:U  8:D  9:?  10:H"
```
displays two help lines.

```
setp
```
frees the last window line.

SHAdow - Set Selective Editing Display Mode

`SHAdow {ON | OFF}` sets the way **SEDIT** displays excluded lines.

Initial value: `ON`
Level: `View`

Each line in the file has a number associated with it, called its selection level which is set to zero by default and may be modified by the commands `ALL` and `SELECT`, and by the prefix commands `X` and `S`. When a line selection level does not fall in the DISPLAY range, it will not be displayed.

With `SHADOW ON`, **SEDIT** will display a shadow line to represent each group of excluded lines. With `SHADOW OFF`, **SEDIT** will not display these lines.

With no argument, `SHADOW` will display the current setting.

See Also: `ALL`, `DISPLAY`, `SELECT`, `SCOPE`

SHBlank - Show Last Trailing Blank

`SHBlank ON|OFF` disables or enables the last trailing blank display.

Initial value: `ON`
Level: `Global`

By default, **SEDIT** removes all trailing blanks in every line when loading a file, when editing a line and when saving a file. The `KEEPBLANKS`, `BINARY`, `XKB` and `XBIN` commands allow the user to edit a file without removing trailing blanks.

When `SHBLANK` is `ON`, and when not working in character mode, **SEDIT** flags the last trailing blank position displaying a thin vertical bar after that blank.

Note: `KEEPBLANKS ON` is not sufficient to preserve binary files integrity. Use `BINARY ON` or `XBIN` instead.

See Also: `AUTOBIN`, `BINARY`, `KEEPBLANKS`, `XBIN`, `XKB`

SHEll - Execute a Shell Command

`SHEll command` — transmits the string `command` to the operating system for execution.

If `command` ends with a `"&"`, `command` will be placed in the background[1]. Otherwise, `command` will execute in the foreground, and **SEDIT** will wait until `command` ends.

When running in the foreground, `command` can be interrupted by typing `^c`.

On **UNIX** systems, the command is processed by the `/bin/sh` default shell.

On **WINDOWS** systems, the command is processed directly by the operating system. `SHELL` is a synonym to the `WINDOWS` command.

Example: `shell lpr $name &` will print the current **UNIX** file.

See Also: `IMPCMSCP`, `WINDOWS`, `XSHELL`

SHELLEXT - Set Default Execute Shell filetype (Windows)

SHELLEXT {ft1 ft2 .... ftn} — sets the file extensions to be passed to the **WINDOWS** default Shell environment when clicked on within **FLIST**.

Initial Values: `exe pdf gif jpg jpeg png tif tiff pnx bmp doc fm xls msi`
Level: `Global`

On **WINDOWS** systems, clicking on a file whose filetype is defined by `SHELLEXT` will start the default action with this file.

For example, a **PDF** file could be opened with Acrobat Reader.

Without arguments, `SHELLEXT` displays its current settings.

Example: `shellext exe pdf msi "w eird"`
will reset the `SHELLEXT` filetypes to the ones above.

1. This facility is not available on ASCII terminals, since the command output would overwrite the **SEDIT** screen.

SHift - Shift Lines

```
SHift Left|Right {cols {target}}
```

Scope: Display

SHIFT allows the user to shift data to the left, or to the right. SHIFT affects text from the left zone column.

cols specifies the number of columns the data is to be shifted. When omitted, a value of 1 is assumed.

target defines the number of lines to be shifted. Lines are shifted starting with the current line, up to but not including the target line. target may be one of the following:

:N	Up to but not including the Nth line.
N or +N	N lines.
-N	Up N lines.
+* or *	The end of file.
-*	The top of file.
.symb	The line which has been assigned the .symb symbolic name by using the POINT command, or a .symb prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

If target is omitted, a value of 1 is assumed.

The <, <<, > and >> prefix commands may be used for the same purpose.

Examples:

```
shift 1          shifts one line.
sh r 3 /main     shifts all lines up to the line containing the main
                 string.
```

See Also: STAY, ZONE

SHOw - Global Selective Line Editing

`SHOw { target }` selects the hidden lines containing the target specified.

Scope: `Display`

SHOW scans the lines previously hidden by the ALL or the EXCLUDE commands, showing all the lines matching the `target` operand.

See the ALL command for a description of the `target` operand.

See Also: ALL, EXCLUDE

SHOWCdpath - Displays the Accessed Directories

`SHOWCdpath`

SHOWCDPATH displays the directories in the `cdpath`.

SHOWCDPATH could display for example:

```
/home/m1/ | /home/
/usr/     | /home/xed/
```

See Also: DACCESS, DRELEASE

SHOWHistory - Show History

`SHOWHistory` Shows history.

SHOWHISTORY displays the commands memorized in the history buffer.

This command is mapped to the `M-F9` key by default.

See Also: XSHOWHISTORY, HISTORY, ?, ?I

SHOWPath - Displays the Accessed Directories

SHOWPath

SHOWPATH displays the directories in the path, together with their filemodes.

SHOWPATH could display for example:

```
a : /home | b : /usr/ucb | c : /usr/bin | d : /usr/lib
e : /etc  | f : /usr/etc
```

See Also: ACCESS, FLIST, RELEASE

SOrt, NSort - Sort a File

`SOrt target {{Ascending|Descending} n1 m1} .....`
sorts the current file.

`NSort target {{Ascending|Descending} n1 m1} .....`
sorts the current file in natural order.

Scope: `DISPLAY`

`target` indicates what lines will be sorted. It can be entered in the following ways:

- `:n` will sort from the current line up to but not including the line `n`.
- `n` will sort `n` lines starting at the current line.
- * will sort all the lines starting at the current line
- `All` will sort the entire file. This is the default if no target is specified.
- `Sel` will sort the selected lines. If the selection is rectangular, the columns to be sorted will be that of the selection, the only extra parameter allowed being `ASCENDING` or `DESCENDING`.

The columns to be sorted will be determined by the `{ni mi}` pairs. If omitted, the current `zone` setting will used. If `mi` is an asterisk `("*")`, the right zone column will be used. There can be any number of sort fields.

The sort fields may be preceded with `ASCENDING` or `DESCENDING` which indicates the order in which to sort the field, and all subsequent fields, until another `ASCENDING` or `DESCENDING` parameter is encountered.

The default is sorting in ascending order.

Example:
```
sort                          will sort all the file.
sort     *     a     1     12     d     18     *
sort s d 13 *
```

If `CASE SIGNORE` is in effect, **SEDIT** will not consider capitalization when the `SORT` command is applied.

Example:
```
case si
sort *          will sort the current file ignoring capitalization.
```

`NSORT` is identical to `SORT`, except that decimal integer substrings are compared on their numeric value[1].

1. The natural order sorting algorithm was written by Martin Pool. See http://sourcefrog.net/projects/natsort/.

Consider the following file:

```
0001 a1
0002 a2
0003 a10
0004 a12
0005 a3
```

SORT * will re-order it this way:

```
0001 a1
0002 a10
0003 a12
0004 a2
0005 a3
```

and NSORT *:

```
0001 a1
0002 a2
0003 a3
0004 a10
0005 a12
```

See Also: ALL, CASE

SORTRing - Sort the Ring

SORTRing sorts the ring.

The files in the ring are normally displayed in the order they have been loaded. SORTRING displays the files in alphabetical order.

SOS - Screen Operation Simulation

```
SOS             Alarm
                BAckspace
                CLEAR
                INSertON|OFf|Toggle
                INPut string
                LINEAdd
                LINEDel
                TABB{N}
                TABCmd
                TABCMDB{N}
                TABCMDF{N}
                TABF{N}
```

Batch Mode: `Not Available`

`SOS Alarm`
sounds the terminal bell the next time the screen is refreshed.

`SOS BAckspace`
moves the cursor as the `BACKSPACE` key would do.

`SOS CLEAR`
clears and redraws the screen. This is a synonym for the `REFRESH CLEAR` command.

`SOS INSert ON|OFf|TOGGLE`
sets the `INSERT` mode `ON` or `OFF` immediately.
`SOS TOGGLE` will toggle the `INSERT` mode only when all characters entered with a previous `SOS INPUT` command have been processed.

`SOS INPut string`
inserts `string` at the cursor location.

`SOS LINEAdd`
adds a line below the cursor location. This is a synonym for the `C_LINEADD` command.

`SOS LINEDel`
deletes the line at the cursor location. This is a synonym for the `C_LINEDEL` command.

`SOS TABB {N}`
moves the cursor as if the `PREV_FIELD` key had been depressed `N` times. If not specified, `N` assumes the value of one.

`SOS TABCmd`
sets the cursor at the command field for the screen in which it currently resides.

`SOS TABCMDB {N}`
sets the cursor to the `N` previously encountered command field. Useful to switch to a different screen within a macro and pass a command into that screen. If not specified, `N` assumes the value of one.

`SOS TABCMDF {N}`
sets the cursor to the `N` following encountered command field. Useful to switch to a different screen within a macro and pass a command to that screen. If not specified, `N` assumes the value of one.

`SOS TABF {N}`
moves the cursor as if the `NEXT_FIELD` key had been depressed `N` times. If not specified, `N` assumes the value of one.

See Also: `C_LINEADD`, `C_LINEDEL`, `REFRESH`

SPAN - Multiple Lines Search

```
SPAN ON|OFF {Blank|Noblank {N|*}}
```

Initial value: OFF BLANK 2
Level: File

SPAN ON specifies that during a search, N lines are to be concatenated, allowing **SEDIT** to find a string starting on one line, and ending on the following lines.

SPAN OFF specifies that a character string must be included on the same line in order to be found.

When a truncation column has been specified with the TRUNC command, lines are padded with blanks in order to match the truncation length. Otherwise, trailing blanks are deleted before concatenation.

BLANK specifies that one more additional blank character is inserted between consecutive lines.

NOBLANK specifies that no additional blank character is inserted between consecutive lines.

N specifies the number of lines that a string can span. If specified as *, the rest of the file is searched.

When the searched columns are restricted with the ZONE command, only the portion of lines defined by the ZONE values are concatenated.

Return Codes:		
	0	Normal
	5	Invalid Operand

See Also: LOCATE, ZONE

SPELL - Spelling Checker

`SPELL` checks the current file for spelling errors.

Scope: `ALL`
Available on: `UNIX`
Batch Mode: `Not Available`

`SPELL` looks for the `sedit_spell` script file first in the current directory, then in the home directory and finally in the installation directory.

This script looks for an `sedit.dictionary` private dictionary in the same set of directories, and then calls the **UNIX** `SPELL` command, using this private dictionary when found.

Then, **SEDIT** highlights in reverse video the first misspelled word, and places the cursor on it.

The user may then type the correction. Remember that typing on selected characters deletes them and sets the keyboard in insert mode.

After correction, the user may use the `SPELL_NEXT` command to look for the next misspelled word, or the `SPELL_ADD` command to add this word to the private dictionary.

The **SEDIT** main menu "`SPELL`" item creates 3 buttons with the 3 spelling commands.

See Also: `SPELL_ADD`, `SPELL_NEXT`

SPELL_Add - Update Private Dictionary

`SPELL_Add {ff}` adds the current misspelled word to a private dictionary.

Available on: `UNIX`
Batch Mode: `Not Available`

`SPELL_ADD` looks for the `ff` file first in the current directory, then in the home directory and finally in the installation directory.

If `ff` is not specified, it will be set to `sedit.dictionary`.

Then, the current misspelled word will be added to the `ff` file, and `ff` will be sorted for a proper subsequent use with the `SPELL` command[1].

See Also: `SPELL`, `SPELL_NEXT`

1. Some UNIX `SPELL` commands (SiliconGraphics for instance) do not allow private dictionary use.

SPELL_Next - Search for Next Misspelled Word

`SPELL_Next` displays the next misspelled word in reverse video and sets the cursor on it.

Available on: `UNIX`
Batch Mode: `Not Available`

The user may then type the correction. Remember that typing on selected characters deletes them and sets the keyboard in insert mode.

See Also: SPELL, SPELL_ADD

SPLTJOIN - Split/Join Lines

`SPLTJOIN {Stay|Nostay}` when the cursor is before the last non-blank character, the line will be split, with indentation if the auto-indent feature is on. When the cursor is after the last non-blank character, the next line will be joined to the current location.

Scope: `Display`

If NOSTAY is specified, the cursor is moved to the new line with proper indentation. Otherwise, the cursor remains at the same location.

See Also: AUTOI, C_SPLIT

SRChange - Selective Regular Expression Change

```
SRChange    /regex/string{/{target        {N|*}        {P}}}
```

changes the regular expression `regex` with `string` asking for confirmation at each occurrence.

Scope: `Display`
Batch Mode: `Not Available`

`/` may be replaced with any delimiting character that does not appear in the character strings involved in the replacement.

A regular expression is a character string used to describe, in an extended way, a string to be matched. It uses special characters, called `meta` characters to describe the match to be done. See the `R/` command on page 369 for a complete description of regular expressions.

`target` defines the number of lines to be scanned for a match. Lines are changed starting with the current line, up to but not including the target line. `target` may be one of the following:

`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`+*` or `*`	The end of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the `LOCATE` command on page 303 for a precise string expression definition.

When `target` is omitted, all lines between the current line and the end of file will be scanned. However, if `MODE CHANGE ONE` is in effect, only the first line will be changed.

`N` is the number of occurrences of `regex` to be changed on each line.

If omitted, all occurrences of `regex` will be changed. However, if `MODE CHANGE ONE` is in effect, only the first occurrence will be changed.

If specified as `*`, all occurrences of `regex` will be changed.

`P` is the relative number of the first occurrence of `string` to be changed in each line. Its default value is 1.

When `regex` is omitted, `string` is inserted in the column which value is defined by the first `ZONE` command operand (initially 1).

Every time `regex` is found, **SEDIT** will pause.

Pressing the F12 key will make the change and the command will resume execution.

Pressing F1 will terminate the command.

Pressing Control-F12 will make all of the requested changes asked for without pausing again.

Pressing any other key will proceed to the next occurrence of regex without processing a change.

During a pause, the last window line will indicate the above key's definition. All fields will be turned into output fields, preventing any typing in them, and the "undo" feature will be disabled.

When ARBCHAR is ON, all occurrences of the arbitrary character in string will be changed with the string matching regex.

Examples:

```
src/[0-9]/?/
```
will turn every number into a ?

```
arbchar on @
src/[a-z]/(@)/**
```
will enclose every lowercase alphabetical character within parenthesis.

If CASE CIGNORE is in effect, **SEDIT** will not consider capitalization when changing strings.

Notes: The ZONE command allows the user to choose the starting and ending columns to be scanned.

The SCKEYS command allows the user to modify the confirmation keys.

See Also: ARBCHAR, CASE, CHANGE, CN, HEX, LOCATE, MODE, RCHANGE, SCHANGE, SCKEYS, SCN, STAY, ZONE

STAck - Stack Lines

```
STAck {target {col {len|*}}}
```

Scope: Display

STACK allows the user to place the lines starting at the current line up to the line specified by target in the S/REXX stack. **S/REXX** can retrieve these lines by using the PARSE PULL instruction.

target defines the number of lines to be stacked. Lines are stacked starting with the current line, up to but not including the target line. target may be one of the following:

:N	Up to but not including the Nth line.
N or +N	N lines.
-N	Up N lines.
+* or *	The end of file.
-*	The top of file.
.symb	The line which has been assigned the .symb symbolic name by using the POINT command, or a .symb prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

If target is omitted, a value of 1 is assumed.

cols specifies the starting column to be stacked. When omitted, a value of 1 is assumed.

len specifies the number of columns to be stacked. When specified as *, or when not specified, the line will be stacked up to the last non-blank character.
In any case, the last stacked column is less or equal to the truncation column defined by the LRECL command.

Example: `stack*5 20`

See Also: LRECL

STAMpdelay - Discrepancy Reload Setting

`STAMpdelay root time`	sets the allowed discrepancy for the auto-reload feature.
`STAMpdelay Off`	removes all time stamp delays.
`STAMpdelay`	displays the current time stamp delays.

Initial value: `Not Set`
Level: `Global`

When `RELOAD` is set to `ON`, **SEDIT** checks all the currently loaded files under the following circumstances:

- When **SEDIT** loses the keyboard focus, and then receives it again.
- When the user switches from one file to another.
- When the user loads a new file.

If **SEDIT** determines that a file has been externally modified, **SEDIT** saves the previous image of the file that it had loaded into memory (after appending to its name the `%` character), and then reloads the newly modified file.

A file is determined to be modified when its time stamp is older than the time stamp **SEDIT** memorized when loading that file. With mounted file systems, especially between a **UNIX** system and a **WINDOWS** system when using a CIFS **UNIX** client like the Sharity™ software, there may be a discrepancy between the time stamp memorized by **SEDIT**, and the actual time stamp on the **WINDOWS** file system. The `STAMPDELAY` command allows **SEDIT** to ignore a given amount of discrepancy between time stamps in order to avoid spurious reloads.

Examples:
```
stampdelay /home.nt 8
stampdelay /home.nt4 8
```
SEDIT will accept an 8 seconds time stamp discrepancy before reloading any file starting with `/home.nt` or `/home.nt4`.

See Also: `RELOAD`

STATUS (Macro) - Displays All Settings

`STATUS {filename}` displays all the current settings, or creates a `filename.sedit` macro.

`filename.sedit` is an automatically generated macro which can be used to restore all the current settings.

See Also: SET

STAY - Current Line Move

`STAY ON|OFF`

Initial value: `OFF`

When `STAY` is `OFF`, the current line becomes the Top Of File, or the End Of File, when a target search does not succeed after one of the following commands: FIND, NFIND, FINDUP, NFINDUP and LOCATE.

In addition, the last line examined or acted upon becomes the new current line for the following commands: CHANGE, CN, SCHANGE, SCN, COUNT, LOWERCAS, UPPERCAS, SELECT and SHIFT.

When `STAY` is `ON`, the pointer does not move.

STop - Set APL stop

`STop ON|ALL|OFF {FILE|SEL}`

changes the stop setting for an APL function or operator.

Scope: `Display`

The first argument has the following meaning:

- `ON` will set a stop for every non-comment line.
- `ALL` will set a stop for every line.
- `OFF` will remove every stop.

The second optional argument has the following meaning:

- `FILE` will apply the changes to the entire function or operator. This is the default if omitted.
- `SEL` will apply the changes to the selected lines. See Using the Mouse on UNIX systems on page 123 for more details about making a linear or rectangular selection.

Examples: `"stop on"` will set a stop for every non-comment line.
`"stop all file"` will set a stop for every line.
`"stop off sel"` will remove every stop on the selected lines.

The prefix command field will be underlined when the stop is on.

STReam - Set Stream Status

STReam {ON | OFF}

When `STREAM` is `ON`, the entire file is searched for a column target in a `CDELETE` or a `CLOCATE` command.

When `STREAM` is `OFF`, only the current line is searched.

Without argument, `STREAM` displays the current status.

See Also: `CDELETE`, `CLOCATE`

SWitch - Switch Between Files

`SWitch` allows the user to switch from one file to another in a circular sequence.

When the user switches to a file using the mouse or the command `XEDIT`, the file vacated acquires the highest priority so that the next `SWITCH` command returns the user to the file just vacated.

This command is mapped to the `F5` key by default.

When the user is editing multiple files, using `F5` and `Shift-F5` will toggle between two of them without visiting others.

See Also: `ISWITCH`, `XEDIT`

SYNonym - Set a Synonym

SYNonym ON | OFf

SYNonym {LINEND cc} alias {N} cmd

SYNonym CLEAR alias

Query SYNonym name

Query SYNonym *

Initial value: `ON`
`synonym quit 4 command aquit`

When `SYNONYM` is `ON`, **SEDIT** looks for the aliases defined by the second `SYNONYM` command format, where:

`LINEND cc`	specifies that the `cc` character acts as the command separator.
`alias`	is the synonym to the `cmd` command. `cmd` cannot be another synonym itself.
`N`	is the minimum `alias` abbreviation.
`cmd`	is the command to be entered when `alias` is used.
`CLEAR`	suppresses the `alias` definition. `CLEAR` must be entered in capital letters.

`QUERY SYNONYM name` displays the `name` synonym, its minimum abbreviation and everything else that was specified to specify that synonym. If `name` was not defined, only `name` is displayed.

`QUERY SYNONYM *` displays the same information for every defined synonym.

Examples:
```
syn linend ; deltop 4 top;del
syn remove 3 del
syn fx f * x
syn CLEAR deltop

q syn deltop
   displays:
SYNONYM LINEND ; deltop delt top;del
```

A synonym can be overridden by using the `COMMAND` command.

See Also: COMMAND

SYNTax - Set Syntax Coloring

```
SYNTax ON|OFF|GON|GOFF
SYNTax    filename
```

Initial value: ON GON
Level: File *and* Global

SYNTAX GON|GOFF
: enables or disables syntax coloring on a global level.

SYNTAX ON|OFF
: enables or disables syntax coloring for the current file. Syntax coloring will be performed for a given file when both SYNTAX GON and SYNTAX ON for that file are in effect.

SYNTAX filename
: reads the filename file.

filename describes the way syntax coloring must be performed, and to which file. filename may contain the following items:

filetype ft1 {ft2 {ft3 ....}}}
: specifies that the syntax description applies to any file with a ft*i* extension.

firstline w1 {w2 {w3 ....}}}
: specifies that the syntax description applies to any file which first line contains any of the w*i* words.

end
: specifies the end of a filetype of firstline bloc.

string color stringtype

: color specifies the color used to display strings. See the COLOR command on page 182 for a list of available colors.

: stringtype may be one of the following:

  c
  : a C like string. Embedded quotes within a string must be prefixed with a backslash. A backslash must also be prefixed with a backslash.
  Example: "abcde\"fgh\\ijk"

  rexx
  : a REXX like string. Embedded quotes must be doubled.
  Example: "abcde""fgh\ijk"

  fortran
  : a FORTRAN like string. Embedded quotes within a C string must be prefixed with a backslash or doubled. A backslash must also be prefixed with a backslash.
  Example: "abcde\"fgh\\ijk""lmn"

  cobol
  : a COBOL like string. Embedded quotes must be doubled.
  Example: "abcde""fgh\ijk"

`comment` `color` `commenttype`

`comment` specifies the color used to display comments. See the `COLOR` command on page 182 for a list of available colors.

`commenttype` may be one of the following:

`c` C and C++ like comments, delimited with `/*` and `*/`, or starting with `//` until the end of the line.

`rexx` REXX like comments, delimited with `/*` and `*/`. Unlike C, the REXX language allows for nested comments, such as:
`/* /* */ */`
S/REXX and **SEDIT** also treat a line starting with a `#` as a comment.

`fortran` FORTRAN like comments. A line starting with a `d`, `D`, `c`, `C`, `*` or a `!` is a comment line.
The end of line after a `!` character found outside a string is also a comment.
In addition, some FORTRAN compilers allow the use of the C preprocessor. Therefore, blocs delimited with `/*` and `*/` are also comments.

`sh` **UNIX** shells like comments. The end of line after a # character found outside a string is a comment.

`latex` LATEX like comments. The end of line after a % character is a comment.

`cobol` COBOL like comments. A character other than a blank or a minus (-) on column 7 indicates a comment statement.

`keyword color kw1 {kw2 {kw3 ....}}}`
specifies the color used to display the words `kwi`.

`variable standard|object`
when"variableobject"isspecified,keywordswillberecognizedinstringslike:
`document.createElement("h1");"`

`case ignore|respect`
`case ignore` specifies that the keywords are not case sensitive.
`case respect` specifies that the keywords are case sensitive.

`match color1 {color2 {color3 ....}}}`
specifies the colors used to match the {}, () and [] delimiters.

`cpp color1 {color2 {color3 ....}}}`
specifies the colors used to match the C preprocessor `#if`, `#ifdef` and `#ifndef` constructs with their `#else` and `#endif` counterpart.

Note: The colors used to display strings and comments must no be used within a `keyword`, `match` or `cpp` definition.

On **UNIX** systems, the /home/xed/syntax/reverse file is an example intended to be used when displaying in reverse video mode:

```
*
*  C and C++ files
*
filetype c c++ h
  comment steelblue c
  string  forestgreen c
  case respect
  keyword coral struct union auto extern register typedef
static sizeof break continue default entry goto if else for
do while switch case int char float double long short
unsigned enum void volatile return
  match  maroon lemonchiffon red orchid deeppink lightcyan
rosybrown   lightseagreen   cyan   sienna   springgreen
lightgoldenrod sienna
   cpp  maroon lemonchiffon red orchid deeppink lightcyan
rosybrown   lightseagreen   cyan   sienna   springgreen
lightgoldenrod sienna
end
*
* C-SHELL scripts
*
firstline csh sh ksh tcsh
  comment steelblue sh
  string forestgreen  c
  case ignore
  keyword coral if then else do forever endif foreach end
case esac echo set
   match   red   blue   maroon   lemonchiffon   lightcyan
lightgoldenrod lightgoldenrodyellow lightseagreen orchid
rosybrown sienna springgreen
end
```

Note that some single long lines, such as the keyword lines, are displayed wrapped.

S_COpy - Copy a Selection

`S_COpy {Replace|Add {str}}` copies the selection or the `str` string into the internal buffer.

Without argument, the selection is copied into the internal buffer. See Copying the Selected Characters on page 124 for more details.

`Replace str`
The `str` string overlays the internal buffer.

`Add str`
The `str` string is added as a new line into the internal buffer.

`S_COPY` is mapped to the `L6` key on Sun workstations, and to the `F3` key on other workstations.

On **WINDOWS** systems, `S_COPY` is mapped to `^c`.

S_CUt - Cut a Selection

`S_CUt` removes the selected characters.

See Deleting the Selected Characters on page 123 for more details.

This command is mapped to the `L10` key on Sun workstations, and to the `F2 k`ey on other workstations.

On **WINDOWS** systems, `S_CUT` is mapped to `^x`.

S_Find - Find a Selection

`S_Find` searches for selected characters.

See Searching for Selected Characters on page 125 for more details.

This command is mapped to the `L9`, `S-L9` and `C-L9` keys on Sun workstations, and to the `F1` key on other workstations.

If there is no current selection, `S_FIND` remembers the last selection.

On **WINDOWS** systems, `S_FIND` is mapped to `F1`.

See Also: `CASE`

S_Help - Shows Help About a Selected Item

`S_Help` starts editing the help file selected with the mouse.

If the selection is one character wide, it will be expanded to the word.

This command is mapped to the `^H` key by default.

S_Lower - Translate Into Lowercase

`S_Lower` translates the characters selected with the mouse into lowercase.

Scope: `Display`

This command is mapped to the `^l` key by default.

See Also: LOWERCAS

S_LShift - Shift Left from Selection

```
S_LShift {cols}
```

`S_LShift` considers the current selection. The text from the column where the selection starts will be moved to the left.

`cols` specifies the number of columns the data is to be shifted. When omitted, a value of 1 is assumed.

This command is mapped to the `M-F7` key by default.

See Also: SHIFT, S_RSHIFT

S_MAN - Display Selected UNIX Reference Manual Pages

`S_MAN` displays the **UNIX** reference manual pages in the same format as the **UNIX** `man` command, according to the current selection.

If the selection is one character wide, it will be expanded to the word. If there is no current selection, the first word at or before the cursor position will be chosen.

`S_MAN` creates a new file `word.man` in the editing ring, where `word` is the selected or expanded word with spaces replaced by the _ underscore character.

If `word.man` already exists, it will be overridden.

This command is mapped to the `^X (Shift-Control-x)` key by default.

See Also: MAN

S_Paste - Retrieve a Selection

```
S_Paste   {Insert|Overlay} {Clipboard|Shelf|Primary}
                           {line column}
```

retrieves previously saved characters.

INSERT	specifies that the characters retrieved will be inserted on the screen. This is the default when no keyword is specified, and when the S_PASTE command is assigned to a non-shifted key, such as L8 or F4.
OVERLAY	specifies that the characters retrieved will overlay the characters on the screen. This is the default when no keyword is specified, and when the S_PASTE command is assigned to a shifted key, such as S-L8 or S-F4.
SHELF	specifies that the characters retrieved will be the characters saved by the S_COPY command into the **SHELF**. The **SHELF** is the standard cut and paste buffer used by OpenLook applications. This is the default when no keyword is specified, and when the S_PASTE command is assigned to a non-controlled key, such as L8 or F4.
CLIPBOARD	is a synonym to SHELF. The CLIPBOARD terminology is used with **WINDOWS** applications.
PRIMARY	specifies that the characters retrieved will be the characters currently selected with the mouse. This is the standard cut and paste buffer used by **MOTIF** applications. This is the default when no keyword is specified, and when the S_PASTE command is assigned to a controlled key, such as C-L8 or C-F4.
LINE COLUMN	when LINE and COLUMN are not specified, S_PASTE inserts or overlays data at the cursor location. When LINE and COLUMN are specified, S_PASTE inserts or overlays data at the specified line and column.

See Copying the Selected Characters on page 124 for more details.

Examples:
```
s_paste
s_paste 3 80
s_paste c o 12 79
```

This command is mapped to the L8 key on Sun workstations, and to the F4 key on other **UNIX** workstations.

On **WINDOWS** systems, S_PASTE CLIPBOARD is mapped to the ^v key.

S_PRsh - Use Shelf When Getting a Primary Selection Request

```
S_PRsh
```

When **SEDIT** receives a request for the primary selection, it will return instead the data saved by a S_COPY command into the Shelf (or Clipboard).

S_PRSH action is cancelled the next time a selection is made.

S_RShift - Shift Right from Selection

```
S_RShift {cols}
```

S_RShift considers the current selection. The text from the column where the selection starts will be moved to the right.

cols specifies the number of columns the data is to be shifted. When omitted, a value of 1 is assumed.

This command is mapped to the M-F8 key by default.

See Also: SHIFT, S_LSHIFT

S_Set - Set Selection

```
S_Set |  [Linear | Rectangular] [Pending | Nopending] line1 col1 line2 col2
      | All
      | Off
```

S_Set is intended to be used within macros to set the primary selection. The character selected will be highlighted in reverse video. The parameters are the following:

`Linear`
: The selection is a linear selection.

`Rectangular`
: The selection is a rectangular selection.

`Pending`
: The selection is a pending delete selection.

`Nopending`
: The selection is not a pending delete selection.

`line1`
: The first selection line relative to the file.

`col1`
: The starting selection column.

`line2`
: The last selection line.

`col2`
: The last selection column. `-1` or `*` means the complete line, including the virtual invisible `"\n"` newline character.

`All`
: All of the file will be selected.

`Off`
: The current selection is cancelled.

See Using the Mouse on UNIX systems on page 123 or Using the Mouse on WINDOWS Systems on page 127 for more details about selections.

Examples:

```
s_set all
s_set l n 1 2 5 8
s_set l p 2 5 12 -1
s_set off
```

S_Upper - Translate into Uppercase

`S_Upper {All|Word}` translates the characters selected with the mouse into uppercase.

Scope: `Display`

`All` specifies that all the selected characters are to be translated. `ALL` is the default when no argument is specified.

`Word` specifies that only the first character of each selected word is to be translated.

`S_UPPER ALL` is mapped to the `^u` key by default, and `S_UPPER WORD` is mapped to `^U` (`Shift+Control+u`).

See Also: `UPPERCAS`

S_Xed - Edit a Selected File

`S_Xed` starts editing the file selected with the mouse.

If the selection is one character wide, it will be expanded to the word and the currently edited file filetype will be appended to it.

On **UNIX** systems, `S_XED` is mapped to the `^x` key.

On **WINDOWS** systems, `S_XED` is mapped to the `^X` key.

TABExp - Expand Tabulations

`TABExp {All|Notf} {File|Sel} {N}`

expands the tabulations into spaces.

Scope: `Display`

The first optional argument has the following meaning:

- `All` will expand every tabulation with spaces. This is the default if omitted.
- `Notf` will expand every tabulation with spaces. However, the first tabulation will be kept.
  This feature is useful with files such as FORTRAN files where the first tabulation has a special meaning.

The second optional argument has the following meaning:

- `File` will apply the changes to the entire file. This is the default if omitted.
- `Sel` will apply the changes to the selected lines.
  See Using the Mouse on UNIX systems on page 123 or Using the Mouse on WINDOWS Systems on page 127 for more details about making a linear or rectangular selection.

The third optional argument is the number of spaces required for an indentation. The default value is 8.

Examples: `"tabe"` will expand all tabulations for every line.
`"tabe n s"` will expand the selected lines keeping the first tabulation.

TABLine / TABLINE_Screen - Set Tabline

```
TABLine  ON|OFF {line}
```

Initial value: OFF 4
Level: File and View

```
TABLINE_Screen  ON|OFF {line}
```

Initial value: OFF 4
Level: View

SEDIT maintains a separate TABLINE setting for each file and each view of this file defined with the SCREEN command.

The TABLINE_SCREEN command updates the default TABLINE setting of the current view, which is applied to every newly loaded file.

The TABLINE command applies to the current file on the current view.

TABLINE selects the physical line to display the tabline.

With TABLINE ON in effect, **SEDIT** displays a tabline in the input field area, which shows the position of each tab column set by the TABSET command. If the tabline is set on the same location as the scale line, the tab information will also appear on the scale line.

line can be specified in three ways:

n|+n	selects the line n of the view to display the current line, where the first line is line 1.
-n	selects the line n from the bottom of the view, where the last line is line -1.
M+n|M-n	selects the line n lines above or below the middle line of the view.

Examples:

```
TABL                    ON                    2
TABL                   ON                   -3
TABL                    ON                    M
TABL OFF M+2
```

See Also: SCALE, TABSET

TABSet - Set Tabulations

```
TABSet      n1      {n2      n3      ...}      {Ft      string}
TABSet          Incr          n          {Ft          string}
TABSet None
```

sets the tab columns.

Initial value: None
Level: File

Usually, the TAB and R7 keys are used to switch from one input field to another. Using the TABSET command, the user may define fixed positions in the input DATA fields. Then, hitting the TAB or the R7 key will move the cursor from one tab position to the following or preceding one.

With the first form of the TABSET command, the user enters a list of tab columns. If Ft string is specified, this setting will become the default for every new file with a string filetype.

If Ft is *, this will become the default for every file.

If FT is a period, it will select files with no filetype. This setting is also applied to the current file, unless its filetype does not match Ft.

With the second form of the TABSET command, the user specifies an increment n and **SEDIT** sets tabs in column 1 and every n columns thereafter.

TABSET NONE will cancel all tab columns in every file.

Examples:		
	`tabs 1 6 72 ft f`	will set 3 tab columns for every *.f new file.
	`tabs i 8 ft *`	will set a tab column every 8 spaces for every file.
	`tabs n`	will cancel all tab columns.
	`tabs 1 12 20 ft .`	will set 3 tab columns for every file with no filetype (such as /home/xed/cod).
	`tabs 1 9 17`	will set 3 tab columns for the current file only.

TOolbar - Set Toolbar

TOolbar {ON|OFf|Switch}

Initial value: OFF
Level: Global

Available on: WINDOWS
Batch Mode: Not Available

TOOLBAR ON displays the following toolbar:

which perform the following actions:

QUIT	abandons the file being edited if it has not been modified since last stored.
NEW	creates a blank new file in memory.
OPEN	displays the OPEN FILE dialog box.
SAVE	saves the current file.
FILE	saves and then abandons the current file.
CUT	removes the selected characters.
COPY	copies the selection into the clipboard.
PASTE	retrieves previously saved characters.
PASTE OVERLAY	retrieves previously saved characters in overlay mode.
UPPER	translates the characters selected with the mouse into uppercase.
LOWER	translates the characters selected with the mouse into lowercase.
SHIFT LEFT	shifts to the left, according to the selection.
SHIFT RIGHT	shifts to the right, according to the selection.
PRINT	prints the contents of the current file, after displaying the PRINT dialog box.
UNDO	cancels the last file modification.
REDO	cancels the last undo operation.
FIND	searches for selected characters.
FIND UP	searches backward for selected characters
TOOLBAR OFF	removes the toolbar.
TOOLBAR SWITCH	toggles ON and OFF the toolbar.
TOOLBAR	without arguments displays the current toolbar status.

TOP - Top of File

`TOP` selects the first line as the current line.

Scope: `Display`

This command is mapped to the Sun `S-R2` (`S-Scroll-Lock` on other workstations) key.

TRAce - Set APL Trace

`TRAce ON|ALL|OFF {FILE|SEL}`

changes trace setting for an APL function or operator.

Scope: `Display`

The first argument has the following meaning:

- `ON` will set a trace for every non-comment line.
- `ALL` will set a trace for every line.
- `OFF` will remove every trace.

The second optional argument has the following meaning:

- `FILE` will apply the changes to the entire function or operator. This is the default if omitted.
- `SEL` will apply the changes to the selected lines.
  See Using the Mouse on UNIX systems on page 123 or Using the Mouse on WINDOWS Systems on page 127 for more details about making a linear or rectangular selection.

Examples: `"trace on"` will set a trace for every non-comment line.
`"trace all file"` will set a trace for every line.
`"trace off sel"` will remove every trace on the selected lines.

The data field will be underlined when the trace is on.

Tree - Start the TREE Editor

`Tree {dir}` calls the tree editor.

Batch Mode: `Not Available`

This command is mapped to the `^r` key by default.

See The Tree Editor on page 487 for further explanations.

TREEScanlevel - Set TREE Scanning Level

TREEScanlevel {N}

Initial value: `0`

When `TREESCANLEVEL` is set to `0` (the default), all the subdirectories belonging to the same filesystem as the top level filesystem are scanned.

Once the scan is over, **SEDIT** saves the result in a file named `sedit.treemap` in order to avoid initialization delay at the next call. If the directory layout is modified outside **SEDIT**, **TREE** is not automatically updated.

When `TREESCANLEVEL` is set to a positive value `N`, **TREE** ignores any `sedit.treemap` already existing. **TREE** rescans the disk at every call, to a depth of `N` subdirectories. Initialization time will be longer than `TREESCANLEVEL` equal 0, but the display is always accurate.

See Also: `TREE`

TRUnc - Set Truncation Column

`TRUnc *|N {FT string}` sets the truncation column.

Initial value: `*`
Level: `File`

`*` specifies that no truncation is to take place.

`N` specifies the column at which truncation occurs.

If `FT string` is specified, this setting will become the default for every new file with a `string` filetype.

If `FT` is `*`, this will be the default for any file.

If `FT` is a period, it will concern files with no filetype. This setting is also applied to the current file, unless its filetype does not match `FT`.

Examples:

```
trunc 80 ft f
trunc *
trunc 92 ft .
```

will set the truncation column for FORTRAN files.

See Also: LRECL

UNButton - Remove Button

`UNButton {button}`	removes button `"button"`, or all buttons if `"button"` is omitted.

Available on: `UNIX`
Batch Mode: `Not Available`

UNDo - Cancel Last File Modification

`UNDo {ALL|N}`

`UNDO` cancels the last file modification.

`UNDO ALL` cancels all the modifications.

`UNDO 3` cancels the last 3 file modifications.

When `SAVECLEARUNDO` is set to `ON` (the default), the undo memory is reset every time the file is saved.

`UNDO` is mapped to the `L4` key on Sun workstations, and to the `F11` key on other workstations.

See Also: `REDO`, `SAVECLEARUNDO`

UNSetenv - Remove Environment Variable

`UNSetenv var`	removes variable `var` from the environment.

See Also: `SETENV`

UP- Scroll Up

`Up {N|*}` scrolls up `N` lines.

Scope: `Display`

If `N` is omitted, a value of 1 is assumed. `UP *` makes the Top Of File the current line.

Return Codes:	0	Normal
	1	Top Of File Reached
	5	Invalid Operand

UPPercas - Translate Into Uppercase

UPPercas {target}

Scope: Display

`target` defines the number of lines to be translated into uppercase. Lines are translated starting with the current line, up to but not including the target line. `target` may be one of the following:

`:N`	Up to but not including the `Nth` line.
`N` or `+N`	`N` lines.
`-N`	Up `N` lines.
`+*` or `*`	The end of file.
`-*`	The top of file.
`.symb`	The line which has been assigned the `.symb` symbolic name by using the `POINT` command, or a `.symb` prefix command.
string expression	Defines a group of characters to be located.

The general format of a string expression is the following:

```
{+|-}{~}/string1{/{&}|{|}{~}/string2 ..... }
```

See the LOCATE command on page 303 for a precise string expression definition.

If `target` is omitted, a value of 1 is assumed.

Examples:

```
upp          translates one line.
upp:5        translates all lines up to line 4.
uppercas*    translates the rest of the file.
```

See Also: STAY, S_UPPER

VARblank - Ignore Successive Blanks

VARblank ON|OFF

Initial value: OFF
Level: FILE

When VARBLANK is set to ON, the number of blanks between strings does not matter in searching for a target.

Without parameters, VARBLANK displays its setting.

Example: /the mouse/ matches "the mouse"

Verify / VERIFY_Screen - Set Columns

```
Verify {{ON|OFF} {{Hex|I} start1 {end1}} {{Hex} start2 {end2}}
{....}}
```

VERIFY defines the columns that are to be displayed on the current file on the current screen.

Initial value: 1 2147483647
Level: File and View

```
VERIFY_Screen{{ON|OFF} {{Hex} start1 {end1}} {{Hex} start2 {end2}}
{....}}
```

VERIFY_SCREEN defines the default columns that are to be displayed for every newly loaded file on the current screen.

Initial value: 1 2147483647
Level: View

SEDIT maintains a separate VERIFY setting for each file and each view of this file defined with the SCREEN command.

The VERIFY_SCREEN command updates the default VERIFY setting of the current view, which is applied to every newly loaded file.

The VERIFY command applies to the current file on the current view.

ON and OFF have no special meaning within **SEDIT**. They are retained for XEDIT compatibility.

starti is the first column.

endi is the last column.

Hex displays the data in hexadecimal notation.

I makes SEDIT ignore the Insert Mode for the corresponding field.

With no parameters at all, VERIFY displays the current setting.

If end1 is omitted, it will be set in such a way that the length to be displayed matches the data field length. This particular setting is useful with vertically split screens.

The commands "left 0" or "right 0" restore the original setting.

If start1 is negative, the length to be displayed will match the data field length every time a new view is created by splitting or unsplitting the screen, or when resizing the main window. In addition, it will enable the **SEDIT** fullshift feature described below.

When displaying data in hexadecimal notation, SEDIT does not allow the newline "0A" character to be typed in.

Examples: `"v 1 74"` will set display columns from `1` to `74`.
`"v"` will display the setting `"1 74"`.
`"v -1"` will enable the automatch feature when splitting the screen, and will enable the `fullshift` mode.
`"v"` will display the setting `"-1 74"`
`"v 1"` will set the setting to `"1 74"` if the screen is 80 columns wide, and cancel the automatch feature.
`"v 1 20 h 1 20"` will display the columns from 1 to 20 in both ASCII and hexadecimal notation.
"`verify_s 1 79`" sets the default `VERIFY` for every newly loaded file.

The FULLSHIFT Mode

When displaying a subset of the file columns, by using for example the `v 1` command, the characters located outside of the screen are not affected by the `Delete`, `Backspace` or `ERASE END OF FIELD` keys.

When in fullshift mode, the invisible characters located on the right of the screen are erased by the `ERASE END OF FIELD` key, and shifted to the left by the `Delete` key, and by the `Backspace` key when in `INSERT` mode.

See Also: `LEFT`, `RIGHT`, `SCALE`, `C_SCRH`, `C_SCRJ`, `C_SCRV`, `MODE LOCATE`, `SCREEN`, `VERIFY_SAVE`

VERIFY_Save / VERIFY_SSave / VERIFY_KSave

VERIFY_SAve / VERIFY_SSave / VERIFY_KSAve {fn {ft {fd}}

These commands transform the unchanged source file into a backup file by appending a `"%"` to its name, and create a new file using the edited memory image and the `VERIFY` settings.

If the file name has been changed during the editing session so that it is identical to the name of an existing file, or if the file has been modified by another user, `VERIFY_SAVE` will ask for a confirmation before overwriting the existing file. `VERIFY_SSAVE` will not.

The `VERIFY_KSAVE` command performs the same function as the `VERIFY_SAVE` command, but leaves the saved file timestamp unchanged. This may be useful, for example, when the modified file is an include file. Using `VERIFY_KSAVE` will prevent a following `make` command from recompiling every file which relies on the saved file.

If `fn` is specified, the filename of the file will be changed before saving.
If `ft` is specified, the filetype of the file will be changed before saving.
If `fd` is specified, the filedirectory of the file will be changed before saving.

`VERIFY_SAVE` does not heed the `TRUNC`, `LRECL` and `KEEPBLANKS` settings. If the second value of a pair of `VERIFY` column is `*`, `VERIFY_SAVE` will save from the first column up to the length of the line.

Example:

```
xed testfile
verify 20 30 1 10 70 90
verify_save testfile cols
```

saves the columns 20 to 30, 1 to 10 and 70 to 90 in the `testfile.cols` file.

Warning: Using `VERIFY_SAVE` without argument will overwrite the current file with a possibly truncated version of this file.

See Also: `VERIFY`

VIsible - Count Visible Lines

`VIsible`

Each line in the file has a number associated with it, called its selection level, which is set to zero by default. It may be modified by the commands `ALL` and `SELECT`, and by the prefix commands `X` and `S`. When a line selection level does not fall in the `DISPLAY` range, it will not be displayed.

`VISIBLE` displays the number of visible lines.

See Also: `ALL`, `DISPLAY`, `DY_ALL`, `EXCLUDE`, `R/`, `SCOPE`, `SELECT`, `SHADOW`, `SHOW`

WHeel - Set Mouse Wheel Parameters

`WHeel N1 N2`

Initial value: `1 4`
Level: `Global`

On Windows systems, the mouse wheel allows to scroll up and down `N1` lines at a time.

When Shift is depressed, **SEDIT** scrolls `N2` lines at a time.

When Control is depressed, **SEDIT** scrolls one page.

When Shift and Control are both depressed, **SEDIT** goes to the first or the last file line.

Without paramaters, `WHEEL` displays the `N1` and `N2` values.

WIndows - Execute a WINDOWS Command

`WIndows command` transmits the string `command` to the operating system for execution.

If `command` ends with a `"&"`, `command` will be placed in the background[1]. Otherwise, `command` will execute in the foreground, and **SEDIT** will wait until `command` ends.

When running in the foreground, `command` can be interrupted by typing `^c`.

1. This facility is not available on **UNIX** ASCII terminals, since the command output would overwrite the **SEDIT** screen.

On **WINDOWS** systems, the command is processed directly by the operating system. WINDOWS is a synonym to the SHELL command.

On **UNIX** systems, the command is processed by the /bin/sh default shell.

Examples: `wi nmake&` starts the nmake program in the background.

See Also: IMPCMSCP, MESSAGESDIR, SHELL, XSHELL

WINSHRinktofit - Window Auto-Size Feature

`WINSHRinktofit ON|OFF` sets the window auto-size feature ON or OFF.

Initial value: ON
Level: Global

When WINSHRINKTOFIT is set to ON, **SEDIT** automatically changes its window's width and height to a multiple of the current font character width and height.

Some PC window managers can react to the automatic resize by resizing the **SEDIT** window, which makes **SEDIT** resize it again, entering an infinite loop. Setting WINSHRINKTOFIT to OFF in the profile prevents that from happening.

WORDChars - Set characters making a word

`WORDChars string {FT}`

Initial value: _$0123456789abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZâéîôûêèùçà
Level: Global

When double-clicking on the "a" with a string such as "(abcde1234)+g", **SEDIT** looks left and right of "a" to find characters that are not part of a word to select the word only:

(abcde1234)+g

WORDCHARS allows to set up which characters are part of a word. If FT is specified, the setting will only apply to files with that extension.

Example:

```
wordc _$0123456789abcdefghijklmnopqrstuvwxyzABCD
EFGHIJKLMNOPQRSTUVWXYZ c
```

WRap - Wrap Around Feature

`WRap ON|OFF` sets the wrap around feature `ON` or `OFF`.

Initial value: `ON`
Level: `Global`

When `WRAP` is set to `ON`, **SEDIT** continues the search up to the line preceding the current line within the `/` and `R/` commands. The search is continued following the current line within the `-/` and `R-/` commands.

Within the `CDELETE` and `CLOCATE` commands, the search is continued up to the character preceding (or following) the column pointer.

When `WRAP` is set to `OFF`, the search ends at the end (of top) of file.

See Also: `CDELETE`, `CLOCATE`, `R/`, `R-/`, `/`, `-/`

WRTL - Write Left to Right

`WRTL { ON | OFF | T}`

Initial value: `OFF`
Level: `Global`

`WRTL ON` moves the cursor right to left when typing.

`WRTL T` toggles `ON` and `OFF` the `WRTL` mode

See Also: `RTLF`

XBin - Edit Binary Files

`XBin` {name {name2 {...}} starts editing the specified files in binary mode.

By default, **SEDIT** removes all trailing blanks in every line when loading a file, when editing a line and when saving a file. **SEDIT** also searches for the **WINDOWS** control characters `^M` and `^Z`, and automatically removes then from display setting the loaded file `FILECONV` to `WINDOWS`.

Trailing blanks are generally meaningless within text files, but may be essential within binary files. When BINARY is set to ON, **SEDIT** does not remove trailing blanks setting KEEPBLANKS to 1, does not check for the **WINDOWS** control characters and always sets the loaded file FILECONV to UNIX.

In addition, when not running in character mode, when SHBLANK is set to ON (the default), and when the last character in a line is a blank, **SEDIT** displays a thin vertical bar just after that last blank character.

See Also: AUTOBIN, FILECONV, BINARY, KEEPBLANKS, SHBLANK, XKB

XEDit - Edit New Files

`XEDit` {name {name2 {...}} starts editing the specified files.

When `namei` is omitted, `XEDIT` switches from one edited file to another in a circular sequence.

If `namei` contains blanks, it must be surrounded with quotes or double quotes. If a file name contains a quote or a double quote, the quote must be escaped with a backslash.

If `namei` does not start with a directory indicator, like `"/"`, `"./"`, `"~/"` or `"\"` on **WINDOWS**, `namei` will first search in the current directory.

If not found, it will be searched for in the directories described by the environment variable XPATH, or PATH, or accessed with the `ACCESS` command.

There are some short-cuts to make editing another file easier.

When the user is editing a certain type of file, for example `"test.c"`, and the user wants to edit another file of the same type, for example `"test1.c"`, `"x test1"` may be typed instead of `"xed test1.c"`.

Note `"x test1.f"` can be typed to override this `"x"` feature.

`XED` is required only if the user does not want to append any filetype.

There are also several abbreviations for the most frequent types of files:

```
"xc test"  <===>  "xed test.c"
"xf test"  <===>  "xed test.f"
"xp test"  <===>  "xed test.p"
"xh test"  <===>  "xed test.h"
"xt test"  <===>  "xed test.txt"
"xm test"  <===>  "xed test.mem"
"xx test"  <===>  "xed test.x"
"xi"       <===>  "xed .dbxinit"
"xe test"  <===>  "xed test.ex"
"xs test"  <===>  "xed test.sedit"
```

Notes: It is possible to limit the size of files to be edited by using the `LIMIT` command.
Use `XBIN` to edit a binary file.
Use `XBLANK` to preserve and dsiplay trailing blanks.

Examples:

`xed test.c` `x foo`	now, edits `foo.c`
`x "a b" c d`	edits 3 files. The first file name is "`a b`". Quotes are necessary.
`xed a\"b`	edits the `a"b` file.
`xed 'a"b'`	does the same.

See Also: `ACCESS`, `FOLLOW`, `ISWITCH`, `LIMIT`, `SWITCH`, `XBIN`, `XKB`

XF - Edit an APL Object

`{LINE} XF 'NAME'` starts editing object `'NAME'` at line `'LINE'`

XF is an APL function supplied within the `/home/xed/XF` workspace able to edit any kind of APL object, but ⎕OR object representation. The only restriction relates to the character ⎕AV[0] which cannot be edited.

In the case of a nested array, or of an object with rank greater than two, the user will receive a two dimensional display representation, but the user will not be allowed to issue the `"file"` command to fix it in the active workspace.

The function XF maintains the date/time of the last modification in a variable named TSOBJ, and **SEDIT** displays this information in the first screen line.

`LINE` will become the current line. If omitted, it will assume the value of 0 for a function or an operator, and 1 for any other object.

As a shortcut, the command may be entered in the following way:

`XF 'NAME' 3` instead of `3 XF 'NAME'`

This may be useful if the string "`XF'`" is assigned to some Fi key.

On Sun workstations, this can be done by inserting the `"mapi F2 xf'"` string in the `"~/.ttyswrc"` file before starting the APL shelltool.

When the state indicator is not empty, typing `"XF''"` will edit the currently stopped function.

XCSHell - Execute a Shell Command

`XCSHell command` transmits the string `command` to the C-shell `csh` for execution, and displays the result within **SEDIT**.

Available on: `UNIX`
Batch Mode: `Not Available`

`XCSHELL` creates a `nnn.xshell` file, where `nnn` is a number between 1 and the value set with the `XSHELLMAX` command (10 by default) chosen not to overwrite a previously created file when possible. The name of the last created file can be retrieved with the `EXTRACT/XSHELL` command. `nnn.xshell` exists only in the editing ring. The `SAVE` or `FILE` command must be used to save it to disk.

Example: `xcsh ls -Ftla ~/foo`

See Also: `EXTRACT`, `MESSAGESDIR`, `SHELL`, `XSHELL`, `XSHELLMAX`, `XKSHELL`

XKB - Edit Files with Trailing Blanks

`XKB` {name {name2 {...}} starts editing the specified files in `KEEPBLANKS ON` mode.

By default, **SEDIT** removes all trailing blanks in every line when loading a file, when editing a line and when saving a file.

Trailing blanks are generally meaningless within text files, but may be essential within data files. When `KEEPBLANKS` is set to `ON`, **SEDIT** does not remove trailing blanks setting `KEEPBLANKS` to `1`.

In addition, when not running in character mode, when `SHBLANK` is set to `ON` (the default), and when the last character in a line is a blank, **SEDIT** displays a thin vertical bar just after that last blank character.

Notes: `XKB` is not sufficient to preserve binary files integrity. Use `BINARY ON` or `XBIN` instead.

See Also: `AUTOBIN`, `BINARY`, `KEEPBLANKS`, `SHBLANK`, `XBIN`

XKSHell - Execute a Shell Command

`XKSHell command` transmits the string `command` to the Korn shell `ksh` for execution, and displays the result within **SEDIT**.

Available on: `UNIX`
Batch Mode: `Not Available`

`XKSHELL` creates a `nnn.xshell` file, where `nnn` is a number between 1 and the value set with the `XSHELLMAX` command (10 by default) chosen not to overwrite a previously created file when possible. The name of the last created file can be retrieved with the `EXTRACT/XSHELL` command. `nnn.xshell` exists only in the editing ring. The `SAVE` or `FILE` command must be used to save it to disk.

Example: `xksh ls -Ftla ~/foo`

See Also: `EXTRACT`, `MESSAGESDIR`, `SHELL`, `XCSHELL`, `XSHELL`, `XSHELLMAX`

XSHell - Execute a Shell Command

`XSHell command`

Batch Mode: `Not Available`

On **UNIX** systems, `XSHELL` transmits the string `command` to the Bourne shell `sh` for execution, and displays the result within **SEDIT**.

On **WINDOWS** systems, `XSHELL` executes the command directly.

`XSHELL` creates a `nnn.xshell` file, where `nnn` is a number between 1 and the value set with the `XSHELLMAX` command (10 by default) chosen not to overwrite a previously created file when possible. The name of the last created file can be retrieved with the `EXTRACT/XSHELL` command. `nnn.xshell` exists only in the editing ring. The `SAVE` or `FILE` command must be used to save it to disk.

Example: `xsh ls -Ftla /usr/john/foo`

Note: The Bourne shell does not allow the use of the `~` home directory meta character.

See Also: `EXTRACT`, `MESSAGESDIR`, `SHELL`, `XCSHELL`, `XKSHELL`, `XSHELLMAX`

XSHELLMax - Set Displayed XSHELL Files Limit

`XSHELLMax {max}`	sets the maximum number of `nn.xshell` displayed files.

Initial value: `10`
Level: `Global`

The various `XSHELL` commands create a `nnn.xshell` file, where `nnn` is a number between `1` and `max`.

See Also: `MESSAGESDIR`, `XCSHELL`, `XKSHELL`, `XSHELL`

XSHOwhistory - Show History In Fullscreen Mode

`XSHOwhistory`	Shows history in fullscreen mode.

Batch Mode: `Not Available`

`XSHOWHISTORY` displays the commands memorized in the history buffer in fullscreen mode.

Clicking on a command with the first mouse button brings it in the command line. Shift-clicking with the first mouse button or clicking with the middle mouse button executes the command.

Moving the cursor in front of a command, using for example the `TAB` key, and pressing `Enter` or `Return` brings it in the command line.

This command is mapped to the `Control-F9` key by default.

See Also: `SHOWHISTORY`, `HISTORY`, `?`, `?I`

XTESTChars - Set the Font Testing Mode

```
XTESTChars ON | OFF
```

Initial value: OFF
Level: Global
Available on: UNIX

When XTESTCHARS is ON, **SEDIT** checks the width and the height of the character to be displayed. When either of these values is 0, **SEDIT** displays a quotation mark (?) instead of displaying the character. This allows the user to use X Windows fonts in which some characters are not defined.

However, on many X11 servers, the character size information is often wrong, misleading **SEDIT** to display quotation marks for valid characters.

When XTESTCHARS is OFF, **SEDIT** systematically displays quotation marks for characters with a decimal value of less than 32, and does not check the size information for characters above that value.

The set server xxxx command sets XTESTCHARS OFF.

Since the set_xxx keyboard macros used in the profile.sedit initialization file call the set server command, it is necessary to put the XTESTCHARS command behind these macros.

Example:

```
when arch = 'sun4' | arch = 'sun3' | arch = 'sparc' then do
    'set_sun_t5'
    if $DISPLAY = "NCD:0" then 'xtestchars off'
```

This profile modification calls the XTESTCHARS command when a SUN is displaying on an X terminal which DISPLAY is NCD:0.

See Also: SET SERVER

Zone / ZONE_Screen - Set Zone

```
Zone {zone1 {zone2}}
```

Initial value: 1 2147483647
Level: File and View

```
ZONE_Screen {zone1 {zone2}}
```

Initial value: 1 2147483647
Level: View

SEDIT maintains a separate ZONE setting for each file and each view of this file defined with the SCREEN command.

The ZONE_SCREEN command updates the default ZONE setting of the current view, which is applied to every newly loaded file.

The ZONE command applies to the current file on the current view.

ZONE sets the zone to be searched by the commands "R/", "R-/", "/", "-/", "\", "-\", "CHANGE", "CN".

zone1 is the starting left column.
zone2 is the ending right column. When omitted, it assumes the value of 2147483647.

Without any argument, ZONE displays the current setting.

\ - Locate a Name String

`\{string}{/}` will search for the name string starting at the current line in descending order.

Scope: `Display`

The cursor will be moved to the beginning of the string.

The last `/` is optional, unless the string ends with a / or a space.

If `string` is omitted, `\` remembers the string passed at the previous invocation.

Examples:

```
\i          will find "i" in "a=i" but not in "a=ij"
\test/
\           searches again for the test name.
\a=b/c/
\//
```

Note: The `"zone"` command allows the user to choose the starting and ending columns to be scanned.
These columns are also restricted by the VERIFY columns definition: the user can only scan the visible part of the file.

See Also: ARBCHAR, CASE, MODE, VERIFY, ZONE

-\ - Locate a Name String

`-\{string}{/}` will search for the name string starting at the current line in ascending order.

Scope: `Display`

The cursor will be moved to the beginning of the string.

The last `/` is optional, unless the string ends with a / or a space.

If `string` is omitted, `-\` remembers the string passed at the previous invocation.

Note: The `"zone"` command allows the user to choose the starting and ending columns to be scanned.
These columns are also restricted by the `VERIFY` columns definition: the user can only scan the visible part of the file.

See Also: `ARBCHAR`, `CASE`, `MODE`, `VERIFY`, `ZONE`

? - Display Last Command

`?` displays the last `N` commands in a circular sequence.

This command is mapped to the `F9` key by default.

The length `N` of the history buffer can be changed with the `HISTORY` command described on page 290.

When `CMDLINE` is `OFF`, using the `?` command restores the command line in order to let the user enter a command. Once the command is processed, the command line is removed.

When the command line contains one character, `?` will only display the commands starting with this character.

See Also: `CMDLINE`, `HISTORY`, `SHOWHISTORY`, `XSHOWHISTORY`

?I - Display Last Command

`?I`	displays the last `N` commands in a reversed circular way.

This command is mapped to the `S-F9` key by default.

The length `N` of the history buffer can be changed with the `HISTORY` command described on page 290.

When `CMDLINE` is `OFF`, using the `?I` command restores the command line in order to let the user pass a command. Once the command is processed, the command line is removed.

When the command line contains one character, `?I` will only display the commands starting with this character.

See Also: `CMDLINE`, `HISTORY`, `SHOWHISTORY`, `XSHOWHISTORY`

= - Repeat Last Command

`=`	repeats the last command without displaying it.
`set = string`	the next time `=` is used, `string` will be executed.

`=` is mapped to the `F12` key by default.

When `cmd` is specified, `cmd` is executed before the = action is taken.

Example:		
	`add`	adds a line.
	`=:3`	adds a line after the line 3.

- Comments

`#`	starts a comment line; useful in macro files.

SEDIT Text Formatting Facilities

Margins

The miscellaneous text formatting commands use the margins set with the MARGINS command described on page 310.

```
MARGINS 2 72 +4
```

sets the left margin to 2 and the right margin to 72. The first line of every paragraph will begin on column 6.

The margin settings are file specific. The default margin values are set to `1 72 +0`.

In order to modify the default margins, the user may use the `reprofile.ex` or `reprofile.sedit` initialization macro which is executed every time a file is loaded.

For example, to set the default margins to `2 75 +3` for every `*.doc` document, the user could use the following **S/REXX** `reprofile.sedit` macro:

```
'extract /ftype'
if ftype.1 = '.doc' then 'margins 2 75 +3'
```

Formatting Text

The FORMAT command described on page 276 specifies the way the FLOW command described on page 272 identifies and formats paragraphs.

FLOW is assigned by default to the `Shift-Control-F` (`^F`) key.

When pressing `^F`, the first word of the paragraph is placed at the paragraph indent column, and the rest of the paragraph is placed to fit the left and right margins. If specified with the FORMAT command, the text will be justified.

The CENTER command described on page 166 centers a line of text between the left and right margins.

The LEFTADJUST (`^L`) command described on page 299 positions a line of text at the left margin.

The RIGHTADJUST (`^R`) command described on page 367 positions a line of text at the right margin.

Wordwrap Feature

When POWERINPUT is ON and the cursor reaches the end of a line, a new line is automatically created, the last word of the cursor line is moved to the new line and the cursor is moved to the end of this word. Then, the current line number is increased by one.

The Directory Editor FLIST

What Is It For?

The directory editor **FLIST** is a fullscreen file browser which allows the user to pass various commands directly against files.

Throughout this chapter, the file naming convention is the following:

For any file such as `"/usr/m1/test.f"`:

- `"/usr/m1"` is called filedirectory.
- `"test"` is called filename.
- `"f"` is called filetype.

In **FLIST**, all files are referenced by passing an individual filename (`FN`), a filetype (`FT`) and a filedirectory (`FD`).

The format of the 4 **FLIST** commands is:

```
Flist     { FN { FT { FD } } }
RFlist    { FN { FT { FD } } }
FFList    { FN { FT { FD } } }
DFlist    { FN { FT { FD } } }
```

where:

`FN` is the filename of all files to be displayed.

If an asterisk `("*")` is entered here, all file-names will be selected.

A single period (".") will select files with no filename.

`FT` is the filetype of all files to be displayed.

If `FT` is omitted or if an asterisk `("*")` is entered here, all file-types will be selected.

A single period (".") will select files with no filetype.

`FLIST` considers the following special meta characters:

*	matches any set of characters.
?	matches any (one) character.

`RFLIST` considers the following special meta characters:

`^`	matches only at the beginning of a line.
`$`	matches only at the end of a line.
`\<`	matches only at the beginning of a word.
`\>`	matches only at the end of a word.
`.`	matches any single character.
`[]`	matches any character in a character class.

`\(` delimits the start of a subexpression. It is available for `VI` compatibility, but has no special meaning.

`\)` delimits the end of a subexpression. It is available for `VI` compatibility, but has no special meaning.

`*` repeats the preceding 0 or more times.

If you want to use a `meta` character as an ordinary character, you must precede it with a backslash (`\`) character.

`DFLIST` displays only directories.

`FFLIST` displays only non-directories.

`FD` is the filedirectory of the files to be displayed.

If `FD` is a string of 1 or 2 alphabetical characters, such as `"a"` or `"za"`, it represents an abbreviation for the directories currently accessed via the `PATH` or `XPATH` environment variable. The user may override this feature by typing `"Shift-Return"` instead of `"Return"`.

The order of the file-directories is alphabetical:
`"a"` means the first one.
`"b"` the second one.
etc...

The first directory will always be the current directory, regardless of its position in the **UNIX** path.

If `FD` starts with a directory indicator, such as `"/"`, `"./"`, `"~/"`, it will be treated like a standard directory. Otherwise, **SEDIT** will search first in the current directory and then through the directories in the `cdpath` accessed with the `DACCESS` command.

If `FD` is more than 2 alphabetical characters, `FLIST` will treat it as a directory-name.

If `FD` contains blanks, it must be surrounded with quotes or double quotes. If a directory contains a quote or a double quote, the quote must be escaped with a backslash.

Examples: Assume a `cdpath` and a home directory as `"/usr/m1"`.

`f`	will scan all the files in the current directory.
`f * * a`	will do the same.
`f * * ~`	will do the same.
`f . *`	will scan for all files with no filename in the current directory.
`f * h ~/dir1`	will scan for every `"/usr/m1/dir1/*.h"` file.
`f * h dir1`	is a short-cut to do the same.
`f * * *`	will scan all the files in all `PATH` directories.
`f test* f`	will scan all the `test*.f` files in the current

directory.

`f * * a`	(followed by "`Shift-Return`") will scan the directory "`/home/m1/a`"
`f a?b*c`	would match for example "`aZb1234c`".
`rf ^[A-Z}`	would match every file starting with an uppercase letter.
`f * * "c:\Program Files"`	quotes are necessary.

Using "Control-F"

If no directory editor session is active, entering "`Control-F`" is equivalent to the `FLIST` command.

Once the directory editor is started, "`Control-F`" will switch between the file and the directory editor.

Large Files support

A large file is a file larger than 2,147,483,647 bytes. **SEDIT** supports large files and **FLIST** displays correctly large files length on the operating systems displayed when typing `HELP LARGEFILES`.

Getting Started

Type `f` in the command field, and then hit the "`Return`" key.

The screen will look like this:

```
 Level 0    40 Files                                          1 OF 40

-rw-rw-rw-  test          .f    a   ............................   1207    16/02/88  01:19
-rw-rw-rw-  test          .f    a   ............................    457    06/02/88  13:31
-rw-rw-rw-  include       .h    a   ............................  11111    11/01/88  18:44
-rw-rw-rw-  command*          a   ............................   9870    16/04/87  21:44
 a  :  /usr/m1        |
 b  :  /usr/m1/cmd    |
 c  :  /usr/bin       |
 d  :  /usr/etc       |
 e  :  /etc
  1:/SN  3:END  4:XED  5:SWITCH  6:/SB  7:U  8:D  9:/SD  10:/ST  11:->  12:CAN
```

The format used is similar to the "`ls -l`" **UNIX** command.

The first line indicates the current level. Each time the user calls the directory editor, a new level is created.

Key `F3` cancels the current level, and key `F12` cancels all levels and returns to the file editor.

The second line is the message field.

The next four lines (in this short example) are the work area; they show the selected files in a reversed time order. Also displayed are the permission indicators, the filename, the

filetype, the filedirectory abbreviation, the input field filled with tabulations ("....."), the file length, and the time of the last modification.

The next five lines indicate the directory abbreviations corresponding to the PATH environment variable. In this example, in the `".cshrc"` file, the user may have:

```
set path = (/usr/m1 /usr/m1/cmd /usr/bin /usr/etc /etc)
```

Note that the current directory is always the first to appear.

A `cd` command passed to the file editor will cancel all directory editor levels.

Displaying Owner/Group/Timestamp

When **FLIST** is running, typing `^h` (`Control-h`) displays the file related time-stamps:

```
 Level 0    40 Files                                          1 OF 40

-rw-rw-rw- test          .f    a   ............................   1207    16/02/88  01:19
-rw-rw-rw- test1         .f    a   ............................    457    06/02/88  13:31
-rw-rw-rw- include       .h    a   ............................  11111    11/01/88  18:44
-rw-rw-rw- command*           a   ............................   9870    16/04/87  21:44
 a  :  /usr/m1        |
 b  :  /usr/m1/cmd    |

  1:/SN  3:END  4:XED  5:SWITCH  6:/SB  7:U  8:D  9:/SD  10:/ST  11:->  12:CAN
```

Typing `^o` (`Control-o`) displays the file related owners:

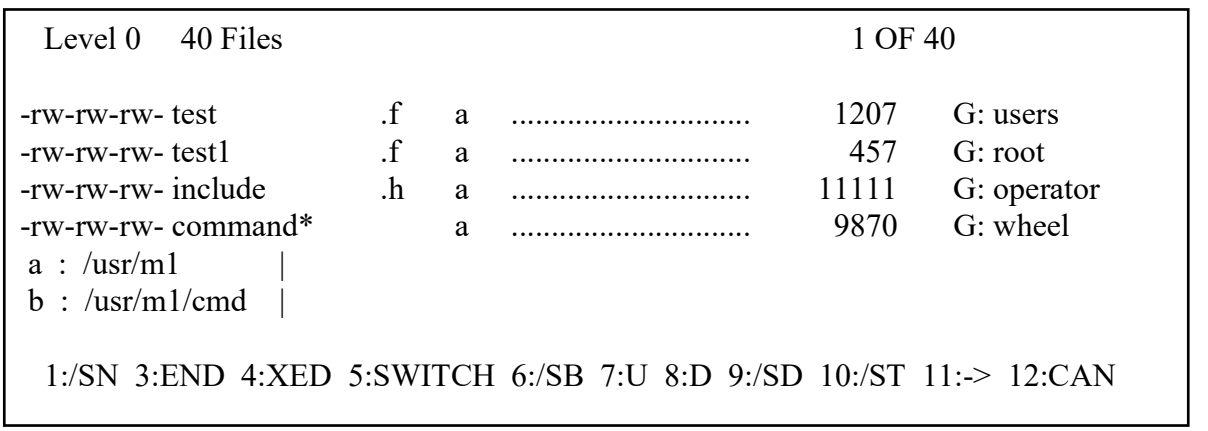
```
 Level 0    40 Files                                          1 OF 40

-rw-rw-rw- test          .f    a   ............................   1207    O: john
-rw-rw-rw- test1         .f    a   ............................    457    O: root
-rw-rw-rw- include       .h    a   ............................  11111    O: bin
-rw-rw-rw- command*           a   ............................   9870    O: root
 a  :  /usr/m1        |
 b  :  /usr/m1/cmd    |

  1:/SN  3:END  4:XED  5:SWITCH  6:/SB  7:U  8:D  9:/SD  10:/ST  11:->  12:CAN
```

Typing `^g` (`Control-g`) displays the file related groups (**UNIX** only):

```
 Level 0    40 Files                                          1 OF 40

-rw-rw-rw- test          .f    a   ............................   1207    G: team1
-rw-rw-rw- test1         .f    a   ............................    457    G: operator
-rw-rw-rw- include       .h    a   ............................  11111    G: wheel
-rw-rw-rw- command*           a   ............................   9870    G: wheel
 a  :  /usr/m1        |
 b  :  /usr/m1/cmd    |

  1:/SN  3:END  4:XED  5:SWITCH  6:/SB  7:U  8:D  9:/SD  10:/ST  11:->  12:CAN
```

Using the Function Keys

The principal function key definitions are referenced on the last line of the window.



F1	SORT BY NAME files will be displayed sorted by their filename. files with no filename, like .dbxinit, will be displayed first.
Shift-F1	SORT BY NAME in reversed order.
F2	generates an **SEDIT** file with the same content displayed within **FLIST**.
Shift-F2	generates an **SEDIT** file with the full names of the files displayed within **FLIST**.
F3	END will terminate the current directory editor level. If this level is the last one, it will return to the file editor.
F4	XED opens for editing the file pointed by the cursor.
F5	SWITCH switches between different directory editor levels. Shift-F5 does the same as above in reversed order. This key has the same behavior in XED and FLIST.
F6	SORT BY SIZE files will be displayed in the decreasing order of their sizes.
Shift-F6	SORT BY SIZE in reversed order
F7	UP if the mouse is in the work area, the user can scroll up the files. If it is in the directory indicator area, the user can scroll up the directory indicator display.
F8	DOWN if the mouse is in the work area, the user can scroll down the files. If it is in the directory indicator area, the user can scroll down the directory indicator display.

`F9` SORT BY DATE
the files will be displayed beginning with the latest.
This is the initial default.

`Shift-F9` SORT BY DATE in reversed order.

`F10` SORT BY FILETYPE
files will be displayed in a filetype alphabetical order.
files with no filetype, like `"module"`, will be displayed first.

`Shift-F10` SORT BY FILETYPE in reversed order.

`F11` EXTENSION
this key is used when data is longer than the input zone.
A screen similar to the following will be displayed:

```
 Level 0    40 Files                                          1 OF 40

-rw-rw-rw-  test          .f    a   ..............................................................
-rw-rw-rw-  test          .f    a   ............................      457     06/02/88  13:31
-rw-rw-rw-  include       .h    a   ............................    11111     11/01/88  18:44
-rw-rw-rw-  command*            a   ............................     9870     16/04/87  21:44
 a  :  /usr/m1          |
 b  :  /usr/m1/cmd      |
 c  :  /usr/bin         |
 d  :  /usr/etc         |
 e  :  /etc
1:/SN  3:END  4:XED  5:SWITCH  6:/SB  7:U  8:D  9:/SD  10:/ST  11:->  12:CAN
```

`Shift-F11` will scroll up to the first file.

`F12` CANCEL
will cancel all directory editor levels and return to the file editor.

`Shift-F12` will scroll up to the last file.

`HOME` On **WINDOWS** systems, moves the cursor to the start of the input field.
On **UNIX** systems, moves the cursor to the first input field.When the `3270 HOME` simulation is cleared with a command such as `'set home'` in the profile, the `HOME` key moves the cursor to the start of the input field.

`Control-HOME` will scroll up to the first file.

`END` On **WINDOWS** systems, moves the cursor to the end of the typed command.
On **UNIX** systems, moves the cursor to the last input field.When the `3270 IHOME` simulation is cleared with a command such as `'set ihome'` in the profile, the `END` key moves the cursor to the start of the typed command.

`Control-END`	will scroll up to the last file.
`Control-m`[1]	generates an **SEDIT** file with the same contents displayed within **FLIST**.
`Control-M1`	generates an **SEDIT** file with the full names of the files displayed within **FLIST**.
`Control-n`	will initiate a new directory editor level scanning for all files with the filename indicated by the cursor. The user may do the same by typing `"f /n *"`.
`Control-t`	will initiate a new directory editor level scanning for all files with the filetype indicated by the cursor. The user may do the same by typing `"f * /t"`.
`Control-f`	will switch to the file editor.
`Control-x`	does the same as above.
`Control-r`	will switch to the tree editor. See The Tree Editor on page 487 for further explanations.
`Control-y`	will scroll up to the first file.
`Control-u`	will scroll down to the last file.
`Control-v`	will scroll up the directory indicator display.
`Control-b`	will scroll down the directory indicator display.
`Control-w`	clears the input fields in the work area.
`Control-e`	initiates a scan, without creating a new level. It can be used to refresh the display when the corresponding directory has been modified outside **SEDIT**.
`Control-a`	toggles `ON` and `OFF` the display of the file related permissions.
`Control-h`	displays the file related time-stamps.
`Control-o`	displays the file related owners.
`Control-g`	displays the file related groups.

1. Not in ASCII terminal mode.

Using the Buttons

If the following statement:

```
'FBUTTON ON'
```

is included in the `profile.sedit` initialization macro, **FLIST** displays the following set of menu buttons:

Clicking with the third mouse button on **UNIX** systems displays a menu.

Clicking with the left mouse button directly executes the first menu item.

On **WINDOWS** systems, the left mouse button displays the menu.

The Sort menu

By Name	Files will be displayed sorted by their filename.
By Type	Files will be displayed in a filetype alphabetical order.
By Size	Files will be displayed in the decreasing order of their sizes.
By Date	Files will be displayed beginning with the latest.

The New menu

Same Filename	Will initiate a new directory editor level scanning for all files with the filename indicated by the cursor.
Same Filetype	Will initiate a new directory editor level scanning for all files with the filetype indicated by the cursor.
Same Directory	Will initiate a new directory editor level scanning for all files with the same directory as the file indicated by the cursor.

The End menu

Return	Returns to the caller, either **XED** or **TREE**.
End Level	Will terminate the current directory editor level. If this is the last level, it will return to the file editor.
End All Levels	Will cancel all directory editor levels and return to the file editor.

The simple buttons

Top	The first file will be displayed on the first screen line.
Bot	The last file will be displayed on the last screen line.
Make File	Generates an SEDIT file with the same contents displayed within **FLIST**.
Tree	Will switch to the tree editor.

Mouse Editing a File

Clicking with the leftmost mouse button on the filename part of a file will start editing this file.

On **WINDOWS** systems, clicking on an `*.exe` file executes this file.

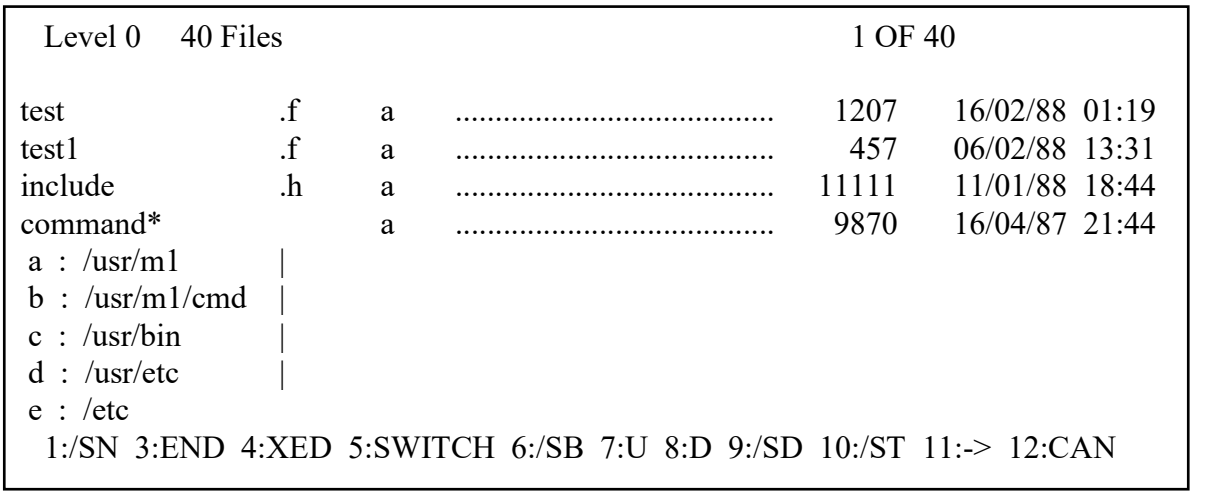
Switching Permissions Display

When **FLIST** is running, typing `^a` (Control-a) switches the permissions display mode.

By default, the **FLIST** directory editor displays the file related permissions:

```
  Level 0     40 Files                                          1 OF 40

-rw-rw-rw- test              .f     a    ............................      1207     16/02/88  01:19
-rw-rw-rw- test1             .f     a    ............................       457     06/02/88  13:31
-rw-rw-rw- include           .h     a    ............................     11111     11/01/88  18:44
-rw-rw-rw- command*                a    ............................      9870     16/04/87  21:44
 a  :  /usr/m1          |
 b  :  /usr/m1/cmd      |
 c  :  /usr/bin         |
 d  :  /usr/etc         |
 e  :  /etc
  1:/SN  3:END  4:XED  5:SWITCH  6:/SB  7:U  8:D  9:/SD  10:/ST  11:->  12:CAN
```

Typing `^a` will switch the display to:



This allows more space for displaying long file names.

The permissions display mode may also be changed by using the `FLATH` **SEDIT** command.

Passing Commands

The Built-in Commands

The built-in commands are commands which are specific to the directory editor. Their syntax is quite different from that of the corresponding **UNIX** commands.

Once executed, they are flagged by a `"*"` character when successful or by a `"?"` when they fail. The user may type a command, scroll using the mouse or the function keys, type another command and then execute them by pressing the `return` key. If the user changes the sort order before executing these pending commands, they will be commented out with a "#" character.

`*` `#` or `?`	starting commands are comments and will not be executed.
`?`	alone redisplays the last command.
`Bottom`	will scroll up to the last file.
`F`, `RF`, `DF`, `FF`	commands are similar to the `*FLIST` commands passed in the file editor, with some exceptions:

- The implicit directory is not the current directory but the filedirectory of the file it is applied to.
  For example:

```
 Level 0    40 Files                                          1 OF 40

-rw-rw-rw-  test          .f    b   f * * ./dup                457    06/02/88  13:31
-rw-rw-rw-  include       .h    b   ...............            11111    11/01/88  18:44
-rw-rw-rw-  command*            b   ...............             9870    16/04/87  21:44
 a  :  /usr/m1          |
 b  :  /usr/m1/cmd      |
```

initiates a new directory editor level searching all the "`/usr/m1/cmd/dup/*.*`" files.

- The user may type `/n` which means `"same filename"`
  `/t`which means `"same filetype"`

```
 Level 0    40 Files                                          1 OF 40

-rw-rw-rw-  test          .f    b   f /n *                     457    06/02/88  13:31
-rw-rw-rw-  include       .h    b   ...............            11111    11/01/88  18:44
-rw-rw-rw-  command*            b   ...............             9870    16/04/87  21:44
 a  :  /usr/m1          |
 b  :  /usr/m1/cmd      |
```

initiates a new directory editor level searching all the "`/usr/m1/cmd/test.*` " files.

`Cp` or `Copy` command is an IBM CMS-style copyfile command. It applies directly to the file indicated by the cursor.

Its syntax is `Cp FN FT FD {(Rep {Oldd} }`

`FN` is the filename of the newly created file.
`FT` is its filetype.
`FD` is its filedirectory.

The user may use = to indicate that the component is the same as that of the matching file.

`Rep` is an optional indicator which allows the user to overwrite an existing file. If the user does not specify it, **SEDIT** will not allow the file to be overwritten.

`Oldd` is an optional indicator which allows the user to preserve the source file modification time.

Usage note: `CP` without arguments brings the filename, filetype and the = sign on the corresponding command line, allowing easy editing.

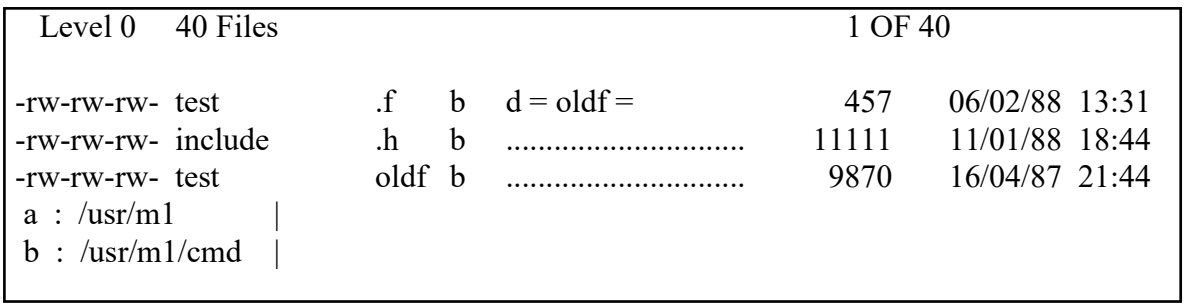
```
 Level 0    40 Files                                        1 OF 40

-rw-rw-rw-  test1          .f    b    cp = oldf a (r          457     06/02/88  13:31
-rw-rw-rw-  include        .h    b    ........................ 11111   11/01/88  18:44
-rw-rw-rw-  command*             b    ........................  9870   16/04/87  21:44
 a  :  /usr/m1          |
 b  :  /usr/m1/cmd      |
```

will copy `/usr/m1/cmd/test1.f` to `/usr/m1/test1.oldf`.

```
 Level 0    40 Files                                        1 OF 40

-rw-rw-rw-  test1          .f    b    cp = = ./dup            457     06/02/88  13:31
-rw-rw-rw-  include        .h    b    ........................ 11111   11/01/88  18:44
-rw-rw-rw-  command*             b    ........................  9870   16/04/87  21:44
 a  :  /usr/m1          |
 b  :  /usr/m1/cmd      |
```

will copy `/usr/m1/cmd/test1.f` to `/usr/m1/cmd/dup/test1.f`.

`Diff` passes the matching complete **UNIX** filename and the name built with the arguments to the **UNIX** `diff` command.



executes the **UNIX**

```
diff /usr/m1/cmd/test.f /usr/m1/cmd/test.oldf
```

command, and displays the result within **SEDIT**.

Usage note: `DIFF` without arguments brings the filename, filetype and the = sign on the corresponding command line, allowing easy editing.

`Mv` or `Ren` command is an IBM CMS-style movefile command. It applies directly to the file indicated by the cursor.

its syntax is Mv FN FT FD {(Rep {Oldd} }

```
 Level 0    40 Files                                        1 OF 40

-rw-rw-rw-  test1          .f    b   mv = = ./dup            457     06/02/88  13:31
-rw-rw-rw-  include        .h    b   ........................ 11111   11/01/88  18:44
-rw-rw-rw-  command*             b   ........................  9870   16/04/87  21:44
 a  :  /usr/m1          |
 b  :  /usr/m1/cmd      |
```

will move `/usr/m1/cmd/test1.f` to `/usr/m1/cmd/dup/test1.f`.

If the user replaces a displayed file using the MV command, that file will be displayed in blue, its length will be replaced with a `"xxxxxxx"` string, and its first letter by a `"|"`.

```
 Level 0    40 Files                                        1 OF 40

-rw-rw-rw-  test1          .f    b   mv test2 = = (r         457     06/02/88  13:31
-rw-rw-rw-  test2          .f    b   ........................ 11111   11/01/88  18:44
-rw-rw-rw-  command*             b   ........................  9870   16/04/87  21:44
 a  :  /usr/m1          |
 b  :  /usr/m1/cmd      |
```

gives:

```
 Level 0    40 Files                                        1 OF 40

-rw-rw-rw-  test2          .f    b   ........................  457     06/02/88  14:06
-rw-rw-rw-  |est2          .f    b   ........................ xxxxx    11/01/88  18:44
-rw-rw-rw-  command*             b   ........................  9870   16/04/87  21:44
 a  :  /usr/m1          |
 b  :  /usr/m1/cmd      |
```

Every directory editor level will be updated.

Usage note: `MV` without arguments brings the filename, filetype and the = sign on the corresponding command line, allowing easy editing.

`O` on **Windows**, calls the `ShellExecute()` API on the corresponding file, executing the default **Windows** action.

`RM` or `E` command is used with no argument to delete the matching file.

Once a file has been erased, it is displayed in blue and its length is replaced with a `"xxxxxxx"` string.

```
 Level 0    40 Files                                        1 OF 40

-rw-rw-rw-  test1          .f    b   rm                      457     06/02/88  13:31
-rw-rw-rw-  test2          .f    b   ........................ 11111   11/01/88  18:44
-rw-rw-rw-  command*             b   ........................  9870   16/04/87  21:44
 a  :  /usr/m1          |
 b  :  /usr/m1/cmd      |
```

gives:

```
 Level 0    40 Files                                        1 OF 40

-rw-rw-rw-  test1          .f    b   *rm                     xxxxx   06/02/88  13:31
-rw-rw-rw-  test2          .f    b   ........................ 11111   11/01/88  18:44
-rw-rw-rw-  command*             b   ........................  9870   16/04/87  21:44
 a  :  /usr/m1          |
 b  :  /usr/m1/cmd      |
```

Notes: Since `ISPF` users generally use the "`e`" command to start editing a file, when "`mode prefix ispf`" is on, the user cannot use the "`e`" command to delete a file. Only the "`rm`" command can be used for that purpose.
On **WINDOWS** systems, when `RECYCLE` is `ON`, removing files moves then into the recycle bin.

`Top` will scroll up to the first file.

`Xed` starts editing the matching file.

This command allows the user to start editing several files at once. If the user wants to edit only one file, the `F4` function key may be used.

`XBin` starts editing the matching file in binary mode. See the `BINARY` command on page 158 for more information.

`XKb` starts editing the matching file with `KEEPBLANKS` set to `ON`. See the `KEEPBLANKS` command on page 293 for more information.

`WIPE` wipes the selected file. `WIPE` is in fact the `wipe.flist` macro, and uses the `WIPE()` **S/REXX** buil-in described page 638.

= repeats the preceding command

```
 Level 0     40 Files                                          1 OF 40

-rw-rw-rw-  test1          .f     b    cp = oldf = (rep          457     06/02/88  13:31
-rw-rw-rw-  test2          .f     b    =.........................  11111    11/01/88  18:44
-rw-rw-rw-  test3          .f     b    =.........................   9870    16/04/87  21:44
-rw-rw-rw-  test4          .f     b    =.........................   9870    16/04/87  21:44
 a  :  /usr/m1          |
 b  :  /usr/m1/cmd      |
```

will copy these four files and give:

```
 Level 0     40 Files                                          1 OF 40

-rw-rw-rw-  test1          .f     b    *cp = oldf = (rep         457     06/02/88  13:31
-rw-rw-rw-  test2          .f     b    *cp = oldf = (rep       11111     11/01/88  18:44
-rw-rw-rw-  test3          .f     b    *cp = oldf = (rep        9870     16/04/87  21:44
-rw-rw-rw-  test4          .f     b    *cp = oldf = (rep        9870     16/04/87  21:44
-rw-rw-rw-  test1          .oldf  b    .........................  457     06/02/88  13:31
-rw-rw-rw-  test2          .oldf  b    .........................  11111    11/01/88  18:44
-rw-rw-rw-  test3          .oldf  b    .........................   9870    16/04/87  21:44
-rw-rw-rw-  test4          .oldf  b    .........................   9870    16/04/87  21:44
a  :  /usr/m1          |
b  :  /usr/m1/cmd      |
```

The Non-built-in Commands

When the user passes a command other than a built-in command, that command is passed directly to the shell followed by the matching complete **UNIX** or **WINDOWS** filename.

Note that this command may be interrupted by typing `^c` at any time.

```
 Level 0    40 Files                                          1 OF 40

-rw-rw-rw-  private        .f    a   chmod o-w                 457    06/02/88  13:31
-rw-rw-rw-  test2          .f    b   ............................  11111    11/01/88  18:44
-rw-rw-rw-  command*             b   ............................   9870    16/04/87  21:44
 a  :  /usr/m1                                        |
 b  :  /usr/m1/cmd                                    |
 c   : /usr/lib/fonts/fixedwidthfonts                 |
```

will modify the permissions for the **UNIX** file `/usr/m1/private.f`.

Overriding a Built-in Command

If the user validates a command by typing `"Control-return"` instead of `"Return"`, there will be no checking for built-in commands. This is useful if the user wants to pass a synonym of a built-in command to the shell.

This facility is not available when **SEDIT** runs in character mode.

Using S/REXX Macros Within FLIST

An **S/REXX** macro command is a file with an `flist` filetype which is called from the **FLIST** environment.

In order to make a macro file available for such usage, the user must first enter (for example in the `profile.sedit` initialization file) the `"HASH {dir1 {dir2} {...}}"` command described on page 284.

The default profile load all the macros located in the `{install-dir}/xmac` directory.

`xmac` contains the following `utime.flist` sample macro:

```
/*
 * utime: MACRO sample used within FLIST
 *
 *  Usage example:
 *
 *  -rw-rw-r-- restart.x    a   utime 1/1/1998 12:03:13
 *
 *  utime will be called as
 *
 *    call utime "{a directory}/restart.x", "1/1/1998 12:03:13"
 *
 */
signal on novalue
option mixed setenv

parse arg file, args
if args = '' then return 0

parse var args jj'/'mm'/'yy hh':'mi':'ss
if hh = '' then hh = 0
if mi = '' then mi = 0
if ss = '' then ss = 0
rep = utime(file, jj, mm, yy, hh, mi, ss)
if rep = 0 then return 0

'msg utime:  Unable to change "'file'" timestamp.'
'msg reason: 'rep
return 1
```

Typing the macro name (`utime`) in one of the FLIST input fields calls the macro with 2 arguments. The first argument is the complete file name (including the directory part), and the second is the optional string entered after the macro name.

When the macro returns `0`, **FLIST** remains active. When the macro returns `1`, **FLIST** returns to the file editor.

In this example, `utime` parses the entered date and then uses the **S/REXX** `utime()` built-in to modify the time stamp of the corresponding file.

When FMACRO is OFF (the default), **FLIST** looks for built-in commands first before looking for macros.

When FMACRO is ON, **FLIST** looks for macros first before looking for built-in commands. FMACRO ON allows to override built-in **FLIST** commands such as the cp command.

The FLFILES() built-in can be used to retrieve the names of the files displayed in the current **FLIST** level.

The Tree Editor

Getting Started

Note: On **WINDOWS**, the TREE menubar calls the native explorer window.

The tree editor **TREE** allows the user to graphically visualize the directory layout.

The format of the **TREE** command is:

`Tree {dir}`	where `dir` is the directory to start the scan. If omitted, the scan will start at the home directory.

When TREESCANLEVEL is set to 0 (the default), all the subdirectories belonging to the same filesystem as the `dir` filesystem are scanned.

Once the scan is over, **SEDIT** saves the result in a file named `sedit.treemap` in order to avoid initialization delay at the next call. If the directory layout is modified outside **SEDIT**, **TREE** is not automatically updated.

When TREESCANLEVEL is set to a positive value N, **TREE** ignores any `sedit.treemap` already existing. **TREE** rescans the disk at every call, to a depth of N subdirectories. Initialization time will be longer than TREESCANLEVEL equal 0, but the display is always accurate.

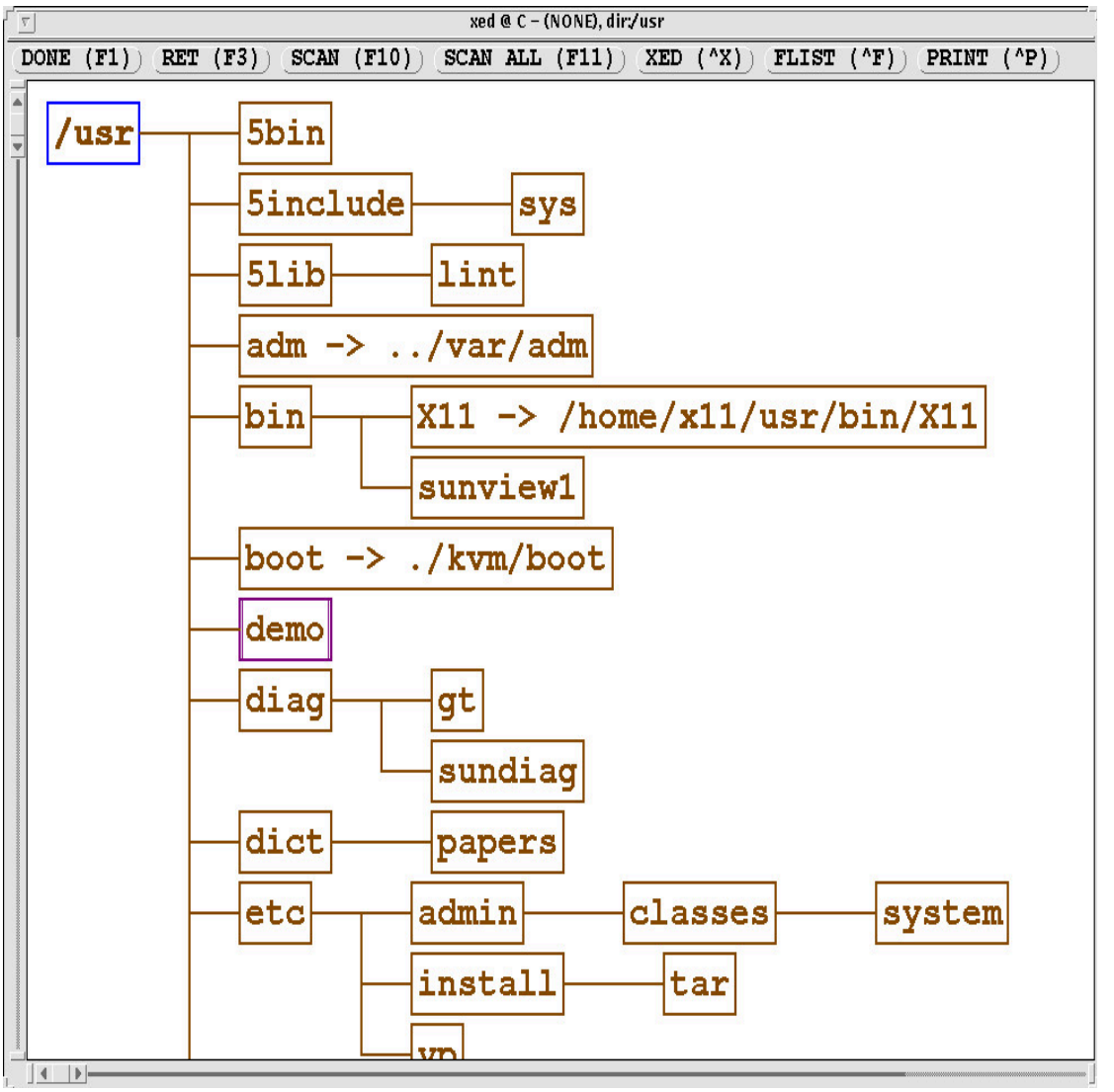
To modify the TREESCANLEVEL during an SEDIT session, issue for example the following command in the SEDIT command field:

```
=====> TREES 1
```

To set the default TREESCANLEVEL, add for example in the user's `profile.sedit` initialization macro file:

```
'TREES 1'
```

Assume the user types `t /usr`, the screen will then look like this:



Using the Mouse

Note: On **WINDOWS** systems with a 2 button mouse, the rightmost button acts as the third `M3` button on a 3 button mouse. `M1` is the leftmost button, and `M2`, the center button on a 3 button mouse is not available.

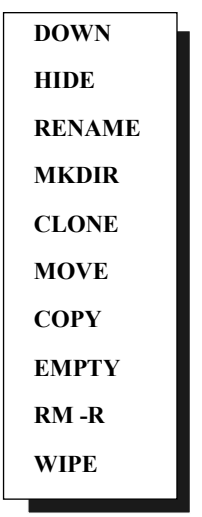
When selecting a directory with the leftmost mouse button, a new directory editor level is started on this directory.

To return to the tree editor, the user just has to type `^r`.

When the user selects a directory with the center mouse button, this directory becomes the current directory. Note that the current directory appears in blue on color displays, and bold-faced on monochrome displays. On **WINDOWS** systems with a 2 button mouse, use the `Shift-Left` button instead.

When changing the current directory, all the directory editor levels will be lost.

When the user selects a directory with the rightmost mouse button, the following menu pops up:



- **DOWN** restarts the tree editor upon the selected directory. If the selected directory is the current tree root, the string **DOWN** will be replaced by the string **UP**, and choosing that item will restart the tree editor on the current tree root parent.
- **HIDE** undisplays all the selected directory subdirectories. If the user clicks again over that directory, the string **HIDE** will be replaced with the string **SHOW**, allowing a redisplay of the hidden directories.
- **RENAME** pops up a dialog box asking for a new name for the selected directory.
- **MKDIR** pops up a dialog box asking for a new subdirectory name.
- **CLONE** pops up a dialog box asking for a new directory name. A new directory identical to the selected one, including all sub-directories, will be created using the new name.
- **MOVE** highlights the selected directory and changes the mouse pointer adding a small `M` to it. Then the user will have to choose a destination directory by clicking over it with `M1` or `M2`. To cancel the operation, just click out of any directory box.

- **COPY** highlights the selected directory and changes the mouse pointer adding a small `C` to it. Then the user will have to choose a destination directory by clicking over it with `M1` or `M2`. To cancel the operation, just click out of any directory box.
- **EMPTY** pops up a dialog box asking confirmation and then deletes all files in the selected directory. On **WINDOWS** systems, when `RECYCLE` is `ON`, files will be moved to the recycle bin.
- **REMOVE** pops up a dialog box asking confirmation and them removes the whole selected directory, after removing all its files if necessary. On **WINDOWS** systems, when `RECYCLE` is `ON`, files will be moved individually to the recycle bin.
- **RM -R** pops up a dialog box asking confirmation and then removes the selected directory, and all its subdirectories. On **WINDOWS** systems, when `RECYCLE` is `ON`, the designated directory will be moved globally to the recycle bin.
- **WIPE** pops up a dialog box asking confirmation and then wipes all files in the selected directory. See The `WIPE` **S/REXX** routine page 638 for more information.

Note that, unlike the **UNIX** `"cp -R"` command, **SEDIT** respects symbolic links while copying directories. **MOVE** and **COPY** will also work across file systems.

WARNING: deleting files cannot be undone. Be very careful when using the **EMPTY** and **REMOVE** facilities.

Using the Buttons

The `DONE` button, or the `F1` key will terminate the tree editor and return to the caller, either `XED` or `FLIST`.

The `SCAN` button or the `F10` key will again scan the directories, updating the display if any changes are found since the last scan. Note that once the scan is over, **SEDIT** saves the result in a file named `sedit.treemap` in order to avoid initialization delay at the next call.
`SCAN` automatically hides subdirectories belonging to file systems other than the initial `dir` file system.

The `SCAN ALL` button or the `F11` key will scan the directories without hiding subdirectories belonging to other files systems.

The `RET` button or the `F3` key will return to the caller. A subsequent call to `TREE` without argument will cause the tree editor to resume where it was left off.

The `XED` button or the `^x` key will return to the file editor. A subsequent call to `TREE` without argument will resume the tree editor at the point the user left it.

The `FLIST` button or the `^f` key will return to the directory editor. A subsequent call to `TREE` without argument will resume the tree editor at the point the user left it.

On **UNIX** systems, the button `PRINT` will pop up a menu asking the user for the following items:

- Printer the name of the printer to be used.
- Width the number of columns the printer features. Use the `Tab` key or

the left mouse button to toggle between these two items.

- Line drawing set

`APL` if the printer uses the DYALOG APL line drawing set.
`PC8` if the printer uses the IBM PC8 character set.
`None` if the printer does not feature any line drawing set.

The button `CANCEL,` or depressing the `L1` key[1] will cancel the print.
The button `OK`, or depressing the `Return` key will start the print.

Using the Function Keys

`TREE` supports the following function keys:

`F1`	terminates the tree editor and returns to the caller, either `XED` or `FLIST`.
`F3`	returns to the caller. A subsequent call to `TREE` without argument will resume the tree editor at the point the user left it.
`F7`	scrolls up one page.
`F8`	scrolls down one page.
`F10`	scans the directories, updating the display if any changes are found since the last scan.
`F11`	scans the directories without hiding subdirectories belonging to other files systems.
`Home`	scrolls up to the first directory.
`End`	scrolls down to the last directory.
`PageUp`	scrolls up one page.
`PageDown`	scrolls down one page.
`Control-f`	returns to the directory editor. A subsequent call to `TREE` without argument will cause the tree editor to resume where it was left off.
`Control-e`	scrolls down to the last directory.
`Control-h`	scrolls up to the first directory.
`Control-p`	pops up the print dialog box.

1. Sun only

`Control-s` asks for a search string and scrolls to the first directory matching this string. Within the search string, a `*` character means any set of characters, and a `?` character means any character.

Examples: `se*` matches `sedit` and `select`.
`?edit` matches `xedit` and `sedit`, but not `regedit`.

Notes: When `GLOBALCASE` is set to `IGNORE` (the default on **WINDOWS** systems), the matching is case insensitive.
On Sun keyboards, the `FIND` key can also be used for the same purpose.
Entering an empty string searches for the last entered string.

`Control-x` returns to the file editor. A subsequent call to `TREE` without argument will cause the tree editor to resume where it was left off.

Changing the Default Printer on UNIX Systems

On **UNIX** systems, the `PRINTSCREEN` command described page 344 changes the default `TREE` printer and printing daemon.

Running SEDIT With CodeCenter

SEDIT may run as an EDIT session for the **CodeCenter**[1] 4.x software[2].

To set up communication between **SEDIT** and **CodeCenter**, uncomment the following lines in the file {instal-dir-SEDIT}/sedit.menu:

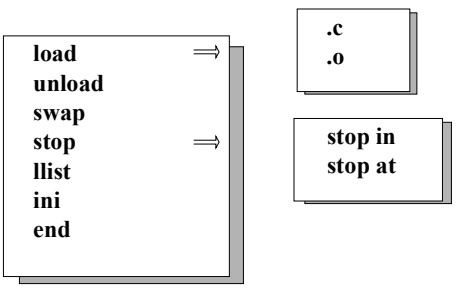
```
"CENTER" MENU
                "load   "  MENU
                               ".c" c_load center
                               ".o" c_load center o
                "load   "  END
                "unload"   c_unload center
                "swap   "  MENU
                            "--> c   "  c_swap center c
                            "--> o   "  c_swap center o
                "swap   "  END
                "stop   "  MENU
                          "stop in"  c_stop   center
                          "stop at"  c_stopat center
                "stop   "  END
                "ini    "  center_ini
                "list   "  c_list center
                "xref   "  saber_xref center
                "run    "  center_send run
                "build  "  center_send build
                "end    "  center_end
"CENTER" END
```

Then type the following **SEDIT** command:

```
====> menu $xhome/sedit.menu
```

1. CodeCenter and Saber-C are trademarks of CenterLine Software, Inc.
2. CodeCenter is not supported on all platforms and operating systems.

This will create the following menu items:



The menu items have the following meaning:

load ⟹ .o	makes CodeCenter load the current file in object (`*.o`) mode.
load ⟹ .c	makes CodeCenter load the current file in source (`*.c`) mode.
swap	makes CodeCenter swap the current file. If it was loaded in object mode, it will be reloaded in source mode.
stop ⟹ in	makes CodeCenter set a stop in the currently edited file.
stop ⟹ at	makes CodeCenter set a stop at the cursor location in the currently edited file.
list	makes CodeCenter display the current file.
ini	causes **SEDIT** to start being a CodeCenter EDIT session.
end	causes **SEDIT** to stop being a CodeCenter EDIT session.

You may also uncomment the following line in the `profile.sedit` file:

```
/*
    'set ^s ONLY c_stopat center'
    'set ^S ONLY c_split'
    'mbutton Center center.bu'
    'hash $xhome/xmac/center'
*/
```

which gives:

```
'set ^s ONLY c_stopat center'
'set ^S ONLY c_split'
'mbutton Center center.bu'
'hash $xhome/xmac/center'
```

Typing ^s (Control-s) will set a stop at the cursor location.

Note: these commands applies to **CodeCenter** 4.x. If you are using **Saber-C** (or **CodeCenter**) 3.x, please type the following **SEDIT** command:

```
====> HELP SABER
```

Using S/REXX

Starting S/REXX on UNIX Systems

To execute an **S/REXX** program, the user must first create a text file containing the **S/REXX** source program by using a text editor, such as **SEDIT**. Once the program is created, there are two ways to execute it.

Explicit Execution

Assuming the user has created a file called `fname`, the user must type the following command:

```
% /home/xed/srexx fname
```

The `%` sign is the **UNIX** prompt and is not part of the command.

If the `/home/xed` directory has been installed in the current path, the user may simply type:

```
% srexx fname
```

Note that `srexx` searches `fname` in the directories described in the PATH environment variable.

Automatic Execution

The first line of the source program must contain the following entry:

```
#! /home/xed/srexx
```

The program must be set for execution permission with the following command:

```
% chmod a+x fname
```

Then, the user can start the program by typing:

```
% fname
```

Note: when using **SEDIT** to create an automatic **S/REXX** program, the **SEDIT** `save` function will recognize the first line "`#! .....`" statement and automatically set up the execution authorizations.

Starting S/REXX on WINDOWS Systems

To execute an **S/REXX** program, the user must first create a text file containing the **S/REXX** source program by using a text editor. Once the program is created, there are three ways to execute it.

Explicit Execution

Assuming the user has created a file called `fname`, the user must type the following command in a DOS window:

```
"C:\Program Files\SEDIT\srexx" fname
```

If the `C:\Program Files\SEDIT` directory has been installed in the current path, the user may simply type:

```
srexx fname
```

Note that `srexx` searches `fname` in the directories described in the PATH environment variable.

Choosing between srexx.exe and wsrexx.exe

`srexx.exe` is a console application, meant to be used from a **DOS** window. Error messages will be displayed on the **DOS** window it was started from. When starting `srexx.exe` using a **WINDOWS** icon, a **DOS** console is displayed at initialisation.

`wsrexx.exe` is a **WINDOWS** graphical application. Error messages will be displayed on a dialog box. A **DOS** console will be displayed only when using a standard input-output rexx instruction, such as the `SAY` instruction. The `CLOSE_CONS()` built-in can be used to close such a console.

Automatic Execution

Unlike **UNIX** systems, **WINDOWS** does not provide a way to associate a text script to a specific interpreter. We suggest the user create a `c:\myprogs\fname.bat` file for every `c:\myprogs\fname` **S/REXX** program with the following content:

```
"C:\Program Files\SEDIT\srexx" c:\myprogs\fname
```

Assuming that the `c:\myprogs` directory is in the current path, the user may then type:

```
fname
```

to start the `fname` **S/REXX** program.

Note: Use double quotes when the installation directory contains blank characters.
`c:\Program Files\SEDIT\srexx fname` without quotes would fail.

Using the WINDOWS Explorer

We suggest the user give a `.srx` extension to all **S/REXX** programs which must be started with the file manager. Any other extension not in use by the system, such as the `.bat` extension, can be used though.

Then, double click on a `.srx` **S/REXX** file, and the **WINDOWS** Explorer will ask for the application name to associate with such a file.

Compiling a Program

To prepare a non-modifiable version of the `test` source program, issue the following command:

```
ccsr -o test_user test
```

This creates a `test_user` program, which on **UNIX** systems may be run directly by typing its name. On **WINDOWS** systems, the explicit execution mode described on page 500 must be used to start `test_user`.

When simply typing `ccsr test`, `ccsr` creates a `test.sr` output file.

S/REXX Implementation

S/REXX complies with the `REXX` 4.0 language as defined in Cowlishaw's book "The REXX Language", with the sole following restriction:

S/REXX uses the workstation floating point coprocessor for numeric computation. This limits the `NUMERIC DIGITS` setting to a maximum of 15.

When `NUMERIC DIGITS` is higher than 9, usual coprocessor rounding errors will occur.

Since **UNIX** commands never return a negative value when they fail, the default TRACE setting is `TRACE ERROR` instead of `TRACE NORMAL`.

S/REXX Extensions

Static Scoping

Usual `REXX` implementations rely on dynamic scoping. This means that the source program is examined one line at a time, and its translation relies only on the previously interpreted lines.

For efficiency considerations, **S/REXX** has been built more as a compiler than an interpreter. The whole program is analyzed and compiled before execution starts. This makes **S/REXX** run faster than a purely interpreted language, and allows the programmer to detect syntax errors as soon as the program is loaded.

Detection of syntax errors by the programmer eliminates the discovery by end users of syntax errors in code paths not previously executed.

Dynamic Memory Allocation

S/REXX uses dynamic memory allocation for all its internal buffers.

This means there is no internal limitation of any kind.

In particular:

- The number of lines or REXX clauses within a single program are not limited.
- The complexity of an expression and the number of nested parenthesis are not limited.
- The number of created variables, the length of a symbol describing a variable and the length of the contents of a variable are not limited.
- The number of recursive subprograms calls is not limited.
- The number of arguments passed to a subroutine is not limited.

The only limitations are the system limitations:

- The amount of virtual memory available.
- The size of the C stack. The usual stack size will allow tens of thousands of nested parenthesis and thousands of recursive calls. The system administrator should be able to increase the C stack size if needed.

The Operators Extensions

The following operators may be typed in the following way:

```
NOT                          ~ \ ^
NOT EQUAL                    \= /= ~= ^= <> ><
STRICTLY NOT EQUAL           \== /== ~== ^==
GREATER OR EQUAL             >= /< \< ~< ^<
STRICTLY GREATER OR EQUAL    >>= /<< \<< ~<< ^<<
LOWER OR EQUAL               <= /> \> ~> ^>
STRICTLY LOWER OR EQUAL      <<= />> \>> ~>> ^>>
```

Important Note for Mainframe Users

Mainframe keyboards often do not offer the `|` character. Therefore, IBM REXX considers `!` as being the OR operator, and `!!` as being the concatenation operator.

The REXX language definition specifies that the `!` character may be used within variables.

Therefore, "`aa!!bb`" is treated by **S/REXX** as a variable whose name is "`aa!!bb`", and "`a ! b`" as the concatenation of 3 variables: "`a||' '||!||' '||b`"

When porting an IBM REXX procedure to **S/REXX**, the user will have to replace all `!` with `|`.

Logical Operators

When evaluating an expression such as:

```
expr1 & expr2
```

If `expr1` evaluates to 0, `expr2` will not be evaluated, and `expr1 & expr2` will evaluate to 0.

This feature allows the user to write statements such as:

```
say 'Enter a positive number'
pull rep .
if datatype(rep) = 'NUM' & rep > 0 then call do_something rep
else                               say 'Invalid number'
```

If the user types an invalid number, such as "`.qa1212`", the expression `rep > 0` will not be evaluated. Many REXX implementations would evaluate it anyway, thus leading to an interpretation error.

Similarly, when evaluating:

```
expr1 | expr2
```

If `expr1` evaluates to 1, `expr2` will not be evaluated, and `expr1 | expr2` will evaluate to 1.

Dynamic Loading on UNIX Systems

Modern programming languages, such as C or FORTRAN 77, allow the user to build a collection of general utility routines and incorporate them into different programs when needed.

These utility routines can share global variables with the main program by using external variables in C and common blocks in FORTRAN.

S/REXX supports dynamic loading, allowing the use of external source routines.

For example, consider the following routine:

```
#! /home/xed/srexx

say 'Enter a positive number'
pull rep .

if test_nump(rep) then call do_something rep
else                   say 'Invalid number'
```

When encountering the `test_nump()` statement, **S/REXX** will proceed in the following way:

1) **S/REXX** searches for an internal routine named `test_nump`. An internal routine is a sequence of REXX instructions inside the same source file, which start at the label `test_nump`.
   If the word `test_nump` is enclosed with quotes, this step is bypassed.

2) If `test_nump` is not found, **S/REXX** searches for a built-in routine, such as the `date()` routine, which is defined as part of the language.

3) If `test_nump` is not found, other REXX implementations will stop and issue an error message. Some implementations will try to load an external program named `test_nump`, but by creating a different process (**UNIX**) or a different work area (**VM/CMS**), thus making it impossible to exchange global variables between the main program and the subroutine `test_nump`.
   S/REXX will look for a file `test_nump` in the directories described by the `PATH` environment variable, and if found, will dynamically append it to the end of the main file, making it available as an internal routine.
   To hide dynamically loaded subroutine variables, the user may use the `procedure {expose}` instruction.

For example, assume the user's `PATH` is the following:

```
.:/bin:/usr/bin:/etc:/usr/ucb:/user/john/srexx_macs
```

We will assume the user stores all his **S/REXX** routines in the directory `/user/john/srexx_macs`.

If /user/john/srexx_macs/test_nump is the following:

```
#! /home/xed/srexx

if datatype(rep) = 'NUM' & rep > 0 then return 1
else                                    return 0
```

The main program will be updated in the following way:

```
#! /home/xed/srexx

say 'Enter a positive number'
pull rep .

if test_nump(rep) then call do_something rep
else                  say 'Invalid number'

exit
test_nump:
if datatype(rep) = 'NUM' & rep > 0 then return 1
else                                    return 0
```

Note that to be recognized as an **S/REXX** subroutine, the first line of the file must start with the characters #! followed by a sentence including the word srexx.

An external routine may also be called by using its absolute pathname. An absolute pathname is a string enclosed in quotes, starting with / . or ~.

Examples:

```
call "/user/john/srexx_macs/test_nump" rep
call "~/test_nump" rep
call "./test_nump" rep
```

Notes: since most **UNIX** filenames are typed in lower case, an external subroutine will be searched for in lower case, unless explicitly typed in upper case and enclosed in quotes.

`OPTION NOLOAD` prevents **S/REXX** from loading external routines.

Using `EXIT` inside a dynamically loaded procedure is the same as using `EXIT` within an internal procedure. The current REXX program is terminated. Use `RETURN` to return to the caller.

Unlike with **S/REXX** 2.10, the `PATH` environment variable is parsed at every external routine invocation. Therefore, It is possible to add the directory containing the external macros within an **S/REXX** program.

```
option setenv mixed
$PATH = $PATH||':/users/john/srexx_macs'
if test_nump(rep) then call do_something rep
else                    say 'Invalid number'
```

Using OPTION NOLOAD

Consider the following example:

```
#! /home/xed/srexx
OPTION NOLOAD
say 'Enter a positive number'
pull rep .

if test_nump(rep) then call do_something rep
else                    say 'Invalid number'
```

When encountering the `test_nump()` statement, **S/REXX** will proceed in the following way:

1) First, **S/REXX** searches for an internal routine named `test_nump`. An internal routine is a sequence of REXX instructions inside the same source file, which start at the label `test_nump`.
   If the word `test_nump` is enclosed with quotes, this step is bypassed.

2) If `test_nump` is not found, **S/REXX** searches for a built-in routine, such as the `date()` routine, which is defined as part of the language.

3) If test_nump is not found, **S/REXX** will look for a file test_nump in the directories described by the PATH environment variable, and if found, will pass it to the default environment.

Note that to be recognized as an **S/REXX** external subroutine, the first line of the file must start with the characters #! followed by a sentence including the word srexx.

An external routine may also be called by using its absolute pathname. An absolute pathname is a string enclosed in quotes, starting with / . or ~.

Examples:

```
call "/user/john/srexx_macs/test_nump" rep
call "~/test_nump" rep
call "./test_nump" rep
```

Notes: since most **UNIX** filenames are typed in lower case, an external subroutine will be searched for in lower case, unless explicitly typed in upper case and enclosed in quotes.
Using EXIT inside an external routine terminates only the external routine.
An external routine can only return a number to the caller.

Setting Default Options for UNIX or WINDOWS REXX Programs

When an **S/REXX** programs starts, **S/REXX** searches for a .srexxrc file in the user's home directory. If not found, **S/REXX** searches .srexxrc in the **S/REXX** installation directory.

If .srexxrc is found, **S/REXX** executes all the REXX statements included in this file before executing the actual program.

This allows the user to change the default options.

Consider, for example, the following /home/xed/.srexxrc file:

```
OPTION NOLOAD
TRACE NORMAL
```

The default **S/REXX** settings related to external routines and TRACE command will be identical to the **IBM** REXX settings.

Note: the ccsr compiler reads the .srexxrc file at the compile time. The compiled file will not reread the .srexxrc file when executed.

Setting Default Options for SEDIT REXX Macros

When an **S/REXX SEDIT** macro starts, **S/REXX** searches for an sedit.srexxrc file in the user's home directory. If not found, **S/REXX** searches sedit.srexxrc in the **S/REXX** installation directory.

If sedit.srexxrc is found, **S/REXX** executes all the REXX statements included in this file before executing the actual program.

Dynamic Loading on WINDOWS Systems

Modern programming languages, such as C or FORTRAN 77, allow the user to build a collection of general utility routines and incorporate them into different programs when needed.

These utility routines can share global variables with the main program by using external variables in C and common blocks in FORTRAN.

S/REXX supports dynamic loading, allowing the use of external source routines.

For example, consider the following routine:

```
say 'Enter a positive number'
pull rep .

if test_nump(rep) then call do_something rep
else                     say 'Invalid number'
```

When encountering the `test_nump()` statement, **S/REXX** will proceed in the following way:

1) **S/REXX** searches for an internal routine named `test_nump`. An internal routine is a sequence of REXX instructions inside the same source file, which start at the label `test_nump`.
   If the word `test_nump` is enclosed with quotes, this step is bypassed.

2) If `test_nump` is not found, **S/REXX** searches for a built-in routine, such as the `date()` routine, which is defined as part of the language.

3) If `test_nump` is not found, other REXX implementations will stop and issue an error message. Some implementations will try to load an external program named `test_nump`, but by creating a different process (**UNIX**) or a different work area (**VM/CMS**), thus making it impossible to exchange global variables between the main program and the subroutine `test_nump`.
   S/REXX will look for a file `test_nump` in the directories described by the `PATH` environment variable. If `test_nump` exists, its first line must start with the characters `#!` followed by a sentence including the word `srexx`.
   If `test_nump` does not exists, or is not appropriate, **S/REXX** searches for a `test_nump.srx` file, which does not need to start with a specific sentence.
   When found, **S/REXX** will dynamically append `test_nump` (or `test_nump.srx`) to the end of the main file, making it available as an internal routine.
   To hide dynamically loaded subroutine variables, the user may use the `procedure {expose}` instruction.

For example, assume the user's `PATH` is the following:

```
.;c:\john\srexx_macs;c:\nt
```

We will assume the user stores all their **S/REXX** routines in the directory `c:\john\srexx_macs`.

If `c:\john\srexx_macs\test_nump` is the following:

```
#! srexx

if datatype(rep) = 'NUM' & rep > 0 then return 1
else                                    return 0
```

The main program will be updated in the following way:

```
say 'Enter a positive number'
pull rep .

if test_nump(rep) then call do_something rep
else                  say 'Invalid number'

exit
test_nump:
if datatype(rep) = 'NUM' & rep > 0 then return 1
else                                    return 0
```

An external routine may also be called by using its absolute pathname. An absolute pathname is a string enclosed in quotes, starting with `x: \ / ./ .\` or `~`.

Examples:

```
call "c:\john\srexx_macs\test_nump" rep
call ".\test_nump" rep
```

Notes: `OPTION NOLOAD` prevents **S/REXX** from loading external routines.

Using `EXIT` inside a dynamically loaded procedure is the same as using `EXIT` within an internal procedure. The current REXX program is terminated. Use `RETURN` to return to the caller.

Unlike with **S/REXX** 2.10, the `PATH` environment variable is parsed at every external routine invocation. Therefore, It is possible to add the directory containing the external macros within an **S/REXX** program.

```
option setenv mixed
$PATH = $PATH||';c:\john\srexx_macs'
if test_nump(rep) then call do_something rep
else                   say 'Invalid number'
```

Setting Default Options for WINDOWS REXX Programs

When an **S/REXX** programs starts, **S/REXX** searches for a `HOME` environment variable. If found, **S/REXX** searches for [a `.srexxrc` file in the directory described by this `HOME` environment variable.

If `HOME` does not exist, **S/REXX** searches for a `.srexxrc` file in the `C:\` directory.

If `.srexxrc` is not found in the `C:\` directory, **S/REXX** searches `.srexxrc` in the **S/REXX** installation directory.

If `.srexxrc` is found, **S/REXX** executes all the REXX statements included in this file before executing the actual program. This allows the user to change the default options.

For example, consider for example the following `C:\Program Files\SEDIT\.srexxrc` file:

```
OPTION NOLOAD
TRACE NORMAL
```

The default **S/REXX** settings related to external routines and `TRACE` command will be identical to the **IBM** REXX settings.

Note: the `ccsr` compiler reads the `.srexxrc` file at the compile time. The compiled file will not reread the `.srexxrc` file when executed.

Extended PROCEDURE EXPOSE

In order to allow external routines to be used either stand-alone or as dynamically loaded routines, the PROCEDURE {EXPOSE} statement can be found anywhere and any number of times.

If found within a main program, it will be ignored.

If found twice in an internal routine, the EXPOSE statement will be used to update the exposed variable list. The second PROCEDURE statement will be ignored.

Example:

```
#! /home/xed/srexx
procedure expose a                /* This is ignored */

arg a .

call manage_arg a

/*
 *  Do some processing with the variable whose name is the contents
 *  of A
 */
exit

manage_arg:procedure

arg var_name .  /* var_name is hidden: it will not affect the caller */
/*
 * Make the variable whose name is the contents of VAR_NAME available
 * to the caller
 */
interpret 'procedure expose 'var_name

/* Do something */
return
```

Extended LEAVE and ITERATE

The LEAVE and ITERATE instructions may be used within an INTERPRET clause.

Example:

```
do i = 1 to 5
  if i = 3 then interpret 'leave 'var_name
  /* ..... */
end
```

Using Backquotes

Within a REXX expression, it is possible to retrieve the result of a **UNIX** or **WINDOWS** command by surrounding it with backquotes.

Example:

```
a = `"hostname"` /* Puts the workstation hostname in the A variable */
```

Note that commands must be enclosed with single or double quotes, in order to prevent the usual REXX variable substitution.

Using { and }

For a better legibility, the user may use the "{" character instead of "DO ;", and "}" instead of "END".

Example:

```
if a < 0 then
 { 'Prompt Invalid line number'
   exit 2
 }
else
 {
```

Using Bracket Indexing

S/REXX allows the user to set or to retrieve substrings by using bracket indexing.

The following syntax is supported for an assignment:

`SYMBOL = expr`
The usual REXX assignment.

`SYMBOL[expr1] = expr`
The string resulting from the `expr` evaluation overlays `SYMBOL` at the `expr1` column. `SYMBOL` is padded with blanks when `expr1` is greater than its length.

`SYMBOL[expr1:expr2] = expr`
The string resulting from the `expr` evaluation overlays `SYMBOL` at the `expr1` column, until the `expr2` column. `SYMBOL` is padded with blanks when `expr1` is greater than its length.
When `expr` is longer than `expr2-expr1+1`, `expr` is truncated.
When `expr` is shorter then `expr2-expr1+1`, `expr` is used from left to right in a cyclical way.

`SYMBOL[expr1:] = expr`
Is equivalent to `SYMBOL[expr1:lenght(SYMBOL)] = expr`
If `expr1` is greater than the `SYMBOL` length, an empty string is returned.

`SYMBOL[:expr2] = expr`
Is equivalent to `SYMBOL[1:expr2] = expr`

The following syntax is supported for a REXX expression:

`SYMBOL[expr1] or (expr)[expr1]`
The character located at the `expr1` column. When `expr1` is greater than the `SYMBOL` or `expr` length, a space is returned.

`SYMBOL[expr1:expr2] or (expr)[expr1:expr2]`
The characters located between the `expr1` and `expr2` columns. Spaces are returned for indexes located above the `SYMBOL` or `expr` length

`SYMBOL[expr1:] or (expr)[expr1:]`
Is the same as
`SYMBOL[expr1:length(SYMBOL]`, or `expr[expr1:length(SYMBOL]`.

`SYMBOL[:expr2] or (expr)[:expr2]`
Is the same as
`SYMBOL[1:expr2]`, or `expr[1:expr2]`.

Examples:

```
a = '12345';a[2] = 'bcd'
say a                       /* displays "1bcd5"         */

a = '12345678';a[2:6] = 'BC'
say a                       /* displays "1BCBCB78"      */

a = '12345678';
say a[2]                    /* displays "2"             */
say a[3:5]                  /* displays "345"           */
say a[:3]                   /* displays "123"           */
say a[8:12]                 /* displays "8    "         */

a = '1234'; b = 'abcd'
say (a||b)[4:5]             /* displays "4a"            */
```

Using S/REXX within SEDIT

When running **S/REXX** within **SEDIT** in a windowing environment such as **OPEN WINDOWS** or **MOTIF**, all input and output operations are redirected to the window **SEDIT** was started from.

In order to allow the input operations to execute properly, **SEDIT** ***must run in the foreground.***

Starting **SEDIT** in the background with a command like "`xed &`" or "`sedit`" will make **SEDIT** hang every time a `TRACE ?` or a `PULL` instruction is executed.

S/REXX New or Extended Instructions

This chapter describes new or extended instructions not described in Cowlishaw’s book, "The REXX Language".

ADDRESS (UNIX) - Set Destination of Commands

```
ADDRESS | env                                              {exprc}
        | {VALUE} exprv
```

The env destination may be one of the following:

UNIX	The Bourne Shell sh. This is the default when **S/REXX** runs standalone.
SH	Same as UNIX.
WINDOWS	Same as UNIX.
CSH	The C Shell csh.
TCSH	The tcsh shell.
KSH	The Korn Shell ksh.
EXEC	**S/REXX** attempts to execute directly the string passed to the EXEC environment without using any **UNIX** shell. The PATH is not searched and the usual shell redirection ">" and pipe "|" characters are not treated specifically. Shell meta characters like "*" are also passed without expansion.
SEDIT	Available only in **SEDIT** macros. This is the default when **S/REXX** runs under **SEDIT**.

Examples:

```
ADDRESS CSH
'ls ~/.cshrc'       /* ~ would not work with ADDRESS SH */


/*
 * To list a file actually named "*"
 */
ADDRESS EXEC
'/bin/ls -Ftla *'   /* 'ls' would not work */
```

ADDRESS (WINDOWS) - Set Destination of Commands

```
ADDRESS | env                                          {exprc}
        | {VALUE} exprv
```

On **WINDOWS** systems, the env destination may be one of the following:

WINDOWS — The default **WINDOWS** command interpreter. This is the default when **S/REXX** runs standalone.

First, the WINDOWS environment checks if the passed command is one of the following DOS commands:
ASSOC CLS COPY DIR DEL ERASE FTYPE MD MOVE RD REN RENAME START TIME TYPE VER VERIFY VOL
and starts a DOS interpreter instance to execute them. Note that using equivalent built-ins such as DEL(), COPY(), MKDIR(), RENAME() or RMDIR() within **S/REXX** is much faster than using a DOS command

For any other command, **S/REXX** searches in every directory in the path first for an expr.exe file, then for an expr.com file and finally for an expr.bat file.

UNIX — Same as WINDOWS.

SEDIT — Available only in **SEDIT** macros. This is the default when **S/REXX** runs under **SEDIT**.

Using UNIX Shells on WINDOWS

It is possible to install UNIX-like shells on **WINDOWS** systems**.**

S/REXX ADDRESS supports the SH, CSH, TCSH and KSH keywords to address such shells. **S/REXX** will use an environment variable with the same name to find a shell.

For example, if the user has installed the Hamilton C-SHELL in c:\hamilton\bin, the user may create a CSH environment variable in the following way:

```
option mixed setenv
$CSH = 'c:\hamilton\bin\csh.exe -FXC'
ADDRESS CSH
'ls -Ftl +a ~'
```

CD - Change Directory

`CD {dir}` makes `dir` the current directory.

The user may use the ~ . **UNIX** directory meta characters to specify a location.

Examples:

`CD`	makes the home directory current.
`CD '~'`	has the same effect.
`CD '~/foo'`	if the home directory is `/users/john`, makes `/users/john/foo` the current directory.
`CD '..'`	if the current directory is `/users/john`, makes `/users` the current directory.

Note: the **UNIX** directory meta characters must be enclosed in quotes.

On **WINDOWS** systems, the `HOME` environment variable is usually not defined. In this case, the "`~/`" or "`~\`" directory shortcut is translated into "`C:\`".

DESBUF - Clear Stack

`DESBUF` is not part of the **S/REXX** language, but for VM/CMS compatibility it is implemented as an extension of the **UNIX** or **WINDOWS** environment. Therefore, it is recommended to enclose it in quotes in order to prevent the normal **S/REXX** variable substitution.

`DESBUF` format is:

`DESBUF` clears the program stack buffer.

See Also: `DROPBUF`, `MAKEBUF`, `SENTRIES`

DO - Controlled Loop

The DO instruction offers the following extension:

```
DO  name                          IN                          expr;
    END {symbol};
```

The variable name will be assigned to every word of the REXX expression expr. A word is a set of characters surrounded by any number of blanks, tabulations or \n end of line character.

Examples:

```
DO a IN 'word1 word2 word3'
   say a
end a
```

displays:

```
word1
word2
word3
```

The following routine:

```
DO a IN `"ls"`
   if state(a, 'd') then sayx 'du -s 'a
end a
```

shows the size of all the subdirectories.

DROPBUF - Remove Stack

DROPBUF is not part of the **S/REXX** language, but for VM/CMS compatibility it is implemented as an extension of the **UNIX** or **WINDOWS** environment. Therefore, it is recommended to enclose it in quotes in order to prevent the normal **S/REXX** variable substitution.

DROPBUF format is:

`DROPBUF {n}` removes the specified stack buffer.

n specifies the number of the first stack buffer to be removed. DROPBUF will remove all stack buffers which number is greater than n.

When n is not specified, the most recently created buffer is removed.

See Also: DESBUF, MAKEBUF, SENTRIES

EXECIO - Input/Output Operations

EXECIO is not part of the **S/REXX** language, but for VM/CMS compatibility it is implemented as an extension of the **UNIX** or **WINDOWS** environment. Therefore, it is recommended to enclose it in quotes in order to prevent the normal **S/REXX** variable substitution.

EXECIO format is:

```
EXECIO |lines  |DISKR fn ft {fd {linenum}} {({FINIs}   A   B}
       |       |
       |*      |DISKW fn        ft        fd        {linenum
       |       |      {recfm {lrecl}}}    {({FINIs}  B  C  D}
       |       |
       |       |DISKI fn        ft        fd        {linenum
       |       |      {recfm {lrecl}}}    {({FINIs}  B  C  D}
       |       |
       |       |DISKD fn ft fd {linenum}  {(FINIs}
       |       |
       |       |PRINT printer             {({FINIs} B C D E}
```

Options formats:

```
(A)    {Find /string/}   {Zone n1 n2}  {FIFO|LIFO}  {SKip}
       {LOcate                                      /string/}
       {Avoid /string/}

(B)    {Margins n1 n2}   {STRIP}   {NOTYPE    {STEm      xxx}
                                              {VAR vvv}

(C)    {CAse U|M}

(D)    {STring xxx}

(E)    {Columns n}
```

where:

`lines` is the number of processed lines. `lines` must be any non-negative integer. With the `VAR` option, `lines` must be 1.

An asterisk `*` indicates that the operation is to terminate when a 0-length line is read during an output operation, or when an end-of-file condition is detected during an input operation.

When `lines` is specified as zero (`0`), no I/O operation takes place other than closing the file or printer when the `FINIS` option is specified.

For a `DISKW` or `PRINT` operation, if the `STEM` operand has not been specified and the `lines` operand exceeds the number of lines available on the program stack, **S/REXX** waits for user input at the terminal the **S/REXX** program was started from. If `lines` has been specified as a `*`, reading an empty line terminates the operation.

`DISKR` reads lines from a disk file to the stack or **S/REXX** variables.

`DISKW` writes lines from the stack, **S/REXX** variables or command line to a disk file. When using the `DISKW` function to write in the middle of a file, for example to write a string at line 10 of a 2000 line file, **S/REXX** does not truncate the file at line 10. Instead, it checks the string length, compares it to the original line 10 length, and moves the remainder of the file either to the left (shortening the file) or to the right, depending on whether the new line is shorter (left) or longer (right) than the original line. With large files, this process may take a while.

`DISKI` inserts lines from the stack, **S/REXX** variables or command line to a disk file *before* the specified line. The remainder of the file is moved to the right. With large files, this process may take a while.

`DISKD` removes the specified lines. The line pointer remains unchanged.

`PRINT` (**UNIX**)
writes lines from the stack, **S/REXX** variables or command line to the printer defined by the `printer` operand. **S/REXX** keeps these lines in memory until the `FINIS` operand is used to close the printer. Several printers may be opened simultaneously.

`PRINT` (**WINDOWS**)
writes lines from the stack, **S/REXX** variables or command line to the printer named `printer`. When `printer` is specified as an `*`, the default printer is used. `printer` can be specified within quotes. **S/REXX** keeps these lines in memory until the `FINIS` operand is used to close the printer. Only one printer may be opened at a time. The default printer can be changed with the `dy_printer` built-in function.

`recfm` is implemented for VM/CMS compatibility. It must be `V` or `F`. When `F` is specified, the default `lrecl` is 80.

`lrecl` specifies the length of each updated line of the file. When the data is larger than this length, it is truncated. When the data is shorter, it is padded with blanks.

`fn` is the filename part of the file. A period (`.`) may be used if no filename is required.
When `fd` is specified as a period (`.`), `fn` may be the full **UNIX** or **WINDOWS** pathname, including the file-directory and filetype parts. This allows the user to use a **UNIX** or **WINDOWS** like way to describe a file, such as:

```
execio 1 diskw ~/foo.c . .(
```

instead of the VM/CMS way, such as:

```
execio 1 diskw foo c ~(
```

`ft` is the filetype part of the file. A period (`.`) may be used if no filetype is required.

`fd` is the directory part of the file. When `fd` is not specified or specified as an asterisk (`*`) during an input operation, all the directories described in the `PATH` environment variable are searched.

`linenum` is the absolute line number where a file operation is to begin. When not specified, or specified as 0, reading begins at the first line, and writing at the last line for the first operation. Subsequent operations will resume at the line where the previous operation ended.

`FINIs` causes the specified file or printer to be closed.
A subsequent `DISKR` operation will return the first line in the file.
A subsequent `DISKW` operation will append data at the end of the file.
A subsequent `PRINT` operation will start a new print job.

Option A

`FInd` writes 2 strings to the stack LIFO (last-in first-out) by default, or FIFO (first-in first-out) when the FIFO option is specified:

1) the contents of the first matched line.
2) the relative and absolute line numbers of the first line that begins with the string specified between delimiters. The delimiter is the first non-blank character found after the `FIND` keyword. It does not need to be a `/`.
The `ZONE` option allows the user to search for a string starting at the specified `n1` column. `n2-n1` must be greater than the length of `string`.

When used with the `STEM xxx` option, `FIND` will update the `xxx`*n* variables in the following way:

1) xxx0 is set to 2.

2) xxx1 is filled with the first line that matches the condition.

3) xxx2 is filled with the relative and absolute line numbers. The relative line number is the number of lines scanned before the match occurs.

LOcate is like the FIND option, except the string may occur any place within a line (or zone portion of that line).

Avoid is like the LOCATE option, except the search is for a line (or zone portion of that line) that does not contain the specified characters.

Zone restricts the portion of the lines searched during a FIND, LOCATE or AVOID operation.
The search is performed between columns n1 and n2 (inclusive). If n2 is specified as *, the search is performed through the end of the line.

FIFO the lines are written to the stack in first-in first-out order. This is the default, except for the FIND, LOCATE or AVOID operations.

LIFO the lines are written to the stack in last-in first-out order. This is the default for the FIND, LOCATE or AVOID operations.

SKIP prevents a read operation from writing to the stack.

Option B

Margins specifies that only columns n1 through n2 (inclusive) are to be processed. If n2 is specified as *, the process is performed through the end of the line.

STRIP removes the trailing blanks from any output lines or lines returned.

NOTYPE suppresses the display of any **S/REXX** messages when an I/O error occurs.

STEm xxx the variables xxxn will be used to supply input data for output-type operations. They will be the destination for output for the input-type operations.
xxx*1* is the first used or created variable, xxx*2* the second, and so on. xxx*0* will be set to the number of lines returned for the input-type operations.

VAR vvv the variable vvv will be used to supply input data for output-type operations. It will be the destination for output for the input-type operations.
When VAR is specified, lines must be specified as 1.

Option C

Case U the data read is translated to uppercase.

Case M the data read is not translated. This is the default.

Option D

`STRING` supplies output data explicitly. Any characters following the `STRING` keyword are treated as string data. Therefore, `STRING` must be the final option on the command line.

The `EXECIO` return codes have the following meanings:

0	Success.
2	End of file condition on `DISKR` operation.
3	No match when using a `FIND/LOCATE/AVOID` option.
24	Bad parameter list.
28	File not found.
29	Invalid printer (**WINDOWS** only)
101	I/O error.
2008	Invalid `STEM` or `VAR` operand.

Option E

`Columns N` On **WINDOWS** systems, `EXECIO` uses the **WINDOWS** printer API to determine the number of available columns for printing, and wraps larger lines.
When specified, `N` overrides this computed width.

Notes: On **WINDOWS** systems, the `HOME` environment variable is usually not defined. In this case, the "`~/`" or "`~\`" directory shortcut is translated into "`C:\`".

If `fn`, `ft` or `fd` contains blanks, they must be surrounded with quotes or double quotes.

Examples:

```
'execio 2 diskr foo c ../usr/john 5(stem ff.'
```

places lines 5 and 6 of the `../usr/john/foo.c` file into the `ff.1` and `ff.2` variables. `ff.0` is set to `2`.

```
'execio 1 diskr foo c ../usr/john'
```

since the `../usr/john/foo.c` file was not closed by the previous `EXECIO` call, the next line (line 7) is placed into the stack.

```
'execio 2 diskw foo . ~ 7 f 90(finis stem ff.'
```

writes the contents of `ff.1` and `ff.2` into the `~/foo` file, starting at line 7, and padding those lines with blanks up to 90 columns. The `~/foo` file is closed at `EXECIO` termination. Note the use of the period (`.`) placeholder to specify that the file does not have any filetype.

```
'execio * diskr . cshrc ~(find $setenv$ stem ff.'
```

scans the `~/.cshrc` file, looking for the `setenv` string. Note the use of the period (`.`) placeholder to specify that the file does not have any filename.

```
'execio 1 diskw foo c ~(string /* NOTREACHED */'
```

adds the string `/* NOTREACHED */` at the end of the file `~/foo.c`

```
'execio * diskr profile sedit "c:\Program Files\SEDIT"(stem ff.'
```

or:

```
'execio * diskr "c:\Program Files\SEDIT profile.sedit" . .(stem
ff.'
```

reads the "`c:\Program Files\SEDIT\profile.sedit`" file.

```
'execio * PRINT "LASERJET IIISI" (stem ff.'
```

on **WINDOWS**, prints on the "`LASERJET IIISI`" printer. Quotes are mandatory when the name of the printer contains blanks.

```
'execio * PRINT * (stem ff.'
```

on **WINDOWS**, prints on the default printer.

GLOBALV - Share Variables

GLOBALV is not part of the **S/REXX** language, but for VM/CMS compatibility it is implemented as an extension of the **UNIX**, **WINDOWS** or **SEDIT** environment. Therefore, it is recommended to enclose it in quotes in order to prevent the normal **S/REXX** variable substitution.

When OPTION NOGLOBALV is in effect, the initial processing relative to the GLOBALV command does not take place, and GLOBALV will not be recognized as an extension to the **UNIX**, **WINDOWS** or **SEDIT**environment.

GLOBALV format is:

```
globalv|init
       |
       |{select{grp}}
       |
       |{select{grp}} set                    name1          {val1
name2{....}}
       |{select{grp}} sets                   name1          {val1
name2{....}}
       |{select{grp}} setp                   name1          {val1
name2{....}}
       |
       |{select{grp}} setl                   name           {val}
       |{select{grp}} setls                  name           {val}
       |{select{grp}} setsl                  name           {val}
       |{select{grp}} setlp                  name           {val}
       |{select{grp}} setpl                  name           {val}
       |
       |{select{grp}} list                   {name1 {name2 ...}}
       |{select{grp}} stack                  {name1 {name2 ...}}
       |
       |{select{grp}} put                    name1 {name2 {...}}
       |{select{grp}} puts                   name1 {name2 {...}}
       |{select{grp}} putp                   name1 {name2 {...}}
       |
       |{select{grp}} get                    {name1       {name2
...}}}
       |
       |
       |{select{grp}} purge
       |
       |grplist
       |grpstack
```

An **S/REXX** script, called the parent, can start several other **S/REXX** scripts, either by using the **UNIX** or **WINDOWS** environment, or the CALL command when OPTION NOLOAD is in effect.

The GLOBALV command lets an **S/REXX** script and its descendants share a common set of values, and also retain them for subsequent use by other parents.

GLOBALV maintains groups of variables in the GLOBALDIR/srexx.globalv directory. By default, GLOBALDIR is the home ~ directory on **UNIX**, and the C:\ directory on **WINDOWS**.

GLOBADIR can be changed by creating a GLOBALVHOME environment variable. That can be done at the start of the parent **S/REXX** script:

```
call setenv "GLOBALVDIR", "/tmp"
```

GLOBALV supports use of more than one group. This allows for grouping distinct variables that are either related or often used together.

Variables defined for the current parent **S/REXX** script are retained in the GLOBALDIR/srexx.globalv/storage.xxxx directory, where xxxx is unique to the parent script. Those required longer than a single parent existence are retained in the GLOBALDIR/srexx.globalv/session and GLOBALDIR/srexx.globalv/lasting files.

These two files and a third file (GLOBALDIR/srexx.globalv/initial) are the source from which GLOBALV creates and initializes the variable or variables in the storage.xxxx file. The initial file is normally created by the user as an alternative way of defining a large number of initial variables.

`init` allocates and initializes global variable or variables in the storage.xxxx file from the variables stored in the lasting, session, and initial files. Variables defined in the session file override identical variables defined in the lasting file, which override identical variables defined in the initial file.
GLOBALV INIT is performed automatically if not explicitly requested before other GLOBALV requests.

`select {grp}` identifies the global variable group that is the subject of this or subsequent calls. If no function is specified, GLOBALV sets the default group for subsequent calls. The default is set to the grp group or to unnamed if grp is not specified. A GLOBALV SELECT command that does specify a function affects only the group specified in the command. It has no effect on setting or resetting the default group.

`SET, SETS, SETP name1 {{val1 name2{....}}` assigns the val*i* values to the name*i* variables. SET fields are delimited by blanks and the values cannot contain any blanks. (Use the SETL command for such values.) If val*i* is not specified, the value is assumed to be an empty string. SET adds the assignments in the selected or default global variable group in storage. SETS adds or replaces the assignments in the selected or default group and appends it to the session file. SETP adds or replaces the assignments in the selected or default group and appends it to the lasting file.

`SETL, SETLS, SETSL, SETLP, SETPL name {val}`

assigns the specified literal `val` value, which may contain blanks, to the `name` variable. The first blank following the name delimits the name from the value field and is not part of the value. All characters following this blank (including any other blanks) are part of the value. If `val` is not specified, the value is assumed to be an empty string.
`SETL` adds the assignment in the selected or default global variable group in storage. `SETLS` adds the assignment in the selected or default group and appends it to the `session` file. `SETSL` is the same as `SETLS`. `SETLP` adds the assignment in the selected or default group and appends it to the lasting file. `SETPL` is the same as `SETLP`.

`LIST`

displays a list of the specified variable name or names, from the selected or default group, and their associated values. If no name is specified, all variables in the selected or default group are listed.

`STACK`

places the values associated with the specified variable name or names, from the selected or default group, LIFO in the program stack. The variable named first in the command is the first retrieved from the stack. If a variable is not found in the group, an empty string is stacked. The command has no effect if the variable name is omitted.

`PUT, PUTS, PUTP`

`PUT` assigns the value of the **S/REXX** variable specified in name as a global value in the selected or default global variable group. `PUTS` does the same, and appends the value to the `session` file. `PUTP` does the same, but appends the value to the `lasting` file.
Usage note: to be compatible with its VM/CMS implementation, the various `PUT` commands do not perform a complete stem substitution. For example:

```
tab.m = 'Value of tab.m'
tab.k = 'Value of tab.k'
k = 'M'              /* k = 'm' with OPTION MIXED */
say tab.k             /* Displays 'Value of tab.m' */
'globalv put tab.k' /* Saves 'Value of tab.k'    */
```

`GET`

assigns values from the specified or default global variable group to the specified **S/REXX** variable names. If no names are specified, `GET` does nothing.
Usage note: to be compatible with its VM/CMS implementation, `GET` does not perform a complete stem substitution. See the example above.

`PURGE`

clears the variables from the selected group in `storage.xxxx`. Used without `SELECT`, `PURGE` clears all variables in all groups.

`GRPLIST`

displays a list of all groups.

GRPSTACK
: stacks LIFO the names of all groups. An empty string delimiter indicates the end of the stacked names.

The GLOBALV return codes have the following meanings:

0	Success.
1000024	No Function Specified on GLOBALV command.
1100000	I/O Error reading GLOBALV type files.
1500000	Invalid HOME or GLOBALVHOME.
1501000	I/O Error on initial.
1502000	I/O Error on lasting.
1503000	I/O Error on session.
1504000	I/O Error on storage.
1000004	Invalid argument.
1505000	Unable to lock file.

Examples:

```
'globalv select grp1 set var1 val_var1 var2 val_var2 var3'
```

places the 'val_vari' strings into the grp1 group vari variables. The previous default group is not changed.

```
'globalv select grp1'
```

sets grp1 as the default group.

```
'globalv get var2'
```

retrieves into the **S/REXX** var2 variable the previously saved val_var2 value.

LOWER - Lower Case Translation

LOWER {varlist}	translates the contents of the variables described by varlist into lowercase.

It is not an error to include a non-initialized variable into varlist.

Example: `lower a b`

MAKEBUF - Create Stack

MAKEBUF is not part of the **S/REXX** language, but for VM/CMS compatibility it is implemented as an extension of the **UNIX** or **WINDOWS** environment. Therefore, it is recommended to enclose it in quotes in order to prevent the normal **S/REXX** variable substitution.

MAKEBUF format is:

MAKEBUF	creates a new stack buffer.

After MAKEBUF is executed, the rc variable contains the number of the newly created stack buffer.

Note: To prevent an error message from being displayed when the MAKEBUF command is executed, issue a TRACE OFF command first.

See Also: DESBUF, DROPBUF, SENTRIES

MAKEDIR - Create Directory

`res = MKDIR(directory)` creates a new directory in the file system.

On Windows, unlike with other REXX implementation, if the specified path contains multiple levels of directories that do not exist, the function will create them.

`MKDIR` returns the full created directory name in case of success, or an error message if it fails.

The special variable `RC` (`rc` if `option mixed` is in effect) is set according to this:

- 0 Success
- 2 Cannot create a file when that file already exists.
- -1 Unable to generate directory name, bad syntax.

OPTION - Set Various Options

The `OPTION` instruction offers the following syntax:

```
OPTION   MIXED|UPPER|LOWER
         SETENV|UNSETENV
         LOAD|NOLOAD
         GLOBALV|NOGLOBALV
```

Initial value: `UPPER UNSETENV LOAD GLOBALV`

By default, the REXX language is case insensitive. All variables, labels and subroutines are translated into uppercase before usage. Uninitialized variables return their name in upper-case.

When `OPTION LOWER` is in effect, all variables, labels and subroutines are translated into lowercase before usage. Uninitialized variables return their name in lower case.

When `OPTION MIXED` is in effect, capitalization is respected. For example, `Var` and `var` are two different variables.

When `OPTION SETENV` is in effect, variables starting with a dollar (`$`) sign are treated as **UNIX** or **WINDOWS** environment variables. In addition, `$?var` returns 1 (true) when the `var` environment variable exists.

Example:

```
OPTION MIXED SETENV

$PATH = '.:'$PATH
Aa = 'MyProg'
aa = 'param1'
call Proc Aa, aa
exit

Proc:procedure
parse arg v1, v2
v1 v2    /* Executes "MyProg param1", using a search   */
return   /* path starting with the "." current directory */
```

Although Proc is a procedure, $PATH, being an environment variable, has the same value in Proc as in the main program.

OPTION NOLOAD prevents **S/REXX** from loading dynamically external routines.

When OPTION NOGLOBALV is in effect, the initial processing relative to the GLOBALV command does not take place, and GLOBALV will not be recognized as an extension to the **UNIX**, **WINDOWS** or **SEDIT** environment.

Notes: the OPTION statement is processed only at the initial program scanning. Once the program is started, OPTION is ignored. Its settings cannot be changed during execution.
S/REXX programs written in MIXED, LOWER or SETENV mode may be incompatible with usual REXX implementation.
Within **SEDIT**, OPTION GLOBALV|NOGLOBALV is taken in account only within the first **S/REXX** macro called, typically the profile.

PARSE - Parsing

For IBM compatibility, **S/REXX** has added the following extensions to the PARSE verb:

PARSE {UPPER} EXTERNAL {template}

is a synonym of the PARSE {UPPER} LINEIN {template} instruction.

PARSE {UPPER} NUMERIC {template}

The current numeric controls DIGITS FUZZ FORM are parsed with template.

Example:

```
parse numeric di fu fo
/* di receives 9 */
/* fu receives 0 */
/* fo receives SCIENTIFIC */
```

SAYN - Terminal Output

`SAYN {expr}` displays `expr` without appending a newline character at the end.

This instruction is similar to the `SAY` instruction. However, it allows the user to type a reply on the same line `expr` has been displayed.

Example:

```
sayn "Do you really want to exit ? "
pull rep .
```

will lead to the following dialog:

```
Do you really want to exit ? no
```

SAYR - Terminal Output

`SAYR {expr}` displays `expr` without appending a newline character at the end, and starting on the first column.

This instruction is similar to the `SAY` instruction. However, it allows for example to display a countdown that will not create a new line at each iteration.

Example:

```
do i = 15 to 1 by -1
  sayr left(i, 5)
  call sleep 1
end
say 'Done'
```

Note the use of the `LEFT()` function to assure a constant width for the displayed string. Without it, "`SAYR 9`" used after "`SAYR 10`" would display "`90`".

SAYX - Displayed Execution

`SAYX {expr}`	displays `expr` before passing it to the default environment.

`SAYX expr` is equivalent to the statement `SAY expr` followed by the statement `expr`.

SENTRIES - Query Stack

`SENTRIES` is not part of the **S/REXX** language, but for VM/CMS compatibility it is implemented as an extension of the **UNIX** or **WINDOWS** environment. Therefore, it is recommended to enclose it in quotes in order to prevent the normal **S/REXX** variable substitution.

`SENTRIES` format is:

`SENTRIES`	sets the `rc` variable to the number of entries in the current stack buffer.

Notes: To prevent an error message from being displayed when the `SENTRIES` command is executed, issue a `TRACE OFF` command before.
Using the `QUEUED()` built-in function is a more efficient way to query the stack.

See Also: `DESBUF`, `DROPBUF`, `MAKEBUF`

TRACE - Debug Setting

S/REXX adds the following extensions to the TRACE verb:

TRACE ! inhibits command mode execution.

Commands passed to external environments such as UNIX, WINDOWS or SEDIT will be displayed, but not executed.

As each command is displayed, the RC REXX variable is set to 0.

Note that commands entered manually in interactive debug mode are always executed.

Using the TRACE ! command a second time switches ON the command execution.

Example: TRACE ?!i switches interactive debug mode ON, inhibits command execution, and displays intermediate results.

Warning: When running **S/REXX** within **SEDIT** in a windowing environment such as **OPEN WINDOWS** or **MOTIF**, all input and output operations are redirected to the window **SEDIT** was started from.
In order to allow the input operations to execute properly, **SEDIT** ***must run in the foreground.***

Starting **SEDIT** in the background with a command like "xed &" or "sedit" will make **SEDIT** hang every time a TRACE ? or a PULL instruction is executed.

When running **S/REXX** within **SEDIT** on **WINDOWS**, all input and output operations are redirected to a console window created by **S/REXX**.This console window can be removed by the Special-Close Console menubar item.

TRACE x starts the RXD graphical debugger.

See Using the RXD Debugger on page 683 for more information.

Extended TRACE output

S/REXX displays more information during a TRACE output.

Consider the following example:

```
trace i

a = 2
str = "This is a"
id  = 1
tab.a = substr(str||" string", id+1, 2)
```

The usual REXX implementation would display the following cryptic output:

```
5 *-* a = 2
  >L>   "2"
6 *-* str = "This is a"
  >L>   "This is a"
7 *-* id = 1
  >L>   "1"
8 *-* tab.a = substr(str || " string",id + 1,2)
  >V>   "This is a"
  >L>   " string"
  >O>   "This is a string"
  >V>   "1"
  >L>   "1"
  >O>   "2"
  >L>   "2"
  >F>   "hi"
```

S/REXX will display:

```
5 *-* a = 2
  >>> A <-- "2"

6 *-* str = "This is a"
  >>> STR <-- "This is a"

7 *-* id  = 1
  >>> ID <-- "1"

8 *-* tab.a = substr(str||" string", id+1, 2)
  >C> TAB.A --> "TAB.2"
  >V> STR --> "This is a"
  >O> "This is a" || " string" --> "This is a string"
  >V> ID --> "1"
  >O> "1" + "1" --> "2"
  >F> SUBSTR() --> "hi"
  >>> TAB.2 <-- "hi"
```

TRACE y — starts the RXD graphical debugger next time the user sends an interrupt by typing Control-C (**S/REXX** standalone scripts only).

UPPER - Upper Case Translation

`UPPER {varlist}`	translates the contents of the variables described by `varlist` into uppercase.

It is not an error to include a non-initialized variable into `varlist`.

Example:
```
upper a b
```

UPPERW - Word Upper Case Translation

`UPPERW {varlist}`	translates the contents of the variables described by `varlist` into uppercase. Only the first letter of every word will be translated

It is not an error to include a non-initialized variable into `varlist`.

Example:
```
a = 'this is a sentence'
upperw a /* a becomes "This Is A Sentence" */
```

S/REXX New or Extended Built-in Functions

This chapter describes modified or new built-in functions not described in Cowlishaw's book "The REXX Language".

ACOS - Arc Cosine

`ACOS(arg)` returns the radian arc cosine value of the argument `arg` in the range 0 to π.

ActivateKeyboardLayout - Switches to an input locale identifier (Windows Only)

`ActivateKeyboardLayout(LocalName)` loads and activates the `LocalName` input locale identifier.

`LocaName` is a string similar to the "Win API Language Identifier Constants and Strings" defined in the following page:

`http://msdn.microsoft.com/en-us/library/windows/desktop/dd318693%28v=vs.85%29.aspx`

`Examples:`

```
call ActivateKeyboardLayout '00000409'
                 /* Activates the English keyboard */

call ActivateKeyboardLayout '0000080c'
                /* Activates the French keyboard  */

call ActivateKeyboardLayout '0000040D'
                /* Activates the Hebrew keyboard  */
```

`ActivateKeyboardLayout` returns the previous input locale identifier name in case of success, and -1 in case of failure.

`ActivateKeyboardLayout(0)` returns the current locale without doing any changes.

ARCH - Get Hardware Information

`ARCH()` returns a hardware dependent string described in Appendix B: Hardware String on page 707.

ARG - Returns Argument String

In addition to the standard `arg()` REXX features:

`arg(0)` returns the name of the currently executed **S/REXX** program.

`arg(N, 'c')` returns the `Nth` argument passed to the main REXX program using C-like parsing.

`arg(N,'x')` returns the `Nth` argument passed to the main REXX program using C-like parsing when the caller is the main REXX program, or `arg(N)` when the caller is a subroutine. To be used by a program that can be either used in standalone mode, or as a dynamically loaded subroutine.

Consider the following `test` program:

```
#! /home/xed/srexx
say "Usual form: "arg(1)
Say "C-Like form: "arg(2, 'C')
```

Typing (using an UNIX shell):

```
test '1 2' 3
```

would display:

```
Usual form: 1 2 3 4
C-Like form: 3
```

This parsing is useful to handle arguments containing embedded spaces. Using `PARSE ARG` would not allow to distinguish for example between using "`test '1 2' 3`" and "`test 1 '2 3'`".

ASIN - Arc Sine

`ASIN(arg)` returns the radian arc sine value of the argument `arg` in the range -π/2 to π/2.

ASKCONS - Makes GUI WSREXX console wait or close

```
ASKCONS("ON"|"OFF")
```

If `ASKCONS` is set to `OFF`, an output windows open for example with a `SAY` statement will close automatically when the program ends.

`OFF` is the default value.

```
Examples:call ASKCONS "ON"
         call ASKCONS "OFF"
```

ATAN - Arc Tangent

`ATAN(arg)` returns the radian arc tangent value of the argument `arg` in the range -π/2 to π/2.

CHANGE - Change String

`CHANGE(str, old, new{, icase})` changes the `old` string with the `new` string within `str`, and returns the modified string.

When `icase` is set to 1, `old` matching is done ignoring case.

CHARIN - Read Character Input Stream

In addition to the standard `CHARIN()` REXX features, `CHARIN(,1,NN)` returns `NN` characters read from the standard input without displaying them.

```
Example:sayn 'Enter a 3 characters password: '
        pass = charin(,1,3)
        say
        say 'The password is :"'pass'"'
        say '-----------------'
        sayn 'Enter a 3 characters password: '
        pass = charin(,,3)
        say
        say 'The password is :"'pass'"'
```

When reading the standard input, `CHARIN()` sets the special `RC` REXX variable to `0` in case of success, and to the '`EOF`' uppercase string when the standard input is no longer available. In that case, `CHARIN()` returns an empty string. This allows the use of an **S/REXX** program as a standard input filter.

Consider the following `test` program:

```
#! /home/xed/srexx
do forever
  val = charin()
  if rc = 'EOF' then exit
  say '"'upper(val)'"'
end
```

Typing (using an UNIX shell):

```
echo abc | test
```

would display:

```
"A"
"B"
"C"
"
"
```

CHDIR - Change Directory

`CHDIR(dir)` makes `dir` the current directory.

The user may use the ~ .. directory meta characters to specify a location.

```
Examples:call chdir
                        makes the home directory the
       current directory.

       call chdir '~'
                        has the same effect.

       call chdir '~/foo'
                        if the home directory is
       /users/john,
                        makes/users/john/foo the
       current
                        directory.

       call chdir '../foo'
                        if the current directory is
       /users/john,
                        makes /users/foo the current
       directory.
```

Notes: The directory meta characters must be enclosed in quotes. The `CD` instruction requires less typing for the same purpose. On **WINDOWS** systems, the HOME environment variable is usually not defined. In this case, the "~/" or "~\" directory shortcut is translated into "C:\".

CLEAR or CLS - Clear the Screen

`CLEAR()` and `CLS()` clear the screen when possible.

These functions return `0` in case of success, or an error message in case of failure.

CLOSE_CONS - Close a Console

`CLOSE_CONS()`

`CLOSE_CONS` is specific to the `wsrexx.exe` **WINDOWS S/REXX** version.

`CLOSE_CONS` closes the console opened by `OPEN_CONS`().

CONCAT - Concatenate Files

```
CONCAT(org, dest)
```

CONCAT appends the files described by the org string to the dest file.

org — is a string which identifies the filenames of the files to be used as data input.

dest — CONCAT read each input file in sequence, and appends their content to the dest file. If dest does not exists, it will be created first.

```
Example:call concat "file1 c:\file2", "e:\result"
```

COS - Cosine

COS(ang) returns the cosine value of the radian argument ang.

COMMA - Add commas to a numerical string

```
COMMA(string)
```

If string is of a greater lenght than 6, will add commas every third position.

```
Example:converts "23456789" into "23,456,789"
```

CP or COPY - Copy Files

```
CP(string{, DELTATS})
COPY(string{, DELTATS})
```

string — is a string which supports 3 formats:

"file1 file2"{, DELTATS}
: CP copies the contents of file1 onto file2.

"file1 file2 ... directory"{, DELTATS}
: Each filename is copied to the indicated directory; the basename of the copy corresponds to that of the original. The destination directory must already exist for the copy to succeed.

"directory_org directory_des"{, DELTATS}
: The directory directory_des must not exist unless DELTATS is provided. The directory_org directory is recursively copied to directory_des.

CP preserves symbolic links.

If DELTATS is not provided, existing destination files are always overwritten.

If DELTATS is provided, CP() will overwrite files only if the size of the destination is different from the size of the source, or if the modification time of the source is greater than DELTATS seconds than the modification time of the destination.

CP sets up two variables:

RC — is set to 0 in the case of a success, or to 1 in the case of a failure, on any file to copy.

RESULT — is set to a string such as:

```
123 files copied
```

in the case of a success, or to a string with an error message indicating the cause of the failure.

```
Examples:
       call cp "test.srx test2.srx"
       call cp "test1 test2 test3 .\backup"
       call cp "c:\prog c:\prog.back"
       call cp "c:\prog c:\prog.back",0
          /* Will copy only modified or new files */
```

CPUID - Workstation CPU Identifier

```
CPUID({'n'})
```

CPUID() returns the cpu identifier as an integer. CPUID('n') returns the cpu identifier in native form, which is hardware dependent. For example, on SUNs stations, CPUID('n') returns an hexadecimal number.

CPUUSAGE - CPU load (Windows only)

```
CPUUSAGE(SampleTime)
```

CPUUSAGE() waits SampleTime ms, and returns the cpu average load in %.

CSH - Pass UNIX Command

CSH(cmd{, stem}) executes the **UNIX** command cmd using the C shell csh.

When stem is not provided, the cmd output will be placed in the stack. The user will be able to read it using the parse pull command.
The queued() function may be used to return the number of lines in the stack.

When stem is provided, it must be a valid REXX name. It will be filled with the cmd output.

```
Example:call csh "df", tab
       tab.0 will contain the number of lines sent back
       by df.
       tab.1, tab.2, ... will contain the df output line
       by line.
```

See also the EXEC(), UNIX(), KSH() and TCSH() functions.

CUSERID, USERID - Get Userid

`CUSERID(parm)` returns the character login name of the user.

On **UNIX** systems, `parm` may be one of the following:

`Login` returns the original login name, ignoring the use of the `su` **UNIX** command. This is the default when `parm` is omitted.

`Real` returns the effective login name, which can be modified by the use of the `su` **UNIX** command.

```
Example:if userid('r') ~= 'root' then
        { say 'I need to be root.'
          exit 3
         }
```

CVTAILS - Get Active Stems Tails

`CWD("str")` returns the tails of the all stem variables derived from `str`.

```
Example:tab.1 = 1
       tab.b = 3
       say '"'cvtails("tab")'"'
          /* Displays "1 b" */
```

CWD, GETCWD, GETWD - Get Current Directory

`CWD()` returns the current directory.

C2O - Character to Octal

`C2O(str)`

`C2O` converts the encoding of the `str` string to its 3-digit octal representation. If `str` is a null string, a null string is returned.

```
Examples:say C2O('123')  /* Displays 061062063 */
       say '"'C2O('')'"' /* Displays "" */
```

DATE - Get Current Date

`DATE('J')` returns the date in the `YYDDD` format.

```
Example:say date('j')    /* 92012   Perhaps */
```

`DATE(nn)` where `nn` is a whole number returns the date in `YYYY/MM/DD` format, considering that `nn` is the number of days elapsed since the base date 1 Jan 0001. This reverts the behavior of the `DATE('b')` function.

```
Example:date(date('b')+7)    /* Same day next week date */
```

`DATE('L')` returns the date in the `dd Month yyyy` format.

`DATE (parm, "dd/mm/yyyy")`
returns the value coresponding to the `dd/mm/yyyy` date instead of using the current

day date.

`DATE('e4')` returns the date in the `dd/mm/yyyy` format.

DEL or RM - Delete Files

```
DEL(ff)
RM(ff)
```

`RM()` and `DEL()` remove the `ff` files, and returns the full path names of the deleted files.

`ff` may include the ~ .. **UNIX** or **WINDOWS** file meta characters. If a filename contains blanks, it must be surrounded with quotes or double quotes.

When `RM` fails, it sets the `rc` variable to a non-zero value, and returns an error message, such as:

```
RM() error: File does not exist
```

```
Examples:say rm("~/foo ~/test")
          could print: /user/john/foo /usr/john/test
        call rm '"/user/file with blanks"'
        call del "'c:\Program Files\log'"
```

DIR or LS - List Files

```
LS({pat{, stem{, case}}})
DIR({pat{, stem{, case}}})
```

`LS` searches for the files matching the `pat` pattern string.

The `RESULT` variable will be set to the number of matches.

`pat` describes the files to match. `pat` may start with a directory indicator such as "`/home`" or "`c:\Program Files\`". Within `pat`, a "`*`" character matches any string and a "`?`" character matches any character.

`stem` when `stem` is provided, it must be a valid REXX name.
`RESULT` and `stem.0` will contain the number of matching filenames.
`stem.1`, `stem.2`, ... will contain the matching filenames.
When `stem` is not provided, the matching filenames will be queued.

`case` when `case` is not provided, it defaults to '`i`' on **WINDOWS** systems, and to '`r`' on **UNIX** systems.
When case is set to '`i`', `LS` ignores the capitalization when matching filenames.
When case is set to '`r`', `LS` respects the capitalization.

```
Example:call ls 'c:\test\*.f'

        call dir 'test???.bat', tab, 'i'
        do i = 1 to tab.0
             say tab.i   /* Could print test001.bat*/
        end i
```

DY_ASCL - Add a Set of Strings to a Scrolled List

```
DY_ASCL(handle, nt_scl, stem, {l_stem}, {pos})
```

`handle`	is the number returned by the `DY_END()` function.
`nt_scl`	is the number returned by the `DY_SCL()` function.
`stem`	is a valid REXX symbol. The derived stem values (`stem.1`, `stem.2`, etc...) will be used to fill the list.
`l_stem`	is the length of the list of strings. When not provided, `stem.0` will be used instead.
`pos`	is the position to insert the strings. When not provided, or when set to 0, the strings will be added at the end of the list.

DY_BEEP - Sound the Alarm

```
CALL DY_BEEP
```

DY_BUTTON - Make a Dialog Button Item

```
nn = DY_BUTTON(x, y, str{, Rb, Gb, Bb, Rf, Gf, Bf})
```

`nn`	is the item number. When the user clicks on the button, the dialog box callback, as defined by the `DY_END()` function, is called with its second argument set to the string `B`*`nn`* (such as `B1`, `B2`, etc...).
`x`	is the item column position. When `x` is set to 1, the item is displayed on the left of the dialog box.
`y`	is the dialog box line position. When `y` is set to 1, the item is displayed on the top of the dialog box.
`str`	is the string displayed within the button.
`Rb, Gb, Bb`	are the optional background color RGB values. These are integers between `0` and `255`. The default **MOTIF** background color can be set with the `dialog*button*background` X11 resource.
`Rf, Gf, Bf`	are the optional foreground color RGB values. These are integers between `0` and `255`. The default **MOTIF** foreground color can be set with the `dialog*button*foreground` X11 resource.
Note:	Individually colored items are not supported by the `xsrexx` OpenLook **S/REXX** version.

DY_BUTTON_COLOR - Change a Button Dialog Item Color

```
DY_BUTTON_COLOR(handle, nn, Rb, Gb, Bb, Rf, Gf, Bf})
```

`handle` is the number returned by the `DY_END()` function.

`nn` is the item number returned by the `DY_BUTTON()` function.

`Rb, Gb, Bb` are the background color RGB values. These are integers between `0` and `255`. The default **MOTIF** background color can be set with the `dialog*button*background` X11 resource.

`Rf, Gf, Bf` are the foreground color RGB values. These are integers between `0` and `255`. The default **MOTIF** foreground color can be set with the `dialog*button*foreground` X11 resource.

Note: Individually colored items are not supported by the `xsrexx` OpenLook **S/REXX** version.

DY_CH - Make a Choice Dialog Item

```
nt_ch = DY_CH({txt}, x_txt, y_txt,txt1, txt2, ....)
```

`nt_ch` is the item number to be used by the `DY_VCH()` function.

`txt` is the optional global label to be displayed.

`x_txt` is the global label column position. When `x_txt` is set to 1, the label is displayed on the left of the dialog box.

`y_txt` is the global label line position. When `y_txt` is set to 1, the label is displayed on the top of the dialog box.

`txt`*`i`* is the label of the sub-item `i`.

Example:

```
call                                    dy_start()
nt_ch = dy_ch("Host:", 2, 1, "host0", "host1")
hnd   =   dy_end("#",   0,   0,   25,   6,   "n")
dy_map(hnd)
```

displays:

DY_CH_COLOR - Change a Choice Dialog Item Color

`DY_CH_COLOR(handle, nt_ch, Rb, Gb, Bb, Rf, Gf, Bf})`

`handle` is the number returned by the `DY_END()` function.

`nt_ch` is the item number returned by the `DY_CH()` function.

`Rb, Gb, Bb` are the background color RGB values. These are integers between `0` and `255`. The default **MOTIF** background color can be set with the `dialog*choice*background` X11 resource.

`Rf, Gf, Bf` are the foreground color RGB values. These are integers between `0` and `255`. The default **MOTIF** foreground color can be set with the `dialog*choice*foreground` X11 resource.

Note: Individually colored items are not supported by the `xsrexx` OpenLook **S/REXX** version.

DY_DESTROY - Destroy a Dialog Box

`DY_DESTROY(handle)` destroys the dialog box `handle`.

`handle` is the number returned by the `DY_END()` function.

`DY_DESTROY()` must not be called inside the REXX subroutine callback defined by the `dy_start()` function call.

DY_DSCL - Remove a Set of Strings from a Scrolled List

`DY_DSCL(handle, nt_scl, pos, nb)`

`handle` is the number returned by the `DY_END()` function.

`nt_scl` is the number returned by the `DY_SCL()` function.

`pos` is the position of the first string to be removed.

`nb` is the number of strings to remove.

DY_END - End a Dialog Box

```
handle = DY_END("callback", x, y, ww, hh, "Grab"|"Ngrab"
                {, Rb, Gb, Bb})
```

DY_END terminates the dialog box started with DY_START.

handle — is the dialog box number to be used with the various DY_XXX() functions.

callback — when used in an **SEDIT** macro, callback is the **SEDIT** macro called at every user action. See S/REXX Dialog Management within SEDIT on page 643 for more details.

when used in a stand-alone REXX program, callback is the name of a subroutine to be called at every user action. See S/REXX Dialog Management on page 639 for more details.

callback receives two three arguments:

handle		the dialog box handle.
reason	B*i*	Button *i*.
	F*i*	Top function key *i*.
	L*i*	Left function key *i*.
	R*i*	Right function key *i*.
	^*cc*	Control + *cc* character.
	return	Return or Enter key.
	focus	The mouse entered the dialog box.
	SC*i*	Simple click on row scb of scrolled list *i*.
	DSC*i*	Double click on row scb of scrolled list *i*.
scb		The row when clicking on a scrolled list.

x — is the dialog box column position. When x is set to 0, the dialog box is horizontally centered regarding the **SEDIT** window position.

y — is the dialog box line position. When y is set to 0, the dialog box is vertically centered regarding the **SEDIT** window position.

ww — is the dialog box width.

hh — is the dialog box height.

Grab — creates a transient dialog box. The user must enter a reply before being able to use **SEDIT** again. The dialog box is unmapped when the reply is entered.

Nograb — creates a non-transient dialog box. The box stays mapped until the user unmaps it explicitly.

Rb, Gb, Bb — are the background color RGB values. These are integers between 0 and 255. The default **MOTIF** background color can be set with the dialog*background X11 resource.

DY_FOCUS - Give a Dialog Input Item the Keyboard Focus

```
DY_FOCUS(handle, nn)
```

`handle` is the number returned by the `DY_END()` function.

`nn` is the number returned by the `DY_INPUT()` function.

DY_FONT - Set the Dialog Font

```
DY_FONT(fontname)
```

`DY_FONT` makes the various dialog items use the `fontname` font.

On Windows, the syntax of fontname is `"Name%Modifier%Height%Width".`

Notes: When not specified, `Modifier` defaults to `Regular`, `Height` to `9` and `Width` to `15`. If a font does not support the specified size, **S/REXX** will chose the closest. The modifier is localization specific. `Bold` used with an English version of Windows will have to be replaced with `Gras` with a French one.

Example:
```
call dy_font "Courier new%Regular%9%15"
```

DY_HEADER - Set the Dialog Box Header

```
DY_HEADER(handle, str)
```

`handle` is the number returned by the `DY_END()` function.

`str` is the string to be displayed on top of the dialog box.

DY_INPUT - Make a Dialog Input Item

```
nn = DY_INPUT(x, y, len, {str}{, Rb, Gb, Bb, Rf, Gf, Bf})
```

nn	is the item number to be used by the DY_VINPUT() and the DY_SINPUT() functions.
x	is the item column position. When x is set to 1, the item is displayed on the left of the dialog box.
y	is the dialog box line position. When y is set to 1, the item is displayed on the top of the dialog box.
len	is the item length.
str	when specified, initializes the input item.
Rb, Gb, Bb	are the optional background color RGB values. These are integers between 0 and 255. The default **MOTIF** background color can be set with the dialog*input*background X11 resource.
Rf, Gf, Bf	are the optional foreground color RGB values. These are integers between 0 and 255. The default **MOTIF** foreground color can be set with the dialog*input*foreground X11 resource.
Note:	Individually colored items are not supported by the xsrexx OpenLook **S/REXX** version.

DY_INPUT_COLOR - Change an Input Dialog Item Color

```
DY_INPUT_COLOR(handle, nn, Rb, Gb, Bb, Rf, Gf, Bf})
```

handle	is the number returned by the DY_END() function.
nn	is the item number returned by the DY_INPUT() function.
Rb, Gb, Bb	are the background color RGB values. These are integers between 0 and 255. The default **MOTIF** background color can be set with the dialog*input*background X11 resource.
Rf, Gf, Bf	are the foreground color RGB values. These are integers between 0 and 255. The default **MOTIF** foreground color can be set with the dialog*input*foreground X11 resource.
Note:	Individually colored items are not supported by the xsrexx OpenLook **S/REXX** version.

DY_LABEL - Make a Dialog Label Item

```
nn = DY_LABEL(x, y, str{, Rb, Gb, Bb, Rf, Gf, Bf})
```

`x`	is the item column position. When `x` is set to 1, the item is displayed on the left of the dialog box.
`y`	is the dialog box line position. When `y` is set to 1, the item is displayed on the top of the dialog box.
`str`	is the string displayed.
`Rb, Gb, Bb`	are the optional background color RGB values. These are integers between `0` and `255`. The default **MOTIF** background color can be set with the `dialog*label*background` X11 resource.
`Rf, Gf, Bf`	are the optional foreground color RGB values. These are integers between `0` and `255`. The default **MOTIF** foreground color can be set with the `dialog*label*foreground` X11 resource.
Note:	Individually colored items are not supported by the `xsrexx` OpenLook **S/REXX** version.

DY_LABEL_COLOR - Change a Label Dialog Item Color

```
DY_LABEL_COLOR(handle, nn, Rb, Gb, Bb, Rf, Gf, Bf})
```

`handle`	is the number returned by the `DY_END()` function.
`nn`	is the item number returned by the `DY_LABEL()` function.
`Rb, Gb, Bb`	are the background color RGB values. These are integers between `0` and `255`. The default **MOTIF** background color can be set with the `dialog*label*background` X11 resource.
`Rf, Gf, Bf`	are the foreground color RGB values. These are integers between `0` and `255`. The default **MOTIF** foreground color can be set with the `dialog*label*foreground` X11 resource.
Note:	Individually colored items are not supported by the `xsrexx` OpenLook **S/REXX** version.

DY_MAP - Map a Dialog Box

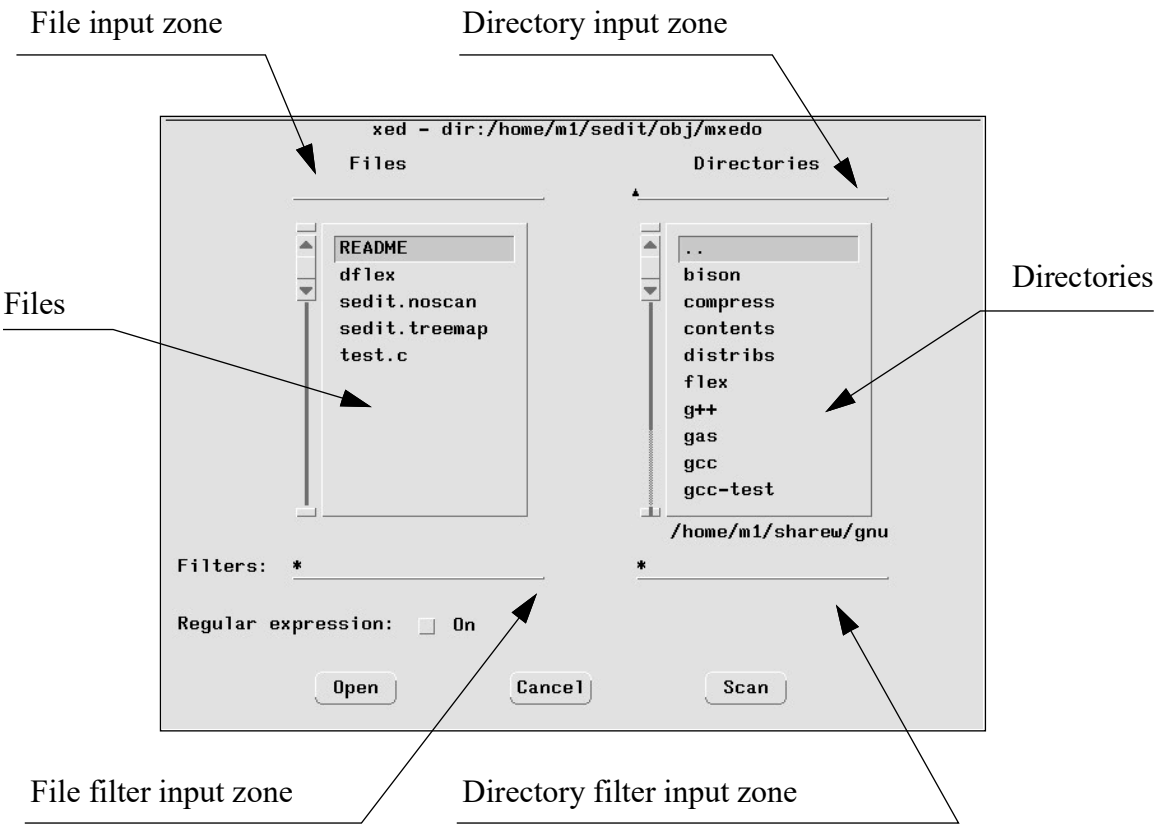
`DY_MAP(handle)` makes the `handle` dialog box visible.

`handle`	is the number returned by the `DY_END()` function.

DY_OPEN (UNIX) - Displays the Contents of a Directory

```
rc = DY_OPEN(x, y, ht, stem, {dir}, {filt_f}, {filt_d},
             {label}, {lg_reg}{, Rb, Gb, Bb})
```

DY_OPEN displays the following dialog box:



rc	is the return code. It will be set to 0 when the requested directory has been successfully scanned.
x	is the dialog box column position. When x is set to 0, the dialog box is horizontally centered regarding the screen when **S/REXX** is used as a **UNIX** script, or centered regarding the **SEDIT** window position when **S/REXX** is used as an **SEDIT** macro.
y	is the dialog box line position. When y is set to 0, the dialog box is vertically centered regarding the screen when **S/REXX** is used as a **UNIX** script, or centered regarding the **SEDIT** window position when **S/REXX** is used as an **SEDIT** macro.
ht	is the height of the file and directories scrolling lists.
stem	must be a valid **S/REXX** variable name. stem.0 will contain the number of selected files. stem.1, stem.2, etc..., will contain the names of the selected files.
dir	is the initial directory to be scanned. When omitted, the current directory will be scanned.

`filt_f` is the filter used to select which files are to be displayed. When omitted, it defaults to `*`, which means any file. When the regular expression switch is off, `*` means any set of characters. `a*df*` would for example match `a_123.dfte`.
Several filters can be specified by using a ; separator.
Example: `*.c;*.h`

`filt_d` is the filter used to select which directories are to be displayed.

`label` is the label to be displayed on the top of the dialog box.

`lg_reg` when set to 1, toggles on the regular expression search. When omitted, or set to 0, toggles off the regular expression search.

`Rb, Gb, Bb` are the background color RGB values. These are integers between `0` and `255`. The default **MOTIF** background color can be set with the `dialog*background` X11 resource.

A regular expression is a character string used to describe, in an extended way, a string to be matched. It uses special characters, called `meta` characters to describe the match to be done.

The `meta` characters are the following:

`^` matches only at the beginning of a line.

`$` matches only at the end of a line.

`\<` matches only at the beginning of a word.

`\>` matches only at the end of a word.

`.` matches any single character.

`[]` matches any character in a character class.

`\(` delimits the start of a subexpression. It is available for `VI` compatibility, but has no special meaning.

`\)` delimits the end of a subexpression. It is available for `VI` compatibility, but has no special meaning.

`*` repeats the preceding 0 or more times.

If you want to use a `meta` character as an ordinary character, you must precede it with a backslash (`\`) character.

Examples:

```
^af
```

matches the string "`af`" only at the beginning of a line.

```
af$
```

matches the string "`af`" only at the end of a line.

```
dc.......is
```

matches the string "dc" followed by any 7 characters followed by the string "is".

```
[A-Z][a-z]
```

[A-Z] means any character from A to Z.
[a-z] means any character from a to z.

The whole expression above matches any alphabetical string starting with a capital letter.

The string "File001" will be matched. "F001" will not.

Note that the meta characters are not treated when enclosed in brackets:

```
[.$]
```

matches the string ".$". Without brackets, the user should type:

```
\.\$
```

for the same match.

Supported User Actions

The user can perform the following actions:

- Clicking once with the left mouse button on a displayed file selects this file, and displays its name in the file input zone.
- With the **MOTIF** version, holding the Shift key down while clicking extends the selection to several contiguous files. Holding the Control key down extends the selection to another, possibly non-contiguous, file.
- Double clicking on a file makes DY_OPEN return. stem will contain the name of all the selected files.
- Clicking once with the left mouse button upon a displayed directory selects this directory, and displays its name in the directory input zone.
- Double clicking on a displayed directory initiates a scan of the directory.
- Using the Return or Enter key when the keyboard focus is in the File input zone makes DY_OPEN return. stem will contain the name of the file displayed in that File input zone.
- Using the Return or Enter key when the keyboard focus is in the Directory input zone initiates a scan of the directory displayed in that zone. When this directory name does not start with a / or a ~, it will be considered as a subdirectory of the previously scanned directory.
- Using the Return or Enter key when the keyboard focus is in the File or Directory filter zone initiates a new scan of the previously scanned directory.
- Clicking on the OPEN button makes DY_OPEN return. stem will contain the name of all the selected files.
- Clicking on the CANCEL button makes DY_OPEN return. stem.0 will contain

the 0 string.

- Clicking on the SCAN button initiates a new scan of the previously scanned directory.

The following /home/xed/xmac/dy_open.sedit macro is used by the **SEDIT** text editor to open new files:

```
/*
 * dy_open: opens a set of new files
 *
 *  Syntax:  DY_OPEN  {dir}, {filt-file}, {filt-dir}, {lg_reg}
 *
 *   dir:   The directory to scan, or //last to open the last directory
 *          scanned
 */
signal on novalue
option mixed setenv

parse arg dir, ff, fd, reg

if dir = '' then dir = cwd()
else
 if dir = '//last' then
  { if $?last_dy_open_scanned then dir = $last_dy_open_scanned
    else                           dir = '.'
  }

if ff = '' then ff = '*'
if fd = '' then fd = '*'
if reg = '' then reg = 0

trace off
call dy_open 0, 0, 10, sfi, dir, ff, fd, "xed - dir:"cwd(), reg

if result = 0 then
 { do i = 1 to sfi.0
    'xed 'sfi.i
   end i
   if sfi.0 ~= 0 then $last_dy_open_scanned = fd(sfi.1)
 }
else 'prompt Unable to scan 'dir
```

DY_FOLDER (WINDOWS) - Browses for a Folder

```
dir = DY_FOLDER({dir_start})
```

DY_FOLDER displays an extended **WINDOWS** dialog box, similar to the Open File one, allowing the user to browse for a folder.

dir is the user selected folder, or an empty string if the user pressed the Cancel button.

dir_start is an optional parameter specifyng the initially displayed folder.

DY_OPEN (WINDOWS) - Displays the Contents of a Directory

```
rc = DY_OPEN(x, y, ht, stem, {dir}, {filt_f}, {filt_d},
             {label}, {lg_reg})
```

DY_OPEN displays the standard **WINDOWS** dialog box.

rc	is the return code. It will be set to 0 when the requested directory has been successfully scanned.
x	unused.
y	unused.
ht	unused.
stem	must be a valid **S/REXX** variable name. stem.0 will contain the number of selected files. stem.1, stem.2, etc..., will contain the names of the selected files.
dir	is the initial directory to be scanned. When omitted, the current directory will be scanned.
filt_f	is the filter used to select which files are to be displayed. When omitted, it defaults to *, which means any file. Several filters can be specified by using a ; separator. Example: *.c;*.h
filt_d	unused.
label	is the label to be displayed on the top of the dialog box.
lg_reg	unused.

DY_PRINTER - Set the Default Printer

```
rr = DY_PRINTER()
```

On **WINDOWS** systems, DY_PRINTER displays the standard PRINT dialog box. The settings entered by the user will be used the next time this dialog box is displayed, or by the EXECIO command when printing.

rr	is set to 1 when the user clicks on the OK button, and to 0 otherwise.

DY_PSCL - Set the First Displayed String[1]

```
DY_PSCL(handle, nt_scl, pos)
```

handle	is the number returned by the DY_END() function.
nt_scl	is the number returned by the DY_SCL() function.
pos	is the rank of the string to be displayed on top of the scrolled list. The first string is the string number 1.

1. DY_PSCL is not supported by the OpenLook xsrexx version.

DY_REFRESH - Redraw the Dialog Box

```
call DY_REFRESH
```

When an **S/REXX** macro is busy doing some processing, `DY_REFRESH()` can be used periodically to redraw all the currently displayed dialog boxes.

DY_RSCL - Replace a String in a Scrolled List

```
DY_RSCL(handle, nt_scl, pos, string)
```

`handle`	is the number returned by the `DY_END()` function.
`nt_scl`	is the number returned by the `DY_SCL()` function.
`pos`	is the rank of the string to be replaced. The first string is the string number 1.
`string`	is the new string.

DY_SCH - Set a Choice Value

```
DY_SCH(handle, nc, i)
```

`handle`	is the number returned by the `DY_END()` function.
`nc`	is the number returned by the `DY_CH()` function.
`i`	is the index of the sub-item to be displayed.

DY_SINPUT - Set a Dialog Input Item Value

```
DY_SINPUT(handle, n, str)
```

`handle`	is the number returned by the `DY_END()` function.
`n`	is the number returned by the `DY_INPUT()` function.
`str`	is the string to be displayed.

DY_SCL - Make a Scrolled List Dialog Item

```
nt_scl = DY_SCL(x, y, la, ht, stem, {l_stem}, {type}
                {, Rb, Gb, Bb, Rf, Gf, Bf})
```

`nt_scl`	is the item number, to be used by the various `DY_xSCL()` functions.
`x`	is the column position. When `x` is set to 1, the list is displayed starting on the left of the dialog box.
`y`	is the line position. When `y` is set to 1, the list is displayed starting on the top of the dialog box.
`la`	is the width of the list.
`ht`	is the number of lines displayed by the list.
`stem`	is a valid REXX symbol. The derived stem values (`stem.1`, `stem.2`, etc...) will be used to fill the list.
`l_stem`	is the length of the list. When not provided, `stem.0` is the default.
`type`	when type is the "`Multiple`" string, the list will permit multiple selections. This is the default when `type` is not specified. When type is the "`Single`" string, only one line can be selected.
`Rb, Gb, Bb`	the optional background color RGB values. These are integers between `0` and `255`. The default **MOTIF** background color can be set with the `dialog*list*background` X11 resource.
`Rf, Gf, Bf`	the optional foreground color RGB values. These are integers between `0` and `255`. The default **MOTIF** foreground color can be set with the `dialog*list*foreground` X11 resource.
Notes:	Individually colored items are not supported by the `xsrexx` OpenLook **S/REXX** version. The callback will receive different values when clicking or double clicking on an item. See the `DY_END` description on page 556 for more information. Double clicking on an item within a `GRAB` dialog box unmaps the dialog box. Simple clicking does not.

Example: the file {install-dir}/demo/demo_dy/dy_scl shows the use of every DY_xSCL function:

```
option mixed setenv

call dy_start()

$dismiss  = dy_button(1, 1,  "DISMISS")

call csh 'ls ~', tab

$handle_scl1 = dy_scl(2, 4, 11, 10, tab, /* tab.0 */, 'm')

$transfer    = dy_button(26, 4,  "TRANFER")
$del         = dy_button(26, 6,  "DELETE")
$top         = dy_button(26, 8,  "TOP")
$rep         = dy_button(26, 10, "REPLACE")
$set         = dy_button(26, 12, "SET")
$add         = dy_button(26, 14, "ADD")

$handle_scl2 = dy_scl(39, 4, 11, 10)

$handle_dy   = dy_end("dy_ex_cb", -25, -10, 67, 17.5, "n")


call dy_map $handle_dy

say
say '... Returned from dy_map(1)'
say

call dy_map $handle_dy

say
say '... Returned from dy_map(2)'
say

return

dy_ex_cb:procedure

parse arg handle reason

say 'dy_ex_cb: 'reason

select
  when reason = 'F1'  | ,
       reason = 'B'$dismiss then
        {  call dy_unmap(handle)
           call dy_destroy(handle)
           exit 0
        }
```

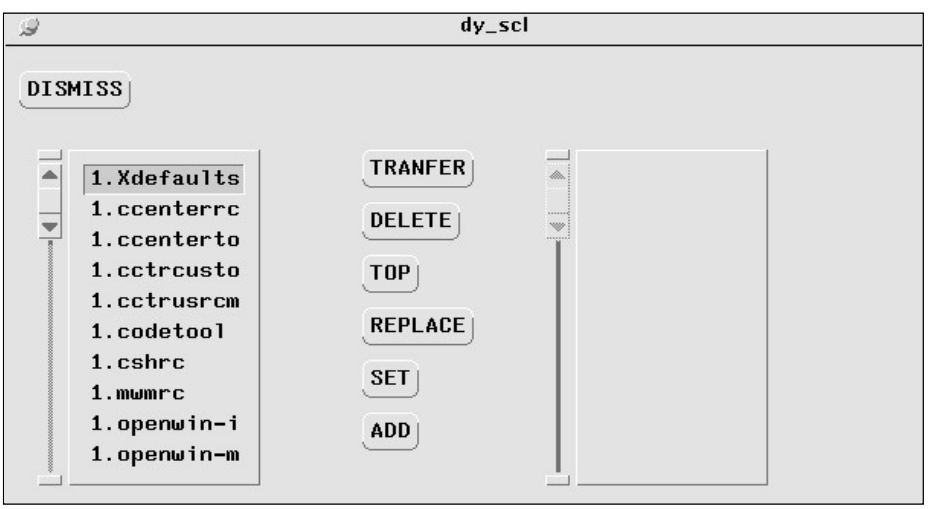
```
  when reason = 'B'$transfer then
    { call do_it
      return 0
    }

  when reason = 'B'$del then
    { call dy_vscl handle, $handle_scl1, num
      if num.0 ~= 0 then call dy_dscl handle, $handle_scl1, num.1,
      num.0
      return 0
    }

  when reason = 'B'$top then
    { call dy_vscl handle, $handle_scl1, num
      if num.0 ~= 0 then call dy_pscl handle, $handle_scl1, num.1
      return 0
    }

  when reason = 'B'$rep then
    { call dy_vscl handle, $handle_scl1, num
      if num.0 ~= 0 then call dy_rscl handle, $handle_scl1, num.1,
      "New String"
      return 0
    }

  when reason = 'B'$set then
    { call dy_sscl handle, $handle_scl1, 2, 1
      return 0
    }

  when reason = 'B'$add then
    { strings.1 = 'Last'
      call dy_ascl(handle, $handle_scl1, strings, 1, 0)
      call dy_ascl(handle, $handle_scl2, strings, 1, 0)
      return 0
    }

  when reason = 'focus' then
    { say '.... Focus'
      return 0
    }

  otherwise return 0
end

do_it:procedure expose handle

  say '-------------------------------------------'
  l_num = dy_vscl(handle, $handle_scl1, num)
  do i = 1 to num.0
    say num.i
  end
  say
```

```
   l_num = dy_vscl(handle, $handle_scl1, num, strings)
  do i = 1 to num.0
    say num.i strings.i
  end

  call dy_ascl(handle, $handle_scl2, strings, strings.0, 0)

return
```

On **UNIX** systems, typing:

```
% cd /home/xed/demo/demo_dy
% ./dy_scl
```

displays:



On **WINDOWS** systems, type:

```
C:\> chdir "\Program Files\SEDIT\demo\demo_dy"
C:\> "\Program Files\SEDIT\wsrexx" dy_scl
```

DY_SCL_COLOR - Change a Scrolled List Dialog Item Color

```
DY_SCL_COLOR(handle, nt_scl, Rb, Gb, Bb, Rf, Gf, Bf})
```

`handle` is the number returned by the `DY_END()` function.

`nt_scl` is the item number returned by the `DY_SCL()` function.

`Rb, Gb, Bb` are the background color RGB values. These are integers between `0` and `255`. The default **MOTIF** background color can be set with the `dialog*list*background` X11 resource.

`Rf, Gf, Bf` are the foreground color RGB values. These are integers between `0` and `255`. The default **MOTIF** foreground color can be set with the `dialog*list*foreground` X11 resource.

Note: Individually colored items are not supported by the `xsrexx` OpenLook **S/REXX** version.

DY_SLABEL - Set a Dialog Label Item Value

```
DY_SLABEL(handle, n, str)
```

`handle` is the number returned by the `DY_END()` function.

`n` is the number returned by the `DY_LABEL()` function.

`str` is the string to be displayed.

DY_SSCL - Select or Unselect a String Within a Scrolled List

```
DY_SSCL(handle, nt_scl, pos, {set})
```

`handle` is the number returned by the `DY_END()` function.

`nt_scl` is the number returned by the `DY_SCL()` function.

`pos` is the rank of the string to be selected or unselected. The first string is the string number 1

`set` when set to 1, or when not specified, the string is selected. When set to 0, the string is unselected.

DY_START - Start a Dialog Box

`DY_START()` must be called before using the `DY_INPUY()`, `DU_LABEL()`, `DY_BUTON()` and `DY_TG()` functions.

DY_STG - Set a Dialog Toggle Value

```
DY_STG(handle, nt_g, nt, val)
```

`handle`	is the number returned by the `DY_END()` function.
`nt_g`	is the number returned by the `DY_TG()` function.
`nt`	is the rank of the sub-item to be set to `val`.
`val`	is 0 (false) or 1 (true). The OpenLook version only responds to a 1 value.

DY_TG - Make a Dialog Toggle

```
nt_g = DY_TG({txt}, x_txt, y_txt,
               x1, y1, txt1, set1{,
               x2, y2, txt2, set2{,
               ..................    }})
```

`nt_g` is the item number to be used by the `DY_VTG()` and the `DY_STG()` functions.

`txt` is the optional global label to be displayed.

`x_txt` is the global label column position. When `x_txt` is set to 1, the label is displayed on the left of the dialog box.

`y_txt` is the global label line position. When `y_txt` is set to 1, the label is displayed on the top of the dialog box.

`xi` is the column position of the sub-item *i*.

`yi` is the line position of the sub-item *i*. The **SEDIT** OpenLook version stacks sub-items vertically or horizontally. The **MOTIF** version respects precisely the `(xi, yi)` coordinates.

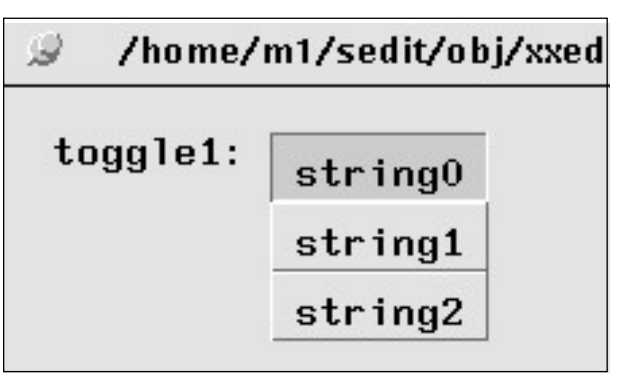
`txti` is the label of the sub-item `i`.

`seti` either 1 (true) or 0 (false).

Example:

```
call                                    dy_start()
nt_g     =     dy_tg("toggle1:",     2,     1,
                     11, 1,    "string0", 1,
                     11, 2.5,  "string1", 0,
                     11, 4,    "string2", 0)
hnd   =   dy_end("#",   0,   0,   25,   6,   "n")
dy_map(hnd)
```

displays:



DY_TG_COLOR - Change a Toggle Dialog Item Color

`DY_TG_COLOR(handle, nt_g, Rb, Gb, Bb, Rf, Gf, Bf})`

`handle` is the number returned by the `DY_END()` function.

`nt_g` is the item number returned by the `DY_TG()` function.

`Rb, Gb, Bb` are the background color RGB values. These are integers between `0` and `255`. The default **MOTIF** background color can be set with the `dialog*toggle*background` X11 resource.

`Rf, Gf, Bf` are the foreground color RGB values. These are integers between `0` and `255`. The default **MOTIF** foreground color can be set with the `dialog*toggle*foreground` X11 resource.

Note: Individually colored items are not supported by the `xsrexx` OpenLook **S/REXX** version.

DY_UNMAP - Unmap a Dialog Box

`DY_UNMAP(handle)` makes the `handle` dialog box invisible.

`handle` is the number returned by the `DY_END()` function.

DY_VINPUT - Get a Dialog Input Item Value

`str = DY_VINPUT(handle, nn)`

`str` is the contents of the `nn` input item.

`handle` is the number returned by the `DY_END()` function.

`nn` is the number returned by the `DY_INPUT()` function.

DY_VCH - Get a Dialog Choice Value

`val = DY_VCH(handle, nt_ch)`

`val` is the value of the `CHOICE` dialog item.

`handle` is the number returned by the `DY_END()` function.

`nt_ch` is the number returned by the `DY_CH()` function.

DY_VSCL - Retrieve a Scrolled List Ranks and Contents of the Selected Strings

```
l_num = DY_VSCL(handle, nt_scl, num, {cnt})
```

l_num	is the number of selected items.
handle	is the number returned by the DY_END() function.
nt_scl	is the number returned by the DY_SCL() function.
num	is a valid REXX symbol. The derived stem values (num.1, num.2, etc...) will be filled with the rank of the selected items. num.0 will contain the number of selected items.
cnt	is a valid REXX symbol. The derived stem values (cnt.1, cnt.2, etc...) will be filled with the selected items. cnt.0 will contain the number of selected items.

DY_VTG - Get a Dialog Toggle Item Value

```
val = DY_VTG(handle, nt_g, i)
```

val	is the logical value (0 or 1) of the sub-item *i* of the nt_g toggle item.
handle	is the number returned by the DY_END() function.
nt_g	is the number returned by the DY_TG() function.
i	is the sub-item number.

DY_WARP - Set Mouse Handling

```
old = DY_WARP({str})
```

str	when set to "ON", **S/REXX** moves the mouse onto a GRAB dialog box when it is displayed. When set to "OFF", the mouse position remains unchanged.
old	is set to ON or OFF, according to the previous setting.

EXEC - Pass UNIX Command Directly

EXEC(cmd{, stem}) executes the **UNIX** command cmd directly.

S/REXX attempts to execute directly the cmd string passed without using any **UNIX** shell. The PATH is not searched and the usual shell redirection ">" and pipe "|" characters are not treated specifically. Shell meta characters like "*" are also passed without expansion.

On **WINDOWS** systems, EXEC() is identical to the WINDOWS() built-in function.

When stem is not provided, the cmd output will be placed in the stack. The user will be able to read it using the parse pull command.

The QUEUED() function may be used to return the number of lines in the stack.

When stem is provided, it must me a valid REXX name. It will be filled with the cmd output.

```
Example:call exec "/bin/ls *", tab
        /* lists a file actually named * */
        tab.0 will contain the number of lines sent back
        by /bin/ls.
        tab.1, tab.2, ... will contain the ls output line
        by line.
```

Note: EXEC() not supporting the meta characters, use CSH() or KSH() to pass a command such as `call csh 'ls ~/foo*.c'`

See also the EXECV(), UNIX(), CSH(), TCSH() and KSH() functions.

EXECV - Pass UNIX Program Directly

EXECV(cmd, {argv}, {stem}, {tee}) executes the **UNIX** program cmd directly.

When argv is provided, it must be a valid REXX name. argv.0 is the number of arguments to be passed to cmd. The derived argv.i stem values will be the arguments. EXECV allows to easily handle arguments with embedded spaces.

When stem is not provided, the cmd output will be placed in the stack. The user will be able to read it using the parse pull command.

The QUEUED() function may be used to return the number of lines in the stack.

When stem is provided, it must be a valid REXX name. It will be filled with the cmd output.

When tee is set to 1, EXECV will display the output of the cmd program.

Note: EXECV() not supporting the meta characters, use CSH() or KSH() to pass a command such as `call csh 'ls ~/foo*.c'`

See also the EXEC(), UNIX(), CSH(), TCSH() and KSH() functions.

EXTERNALS - Pending Input

On **UNIX** systems, EXTERNALS() returns the number of characters available in the standard input stream.

On **WINDOWS** systems, EXTERNALS() returns 0 when the standard input is empty, and 1 otherwise.

FD - Get File-Directory

`FD(fname)` returns the `fname` directory part.

```
Example:a = fd("/usr/john/foo.c")
       returns "/usr/john".
```

FILECONV - UNIX or WINDOWS File Conversion

```
FILECONV(string)
```

`string` "`Unix`" or "`Windows`"

When `string` is set to **UNIX** (the default on **UNIX** systems), **S/REXX** considers that a line in a file ends with a newline character.

When `string` is set to `WINDOWS` (the default on **WINDOWS** systems), **S/REXX** considers that a line in a file ends either with a newline character or with a `^M` character followed by a newline character..
When writing to a file, **S/REXX** will terminate every line with a `^M` character before the newline character, and end the file with a `^Z` character following the last newline character.

Using `FILECONV('W')` on **UNIX** systems permits the reading of **WINDOWS** files eliminating `^M` and `^Z` characters.

Using `FILECONV('U')` on **WINDOWS** systems permits the writing of files without `^M` and `^Z` characters, making them easier to share with **UNIX** systems.

```
Example:call fileconv 'u'
```

FILEISLOCKED (WINDOWS ONLY)

`FILEISLOCKED(FILE)` returns 1 if the file is locked by another program and 0 if not.

FLFILES - Get FLIST Files

`call flfiles tab` returns in the `tab` stem the full names of the files listed within the current `FLIST` level. `tab.0` contains the number of files returned, `tab.i` with `i` varying from `1` to `tab.0` contains the file names.

FN - Get Filename

`FN(fname)` returns the `fname` filename part.

```
Example:a = fn("/usr/john/foo.c")
       returns "foo".
```

FOLLOW - Follow Symbolic Links

`FOLLOW(file)` checks if any component of `file` is a symbolic link, and replaces it with the file to which the symbolic link points. The full pathname of the file will be returned. If `file` is recursively linked to itself, or if the `file` directory component does not exist, `FOLLOW` returns an empty string.

`FOLLOW` sets `RC` to zero in case of success. In case of error, `FOLLOW` returns an empty string and sets `RC` and to `-1`.

```
Example:call chdir '/users/john'
        'ln -s ./somefile ./somefile.link'
        say follow('somefile.link')
        displays:      /users/john/somefile
```

FORK - Spawn a New Process

FORK()

On **UNIX** systems, FORK() causes creation of a new process. The new process (child process) is an exact copy of the calling process (parent process). The child process inherits the variables and the programming state from its parent process. However, all opened files are closed within the child process, and the child process cannot process dialog boxes opened by the parent process. The child process of an **SEDIT** macro cannot pass commands to **SEDIT**.

Upon successful completion, FORK() returns a value of 0 to the child process and returns the process ID of the child process to the parent process. Otherwise, a value of -1 is returned to the parent process.

On **WINDOWS** systems, a value of -1 is always returned.

Example:

```
father = getpid()

a = fork()

if a = 0 then
 { say 'Son: 'getpid() '(Father is 'father')'
   do i = 1 to 5
     say '... Son'
     call sleep 1
   end
   say 'Son: exiting'
   exit
 }
else
 { say 'Father: 'getpid() '(son is 'a')'
   call usleep 500000
   say 'Father: waitpid(,"N") = 'waitpid(a, 'n')
   say 'Father: waiting'
   say 'Father: waitpid = 'waitpid(a)
   say 'Father: exiting'
 }
```

would display:

```
Father: 28159 (son is 28160)
Son: 28160 (Father is 28159)
... Son
Father: waitpid(,"N") = 0
Father: waiting
... Son
... Son
... Son
... Son
Son: exiting
Father: waitpid = 28160
Father: exiting
```

FT - Get Filetype

`FT(fname)` returns the `fname` filetype part.

```
Example:a = ft("/usr/john/foo.c")
       returns ".c".
```

FWC - Format With Comma

`FWC(number)` returns `number`, adding commas every 3 digits if `number` uses more than 6 digits.

```
Example:say fwc(123456789)  /* Displays 123,456,789 */
```

GetAdaptersInfo - Get Free Disk Space (Windows Only)

`GetAdaptersInfo(st)` retrieves network adapter information, using the WIN32 API `GetAdaptersInfo()` function call.

`GetAdaptersInfo()` fills a set of REXX stems derived from `st`, using similar names to the ones described in the WIN32 `IP_ADAPTER_INFO` structure, and returns the number of available network adapters.

`Example:`

```
nb = GetAdaptersInfo(stem)

say
do i = 1 to nb
   say "--- Adapter "i
   say
   say "ComboIndex   = "  stem.i.ComboIndex
   say "AdapterName  = "  stem.i.AdapterName
   say "AdapterDesc  = "  stem.i.AdapterDesc
   say "AdapterAddr  = "  stem.i.AdapterAddr
   say "Index        = "  stem.i.Index
   say "Type         = "  stem.i.Type
   say "IPAddress    = "  stem.i.IPAddress
   say "IPMask       = "  stem.i.IPMask
   say "Gateway      = "  stem.i.Gateway
   say "DHCPEnabled  = "  stem.i.DHCPEnabled
   if stem.i.DHCPEnabled = 'Yes' then
    { say "LeaseObtained = "  stem.i.LeaseObtained
      say "LeaseExpires  = "  stem.i.LeaseExpires
    }
   say "HaveWins     = "  stem.i.HaveWins
   if stem.i.HaveWins = 'Yes' then
    { say "Primary WinsServer   = " stem.i.PrimaryWinsServer
      say "Secondary WinsServer = " stem.i.SecondaryWinsServer
    }
   say
end
```

could display:

```
--- Adapter 1

ComboIndex    =  19
AdapterName   =  {75430922-9D29-4F31-B8AC-D48E3178F3D3}
AdapterDesc   =  TAP-Win32 Adapter V9
AdapterAddr   =  00-FF-75-43-09-22
Index         =  19
Type          =  Ethernet
IPAddress     =  0.0.0.0
IPMask        =  0.0.0.0
Gateway       =  0.0.0.0
DHCPEnabled   =  Yes
LeaseObtained =  Thu Jan 01 01:00:00 1970
LeaseExpires  =  Thu Jan 01 01:00:00 1970
HaveWins      =  No

--- Adapter 2

ComboIndex    =  18
AdapterName   =  {2DC02017-53AB-4C70-B5D0-FB2925701E13}
AdapterDesc   =  Gigabit PCI Express Network Adapter #3
AdapterAddr   =  64-70-02-00-E6-71
Index         =  18
Type          =  Ethernet
IPAddress     =  192.9.200.16
IPMask        =  255.255.255.0
Gateway       =  192.9.200.200
DHCPEnabled   =  No
HaveWins      =  No
```

GETDISKSPACE - Get Free Disk Space

`GETDISKSPACE({mount_point})` returns a string containing in kbytes the amount of disk space occupied by the `mount_point` file system, the amount of used and available space, and the percentage of the file system's total capacity used.

If `mount_point` is not specified, the root directory ("`/`" on **UNIX** systems, "`c:`" on **WINDOWS** systems) will be used. `mount_point` can be any directory on **UNIX** systems, and any drive letter ("`c:`") on **WINDOWS** systems.

An empty string is returned in case of error.

`Example:say '"'getdiskspace("/")'"'` could display

```
"288119 158610 100698 61"
```

`Note: GETDISKSPACE is not supported on Linux, SCO and SunOS systems.`

GETENV - Get Environment Variable

`GETENV(var)` returns the value of the `var` environment variable.

```
Example:a = getenv("PATH")
```

See also the `SETENV()` function.

GETFILE - Get File Content

```
rc = GETFILE({start}, {end}, {stem})
```

Within **SEDIT**, `GETFILE` retrieves the contents of the current file.

`start`	is the first file line to be retrieved.When omitted, `start` defaults to `1`.
`end`	is the last file line to be retrieved.When omitted, `end` defaults to the lenght of the current file.
`stem.0`	the number of retrieved lines.
`stem.i`	the *`ith`* retrieved line content.
`rc`	the number of retrieved lines.

When `stem` is not provided, the `GETFILE` output will be placed in the stack.

```
Example:call getfile 12, 666, tab
```

GETPID - Process Identifier

```
GETPID()
```

`GETPID` returns the current process number. Every process has a different process number. This number can be used to create a unique filename.

HOSTNAME - Workstation Hostname

```
HOSTNAME()
```

`HOSTNAME` returns the name of the workstation.

INDEX - Find string

```
INDEX(haystack, needle {, start}{, icase})
```

When `icase` is set to `1`, matching is done ignoring case.

IOUSAGE - IO Usage (Windows only)

```
IOUSAGE(SampleTime, ProcessName)
```

```
IOUSAGE() waits SampleTime ms, and returns the IO usage
       in bytes.
```

```
Example:sayn say iousage(2000, "AnyDVDtray.exe")
```

IsFileOpened - Check if a file is opened (Windows only)

```
IsFileOpened(file)
```

Returns `1` is `file` is opened and not shared by another process and `0` if not.

ISMAIN - Determines if routine is MAIN one

Returns `1` if called as MAIN program, or `0` if called as subroutine.

JUSTIFY - Justify String

`JUSTIFY(string, len{, pad})` returns a string of length `len`.

The default `pad` value is the blank character.

`string` is first normalized. Multiple blanks are converted to single blanks, and leading and trailing blanks are removed.

If the length of the normalized string is greater than `len`, `string` is then truncated on the right and all trailing blanks are removed.

If the length of the normalized string is less than `len`, extra `pad` characters are then added evenly from left to right to provide the required length, and the blanks between words are replaced with the `pad` character.

```
Examples:
justify('ONE THREE TWO',11,'-'):   'ONE-THREE-T'
justify("", 9, "+"):               '+++++++++'
justify("The red  shoe", 15):      'The   red  shoe'
justify("The red  shoe", 15, "+"): 'The+++red++shoe'
```

KILL - Terminate a Process

```
KILL(pid{, sig})
```

On **UNIX** systems, `KILL()` sends to the process whose process ID (returned by the `FORK()` built-in function) is `pid` the signal `sig`. `sig` can be any number, or one of the usual **UNIX** signal strings:

SIGALRM	SIGIOT	SIGTRAP
SIGBUS	SIGKILL	SIGTSTP
SIGCHLD	SIGLOST	SIGTTIN
SIGCLD	SIGPIPE	SIGTTOU
SIGCONT	SIGPOLL	SIGURG
SIGEMT	SIGPROF	SIGUSR1
SIGFPE	SIGQUIT	SIGUSR2
SIGHUP	SIGSEGV	SIGVTALRM
SIGILL	SIGSTOP	SIGWINCH
SIGINT	SIGSYS	SIGXCPU
SIGIO	SIGTERM	SIGXFSZ

The sig default value is SIGKILL, which will terminate the `pid` process.

The first 3 letters of `sig` can be omitted: `ALRM` is the same as `SIGALRM`.

Upon successful completion, a value of `0` is returned. Otherwise, a value of `-1` is returned.

On **WINDOWS** systems, `KILL()` always returns a value of `-1`.

KSH - Pass UNIX Command

`KSH(cmd{, stem})` executes the **UNIX** command `cmd` using the Korn shell `ksh`.

When `stem` is not provided, the `cmd` output will be placed in the stack. The user will be able to read it using the `parse pull` command.

The `queued()` function may be used to return the number of lines in the stack.

When `stem` is provided, it must be a valid `REXX` name. It will be filled with the `cmd` output.

```
Example:call ksh "df", tab
        tab.0 will contain the number of lines sent back
        by df.
        tab.1, tab.2, ... will contain the df output line
        by line.
```

See also the `EXEC()`, `UNIX()`, `CSH()` and `TCSH()` functions.

LINEIN, LINEOUT - Input / Output

The **S/REXX** `LINEIN()` and `LINEOUT()` functions comply with the standard `REXX` `LINEIN()` and `LINEOUT()` functions as described in "The REXX

Programming Language".

The following peculiarities must be noted:

The **UNIX** or **WINDOWS** file system does not know about lines, only about characters. The lines delimiter is implied by the presence of the `"0A"x` newline character on **UNIX**, and by the `^M` character followed by the newline character on **WINDOWS**.

At the first `LINEIN()` or `LINEOUT()` invocation, **S/REXX** scans the entire file and memorizes the newline character positions, permitting an extremely fast line access on subsequent calls.

When using the `LINEOUT()` function to write in the middle of a file, for example to write a string at line10 of a 2000 line file, **S/REXX** does not truncate the file at line 10. Instead, it checks the string length, compares it to the original line 10 length, and moves the remainder of the file either to the left or to the right, depending on whether the new line is shorter (left) or longer (right) than the original line.
With large files, this process may take a while.

The filename parameter may include the ~ .. file meta characters.

When reading the standard input, `LINEIN()` sets the special `RC` REXX variable to `0` in case of success, and to the '`EOF`' uppercase string when the standard input is no longer available. In that case, `LINEIN()` returns an empty string. This allows the use of an **S/REXX** program as a standard input filter.

Consider the following `test` program:

```
#! /home/xed/srexx
do forever
  val = linein()
  if rc = 'EOF' then exit
  say upper(val)
end
```

Typing (using an **UNIX** shell):

```
echo abc | test
```

would display:

```
ABC
```

See Also: `FILECONV`

LN - Make Hard or Symbolic Links to File

```
LN(OldFile, NewFile{, 'h'|'s'})
```

LN creates a new directory entry (link) NewFile for the file specified by OldFile.

LN may be used to create both hard links ('h') and symbolic links ('s'). A hard link is a pointer to a file and is indistinguishable from the original directory entry. Any changes to a file are effectively independent of the name used to reference the file. Hard links may not span file systems.

A symbolic link is an indirect pointer to a file; its directory entry contains the name of the file to which it is linked. Symbolic links may span file systems. On **UNIX** systems, LN defaults to symbolic links when the third parameter is not specified. On **WINDOWS**, creating symbolic requires administrator rights, so LN defaults to hard links.

LN returns 0 in case of success, or an error message.

MKDIR - Make a Directory

MKDIR(dir) creates the dir directory, and returns the full dir pathname.

dir may include the ~ .. file meta characters.

When MKDIR fails, it sets the rc variable to a non-zero value, and returns an error message, such as:

```
MKDIR() error: File exists
```

```
Example:say mkdir("~/bin")
```

could print: /user/john/bin

MKLISTFILES - Group a list of files

N = MKLISTFILES(dir, size, stem)

MKLISTFILES recursively scans the dir directory, grouping files in N sets of files, in order for each set size to be as close as possible but lower than the size parameter.

```
Example:
N = MKLISTFILES("d:\Movies", 150*1000000000, tab)
```

groups the contents of the "d:\Movies" directory so that each set fits an LTO 5 tape.

tab.1.0 will be the number of files in the first set.

tab.1.1, tab.1.2, ... will the be the file names of the fist fileset.

tab.1.1.0, tab.1.2.0, ... will be the size of the corresponding files.

tab.2.0 will be the number of files in the second set.

... and so on.

MV or RENAME - Rename a File

```
RENAME(file1, file2)
MV(file1, file2)
```

RENAME renames the file or directory file1 to file2.

RENAME sets up two variables:

RC	is set to 0 in the case of a success, or to the error number returned by the system in the case of a failure.
RESULT	is set to the full pathname of file2 in the case of a success, or to a string with an error message indicating the cause of the failure.

```
Example:call rename "myfile", "myfile.old"

        RESULT may contain for example:

        c:\userfiles\myfile.old
```

OPEN_CONS - Open a Console

```
OPEN_CONS({title {,width{,height}})
```

OPEN_CONS is specific to the wsrexx.exe **WINDOWS S/REXX** version.

OPEN_CONS is used within the windowing wsrexx.exe version to open a standard I/O console, similar to a DOS console. **S/REXX** automatically calls OPEN_CONS when a SAY, SAYX, TRACE or PARSE PULL statement is issued and the console has not been opened before.

title	is a string to be displayed on top of the console.
width	is the width in characters unit of the console.
height	is the height in characters unit of the console.

```
Example:call open_cons "MyApp", 80, 25
```

NETUSAGE - Network load (Windows only)

```
NETUSAGE(SampleTime, InterFaceName)
NETUSAGE() waits SampleTime ms, and returns the network
       average load in %.
Example:
sayn netusage(1000,"Broadcom NetLink Gigabit Ethernet")
```

OBF and UNOBF - Obfuscate a String

OBF(str)

OBF produces an **S/REXX** expression such as:

```
password = UNOBF('0adfe3456f'x)
```

The '0adfe3456f'x string is encrypted in such a way that UNOBF() will return the original str string only if run on the same computer as OBF() was initially run.

Consider an **S/REXX** script such as:

```
email   = arg(1, 'x')
subject = arg(2, 'x')
text = arg(3, 'x')
server = 'mail.gmx.com'
user   = 'user1234@gmx.com'
from   = 'user1234@gmx.com'
password = 'shd8356gku'

sayx 'SwithMail.exe /s /to 'email' /sub "'subject'" /b
"'text'" /server 'server' /username 'user '/password
'password '/fromaddress 'from
```

The plain-text password can be a security problem if the script gets downloaded or stolen by a virus

To obfuscate the password, use the {install-dir}/obf script this way:

```
% chdir "Program Files\SEDIT"
% srexx obf shd8356gku

"shd8356gku" -> password = deobf('bc6dba44be70cca5b6283f
9ca0ec9a8cfc2df140'x)
```

This script converts the password string into an obfuscated one, that you can copy and paste into your original program:

```
email  = arg(1, 'x')
subject = arg(2, 'x')
text = arg(3, 'x')
server = 'mail.gmx.com'
user   = 'user1234@gmx.com'
from   = 'user1234@gmx.com'
password = deobf('bc6dba44be70cca5b6283f9ca0ec9a8cfc2df140'x)

sayx 'SwithMail.exe /s /to 'email' /sub "'subject'" /b
"'text'" /server 'server' /username 'user '/password
'password '/fromaddress 'from
```

So, how secure is this?

- Anybody who has access to the original computer that was used to generate the obfuscated string can run `deobf()` and see the original string, so in that case, there is **NO SECURITY** at all.
- Somebody who stole the script but who does not have access to the original computer will have a hard time decrypting it: **S/REXX** uses a more than 300 bytes variable length key to encrypt the string using the blowfish algorithm which is very secure. The key is based on hardware identifier that is likely unique to the original computer.

There is however **no warranty about it being unbreakable**, `OBF()` is meant to obfuscate non critical data only, not to replace a full blown encryption software.

PARG - Parse Argument

`parg(argv, opt, tab{, DoQuotes})` parses the `argv` argument string according to the options defined by the `opt` string, saving the result into the `tab` stem.

An option is a string starting with a minus sign. A parameter is a string following an option.

`parg` returns `0` when the argument string `argv` matches the options, `1` when the number of parameters following any option does not match the number of parameters defined by `opt` and `2` when an option is not defined.

`parg` also parses the string after the options using blank as separator. If `DoQuotes` is specified, `parg` will group words between quotes.The number of parsed group of word will be `tab.tab.0`, each group of word being `tab.tab.NN`

If all what's needed is parsing without options, opt can be the "" null string.

Consider the following `test` program:

```
#! /home/xed/srexx
option mixed
opt = "-Wp 2 -help 0 -font 1"
parse arg argv
if parg(argv, opt, tab, 1) ~= 0 then
 { say 'Invalid option.'
   exit 1
 }
do i = 1 to tab.0
  select
    when tab.i = 'help'   then call help_proc
    when tab.i = 'font'   then
     { font = tab.font.1
       say 'Font set to "'font'"'
     }
    when tab.i = 'Wp'     then
     { px = tab.Wp.1
       py = tab.Wp.2
       say 'Position set to "'px py'"'
     }
  end
end i
str = tab.i
say 'Final string: "'str'"'
say 'Parsed Final String:'
do i = 1 to tab.tab.0
   say '--- 'tab.tab.i
end
exit

help_proc:
  say "Help not yet available"
  exit 1
```

The `"-Wp 2 -help 0 -font 1"` `opt` string has the following meaning:

The `-Wp` option must be followed by 2 parameters.
The `-help` option must be followed by no parameter.
The `-font` option must be followed by 1 parameter.

`tab.0` gives the number of recognized options passed to the program. If `n` is `tab.0+1`, `tab.n` gives the remaining argument string.

When the `-Wp` option is passed to the program, `tab.Wp.1` and `tab.Wp.2` give the two words following the `-Wp` option in the `argv` argument string.

Examples:

```
% test -Wp 345 123 str1 str2 str3
Position set to "345 123"
Final string: "str1 str2 str3"
Parsed Final String:
--- str1
--- str2
--- str3

% test -Wp 345 123 str1 "'str2 str3'"
Position set to "345 123"
Final string: "str1 'str2 str3'"
Parsed Final String:
--- str1
--- str2 str3

% test -help
Help not yet available

% test -font cour.b.18
Font set to "cour.b.18"
Final string: ""
Parsed Final String:
```

When `option mixed` is not in effect, all options are translated into uppercase. In this case, the `test` program would be:

```
#! /home/xed/srexx
opt = "-wp 2 -help 0 -font 1" /* Same as "-WP 2 -HELP 0 -FONT 1" */
parse arg argv
if parg(argv, opt, tab) ~= 0 then
 { say 'Invalid option.'
   exit 1
 }
do i = 1 to tab.0
  select
    when tab.i = 'HELP'   then call help_proc
    when tab.i = 'FONT'   then
     { font = tab.font.1
       say 'Font set to "'font'"'
     }
    when tab.i = 'WP'     then
     { px = tab.wp.1
       py = tab.wp.2
       say 'Position set to "'px py'"'
     }
  end
end i
str = tab.i
say 'Final string: "'str'"'
exit

help_proc:
  say "Help not yet available"
  exit 1
```

POS - Find string

```
POS(needle, haystack {, start}{, icase})
```

When `icase` is set to `1`, matching is done ignoring case.

QPID - Query Process Death

```
QPID(pid)
```

On **UNIX** systems, `QPID()` returns `1` if the `pid` process is dead and `0` when it is alive. `pid` is the process ID returned by the `FORK()` built-in command.

On **WINDOWS** systems, `QPID()` always returns `-1`.

RCHANGE - Change String using regular expressions

`RCHANGE(str, regex, new{, icase})` changes the `regex` string with the `new` string within `str`, and returns the modified string.

When `icase` is set to 1, `regex` matching is done ignoring case.

See the **SEDIT** `R/` command for a `regex` definition.

Note: `RCHANGE` uses the `ECMAScript` regular expression syntax on Windows, and the `PCRE` one on Linux..

REGISTRY_DEL - Delete REGISTRY Key Contents

On **WINDOWS** systems, `REGISTRY_DEL()` is used to delete the contents of a registry key, or the key itself.

WARNING: DISRUPTING THE WINDOWS REGISTRY CAN IRREPARABLY DAMAGE THE SYSTEM.

```
rc = REGISTRY_DEL(hkey, where{, name})
```

`hkey` is the key root location in the registry. `hkey` can be one of the following strings:

```
HKEY_CLASSES_ROOT
HKEY_CURRENT_USER
HKEY_LOCAL_MACHINE
HKEY_USERS
HKEY_CURRENT_CONFIG
HKEY_DYN_DATA
```

`where` is the location of the key in the `hkey` tree.

`name` when provided, `name` is the name of the subkey to be removed. when not provided, the whole `where` key is removed. Note that on **WINDOWS** systems, `where` must be empty in order to be removed.

`rc` is `0` when the call succeeds, or an error message.

Examples:

```
call registry_del("HKEY_LOCAL_MACHINE",,
 "SOFTWARE\test", "dms")
call registry_del("HKEY_LOCAL_MACHINE",,
 "SOFTWARE\test")
```

REGISTRY_GET - Retrieve REGISTRY Key Contents

On **WINDOWS** systems, REGISTRY_GET() is used to retrieve the contents of a registry key.

```
val = REGISTRY_GET(hkey, where, name)
```

hkey — is the key root location in the registry. hkey can be one of the following strings:

```
HKEY_CLASSES_ROOT
HKEY_CURRENT_USER
HKEY_LOCAL_MACHINE
HKEY_USERS
HKEY_CURRENT_CONFIG
HKEY_DYN_DATA
```

where — is the location of the key in the hkey tree.

name — is the name of the subkey. If name is the "" empty string, the default value of the specified key location is retrieved.

val — is a string representing the contents of the key when the call succeds, or an error message starting with the "REGISTRY_GET Error:" string. REGISTRY_GET() returns the key value using a format similar to the **WINDOWS** Registry Editor when using the Export Registry File command.

REGISTRY_GET() understands the following WIN32 API type of keys:

REG_BINARY:
val is in the "hex:xx,xx,xx,...." format.

REG_RESOURCE_LIST:
val is in the "hex(8):xx,xx,xx,...." format.

REG_FULL_RESOURCE_DESCRIPTOR:
val is in the "hex(9):xx,xx,xx,...." format.

REG_DWORD:
val is in the "dword:xxxxxxxx" format.

REG_DWORD_BIG_ENDIAN:
val is in the "hex(5):xx,xx,xx,...." format.

REG_LINK:
val is in the "hex(6):xx,xx,xx,...." format.

REG_MULTI_SZ:
val is in the "hex(7):xx,xx,xx,...." format.

REG_NONE:

`val` is in the "`hex(0):xx,xx,xx,...`" format.

`REG_EXPAND_SZ`:
`val` is in the "`hex(2):xx,xx,xx,...`" format.

`REG_RESOURCE_REQUIREMENTS_LIST`:
`val` is in the "`hex(a):xx,xx,xx,...`" format.

`REG_SZ`:
`val` is a string.

Examples:

```
say registry_get("HKEY_LOCAL_MACHINE",,
 "HARDWARE\DESCRIPTION\System\CentralProcessor\0",,
 "~MHz")
```

could display:

dword:00000109

```
say registry_get("HKEY_LOCAL_MACHINE",,
 "SOFTWARE\Citrix\Client Management\ICA Client Update",,
 "Default Database")
```

could display:

hex(2):25,53,79,73,74,65

REGISTRY_KEYS - REGISTRY Subkeys Enumeration

On **WINDOWS** systems, `REGISTRY_KEYS()` is used to enumerate subkeys of the specified registry key.

```
rc = REGISTRY_KEYS(hkey, {where}, stem)
```

`hkey` is the key root location in the registry. `hkey` can be one of the following strings:

`HKEY_CLASSES_ROOT`
`HKEY_CURRENT_USER`
`HKEY_LOCAL_MACHINE`
`HKEY_USERS`
`HKEY_CURRENT_CONFIG`
`HKEY_DYN_DATA`

`where` is the location of the key in the `hkey` tree. When omitted, the whole `hkey` tree is enumerated.

`stem` is the name of a valid REXX name.

`stem.0` will contain the number of enumerated subkeys.

`stem.i` will contain the *`ith`* enumerated subkey.

`rc` is the number of enumerated subkeys when the call succeeds, or an error message starting with the "`REGISTRY_KEYS Error:`" string.

`Example:`

```
call registry_keys("HKEY_LOCAL_MACHINE",,
 "SOFTWARE", tab)
do i = 1 to tab.0
  say tab.i
end
```

REGISTRY_SET - Set REGISTRY Key Contents

On **WINDOWS** systems, `REGISTRY_SET()` is used to set the contents of a registry key.

WARNING: **DISRUPTING THE WINDOWS REGISTRY CAN IRREPARABLY DAMAGE THE SYSTEM.**

```
val = REGISTRY_SET(hkey, where, name, cnt)
```

`hkey` is the key root location in the registry. `hkey` can be one of the following strings:

```
HKEY_CLASSES_ROOT
HKEY_CURRENT_USER
HKEY_LOCAL_MACHINE
HKEY_USERS
HKEY_CURRENT_CONFIG
HKEY_DYN_DATA
```

`where` is the location of the key in the `hkey` tree.

`name` is the name of the subkey. If `name` is the `""` empty string, the default value of the specified key location is set.

`cnt` is a string representing the contents of the key. `REGISTRY_SET()` uses a format similar to the **WINDOWS** Registry Editor when using the `Export Registry File` command.

`REGISTRY_SET()` understands the following `WIN32` API type of keys:

`REG_BINARY`:
`cnt` is in the "`hex:xx,xx,xx,....`" format.

`REG_RESOURCE_LIST`:
`cnt` is in the "`hex(8):xx,xx,xx,....`" format.
`REG_FULL_RESOURCE_DESCRIPTOR`:
`cnt` is in the "`hex(9):xx,xx,xx,....`" format.

`REG_DWORD`:
`cnt` is in the "`dword:xxxxxxxx`" format.

`REG_DWORD_BIG_ENDIAN`:
`cnt` is in the "`hex(5):xx,xx,xx,....`" format.

`REG_LINK`:
`cnt` is in the "`hex(6):xx,xx,xx,....`" format.

`REG_MULTI_SZ`:
`cnt` is in the "`hex(7):xx,xx,xx,....`" format.

REG_NONE:
cnt is in the "hex(0):xx,xx,xx,...." format.
REG_EXPAND_SZ:
cnt is in the "hex(2):xx,xx,xx,...." format.

REG_RESOURCE_REQUIREMENTS_LIST:
cnt is in the "hex(a):xx,xx,xx,...." format.

REG_SZ:
cnt is a string not starting with hex:, dword: or hex(n):.

val — is 0 when REGISTRY_SET() succeeds, or an error message.

Example:

```
call registry_set("HKEY_LOCAL_MACHINE",,
 "SOFTWARE\test", "dms", "hex(6):01,02,03")
```

REGISTRY_VALUES - REGISTRY Values Enumeration

On **WINDOWS** systems, REGISTRY_VALUES() is used to enumerate the values of the specified registry key.

```
rc = REGISTRY_VALUES(hkey, where, stem)
```

hkey — is the key root location in the registry. hkey can be one of the following strings:

HKEY_CLASSES_ROOT
HKEY_CURRENT_USER
HKEY_LOCAL_MACHINE
HKEY_USERS
HKEY_CURRENT_CONFIG
HKEY_DYN_DATA

where — is the location of the key in the hkey tree. When set to an empty string, the hkey values are enumerated.

stem — is the name of a valid REXX name.

stem.0 — will contain the number of enumerated values.

stem.i — will contain the *i*th enumerated values.

rc — is the number of enumerated values when the call succeeds, or an error message starting with the "REGISTRY_VALUES Error:" string.

Example:

```
call registry_values("HKEY_LOCAL_MACHINE",,
 "SOFTWARE\Program Groups", tab)
do i = 1 to tab.0
  say tab.i
end
```

RM / DEL / RECYCLE - Delete Files

```
DEL(ff)
RM(ff)
RECYCLE(ff)
```

`RM()` and `DEL()` remove the `ff` files, and returns the full path names of the deleted files.

On **WINDOWS** systems, `RECYCLE()` moves the `ff` files **or directories** to the recycle bin.

`ff` may include the ~ .. **UNIX** or **WINDOWS** file meta characters. If a filename contains blanks, it must be surrounded with quotes or double quotes.

When `RM` fails, it sets the `rc` variable to a non-zero value, and returns an error message, such as:

```
RM() error: File does not exist
```

```
Examples:say rm("~/foo ~/test")
            could print: /user/john/foo /usr/john/test
         call rm '"/user/file with blanks"'
         call recycle "'c:\Program Files\log'"
```

RMDIR - Delete a Directory

```
RMDIR(dir{, "r"})
```

`RMDIR` removes the `dir` directory.

When the recursive "`r`" flag is not specified, `dir` must be empty.

When "`r`" is specified, `RMDIR` removes all of the `dir` files and subdirectories first.

`RC`	is set to 0 in case of success, or to 1 in case of failure.
`RESULT`	is set to the full pathname of `dir` in case of success, or to a string with an error message indicating the cause of the failure.

```
Examples:call rmdir "c:\foodir", "r"
         call rmdir "/home/foodir", "r"
```

SCRIPT - Record Session

```
SCRIPT({filename {, 'a'}}
```

When `SCRIPT` is called with a `filename` parameter, everything printed on the windows **S/REXX** was started from is written to `filename`. Unless the optional `'a'` parameter is specified, the `filename` file is overwritten.

When `SCRIPT` is called without parameters, the recording stops.

```
Example:call script '~/logfile', 'a'
         say 'This will be recorded'
         address unix 'df' /* This will be recorded */
```

```
        call script
        say 'This will not be recorded'
```

Note: SCRIPT is not supported on Windows 95/98.

SERVICE_CREATE - Create a Service

On **WINDOWS** systems, SERVICE_CREATE() is an interface to the WIN32 CreateService function. SERVICE_CREATE() accepts arguments similar to the following CreateService arguments:

```
LPCTSTR   lpServiceName      //pointer to name of service to start
LPCTSTR   lpDisplayName      //pointer to display name
DWORD     dwDesiredAccess    //type of access to service
DWORD     dwServiceType      //type of service
DWORD     dwStartType        //when to start service
DWORD     dwErrorControl     //severity if service fails to start
LPCTSTR   lpBinaryPathName   //pointer to name of binary file
LPCTSTR   lpLoadOrderGroup   //pointer to name of load ordering group
LPCTSTR   lpDependencies     //pointer to array of dependency names
LPCTSTR   lpServiceStartName //pointer to account name of service
LPCTSTR   lpPassword         //pointer to password for service
                               account
```

See the Microsoft CreateService documentation for more information.

SERVICE_CREATE() returns 0 in case of success, or an explicit error message.

Example:

```
call service_create,
 'SEDIT-SREXX License Server',,
 'SEDIT-SREXX License Server',,
 'SERVICE_ALL_ACCESS',,
 'SERVICE_WIN32_OWN_PROCESS|SERVICE_INTERACTIVE_PROCESS',,
 'SERVICE_AUTO_START',,
 'SERVICE_ERROR_NORMAL',,
 'c:\Program Files\SEDIT\xserv.exe'
```

SERVICE_DELETE - Delete a Service

```
SERVICE_DELETE(name)
```

name the name of the service to be deleted.

On **WINDOWS** systems, SERVICE_DELETE() is an interface to the WIN32 DeleteService function.

See the Microsoft DeleteService documentation for more information.

SERVICE_DELETE() returns 0 in case of success, or an explicit error message.

SERVICE_STOP - Stop a Service

```
SERVICE_STOP(name)
```

`name` the name of the service to be stopped.

On **WINDOWS** systems, `SERVICE_STOP()` is an interface to the WIN32 `ControlService` function.

See the Microsoft `ControlService` documentation for more information.

`SERVICE_STOP()` returns `0` in case of success, or an explicit error message.

SERVICE_START - Start a Service

```
SERVICE_START(name)
```

`name` the name of the service to be started.

On **WINDOWS** systems, `SERVICE_START()` is an interface to the WIN32 `StartService` function.

See the Microsoft `StartService` documentation for more information.

`SERVICE_START()` returns `0` in case of success, or an explicit error message.

SERVICE_STATUS - Status of a Service

```
SERVICE_STATUS(name)
```

`name` the name of the service to be queried.

On **WINDOWS** systems, `SERVICE_STATUS()` is an interface to the WIN32 `QueryServiceStatus` function.

See the Microsoft `QueryServiceStatus` documentation for more information.

`SERVICE_STATUS()` returns an explicit error message in case of failure, or one of the following strings:

```
SERVICE_STOPPED
SERVICE_START_PENDING
SERVICE_STOP_PENDING
SERVICE_RUNNING
SERVICE_CONTINUE_PENDING
SERVICE_PAUSE_PENDING
SERVICE_PAUSED
SERVICE_DOES_NOT_EXIST
```

SETARG

```
SETARG(nn, string)
```

`nn`	is the number of the argument to be modified.
`string`	is the string to be assigned to that argument

See Also: The `ARG()` function.

SetPriority - Sets the priority class for the current process (Windows only)

```
SetPriority(PriorityClass)
```

`PriorityClass` can be one of the following::

```
ABOVE_NORMAL_PRIORITY_CLASS
BELOW_NORMAL_PRIORITY_CLASS
HIGH_PRIORITY_CLASS
IDLE_PRIORITY_CLASS
NORMAL_PRIORITY_CLASS
PROCESS_MODE_BACKGROUND_BEGIN
PROCESS_MODE_BACKGROUND_END
REALTIME_PRIORITY_CLASS
```

See:

https://docs.microsoft.com/en-us/windows/win32/api/processthreadsapi/nf-processthreadsapi-setpriorityclass?redirectedfrom=MSDN

for a description of each parameter value.

Example:

```
rc = SetPriority("PROCESS_MODE_BACKGROUND_BEGIN")
say 'rc = 'rc
rc = SetPriority("PROCESS_MODE_BACKGROUND_BEGIN")
say 'rc = 'rc
say 'result = 'result
```

would display:

```
rc = 0
rc = -1
result = The process is already in background processing
mode.
```

Starting with 3.08b release, the priority in inherited by any command started by **S/REXX**.

ShellExecute - Performs an operation on a specified file (Windows only)

```
ShellExecute({Operation},File,{Parameters},{Directory})
```

`ShellExecute` calls directly the Win32 `ShellExecute()` API.

`Operation:` A string that specifies the action to be performed. The set of available verbs depends on the particular file or folder. The following verbs are commonly used:

`edit`	Launches an editor and opens the document for editing. If `File` is not a document file, the function will fail.
`explore`	Explores a folder specified by `File`.
`find`	Initiates a search beginning in the directory specified by `Directory`.
`open`	Opens the item specified by the `File`. `File` can be for example a file, a folder, a WEB address.
`print`	Prints the file specified by `File`. If `File` is not a document file, the function fails.

If `Operation` is not specified, the default verb is used, if available. If not, the `open` verb is used. If neither verb is available, the system uses the first verb listed in the registry.

`File:` A string that specifies the file or object on which to execute the specified verb.

`Parameters:` The parameters to be passed to the application.

`Directory:` A string that specifies the default (working) directory for the action. If not specified, the current working directory is used. If a relative path is provided at `File`, do not use a relative path for `Directory`.

`Example:`

```
call ShellExecute "open", "http://www.sedit.com"
```

SHGetKnownFolderPath - Retrieves the full path of a known folder (Windows only)

`SHGetKnownFolderPath(RFID)`

`SHGetKnownFolderPath` retrieves the full path of a known folder identified by the folder's `RFID`. It returns -1 in case of error..

`SHGetKnownFolderPath` is similar to the Win API defined in the following page:

http://msdn.microsoft.com/en-us/library/windows/desktop/bb762188(v=vs.85).aspx

`RFID` is a string similar to the Win API defined in the following page:

http://msdn.microsoft.com/en-us/library/bb762584(v=VS.85).aspx

`RFID` can be one of the following::

```
AdminTools                  ProgramFiles
CDBurning                   ProgramFilesX64
CommonAdminTools            ProgramFilesCommon
CommonOEMLinks              ProgramFilesCommonX64
CommonPrograms              ProgramFilesCommonX86
CommonStartMenu             Programs
CommonStartup               PublicDownloads
CommonTemplates             PublicMusic
Cookies                     PublicPictures
Documents                   PublicVideos
Desktop                     QuickLaunch
Downloads                   Recent
Favorites                   ResourceDir
Fonts                       RoamingAppData
History                     SampleMusic
InternetCache               SamplePictures
LocalAppData                SendTo
LocalizedResourcesDir       StartMenu
Music                       Startup
NetHood                     System
Pictures                    SystemX86
PrintHood                   Templates
Profile                     Videos
ProgramData                 Windows
```

Example:

```
say '"'SHGetKnownFolderPath('LocalAppData')'"'
       /* Could display: "C:\Users\John\AppData\Local" */
```

SETENV, PUTENV - Set Environment Variable

`SETENV(var, str)` or `PUTENV(var, str)` assigns `str` to the `var` environment variable.

```
Example:call putenv "PATH", ".:/usr/bin:/bin"
```

See also the `GETENV()` function.

SIN - Sine

`SIN(ang)` returns the sine value of the radian argument `ang`.

SLEEP - Suspend Execution

`SLEEP(sec)` suspends execution for `sec` seconds.

SockAccept - Accept an Incoming Request

```
as = SockAccept(s{, 'stem.'}
as = accept(s{, 'stem.'}
```

accepts a connection request from a remote host.

`as`	a positive value indicates succes. `as` can then be used with `SockRecv()` to retrieve the message sent by the remote host.
`'stem.'`	is an optional stem variable where the address that is bound to the `as` socket is placed.
`stem.family`	is always `'AF_INET'` or `'PF_INET'`.
`stem.port`	the port number assigned to the socket.
`stem.addr`	either `'INADDR_ANY'` or the internet address in dotted format (`nnn.nnn.nnn.nnn`).

SockClose - Close a Socket

```
SockClose(s)
closesocket(s)
```

closes the `s` socket opened with the `SockSocket()` built-in.

SockBind - Bind a Socket

```
rc = SockBind(s, 'stem.')
rc = bind(s, 'stem.')
```
assigns a name to an unnamed socket.

`rc` `0` when `SockBind()` succeds.

`s` specifies a socket.

`'stem.'` is a stem variable containing the address that is to be bound to socket.

`stem.family`
must always be `'AF_INET'` or `'PF_INET'`.

`stem.port` the port number to be assigned to the socket. If `port` is set to `0`, the the system will assign an available port. `SockGetSockName()` can be used to retrieve the port number assigned.

`stem.addr` either `'INADDR_ANY'` or the internet address in dotted format (`nnn.nnn.nnn.nnn`). On hosts with more than one network interface (called multihomed hosts), a caller can select the interface with which it is to bind.

`SockBind()` sets the `errno` variable to `0` in case of success, or to one of the following error codes:

`EACCES` the requested address is protected and the current user has inadequate permission to access it.

`EADDRINUSE` the specified address is already in use.

`EADDRNOTAVAIL`
the specified address is not available on the local machine.

`EBADF` `s` is not a valid descriptor.

`EINVAL` the socket is already bound to an address.

`ENOSR` there were insufficient `STREAMS` resources for the operation to complete.

`ENOTSOCK` `s` is a descriptor for a file, not a socket.

Example:
```
addr_family = 'AF_INET'
addr_port   = 1256
addr_addr   = 'INADDR_ANY'
rc = SockBind(sock_in, 'addr_')
```

Note: Using a stem name such as `'addr.'` may lead to unexpected results. If for example the `port` REXX variable is assigned the value of `12`, `addr.port` will expand to `addr.12`, and the `port` value assigned to `addr.port` will be impossible to retrieve. Use a non-stemmed prefix such as `addr_` to prevent this error.

SockConnect - Connect a Socket

```
rc = SockConnect(s, 'stem.')
rc = connect(s, 'stem.')
```
connects a socket to a host.

`rc` `0` when `SockConnect()` succeds.

`s` specifies a socket.

`'stem.'` is a stem variable containing the address of the remote socket to which a connection is to be attempted.

`stem.family`
must always be `'AF_INET'` or `'PF_INET'`.

`stem.port` the port number assigned to the remote socket.

`stem.addr` either `'INADDR_ANY'` or the internet address in dotted format (`nnn.nnn.nnn.nnn`).

`SockConnect` sets the `errno` variable to `0` in case of success, or to one of the following error codes:

`EACCES` search permission is denied for a component of the path prefix of the pathname in name.

`EADDRINUSE` the address is already in use.

`EADDRNOTAVAIL`
the specified address is not available on the remote machine.

`EAFNOSUPPORT`
addresses in the specified address family cannot be used with this socket.

`EALREADY` the socket is non-blocking and a previous connection attempt has not yet been completed.

`EBADF` `s` is not a valid descriptor.

`ECONNREFUSED`
the attempt to connect was forcefully rejected.

`EINPROGRESS`
the socket is non-blocking and the connection cannot be completed immediately.

`EINTR` the connection attempt was interrupted before any data arrived by the delivery of a signal.

`EIO` an I/O error occurred while reading from or writing to the file system.

`EISCONN` the socket is already connected.

`ELOOP` too many symbolic links were encountered in translating the pathname in name.

`ENETUNREACH`
the network is not reachable from this host.

ENOSR	there were insufficient STREAMS resources available to complete the operation.
ENXIO	the server exited before the connection was complete.
ETIMEDOUT	connection establishment timed out without establishing a connection.

```
Example:addr_family = 'AF_INET'
        addr_port   = 1256
        addr_addr   = SockGetHostId()
        rc = SockConnect(sock_out, 'addr_')
```

Note: Using a stem name such as `'addr.'` may lead to unexpected results. If for example the `port` REXX variable is assigned the value of `12`, `addr.port` will expand to `addr.12`, and the `port` value assigned to `addr.port` will be impossible to retrieve. Use a non-stemmed prefix such as `addr_` to prevent this error.

SockDropFuncs - Compatibility Function

`SockDropFuncs()` is provided for compatibility purposes. `SockDropFuncs` does no perform any function.

SockGetHostByAddr - Search for Information for a Host

```
rc = SockGetHostByAddr(dotAddress, 'stem.'{, domain})
rc = gethostbyaddr(dotAddress, 'stem.'{, domain})
```

gets information about a specified host on the network using its dotted decimal address.

rc	`1` when `SockGetHostByAddr()` succeds, `0` in case of failure.
dotAddress	a string specifying the dotted decimal address of the host.
domain	the domain value. `SockGetHostByAddr()` only supports the "`AF_INET`" value.
'stem.'	is a stem variable containing the information about the host.
stem.name	the standard name of the host.
stem.alias.0	number of aliases for this host.
stem.alias.1	First alias for this host.
stem.alias.n	n'th alias for this host.
stem.addrtype	always "`AF_INET`".
stem.addr	the default dotted decimal address.
stem.addr.0	number of addresses for the `name` host.
stem.addr.1	first address for the `name` host.
stem.addr.n	n'th address for the `name` host.

SockGetHostByAddr() sets the h_errno variable to 0 in case of success, or to one of the following error codes:

```
HOST_NOT_FOUND
TRY_AGAIN
NO_RECOVERY
NO_DATA
NO_ADDRESS
```

Example:
```
rc = SockGetHostByAddr('192.9.200.1', 'host.')
say 'host.name = 'host.name
say 'host.alias.0 = 'host.alias.0
do i = 1 to host.alias.0
  say 'host.alias.'i' = 'host.alias.i
end
say 'host.addrtype = 'host.addrtype
say 'host.addr     = 'host.addr
say 'host.addr.0   = 'host.addr.0
do i = 1 to host.addr.0
  say 'host.addr.'i' = 'host.addr.i
end
```

SockGetHostByName - Search for Information for a Host

```
rc = SockGetHostByName(name, 'stem.')
rc = gethostbyname(name, 'stem.')
```
gets information about a specified host on the network using its name.

rc	1 when SockGetHostByName() succeds, 0 in case of failure.
name	a string specifying the name of the host.
'stem.'	is a stem variable containing the information about the host.
stem.name	the standard name of the host.
stem.alias.0	number of aliases for this host.
stem.alias.1	First alias for this host.
stem.alias.n	n'th alias for this host.
stem.addrtype	always "AF_INET".
stem.addr	the default dotted decimal address.
stem.addr.0	number of addresses for the name host.
stem.addr.1	first address for the name host.
stem.addr.n	n'th address for the name host.

`SockGetHostByName()` sets the `h_errno` variable to `0` in case of success, or to one of the following error codes:

```
HOST_NOT_FOUND
TRY_AGAIN
NO_RECOVERY
NO_DATA
NO_ADDRESS
```

Example:
```
rc = SockGetHostByName(hostname(), 'host.')
say 'host.name = 'host.name
say 'host.alias.0 = 'host.alias.0
do i = 1 to host.alias.0
  say 'host.alias.'i' = 'host.alias.i
end
say 'host.addrtype = 'host.addrtype
say 'host.addr     = 'host.addr
say 'host.addr.0   = 'host.addr.0
do i = 1 to host.addr.0
  say 'host.addr.'i' = 'host.addr.i
end
```

SockGetHostId - Get the Dot Address of the Host

```
dotAddress = SockGetHostId()
dotAddress = gethostid()
```
retrieves the dot address of the local host in `nnn.nnn.nnn.nnn` format.

SockGetPeerName - Get the Name of the Connected Peer

```
rc = SockGetPeerName(s, 'stem.')
rc = getpeername(s, 'stem.')
```
retrieves information about the peer connected to the socket `s` in the '`stem.`' stem.

`rc`	`0` when `SockGetPeerName()` succeds.
`s`	specifies a socket.
`'stem.'`	is a stem variable containing the address that is bound to the `s` socket.
`stem.family`	is always `'AF_INET'` or `'PF_INET'`.
`stem.port`	the port number assigned to the socket. If the socket is not bound to an address, `stem.port` is set to `0`.
`stem.addr`	either `'INADDR_ANY'` or the internet address in dotted format (`nnn.nnn.nnn.nnn`).

`SockGetPeerName()` sets the `errno` variable to `0` in case of success, or to one of the following error codes:

`EBADF`	the argument `s` is not a valid file descriptor.
`ENOMEM`	there was insufficient memory available for the operation to complete.

ENOSR — there were insufficient STREAMS resources available for the operation to complete.

ENOTSOCK — the argument s is not a socket.

ENOTCONN — the socket s is not connected.

```
Example:SockGetPeerName(s, 'addr_')
        say addr_family       /* displays 'AF_INET' */
        say addr_port         /* could display 1256 */
        say addr_addr         /* could display 'INADDR_ANY' or
                                 '192.9.200.1' */
```

Note: Using a stem name such as 'addr.' may lead to unexpected results. If for example the port REXX variable is assigned the value of 12, addr.port will expand to addr.12, and the port value assigned to addr.port will be impossible to retrieve. Use a non-stemmed prefix such as addr_ to prevent this error.

SockGetSockName - Get the Current Socket Name

```
rc = SockGetSockName(s, 'stem.')
rc = getsockname(s, 'stem.')
```
retrieves information about the s socket in the 'stem.' stem.

rc — 0 when SockGetSockName() succeds.

s — specifies a socket.

'stem.' — is a stem variable containing the address that is bound to the s socket.

stem.family — is always 'AF_INET' or 'PF_INET'.

stem.port — the port number assigned to the socket. If the socket is not bound to an address, stem.port is set to 0.

stem.addr — either 'INADDR_ANY' or the internet address in dotted format (nnn.nnn.nnn.nnn).

SockGetSockName() sets the errno variable to 0 in case of success, or to one of the following error codes:

EBADF — the argument s is not a valid file descriptor.

ENOMEM — there was insufficient memory available for the operation to complete.

ENOSR — there were insufficient STREAMS resources available for the operation to complete.

ENOTSOCK — the argument s is not a socket.

Example:
```
SockGetSockName(s,                              'addr_')
say addr_family  /*      displays      'AF_INET'      */
say addr_port    /*     could     display     1256     */
say addr_addr    /*  could  display  'INADDR_ANY'  or
                      '192.9.200.1' */
```

Note: Using a stem name such as `'addr.'` may lead to unexpected results. If for example the `port` REXX variable is assigned the value of `12`, `addr.port` will expand to `addr.12`, and the `port` value assigned to `addr.port` will be impossible to retrieve. Use a non-stemmed prefix such as `addr_` to prevent this error.

SockGetSockOpt - Get Socket Options

```
rc = SockGetSockOpt(s, level, optname, 'optval')
rc = getsockopt(s, level, optname, 'optval')
```
gets options associated with a socket.

`rc` `0` when `SockGetSockOpt()` succeds.

`s` specifies a socket.

`level` the protocol level. `SockGetSockOpt()` supports only the "`SOL_SOCKET`" level.

`optname` on **UNIX** systems, `optname` can be:

```
SO_DEBUG SO_REUSEADDR SO_KEEPALIVE
SO_DONTROUTE SO_LINGER SO_BROADCAST
SO_OOBINLINE SO_SNDBUF SO_RCVBUF SO_TYPE
SO_ERROR
```

On **WINDOWS** system, `optname` can be:

```
SO_DEBUG SO_REUSEADDR SO_KEEPALIVE
SO_DONTROUTE SO_LINGER SO_BROADCAST
SO_OOBINLINE SO_SNDBUF SO_RCVBUF SO_DONTLINGER
```

`'optval'` the name of an **S/REXX** variable enclosed in quotes.
When `optname` is `SO_LINGER`, `optval` is filled with a string including 2 integers. The first integer is a boolean flag describing the linger status, and the second integer is the linger time.

`SockGetSockOpt()` sets the `errno` variable to `0` in case of success, or to one of the following error codes:

`EBADF` the argument `s` is not a valid file descriptor.

`ENOMEM` there was insufficient memory available for the operation to complete.

`ENOPROTOOPT`
the option is unknown at the level indicated.

`ENOSR` there were insufficient STREAMS resources available for the operation to complete.

`ENOTSOCK` the argument `s` is not a socket.

Example:

```
rc = SockGetSockOpt(sock_out, "SOL_SOCKET", "SO_REUSEADDR",
'lg')
if (lg = 1) then
```

SockInit - Compatibility Function

`SockInit()` is provided for compatibility purposes. `SockInit()` does not perform any function.

SockIoctl - Perform Special Operations on Socket

```
rc = SockIoctl(s, codeop, 'var')
rc = ioctl(s, codeop, 'var')
```

sets socket attribute, or retrieves information.

`rc`	`0` when `SockIoctl()` succeds.
`s`	specifies a socket.
`codeop`	the ioctl command to perform. `codeop` can be '`FIONBIO`' or '`FIONREAD`'.
`FIONBIO`	sets or clears nonblocking input/output for the `s` socket. `var` must be an integer. When `var` contains the value of `0`, input/output on the socket `s` are blocking. Otherwise, input/output on the socket `s` are nonblocking.
`FIONREAD`	`SockIoctl()` stores in `var` the number of bytes available for reading.
`'var'`	a REXX variable.

`SockIoctl()` sets the `errno` variable to `0` in case of success, or to one of the following error codes:

`EINVAL`	request or `codeop` is not valid for this device.
`EIO`	some physical I/O error has occurred.
`ENOLINK`	`s` is on a remote machine and the link to that machine is no longer active.

SockListen - Listen for Incoming Requests

```
rc = SockListen(s, backlog)
rc = listen(s, backlog)
```

completes the binding necessary for a socket to accept connections and creates a connection request queue for incoming requests.

`rc`	`0` when `SockListen()` succeds.
`s`	specifies a socket.

`backlog` the maximum length the queue of pending connections may grow to.

`SockListen()` sets the `errno` variable to `0` in case of success, or to one of the following error code:

`EBADF` the argument `s` is not a valid file descriptor.

SockLoadFuncs - Compatibility Function

`SockLoadFuncs()` is provided for compatibility purposes. `SockLoadFuncs()` does not perform any function.

SockPSock_Errno - Last Error Code

`SockPSock_Errno({str})` prints the last error code set by a socket call. Subsequent successful socket calls do not reset this error code.

When `str` is provided and is not empty, `SockPSock_Errno()` prints first `str` followed by a colon and a space.

SockRecv - Receive Data

```
rc = SockRecv(s, 'var', len{, flag})
rc = recv(s, 'var', len{, flag})
```
receives data on a connected socket.

`rc` `-1` in case of failure or the length of the incoming data.

`s` a connected socket. Generally, the return of the `SockAccept()` function.

`'var'` the name of a REXX variable the data will be received into.

`len` the maximum length of the data to be read.

`flag` a blank delimited list of options:
`MSG_OOB` reads any out-of-band data on the socket.
`MSG_PEEK` peeks at the data present on the socket; the data is returned but not consumed, so that a subsequent receive operation sees the same data.

`SockRecv()` sets the `errno` variable to `0` in case of success, or to one of the following error codes:

`EINTR` the operation was interrupted by delivery of a signal before any data was available to be received.

`EIO` an I/O error occurred while reading from or writing to the file system.

`ENOMEM` there was insufficient user memory available for the operation to complete.

`ENOSR` there were insufficient STREAMS resources available for the operation to complete.

ENOTSOCK	s is not a socket.
ESTALE	a stale NFS file handle exists.
EWOULDBLOCK	the socket is marked non-blocking and the requested operation would block.

SockRecvFrom - Receive Data

```
rc = SockRecvFrom(s, 'var', len, {flag}, 'addr.')
rc = recvfrom(s, 'var', len, {flag}, 'addr.')
```

receives data on a socket whether it is in a connected state or not.

rc	-1 in case of failure or the length of the incoming data.
s	specifies a socket.
'var'	the name of a REXX variable the data will be received into.
len	the maximum length of the data to be read.
flag	a blank delimited list of options: MSG_OOB reads any out-of-band data on the socket. MSG_PEEK peeks at the data present on the socket; the data is returned but not consumed, so that a subsequent receive operation sees the same data.
'addr.'	when provided, the source address of the message is filled into the 'addr.' stem.
addr.family	is always 'AF_INET'.
addr.port	the port number assigned to the socket.
addr.addr	either 'INADDR_ANY' or the internet address in dotted format (nnn.nnn.nnn.nnn).

SockRecvFrom() sets the errno variable to 0 in case of success, or to one of the following error codes:

EINTR	the operation was interrupted by delivery of a signal before any data was available to be received.
EIO	an I/O error occurred while reading from or writing to the file system.
ENOMEM	there was insufficient user memory available for the operation to complete.
ENOSR	there were insufficient STREAMS resources available for the operation to complete.
ENOTSOCK	s is not a socket.
ESTALE	a stale NFS file handle exists.
EWOULDBLOCK	the socket is marked non-blocking and the requested operation

would block.

SockSelect - Monitor Sockets

```
rc = SockSelect('reads.', 'writes.', 'excepts.' {,tt})
rc = select('reads.', 'writes.', 'excepts.' {,tt})
```
monitors the activity of the specified sockets.

`rc`	the number of ready sockets, or `-1` in case of failure.
`'reads.'`	the stem specifying the sockets to be checked for readability. When omitted, or specified as an empty string, no socket is checked for readability.
`reads.0`	the number of sockets to be checked for readability.
`reads.n`	the n'th socket to be checked for readability.
`'writes.'`	the stem specifying the sockets to be checked for readiness for writing.When omitted, or specified as an empty string, no socket is checked for readiness for writing.
`writes.0`	the number of sockets to be checked for readiness for writing.
`writes.n`	the n'th socket to be checked for readiness for writing.
`'excepts.'`	the stem specifying the sockets to be checked for exceptional pending conditions (out-of-band data in the receive buffer). When omitted, or specified as an empty string, no socket is checked for exceptional pending conditions.
`excepts.0`	the number of sockets to be checked for exceptional pending conditions.
`excepts.n`	the n'th socket to be checked for exceptional pending conditions.
`tt`	the timeout amount in seconds before `SockSelect()` returns when no socket is ready. When `tt` is set to `0`, `SockSelect()` does not wait before returning. If no timeout value is passed, or if `tt` is an empty string (`""`), `SockSelect()` does not return until one socket becomes ready.

`SockSelect()` sets the `errno` variable to `0` in case of success, or to one of the following error codes:

`EBADF`	the argument `s` is not a valid file descriptor.
`EINTR`	a signal was delivered before any of the selected events occurred, or the time limit expired.

Example:
```
sock_in  = SockSocket("AF_INET", "SOCK_STREAM", 0)
sock_out = SockSocket("AF_INET", "SOCK_STREAM", 0)
do forever
  reads.0 = 1
  reads.1 = sock_in
  writes.0 = 1
  writes.1 = sock_out
  excepts.0 = 2
```

```
  excepts.1 = sock_in
  excepts.2 = sock_out
  call SockSelect 'reads.', 'writes.', 'excepts.', 1.5
  do i = 1 to reads.0
     say reads.i 'is ready for reading'
  end
  do i = 1 to writes.0
     say writes.i 'is ready for writing'
  end
  do i = 1 to excepts.0
     say excepts.i 'is exceptional'
  end
end
```

SockSend - Send Data

```
rc = SockSend(s, data{, flags})
rc = send(s, 'data'{, flags})
```

sends data on a connected socket.

`rc` `-1` in case of failure or the number of bytes sent.

`data` the data to be sent.

`flags` is an optional blank delimited list of options:

`MSG_OOB`

Sends out-of-band data on sockets that support SOCK_STREAM communication.

`MSG_DONTROUTE`

The `SO_DONTROUTE` option is turned on for the duration of the operation. This is usually used only by diagnostic or routing programs.

`SockSend()` sets the `errno` variable to `0` in case of success, or to one of the following error codes:

`EBADF` `s` is an invalid file descriptor.

`EINTR` the operation was interrupted by delivery of a signal before any data could be buffered to be sent.

`EMSGSIZE` the socket requires that message be sent atomically, and the message was too long.

`ENOMEM` there was insufficient memory available to complete the operation.

`ENOSR` there were insufficient STREAMS resources available for the operation to complete.

`ENOTSOCK` `s` is not a socket.

`EWOULDBLOCK`
the socket is marked non-blocking and the requested operation would block.

SockSendTo - Send Data

```
rc = SockSendTo(s, data, {flags}, 'addr')
rc = sendto(s, 'data', {flags}, 'addr')
```
sends data on a socket whether it is in a connected state or not.

`rc` `-1` in case of failure or the number of bytes sent.

`data` the data to be sent.

`flags` is an optional blank delimited list of options:

`MSG_OOB`

Sends out-of-band data on sockets that support SOCK_STREAM communication.

`MSG_DONTROUTE`

The `SO_DONTROUTE` option is turned on for the duration of the operation. This is usually used only by diagnostic or routing programs.

`'addr'` the name of a REXX variable containing the destination address.

`addr.family` must always be `'AF_INET'` or `'PF_INET'`.

`addr.port` the port number assigned to the socket.

`addr.addr` either `'INADDR_ANY'` or the internet address in dotted format (`nnn.nnn.nnn.nnn`).

`SockSendTo()` sets the `errno` variable to `0` in case of success, or to one of the following error codes:

`EBADF` `s` is an invalid file descriptor.

`EINTR` the operation was interrupted by delivery of a signal before any data could be buffered to be sent.

`EMSGSIZE` the socket requires that the message be sent atomically, and the message was too long.

`ENOMEM` there was insufficient memory available to complete the operation.

`ENOSR` there were insufficient STREAMS resources available for the operation to complete.

`ENOTSOCK` `s` is not a socket.

`EWOULDBLOCK`

the socket is marked non-blocking and the requested operation would block.

SockSetSockOpt - Set Socket Options

```
rc = SockSetSockOpt(s, level, optname{, optval})
rc = setsockopt(s, level, optname{, optval})
```

sets options associated with a socket.

`rc` `0` when `SockSetSockOpt` succeds.

`s` specifies a socket.

`level` the protocol level. `SockSetSockOpt()` supports only the "`SOL_SOCKET`" level.

`optname` `optname` and any specified options `optval` are passed uninterpreted to the appropriate protocol module for interpretation.

On **UNIX** systems, `optname` can be:

```
SO_DEBUG SO_REUSEADDR SO_KEEPALIVE
SO_DONTROUTE SO_LINGER SO_BROADCAST
SO_OOBINLINE SO_SNDBUF SO_RCVBUF SO_TYPE
SO_ERROR
```

On **WINDOWS** system, `optname` can be:

```
SO_DEBUG SO_REUSEADDR SO_KEEPALIVE
SO_DONTROUTE SO_LINGER SO_BROADCAST
SO_OOBINLINE SO_SNDBUF SO_RCVBUF SO_DONTLINGER
```

`optval` may be a string or a number.

When `optname` is `SO_LINGER`, `optval` must be a string including 2 integers. The first integer is a boolean flag enabling the linger feature, and the second integer is the linger time.

`SockSetSockOpt()` sets the `errno` variable to `0` in case of success, or to one of the following error codes:

`EBADF` the argument `s` is not a valid file descriptor.

`ENOMEM` there was insufficient memory available for the operation to complete.

`ENOPROTOOPT` the option is unknown at the level indicated.

`ENOSR` there were insufficient STREAMS resources available for the operation to complete.

`ENOTSOCK` the argument `s` is not a socket.

`Examples:`

```
rc = SockSetSockOpt(sock_out, "SOL_SOCKET", "SO_REUSEADDR",
1)
rc = SockSetSockOpt(sock_out, "SOL_SOCKET", "SO_LINGER", "1
2")
```

SockShutDown - Close a Socket

```
SockShutDown(s, how)
shutdown(s, how)
```
shuts down all or part of a full duplex connection.

`s`	a socket.	
`how`	`0`	no more data can be received on the socket `s`.
	`1`	no more output to be allowed on the socket `s`.
	`2`	no more data can be sent or received on socket `s`.

`SockShutDown()` sets the `errno` variable to `0` in case of success, or to one of the following error codes:

`EBADF`	`s` is not a valid file descriptor.
`ENOMEM`	there was insufficient user memory available for the operation to complete.
`ENOSR`	there were insufficient STREAMS resources available for the operation to complete.
`ENOTCONN`	the specified socket is not connected.
`ENOTSOCK`	`s` is not a socket.

SockSocket - Create a Socket

```
s = SockSocket(domain, type, protocol)
s = socket(domain, type, protocol)
```
creates an endpoint for communication and returns a socket descriptor representing the endpoint.

`s`	a returned socket.
`domain`	specifies a communications domain within which communication will take place. `SockSocket` supports only the "`AF_INET`" (identical to "`PF_INET`") domain.
`type`	The socket has the indicated `type`, which specifies the communication semantics. `type` may be "`SOCK_STREAM`", "`SOCK_DGRAM`", or "`SOCK_RAW`"
`protocol`	is the protocol family which should be used. `protocol` may be "`IPPROTO_UDP`", "`IPPROTO_TCP`", or a whole number (generally `0`).

`SockSocket` sets the `errno` variable to `0` in case of success, or to one of the following error codes:

`EACCES`	permission to create a socket of the specified type and/or protoco l is denied.
`EMFILE`	the per-process descriptor table is full.
`ENOMEM`	insufficient user memory is available.

`ENOSR` There were insufficient STREAMS resources available to complete the operation.

`EPROTONOSUPPORT`
The protocol type or the specified protocol is not supported within this domain.

SockSoClose - Close a Socket

`SockSoClose(s)` closes the `s` socket opened with the `SockSocket()` built-in.

SockSock_Errno - Last Error Code

`str = SockSock_Errno()` returns the last error code set by a socket call. Subsequent successful socket calls do not reset this error code.

SockVersion - Version Number of Socket Library

`SockVersion()` returns the version number of the **S/REXX** Socket library.

SORT - Sort a List

```
SORT(tab, desc, start, end)
```

`tab` is a valid REXX symbol. The derived stem values (`tab.1`, `tab.2`, etc...) will be sorted accordingly to the `desc` string.

`desc` is a string describing how to sort `tab`.

`desc` is a list of paired columns, which may be preceded with `Ascending`, `Descending`, `N` or `n`, which indicates the order in which to sort the field and the type of field, and all subsequent fields, until another `Ascending` or `Descending` or `N` or `n` parameter is encountered.
`N` indicates a numerical field to be sorted in ascending order.

`n` indicates a numerical field to be sorted in descending order.

`Ascending`, regardless of the case, indicates an alphanumeric field to be sorted in ascending order.

`Descending`, regardless of the case, indicates an alphanumeric field to be sorted in descending order.

`X` indicates a field to be sorted in natural ascending order. See the **SEDIT** `SORT` command for a description of natural order sorting.

`x` indicates a field to be sorted in natural descending order.

`Z` indicates a field to be sorted in natural ascending order while ignoring the case.

`z` indicates a field to be sorted in natural descending order while ignoring the case.

An asterisk `*` as a second column indicates the end of the string to be sorted.

`start` indicates the rank of the first stem to be sorted. When not specified, it defaults to 1.

`end` indicates the rank of the last stem to be sorted. When not specified, it defaults to `tab.0`.

In addition, `SORT` creates a set of `stem.SortOrder.NN` variables set to the sort order.

Examples:

```
call sort list, "a 1 12 d 13 24 N 25 *", 2, 13
call sort list, "X 1 12 d 13 24 N 25 *", 2, 13
```

STATE / LSTATE - Query File State

`STATE(fname{, option})` and `LSTATE(fname{, option})` return 1 when the file `fname` matches `option`, and 0 otherwise.

The `LSTATE()` function obtains file attributes similar to `STATE()`, except when the named file is a symbolic link; in that case `LSTATE()` returns information about the link, while `STATE()` returns information about the file the link references.

`fname` may include the ~ .. **UNIX** or **WINDOWS** file meta characters.

`option` may be one of the following letters, or the word corresponding to the letter:

`"d"`	`"Directory"`	matches a directory.
`"e"`	`"Exists"`	matches an existing file. This is the default when `option` is not supplied.
`"f"`	`"File"`	matches a plain file. Special files, like symbolic links or sockets, return 0.
`"l"`	`"Link"`	matches a symbolic link.
`"o"`	`"Owned"`	matches a file owned by the current user. Always returns 1 on **WINDOWS** systems.
`"r"`	`"Read"`	matches a file which can be read by the current user.
`"s"`	`"Size"`	returns the file size.
`"w"`	`"Write"`	matches a file which can be written by the current user.
`"x"`	`"eXecute"`	matches a file with execute permission. Always returns 1 on **WINDOWS** systems.
`"z"`	`"Zero"`	matches a zero length file.
`"p"`	`"stamP"`	returns a string in `dd/mm/yyyy hh:mm:ss` format indicating the time of last modification.
`"n"`	`"owNer"`	returns the name of the owner of the file.
`"g"`	`"Group"`	returns the name of the group of the file. Always returns an empty string on **WINDOWS** systems.
`"y"`	`"sYstem"`	returns a value which uniquely identifies the file system that contains the file.

```
Examples:if state("~/MyFile") then call MyRoutine
       MyRoutine will be called when ~/MyFile exists.

       owner = state("MyFile", "n")

       owner = state("MyFile", "owner")
```

```
Notes: On WINDOWS systems, fname may be surrounded with
       quotes.

       When the information query succeeds, STATE() and
       LSTATE() set the RC REXX variable to 0.
       When the query fails, STATE() and LSTATE() return
       0, and set the RC REXX variable to a string
       describing the reason the query failed.
```

STIME - Set System Time

`stime(str)` sets the system time according to the str string which must be in '`dd/mm/yyyy hh:mm:ss`' format. `stime` returns `0` when the call succeeds.

```
Example:call stime '25/1/2001 12:03:24'
```

STREAM - Compatibility Function

`stream()` is a compatibility function, which always returns the `ready` string, and performs no action.

SUBDIRS - Find Subdirectories

```
SUBDIRS(root, {stem}, {rec})
```

`root` is the root directory to be scanned for subdirectories.

`stem` when `stem` is not provided, the `SUBDIRS` output will be placed in the stack. The user will be able to read it using the `parse pull` command.

The `queued()` function may be used to return the number of lines in the stack.

When `stem` is provided, it must be a valid `REXX` name. It will be filled with the `SUBDIRS` output. `stem.0` will contain the number of subdirectories found.

`rec` when not specified, or specified as the "`nr`" string, only the first level subdirectories names are returned.

When specified as the "`r`" string, every subdirectory will be recursively scanned, and all the nested subdirectories names will be returned.

Example:

```
call subdirs "~", tab, "r"
do i = 1 to tab.0
   say tab.i
end
```

SysCls - Clear the Screen

`SysCls()` clears the screen when possible.

`SysCls()` returns `0` in case of success, or an error message in case of failure.

SysFileDelete - Delete File

`SysFileDelete(file)` removes the `file` file. `file` may include the ~ .. **UNIX** or **WINDOWS** file meta characters.

Notes: `SysFileDelete()` removes one file at a time. To remove several files with one call, use the `RM()` or the `DEL()` subroutine. `RM()` and `DEL()` need quotes when the name of the file to erase contains blanks. `SysFileDelete()` does not.

Return Codes:

`0`	File deleted successfully.
`2`	File not found.
`3`	Path not found.
`4`	Too many symbolic links were encountered in translating path.
`5`	Access denied or busy.
`6`	Components of path require hopping to multiple remote machines and the file system does not allow it.
`7`	Path points to a remote machine and the link to that machine is no longer active.
`8`	The length of the path argument is too long.
`108`	Read-only filesystem.
`999`	Unknown error.

SysFileSearch - Scan File

`SysFileSearch(str, file, 'stem.'{, opt})`
searches the `file` file to find all lines containing the `str` string. `file` may include the ~ .. **UNIX** or **WINDOWS** file meta characters.

`str`	the string to match.
`file`	the file to search.
`'stem.'`	the name of a stem variable used to return the result of the search.
`stem.0`	the number of matching lines.
`stem.i`	the contents of a matching line. When `opt` contains the `N` option, `stem.i` contains the line number.
`opt`	an optional string containing one of the following one-character options:

`N`	returns the file line numbers.
`C`	conducts a case-sensitive search.

By default, the search is case-insensitive without line numbers.

Return Codes:

`0`	Successful.
`3`	Error opening file.
`4`	Error reading file.

Example:

```
call SysFileSearch 'spool', '/etc/passwd', 'stem.', 'n'
do i = 1 to stem.0
   say stem.i
end
```

could print:

```
7 lp:x:71:8:Line Printer Admin:/usr/spool/lp:
10 nuucp:x:9:9:uucp Admin:/var/spool/uucppublic
```

SysFileTree - Scan Directory

`SysFileTree(filespec, 'stem.', {opt})`
searches the directory described by `filespec` for matching files.

`filespec` can be one of the following:

- a `dir` directory — all the files in the `dir` directory matching `opt` will be returned. `dir` may include the ~ .. **UNIX** or **WINDOWS** file meta characters.
- an `expr` search string — all files matching `expr` and `opt` in the current directory will be returned. When `opt` does not specify a regular expression search, `expr` can include the `*` and `?` special meta characters. `*` matches any set of characters. `?` matches any (one) character.
- `dir/expr` — all files matching `expr` and `opt` in the `dir` directory will be returned.
- a null ("") string — all files matching `opt` in the current directory will be returned.

`'stem.'` the name of a stem variable used to return the result of the search.

`stem.0` the number of matching files.

`stem.i` a matching file.

`opt` an optional string containing one of the following one-character options:

`F`	Search only for files.
`D`	Search only for directories
`B`	Search for both directories and files. This is the default.
`S`	Search subdirectories recursively.
`T`	Return the time and date in `YY/MM/DD/HH/MM` format.
`L`	Return the time and date in `YYYY-MM-DD HH:MM:SS` format.
`O`	Return only the file name. The default is to return the string in the example below.
`I`	Ignore case. This is the default on **WINDOWS** systems.
`R`	Respect case. This is the default on **UNIX** systems.
`G`	`filespec` is a regular expression. See page 369 for a regular expression definition. Note that on **WINDOWS** systems, the `\` regular expression escape character cannot be used. Instead of using for example `\.` (meaning "."), use `[.]`.

`SysFileTree`() returns `0` in case of success, or an explicit error message such as "`Error Opening Directory xxxxx`" in case of failure.

`Examples:`

```
call SysFileTree '/usr/include/*io*.h', 'stem.'
do i = 1 to stem.0
  say stem.i
end
```

could print:

```
04/24/96   03:18    2317   -rw-r--r-- /usr/include/aio.h
04/24/96   03:18    1025   -rw-r--r-- /usr/include/cpio.h
04/24/96   19:18   11868   -rw-r--r-- /usr/include/stdio.h
```

```
call SysFileTree 'C:\WTSRV\[2-3][.]dll', 'stem.', 'g'
do i = 1 to stem.0
  say stem.i
end
```

could print:

```
04/29/96   12:13    21648 ---A- C:\WTSRV\ctl3dv2.dll
08/24/98   10:00    52224 ---A- C:\WTSRV\scnlib32.dll
06/11/97   00:06   104448 ---A- C:\WTSRV\TWAIN32.DLL
08/23/98   13:32    77312 ---A- C:\WTSRV\TWAIN_32.DLL
05/09/98   14:04    24336 ---A- C:\WTSRV\vmmreg32.dll
```

SysGetKey - Read Character Input Stream

`SysGetKey()` is a synonym of the `CHARIN()` built-in described page 546. `SysGetKey()` and `CHARIN()` do not need the `Enter` key to be pressed before returning.

SysMkDir - Delete a Directory

`SysMkDir(dir)` creates the specified directory.

`dir may include the ~ ..` **UNIX** `or` **WINDOWS** `file meta characters.`

Return Codes:

`0`	Success.
`3`	Path not found.
`4`	Too many symbolic links were encountered in translating path.
`5`	Access Denied.
`6`	Components of path require hopping to multiple remote machines and the file system does not allow it.
`7`	Path points to a remote machine and the link to that machine is no longer active.
`8`	I/O error.
`87`	Already exists.
`108`	Read-only filesystem.
`206`	File name too long or no space left on device.
`999`	Unknown error.

SysRmDir - Delete a Directory

`SysRmDir(dir)`

`SysRmDir()` removes the `dir` directory. `dir` must be empty. See the `RMDIR()` built-in function to remove recursively non-empty directories.

`dir may include the ~ ..` **UNIX** `or` **WINDOWS** `file meta characters.`

Return Codes:

`0`	Success.
`3`	Path not found.
`4`	Too many symbolic links were encountered in translating path.
`5`	Access Denied.
`6`	Components of path require hopping to multiple remote machines and the file system does not allow it.
`7`	Path points to a remote machine and the link to that machine is no longer active.
`8`	I/O error
`9`	The directory to be removed is the mount point for a mounted file

system.

10	The directory to be removed is the current directory.
108	Read-only filesystem.
206	File name too long or no space left on device.
999	Unknown error.

SysSearchPath - Search Files in Path

```
rf = SysSearchPath('PATH', file{, exec} {, 'stem.')
```

SysSearchPath() searches for the file file within the directories described by the environment variable PATH. The PATH directories are separated by a colon (':') on **UNIX** systems, and by a semi-colon (';') on **WINDOWS** systems.

rf	the full file specification of the first file in the path matching file.
exec	0 (the default) or 1. On **UNIX** systems, when exec is set to 1, SysSearchPath() only finds files with at least one of the "user", "group" and "other" execute permission flags set to on.
'stem.'	when specified, SysSearchPath() stores all the files matching file in the stem. variable.
stem.0	the number of matching files.
stem.i	a matching file.

Examples:

```
call SysSearchPath "PATH", 'csh', 1, "stem."
do i = 1 to stem.0
  say stem.i
end
say 'result = 'result
```

could print:

```
/usr/bin/csh
/bin/csh
result = /usr/bin/csh
```

SysSetPriority - Change the Priority

SysSetPriority(class, delta) changes the priority of the current process.

On **UNIX** systems:

class	the type of priority to change: 0 no changes. 1 the scheduling priority of the process. 2 the scheduling priority of the process group. 3 the scheduling priority of the user.
delta	the delta (positive or negative) applied to the process priority. The process default priority is 0, and can vary between -20 and +20. Only

the superuser can lower the priority. Lower priorities cause more favorable scheduling.

On **WINDOWS** systems:

`class` the type of priority to set:

`0`	no changes.
`1`	`IDLE_PRIORITY_CLASS`: specify this class for a process whose threads run only when the system is idle. The threads of the process are preempted by the threads of any process running in a higher priority class. An example is a screen saver. The idle-priority class is inherited by child processes.
`2`	`NORMAL_PRIORITY_CLASS`: specify this class for a process with no special scheduling needs.
`3`	`HIGH_PRIORITY_CLASS`: specify this class for a process that performs time-critical tasks that must be executed immediately. The threads of the process preempt the threads of normal or idle priority class processes. Use extreme care when using the high-priority class, because a high-priority class application can use nearly all available CPU time.
`4`	`REALTIME_PRIORITY_CLASS`: specify this class for a process that has the highest possible priority. The threads of the process preempt the threads of all other processes, including operating system processes performing important tasks. For example, a real-time process that executes for more than a very brief interval can cause disk caches not to flush or cause the mouse to be unresponsive.

`delta` ignored.

Return Codes:

`0`	Success.
`1`	Unable to get current priority.
`2`	Unable to set priority.
`307`	Invalid priority class.

Note: `SysSetPriority()` is not supported on **SCO** systems.

SysSleep - Suspend Execution

`SysSleep(sec)` suspends execution for `sec` seconds. See also the `SLEEP()` and `USLEEP()` built-ins.

SYSTEM - Passes string to SHELL (Unix Only)

`SYSTEM(cmd)` causes "`cmd`" to be given to the shell as input, as if "`cmd`" had been typed as a command at a terminal. **S/REXX** waits until the shell has completed, then returns the exit status of the shell.

SysTempFileName - Make a Unique File Name

`SysTempFileName(filespec, {, filter})`
returns a name for a file or directory which does not exists.

`filespec` can be a `tmp` template for a filename, or a `dir` directory name followed by a `tmp` template for a file name. When `dir` is not provided or is invalid, it defaults to the `/tmp` directory on **UNIX** systems, and to the `C:/temp` directory on **WINDOWS** systems.

`filter` the filter character used in `tmp`. Each filter character in `tmp` is replaced with a random numerical value. Then, `tmp` is appended a random 6 characters string.

`SysTempFileName()` returns an empty string in case of error.

Examples:

```
say SysTempFileName("/usr/test??", "?")
say SysTempFileName("?foo??", "?")
say SysTempFileName("", "?")
```

could print:

```
/usr/test48a002b4
/tmp/1foo95a002b4
/tmp/a002b4
```

SysVersion - Operating System Description

`SysVersion()` returns a string describing the operating system, such as:

```
AIX 2 3 000012627700
IRIX 5.3 11091812 IP22
OSF1 V4.0 464 alpha
HP-UX B.10.10 A 9000/710
SunOS 4.1.3_U1 2 sun4m
SunOS 5.5 Generic i86pc
SunOS 5.5.1 Generic_103640-14 sun4u
WINDOWS 4.0 build 1381 Service Pack 3
Linux 2.0.32 #1 Wed Nov 19 00:46:45 EST 1997 i586
```

TAN - Tangent

`TAN(ang)` returns the tangent value of the radian argument `ang`.

TBADD - Insert Table Line

`nb_line = TBADD(li{, arg1{, arg2 {...}}})` inserts a line after the line `li` in the currently opened table, filling it with the arguments provided.

When no argument is provided, the new line will be an empty line.

`TBADD` returns the table length.

```
Examples:nb_line = tbadd 12
       call tbadd 12, "Item 1",,"Item 3"
```

See S/REXX ISPF-like Tables on page 649 for more information about the table functions.

TBCLOSE - Close Current Table

`TBCLOSE` closes the opened table currently. All modified data will be lost.

TBDEL - Delete Table Line

`nb_line = TBDEL(li)` deletes the line `li` in the currently opened table.

`TBDEL` returns the table length.

TBDISPL - Display Table

`TBDISPL(li, stem)` displays the current table starting at line `li`, filling `stem` with the following information:

`stem.0`	The `stem` size (8 here).
`stem.1`	A keyword indicating the user action: `return` the `Return` key. `Fi` The `i` top function key. `Li` The `i` left function key. `Ri` The `i` right function key. `Bi` The `i` mouse button. `^x` The `Control-x` action.
`stem.2`	The cursor line file related position, or `0` if the cursor is not on a `)MODEL` data field location.
`stem.3`	The cursor column file related position, or `0` if the cursor is not on a `)MODEL` data field location.

`stem.4`	The mouse line file related position, or `0` if the mouse is not on a `)MODEL` data field location.
`stem.5`	The mouse column file related position, or `0` if the mouse is not on a `)MODEL` data field location.
`stem.6`	The last displayed line.
`stem.7`	The number of lines which can be displayed, according to the panel layout and the screen size.
`stem.8`	The number of lines in the current loaded table.

TBGET - Get Table Line

`TBGET(li)` updates the input variables described in the `)MODEL` section with the table data at line `li`.

TBOPEN - Open a Table

`nb_line = TBOPEN(fi, pa{, sep} {,mode})` opens the `fi` file using the `pa` panel. The separator in use to parse the file will be `sep`, or the `'09'x` tabulation character by default.

When the optional `mode` parameter is the '`r`' string, the table is opened in read-only mode. When `mode` is omitted, or set to the '`w`' string, the table is opened in read-write mode.

`TBOPEN` returns the table length.

When no argument is provided, the new line will be an empty line.

```
Example:nb_line=tbopen '~/data','~/data.panel',';'
```

TBPUT - Update Table Line

`TBPUT(li{, arg1{, arg2 {...}}})` updates the current table at line `li` with the `argi` arguments, or with existing REXX variables whose names are described in the)MODEL section when `argi` is not supplied.

```
Examples:call tbput 12, "Item 1",,"Item 3".
         call tbput 12
```

TBSAVE - Save Table

`TBSAVE` saves the current table content in the file described by the last `TBOPEN` call.

TCSH - Pass UNIX Command

`TCSH(cmd{, stem})` executes the **UNIX** command `cmd` using the `tcsh` shell .

When `stem` is not provided, the `cmd` output will be placed in the stack. The user will be able to read it using the `parse pull` command.
The `queued()` function may be used to return the number of lines in the stack.

When `stem` is provided, it must be a valid `REXX` name. It will be filled with the `cmd` output.

```
Example:call tcsh "df", tab
        tab.0 will contain the number of lines sent back
        by df.
        tab.1, tab.2, ... will contain the df output line
        by line.
```

See also the `EXEC()`, `UNIX()`, `CSH()` and `KSH()` functions.

TEE - Pass UNIX Command

`TEE(cmd{, stem})` executes the **UNIX** or **WINDOWS** command `cmd`, displaying intermediate results on the standard output.

The arguments are the same as for the `UNIX()` or `WINDOWS()` built-in function.

UNIX or SH - Pass UNIX Command

`UNIX(cmd{, stem})` executes the **UNIX** command `cmd` using the Bourne shell `sh`.

On **WINDOWS** systems, `UNIX()` is identical to the `WINDOWS()` built-in function.

When `stem` is not provided, the `cmd` output will be placed in the stack. The user will be able to read it using the `parse pull` command.

The `queued()` function may be used to return the number of lines in the stack.

When `stem` is provided, it must me a valid `REXX` name. It will be filled with the `cmd` output.

```
Example:call unix "df", tab
        (or call sh "df", tab)
        tab.0 will contain the number of lines sent back
        by df.
        tab.1, tab.2, ... will contain the df output line
        by line.
```

Note: `sh` does not support the `~` meta character. Use `csh()` or `ksh()` to pass a command such as `call csh 'ls ~/foo*.c'`

See also the EXEC(), CSH(), TCSH() and KSH() functions.

UNSETENV - Remove Environment Variable

UNSETENV(var) removes the environment variable var.

```
Example:call unsetenv "PATH"
        /* Not recommended!  Without PATH, most commands
        will fail */
```

See also the SETENV() function.

USLEEP - Suspend Execution

USLEEP(usec) suspends execution for usec microseconds.

UTIME - Change File Timestamp

UTIME(file, jj, mm, yyyy, hh, mm, ss) sets the file timestamp accordingly to the jj/mm/yyyy hh:mm:ss date.

UTIME returns 0 in case of success, or an error message.

```
Example:call utime '~/.cshrc',12,1,2002,23,55,36
        say state('~/.cshrc', 'stamp')
        /* displays: 12/01/2002 23:55:36 */
```

VALUE - Set or Retrieve a Variable

VALUE(symb {,expr}) returns the value of the symb **S/REXX** variable.

When the expr expression is specified, expr will be assigned to symb.

If symb refers to an uninitialized variable, the default value of that variable is always returned, regardless of the NOVALUE condition which is never raised.

```
Examples:tr = 4
        say value('tr')                         /* Displays
        "4"             */
        call value 'tab.'tr, 2**8  /* Sets tab.4 to 256 */
```

VERSION- Windowing Identifier

VERSION() returns the current windowing identifier:

xview	when running the Open Windows xsrexx version.
motif	when running the MOTIF msrexx version.
windows	when running the WINDOWS version.
a null string ("")	when running the non-windowing srexx version.

WAITPID - Wait for a Process Termination

```
WAITPID(pid{, "N"})
```

On **UNIX** systems, `WAITPID(pid)` suspends the calling process until one of the specified children terminates; if a child process terminated prior to the call to `WAITPID()`, return is immediate. `pid` specifies a set of child processes for which status is requested.

If pid is equal to `-1`, status is requested for any child process.

If pid is greater than `0`, it specifies the process ID (returned by the `FORK()` built-in function) of the child process for which status is requested.

If `WAITPID()` returns because the status of a child process is available, this function returns a value equal to the process ID of the child process for which status is reported.

The optional `"N"` parameter passed to `WAITPID()` specifies that `WAITPID()` must not suspend the calling process. A value of `0` is returned when none of the processes specified with the `pid` argument have terminated.

A value of `-1` is returned in case of error.

On **WINDOWS** systems, `pid` must be the handle returned by the `WINDOWS()` built-in.

WINDOWS - WINDOWS_NE - Pass WINDOWS Command

```
WINDOWS(cmd{, stem})
```

```
WINDOWS_NE(cmd{, stem})
```

On **WINDOWS** systems, `WINDOWS()` executes the **WINDOWS** command `cmd`.

`WINDOWS_NE()` is identical to `WINDOWS`, but does not pass the environment variables to the child process.

On **UNIX** systems, `WINDOWS()` is identical to the `UNIX()` built-in function.

When `stem` is not provided, the `cmd` output will be placed in the stack. The user will be able to read it using the `parse pull` command.

The `queued()` function may be used to return the number of lines in the stack.

When `stem` is provided, it must me a valid `REXX` name. It will be filled with the `cmd` output.

If `cmd` ends with a "`&`", it will be placed in the background, and `WINDOWS()` will return a handle to the background process that can be used by `WAITPID()`.

```
Example:call windows "dir", tab
        tab.0 will contain the number of lines sent back
        by dir.
        tab.1, tab.2, ... will contain the dir output line
        by line.
```

Note: When using the `wsrexx.exe` windowing version of **S/REXX**, calling DOS like commands such as `dir` will make a temporary console appear. To list files, the `DIR()` built-in function would be more effective.

WIPE - Wipe Files

```
WIPE(ff)
```

With modern methods of recovery for data stored on magnetic media, such as Magnetic Force Microscopy (MFM), simply overwriting a file with 0s, for example, is not sufficient to prevent unwanted access to that file. These methods can in fact be used to read the previous state of the portion of the disk which has been wiped with a unique simple pattern.

`WIPE`() overwrites the `ff` file with 40 different patterns selected to prevent the recovery of the initial state of that file, and then erases the file.

`WIPE()` returns the full path names of the deleted files.

`ff` may include the ~ .. **UNIX** or **WINDOWS** file meta characters. If a filename contains blanks, it must be surrounded with quotes or double quotes.

When `WIPE` fails, it sets the `rc` variable to a non-zero value, and returns an error message, such as:

```
RM() error: File does not exist
```

```
Examples:say wipe("~/foo ~/test")
```

could print: `/user/john/foo /usr/john/test`

XHOME - Installation Directory

`XHOME()` returns the installation directory. Usually `/home/xed` on **UNIX**, and `C:\Program Files\SEDIT` on **WINDOWS**.

S/REXX Dialog Management

S/REXX permits the creation of **OpenLook**, **MOTIF** or **WINDOWS** dialog panels.

To create OpenLook panels, the **S/REXX** program must start with:

```
#! /home/xed/xsrexx
```

To create **MOTIF** panels, the **S/REXX** program must start with:

```
#! /home/xed/msrexx
```

When OpenLook is not supported, `xsrexx` is the same as `msrexx`, so in a **UNIX** multi-platform environment, always using `xsrexx` will present no problems.

To create **WINDOWS** panels, the **S/REXX** either `srexx.exe` or `wsrexx.exe`.

For example:

```
C:\> wsrexx myprog
```

OpenLook Specifics

Individually colored items are not supported by the `xsrexx` OpenLook **S/REXX** version.

Scroll lists do not support multiple selections.

WINDOWS Specifics

Individually colored items are not supported by the `wsrexx` **S/REXX** version.

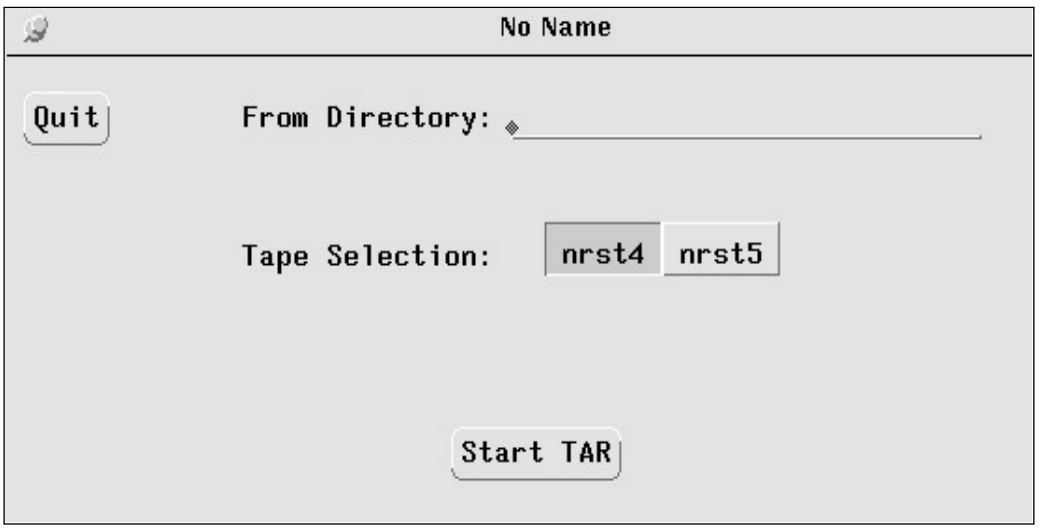
Dialog boxes do not emit a FOCUS message and do not respond to function keys.

`DY_PSCL()` does not perform any action.

Consider the following /home/xed/demo/demo_dy/dy_tar macro:

```
#! /home/xed/xsrexx
signal on novalue
option mixed setenv
call dy_start()
$quit = dy_button(1, 1,  "Quit")
call dy_label 14, 1.3, 'From Directory:'
$dir = dy_input(30, 1.3, 28)
$tape = dy_tg('Tape Selection:', 14, 5, 32, 4.5, "nrst4", 1, 40, 4.5,,
              "nrst5", 0)
$start = dy_button(26.5, 10, "Start TAR")
$handle_dy_ex = dy_end("proc", 2, 3.5, 61, 12.5, "n")
call dy_map $handle_dy_ex
exit
proc:
  parse arg handle reason
  select
    when reason = 'F1'  | reason = 'B'$quit | reason = '^c'   then
          {  call dy_unmap(handle)
             exit 0
          }
    when reason = 'B'$start | reason = 'return' then
      { if  do_it() = 0 then  exit 0
      }
    otherwise return 0
  end
return

do_it:
  dir = dy_vinput(handle, $dir)
  if ~state(dir, 'd') then
   { call dy_start()
     call dy_label 2, 5, '"'dir'" is not a valid directory.'
     call dy_button 26.5, 10, "Restart"
     $prompt = dy_end("foo", 2, 3.5, 61, 12.5, "g")
     call dy_map $prompt
     call dy_destroy $prompt
     return 1
   }
  select
    when 1 = dy_vtg(handle, $tape, 1) then tape = 'nrst4'
    when 1 = dy_vtg(handle, $tape, 2) then tape = 'nrst5'
  end
  cd dir
  say 'dy_tar could perform the following commands:'
  say
  say '   cd 'cwd()
  say '   tar -cvf /dev/'tape '.'
  say
return 0

foo:
return
```

Calling this macro by typing `dy_exch` will display the following dialog box:



This macro asks for a directory name and a tape device, and will display (without executing them) the **UNIX** commands needed to *tar* the directory using the chosen tape device.

```
option mixed setenv
```

allows the user to create environment variables such as `$tape`. These variables are shared with `procedure` subroutines.

```
call dy_start()
```

starts a dialog box.

```
$quit = dy_button(1, 1,  "Quit")
```

creates the `Quit` button on column 1, line 1. The `$quit` variable receives the button number for future use.

```
call dy_label 14, 1.3, 'From Directory:'
```

creates the `From Directory` label.

```
$dir = dy_input(30, 1.3, 28))
```

creates the input field in column 30, line 1.3. The `$dir` variable receives the input field number for future use.

```
$tape   =   dy_tg('Tape   Selection:',   14,   5,   32,   4.5,,
              "nrst4", 1, 40, 4.5, "nrst5", 0)
```

creates the `Tape Selection` toggle in column 14, line 5, setting it to the `nrst4` value.

```
$handle_dy_ex = dy_end("proc", 2, 3.5, 61, 12.5, "n")
```

ends the current dialog box. The dialog box will be located at column 2, line 3.5, starting from the position where the dialog box is centered regarding the whole screen.
It will be 61 columns wide and 12.5 lines high. "n" means the dialog box will be persistent. The user will have to dismiss it explicitly by clicking the Quit button, or by selecting the dialog box window Quit (or Close if the **MOTIF** MWM window manager is running) item.
proc is the name of the **S/REXX** subroutine to be called every time the user issues an action within the dialog box.

```
call dy_map $handle_dy_ex
```

maps the dialog box. dy_map() will return on 2 cases: the user selects the dialog box window Quit (or Close if the **MOTIF** MWM window manager is running) item, or when the proc call back subroutine issues a dy_unmap() call.

```
select
   when reason = 'F1'  | reason = 'B'$quit | reason = '^c'   then
     {  call dy_unmap(handle)
        exit 0
     }
```

when the users clicks on the Quit button, or hits the F1 or ^c key, proc unmaps the dialog box and exits.

```
when reason = 'B'$start | reason = 'return' then
```

when the user clicks on the Start TAR button, proc call the do_it() subroutine.

```
dir = dy_vinput(handle, $dir)
```

reads the directory input field.

```
select
  when 1 = dy_vtg(handle, $tape, 1) then tape = 'nrst4'
  when 1 = dy_vtg(handle, $tape, 2) then tape = 'nrst5'
end
```

reads the tape select toggle.

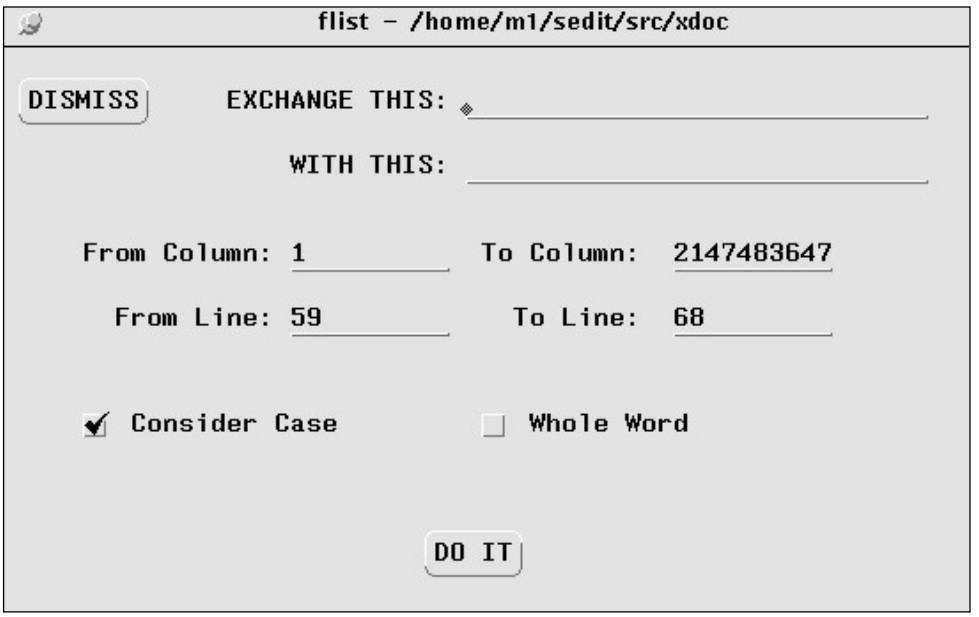
S/REXX Dialog Management within SEDIT

Within **SEDIT**, **S/REXX** permits the creation of OpenLook or **MOTIF** dialog panels.

Consider the following /home/xed/demo/demo_dy/dy_exch.sedit macro:

```
option mixed setenv

'extract/zone/case/line/size/nbfile'

if nbfile.1 = 0 then
 { 'prompt Open a file first'
   exit 0
 }

if ~$?handle_dy_ex then
 {  call dy_start()

    $dismiss_dy_ex = dy_button(1, 1,  "DISMISS")

    call dy_label 14, 1.3, 'EXCHANGE THIS:'
    $exc_dy_ex = dy_input(29, 1.3, 29)

    call dy_label 14, 3.3, '    WITH THIS:'
    $with_dy_ex = dy_input(29, 3.3, 29)

    call dy_label 5, 6, 'From Column:'
    $fromc_dy_ex = dy_input(18, 6, 10, zone.1)

    call dy_label 30, 6, 'To Column:'
    $toc_dy_ex = dy_input(42, 6, 10, zone.2)

    call dy_label 5, 8, '  From Line:'
    $froml_dy_ex = dy_input(18, 8, 10, line.1)

    call dy_label 30, 8, '  To Line:'
    $tol_dy_ex = dy_input(42, 8, 10, size.1)

    if case.2 = 'respect' then fl = 1
    else                       fl = 0
    $case_dy_ex = dy_tg(,,,5, 11, "Consider Case", fl)

    $word_dy_ex = dy_tg(,,,30, 11, "Whole Word", 0)

    $do_dy_ex = dy_button(26.5, 15, "DO IT")

    $handle_dy_ex = dy_end("dy_ex_cb", 2, 3.5, 61, 17.5, "n")
 }
else 'dy_ex_set'     /* sets the dialog box values */

call dy_map $handle_dy_ex
```

Calling this macro by typing `dy_exch` will display the following dialog box:



This macro allows the user to enter a string `str1` in the `EXCHANGE THIS` input field, and a second string `str2` in the `WITH THIS` input field. Clicking on the `DO IT` button will make **SEDIT** change every string `str1` with the string `str2`, and `str2` with `str1`.

`option mixed setenv`

allows the user to create environment variables such as `$handle_dy_ex`. These variables are retained between macro calls.

`if ~$?handle_dy_ex then`

allows the user to test if the `$handle_dy_ex` variable exists. If not, this is the first time the macro is called, and the dialog box must be created.

`call dy_start()`

starts a dialog box.

`$dismiss_dy_ex = dy_button(1, 1, "DISMISS")`

creates the `DISMISS` button on column 1, line 1. The `$dismiss_dy_ex` variable receives the button number for future use.

`call dy_label 14, 1.3, 'EXCHANGE THIS:'`

creates the `EXCHANGE THIS` label.

`$exc_dy_ex = dy_input(29, 1.3, 29)`

creates the first input field in column 29, line 1.3. The `$exc_dy_ex` variable receives the input field number for future use.

`$case_dy_ex = dy_tg(,,,5, 11, "Consider Case", fl)`

creates the `Consider Case` toggle in column 5, line 11, setting it to the `fl` value, which reflects the current `CASE` setting. The first 3 arguments are omitted, since this toggle does not need a global label.

`$handle_dy_ex = dy_end("dy_ex_cb", 2, 3.5, 61, 17.5, "n")`

ends the current dialog box. The dialog box will be located at column 2, line 3.5, starting from the position where the dialog box is centered regarding the **SEDIT** window.
It will be 61 columns wide and 17.5 lines high. "`n`" means the dialog box will be persistent. The user will have to dismiss it explicitly by clicking the `DISMISS` button, or by selecting the dialog box window `Quit` (or `Close` if the **MOTIF** `MWM` window manager is running) item.
`dy_ex_cb` is the name of the **S/REXX** macro to be called every time the user issues an action within the dialog box.

`else 'dy_ex_set'`

when the dialog box has already been created, the user can call the `dy_ex_set` **S/REXX** macro to update the displayed values according to the current file.

`call dy_map $handle_dy_ex`

maps the dialog box.

The `/home/xed/demo/demo_dy/dy_ex_cb.sedit` macro is the following:

```
'extract/nbfile'
parse arg handle reason
select
  when reason = 'F1'   | ,
       reason = 'B'$dismiss_dy_ex    then
        {  call dy_unmap(handle)
           exit 0
        }
  when reason = 'B'$do_dy_ex then
    { if nbfile.1 = 0 then
       { 'prompt Open a file first'
         exit 0
       }
      call do_it
      exit 0
    }
```

```
  when reason = 'focus' then
    { if nbfile.1 ~= 0 then 'dy_ex_set'
               /* sets the "dy_exch" dialog box values */
      exit 0
    }
  otherwise exit 0
end
do_it:
col1 = dy_vinput(handle, $fromc_dy_ex)
col2 = dy_vinput(handle, $toc_dy_ex)
line1 = dy_vinput(handle, $froml_dy_ex)
line2 = dy_vinput(handle, $tol_dy_ex)
str1 =  dy_vinput(handle, $exc_dy_ex)
str2 =  dy_vinput(handle, $with_dy_ex)
/*
 * Testing full world
 */
 if dy_vtg(handle, $word_dy_ex, 1) then
  { cmd = 'command cn'
    ff  = '\'
  }
 else
  { cmd = 'command change'
    ff  = '/'
  }
call test str1, ff
call test str2, ff
'preserve'
':'line1
'zone 'col1 col2
/*
 * We look for a character which does not belong to str1 and str2
 */
'sep off'
'arbchar off'
do i = 47 to 255
   sep = d2c(i)
   if 0 = pos(sep, str1) & 0 = pos(sep, str2) then leave i
end i
if i = 256 then
 { 'prompt No possible separator.'
   'restore'
   exit 0
 }
/*
 * Testing case
 */
 if dy_vtg(handle, $case_dy_ex, 1) then 'case r'
 else                                   'case i'
lines = line2-line1+1
cmd||sep||str1||sep||'..öööööö..@@@@@..öööööö'||sep lines '*'
cmd||sep||str2||sep||str1||sep||lines '*'
cmd||sep||'..öööööö..@@@@@..öööööö'||sep||str2||sep lines '*'
```

```
 'restore'
return
/*
 * We see if str can be found
 */
test:procedure
parse arg str, ff
'extract/line'
trace off
ff||str
if rc = 0 then
 { ':'line.1
   return
 }
'prompt String "'str'" not found.'
'msg'
exit 0
```

```
when reason = 'focus' then
         { if nbfile.1 ~= 0 then 'dy_ex_set'
```

when the mouse enters the dialog box window, this callback macro is called with the second argument `reason` set to the word `focus`.

In this case, the macro calls the `dy_ex_set` macro:

```
option mixed setenv

'extract/zone/case/line/size'


call dy_sinput $handle_dy_ex, $fromc_dy_ex, zone.1
call dy_sinput $handle_dy_ex, $toc_dy_ex,   zone.2

call dy_sinput $handle_dy_ex, $froml_dy_ex, line.1
call dy_sinput $handle_dy_ex, $tol_dy_ex,   size.1

if case.2 = 'respect' then fl = 1
else                       fl = 0
call dy_stg $handle_dy_ex, $case_dy_ex, 1, fl
```

`dy_ex_set` sets the `Columns` and `Lines` input field according to the current file zone setting, to the current line and to the file length.

The `Consider Word` toggle is set according to the `CASE` setting.

```
select
       when reason = 'F1'   | ,
            reason = 'B'$dismiss_dy_ex    then
        {  call dy_unmap(handle)
```

when the user clicks on the DISMISS button, or hits the F1 key, dy_ex_cb unmaps the dialog box. The dialog box still exists, but is invisible.

```
when reason = 'B'$do_dy_ex then
```

when the user clicks on the DO IT button, dy_ex_cb reads the various input fields, and executes the following **SEDIT** commands:

`zone col1 col2`	to restrict the search to the specified columns.
`case i`	when the Consider Case toggle is OFF.
`:line1`	to set the current line to the From Line field specified starting line.
`change/str1/..??..@@@@@..??/ lines *`	changes the first specified string to a string not likely to be found in the file.
`change/str2/str1/ lines *`	changes the second specified string to the first string.
`change/..??..@@@@@..??/str2`	changes what was the first string to the second string.

When the Whole Word toggle is ON, dy_ex_cb uses the CN command instead of the CHANGE command.

S/REXX ISPF-like Tables

When running as **SEDIT** macros, **S/REXX** programs have the ability to display data files in a formatted way called a table.

A data file has rows and columns. Every row is separated from the previous row by a newline character, as in ordinary text files.

Every column is separated by an arbitrary character within a line. The default separator is a tabulation. However, for better legibility within this manual, the `;` character will be used as a separator.

The directory `/home/xed/demo/demo_table` contains various table example files:

`/home/xed/demo/demo_table/test_tbl.data:`

```
Line 1
Line 2;Item2;Item3;Item4;5;6;7;8
Line 3;Item2
Line 4;Item2;Item3

Line 6;Item2;Item3;Item4
Line 7;Item2;Item3
Line 8;Item2
Line 9;Item2;Item3;Item4
Line 10;Item2;Item3;Item4
Line 11;Item2;Item3;Item4
Line 12;Item2;Item3;Item4
Line 13;Item2;Item3;Item4
Line 14;Item2;Item3;Item4
```

This file contains 14 lines. Line 1 is one column wide, line 3 is two columns wide, etc.

/home/xed/demo/demo_table/test_tbl.panel:

```
)ATTR default(+%_)
^ type(output) intens(high)  color(black) Hightlight(reverse)
" type(output) intens(low)  color(black) Hightlight(normal)
$ type(text) intens(low)  color(red) Hightlight(normal)
@ type(input) intens(zero)  color(red) Hightlight(underline)
& type(num) intens(low)  color(red) Hightlight(underline)
)BODY  expand(//)
%/-/  edit table /-/
%
$COMMAND ====>_ZCMD
%
                    ^DATE    $      ^TIME $
%
+SEL         VOLSER                    UNIT            SIZE
+/-/
)model
_SEL      + _VOLSER     +            _UNIT      +    _SIZE    "trail $
)TRAIL expand(//)
%
$COMMAND ====>&ZCMDBOT
$/ /F1:Quit   F3:Save/ /
)BUTTON
Quit
Save
Add
Del
Exit
```

This file describes the overall formatted screen layout by using 5 sections.

1) The)ATTR section

This section maps a single character to a specific screen field type.

The field attributes may be the following:

TYPE(param)	Text matches a read-only output field. Output matches a read-only output field. It must contain a valid REXX variable whose content will be used to update the field. Input matches an input field. Num matches an input field allowing only numerical characters.
INTENS(param)	High matches double intensity display. Low matches normal display. Zero matches no display.

`COLOR(param)`	specifies the field display color. See the **SEDIT** `color` command for a complete list of all available colors.
`HIGHLIGHT(param)`	`Normal` matches no highlight. `Underline` matches an underlined field. `Reverse` matches a reverse video field.

When specifying `default(+%_)`, the following default characters will be in use:

	+	%	_
TYPE	Text	Text	Input
INTENS	Low	Low	Low
COLOR	Black	Red	Red
HIGHTLIGHT	Normal	Normal	Normal

2) The `)BODY` section

This section describes a leading fixed part of the screen, which may be used to visually describe the `MODEL` section, or to create input fields where the user may type commands.

The `expand(//)` syntax forces **S/REXX** to expand the characters within the `//` separators to match the screen width.

For example, the "`%/-/  edit table /-/`" entry makes **S/REXX** display:

```
------------------------  edit table ------------------------
```

An input entry, such as "`_ZCMD`" must contain a valid **S/REXX** variable symbol. If the user fills the corresponding displayed field, the **S/REXX** variable (`ZCMD` in this example) will be updated in the following way:

`ZCMD.0`	`0` when no data has been typed in. `1` when data has been typed in.
`ZCMD.1`	The typed in data.

3) The `)MODEL` section

This section describes the screen layout used to display the data.

An input entry, such as "`_SEL`" must contain a valid **S/REXX** variable symbol. This variable will be updated by the `TBGET()` built-in function in the same way the `)BODY` variables are.

4) The)TRAIL section

   This section describes a trailing fixed part of the screen, which may be used in the same way the)BODY section is.

5) The)BUTTON section

   Each line of this section will be displayed as a button.

/home/xed/demo/demo_table/test_tbl.sedit:

```
parse arg  trail
if trail = '' then trail = '+'
call tbclose
'extract/xhome'
file  = xhome.1'/demo/demo_table/test_tbl.data'
panel = xhome.1'/demo/demo_table/test_tbl.panel'
line  = 1
nb_line = tbopen(file, panel, ';')
/*
 * Initial displayed values
 */
date    = date('e')
time    = time()
zcmd    = ''
zcmdbot = '1.25'
do cntl = 1
  call tbdispl line, rr
  nb_line = rr.8
  if ZCMD ~= ''    then
   { ZCMD = lower(strip(ZCMD))
     select
       when ZCMD = 'top' then
        { line = 1
          iterate cntl
        }
       when ZCMD = 'bot' then
        { line = nb_line
          iterate cntl
        }
       when left(ZCMD, 1) = 'e' then
        { parse var ZCMD 'e' ltr
          if datatype(ltr, 'w') & ltr > 0 & ltr <= nb_line then
           { call tbget ltr
             size = ''
             unit = ''
             volser = ''
             sel = ''
             call tbput ltr
           }
          else 'prompt Invalid line number'
          iterate cntl
        }
       when left(ZCMD, 1) = 'r' then
        { parse var ZCMD 'r' ltr
          if datatype(ltr, 'w') & ltr > 0 & ltr <= nb_line then
           { call tbget ltr
             call tbput ltr, size, unit, volser, sel
           }
          else 'prompt Invalid line number'
          iterate cntl
        }
       when datatype(ZCMD, 'w') then
        { line = max(ZCMD, 1)
          line = min(line, nb_line)
          iterate cntl
        }
```

```
      otherwise nop
    end
   }
  if ZCMDBOT ~= '' then say 'ZCMDBOT = 'ZCMDBOT
  do ll = line to rr.6
    call tbget ll
  end
  select
    when rr.1 = 'F1' | rr.1 = 'B1' then leave cntl
    when rr.1 = 'F8'               then line = rr.6
    when rr.1 = 'F7'               then line = Max(1, 1+line - rr.7)
    when rr.1 = 'F3' | rr.1 = 'B2' then call tbsave
    when rr.1 = 'F15' then
     { call tbsave
       leave cntl
     }
    when rr.1 = 'B3' then nb_line = tbadd(line)
    when rr.1 = 'B4' then nb_line = tbdel(line)
    when rr.1 = 'B5' then
     { trace off
       'prompt Really Quit ?'
       trace e
       if rc = 0 then 'exit'
       else iterate cntl
     }
    when rr.1 = '^=' & rr.2 ~= 0 then
     { call tbget rr.2
       call tbadd rr.2, sel, volser, unit, size
       iterate cntl
     }
    when rr.1 = '^a' & rr.2 ~= 0 then
     { call tbadd rr.2
       iterate cntl
     }
    when rr.1 = '^d' & rr.2 ~= 0 then
     { call tbdel rr.2
       iterate cntl
     }
    otherwise nop
  end
end
call tbclose
```

This macro shows how to use the various built-in table functions.

```
call tbclose
```

closes a previously opened table.

```
nb_line = tbopen(file, panel, ';')
```

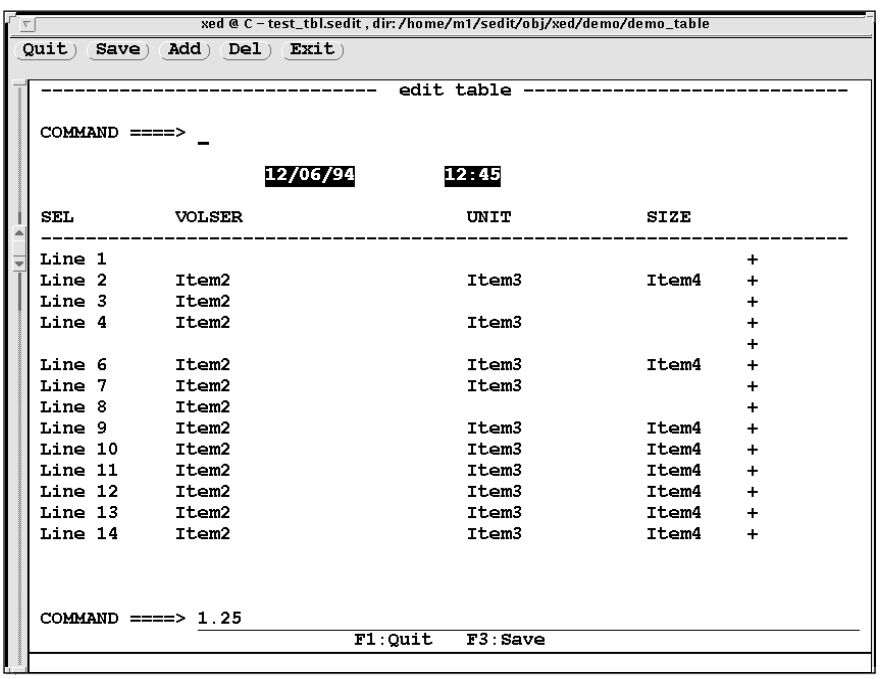
opens the "file" file using the "panel" panel. The separator in use to parse "file" will be the third ";" parameter.

tbopen returns the file number of lines.

```
call tbdispl line, rr
```

displays the table, starting at line "line", and waits for user action.

The following panel will be displayed:



The "rr" stem will be used to return the following information:

rr.0	The rr size (8 here).
rr.1	A keyword indicating the user action: return — the Return key. Fi — The i top function key. Li — The i left function key. Ri — The i right function key. Bi — The i mouse button. ^x — The Control-x action.
rr.2	The cursor line file related position, or 0 if the cursor is not on a)MODEL data field location.

rr.3	The cursor column file related position, or 0 if the cursor is not on a)MODEL data field location.
rr.4	The mouse line file related position, or 0 if the mouse is not on a)MODEL data field location.
rr.5	The mouse column file related position, or 0 if the mouse is not on a)MODEL data field location.
rr.6	The last displayed line.
rr.7	The number of lines which can be displayed, according to the panel layout and the screen size.
rr.8	The number of lines of the current loaded table.

```
call tgbet ltr
```

updates the SEL, VOLSER, UNIT, and SIZE variables described in the)MODEL section, according to the modifications entered by the user.

```
call tbput ltr
```

uses the SEL, VOLSER, UNIT, and SIZE variables described in the)MODEL section to update the currently opened table.

```
call tbsave
```

saves the currently opened table content in the file described by the last tbopen call.

```
nb_line = tbadd(line)
```

adds an empty line after line "line", and updates nb_line with the total number of lines of the current table.

```
call tbadd rr.2, sel, volser, unit, size
```

adds a line after line "rr.2", using the contents of the variables sel, volser, unit and size.

```
nb_line = tbdel(line)
```

deletes line "line", and updates nb_line with the total number of lines in the current table.

This macro is designed to execute the following actions:

F1	Quit without saving the changes.
F3	Saves the current table.
F7	Scrolls up.
F8	Scrolls down.
^=	Duplicates the cursor line.
^a	Inserts 1 line at the cursor location.
^d	Deletes 1 line at the cursor location.

The following commands may be entered in the ZCMD field:

top	Selects the first line as the current line.
bot	Selects the last line as the current line.
r i	Reverts the contents of the line i.
i	Makes the i line the current line.

In addition, the user may click on the following buttons:

Quit	Quit without saving the changes.
Save	Saves the current table.
Add	Inserts 1 line at the current line location.
Del	Deletes 1 line at the current line location.
Exit	Terminates the current **SEDIT** session.

The default **SEDIT** profile.sedit initialization file loads the test_tbl macro, so the user may start it by simply typing test_tbl in the command field.

S/REXX Programming Interface

This chapter describes how to imbed the **S/REXX** language into C applications, and how to add user-supplied built-in functions.

Creating a New Address Environment

The following routines are provided:

- env_rx — initiates a host command environment.
- exit_rx — cleans up before exiting.
- getval_rx — gets an **S/REXX** variable.
- pull_rx — extracts the first available External Data Queue item.
- push_rx — adds a string on top of the External Data Queue.
- queue_rx — adds a string to the External Data Queue.
- queued_rx — queries the External Data Queue length.
- run_rx — runs an **S/REXX** program from C.
- setval_rx — sets an **S/REXX** variable.
- stop_rx — stops the currently active **S/REXX** program.

To use these routines two files are required:

```
{install-dir}/lib/arch/libsr.o
{install-dir}/include/srexx.h
```

where arch is the hardware dependent string described in Appendix B: Hardware String on page 707.

A typical makefile on an IBM RS/6000 resembles the following:

```
ARCH    = ibm
CCLIB   = /home/xed/lib/$(ARCH)
CCPATH = /home/xed/include
CC      = cc -O
demo1:   demo1.c   $(CCLIB)/libsr.o  $(CCPATH)/srexx.h
       $(CC) -o demo1 demo1.c $(CCLIB)/libsr.o -I$(CCPATH)
-lbsd -lc -lm
```

Note that the lbsd library is required on IBMs RS/6000 only.

All C examples described in this section are provided in the {install-dir}/home/demo/demo_sr directory.

ENV_RX - Initiate a Host Command Environment

```
void env_rx(name, fns, lg_def)
  char *name;
  int (*fns)();
  int lg_def;


void env_rx2(name, fns, lg_def, parm)
  char *name, *parm;
  int (*fns)();
  int lg_def;
```

The function `fns` will be called every time the **S/REXX** program will issue a command to the `name` environment. `name` is a `NULL` terminated string which will be translated into upper case by `env_rx` before use.

If the `name` environment already exists, it will be updated.

If `fns` is a NULL pointer, a previous `name` environment will be deleted.

If `lg_def` is set to 1, `name` will become the default environment.

`env_rx2` can be used instead of `env_rx` to pass an arbitrary `parm` parameter to `fns`.

`fns` will receive a `NULL` terminated string containing the command and its length:

```
int fns(string, l_string, parm)
  char *string, *parm;
  int l_string;
```

`parm` is the arbitrary parameter passed to `env_rx2`. When `env_rx` has been used to create the host command environment, `parm` will be set to `NULL`.

Note that when it is first called, `env_rx` or `env_rx2` will also create the standard **S/REXX UNIX** or **WINDOWS** environment.

Example:

A C demo1.c program:

```
#include <stdio.h>
#include "srexx.h"
int call_back(string, len)
  char *string;
  int len;
{
    printf ("call_back: received '%s'\n", string);
    return(0);
}
main()
{
  int rc;
  env_rx("MyEnv", call_back, 0); /* MyEnv tranlated */
  rc = run_rx("r_demo1", "../..", NULL, NULL, NULL);
  exit_rx(rc);  /* exit_rx() cleans up before exiting */
}
```

An r_demo1 **S/REXX** program called by the demo1 program:

```
address myenv 12**5.56
```

To compile and execute this program, issue the following commands:

```
C{foo}% cd {install-dir}/demo/demo_sr
C{demo_sr}% make demo1
cc    -O    -o    demo1    demo1.c    ../../lib/sun4/libsr.o
-I../../include  -lc -lm
9.1u 1.4s 0:10 96% 0+900k 3+63io 0pf+0w
C{demo_sr}% demo1
call_back: received "1000570.58"
C{demo_sr}%
```

where *{install-dir}* is the actual **S/REXX** installation directory.

EXIT_RX - Cleans up and Exits

```
void exit_rx(rc)
  int rc;
```

`exit_rx()` performs the necesary clean up before exiting with the `rc` return code. In particular, `exit_rx()` releases a floating license in use.

GETVAL_RX - Get an S/REXX Variable

```
void getval_rx(res, len, name, l_name)
  char **res, *name;
  int *len, l_name;
```

name is a string which must contain a valid **S/REXX** symbol name with a length of l_name.

*res will be allocated with a NULL terminated string which is the contents of name. *len will receive the *res length.

It is the responsibility of the caller to free *res after usage.

Example:

A C demo2.c program:

```
#include <stdio.h>
#include "srexx.h"
int call_back(name, ll)
  char *name;
{
  char *res;
  int len;

  getval_rx(&res, &len, name, ll);
  printf ("call_back: %s = \"%s\"\n", name, res);
  free(res);

  return(0);
}
main()
{
  int rc;
  env_rx("MyEnv", call_back, 1);
  rc = run_rx("r_demo2", "/home/xed", NULL, NULL, NULL);
  exit_rx(rc);  /* exit_rx() cleans up before exiting */
}
```

An r_demo2 **S/REXX** program called by the demo2 program:

```
i = "1"
j = 2
tab.i.j = 'This is tab.1.2'

"i"
"j"
"tab.i.j"
"tab.1.3"
```

To compile and execute this program, issue the following commands:

```
C{foo}% cd {install-dir}/demo/demo_sr
C{demo_sr}% make demo2
cc    -O    -o    demo2    demo2.c    ../../lib/sun4/libsr.o
-I../../include  -lc -lm
6.4u 1.8s 0:10 79% 0+852k 94+61io 124pf+0w
C{demo_sr}% demo2
call_back: i = "1"
call_back: j = "2"
call_back: tab.i.j = "This is tab.1.2"
call_back: tab.1.3 = "TAB.1.3"
C{demo_sr}%
```

where *{install-dir}* is the actual **S/REXX** installation directory.

PULL_RX - Extract External Data Queue Item

```
void pull_rx(res, len)
  char **res;
  int *len;
```

`*res` will be allocated with a `NULL` terminated string holding the first external data queue (or stack) item content. `*len` will receive the `*res` length.

If the external data queue is empty, `*res` will be set to `NULL`.

It is the responsibility of the caller to free `*res` after usage.

Example:

A `C demo3.c` program:

```
#include <stdio.h>
int call_back(string, ll)
  char *string;          /* ARGSUSED */
{
  char *res;
  int len;

  pull_rx(&res, &len);

  if (res)
    { printf ("call_back: \"%s\" was in the stack (length
= %d).\n", res, len);
      free(res);
    }
  else
      printf ("call_back: stack empty.\n");

  return(0);
}
main()
{
  int rc;
  env_rx("MyEnv", call_back, 1);
  rc = run_rx("r_demo3", "/home/xed", NULL, NULL, NULL);
  exit_rx(rc);  /* exit_rx() cleans up before exiting */
}
```

An r_demo3 **S/REXX** program called by the demo3 program:

```
''
queue ''
queue 'String 1'
queue 'String 2 '
queue 'String 3  '
''
''
''
''
''
```

To compile and execute this program, issue the following commands:

```
C{foo}% cd {install-dir}/demo/demo_sr
C{demo_sr}% make demo3
cc    -O    -o    demo3    demo3.c    ../../lib/sun4/libsr.o
-I../../include  -lc -lm
8.9u 1.6s 0:11 94% 0+896k 2+67io 0pf+0w
C{demo_sr}% demo3
call_back: stack empty.
call_back: "" was in the stack (length = 0).
call_back: "String 1" was in the stack (length = 8).
call_back: "String 2 " was in the stack (length = 9).
call_back: "String 3  " was in the stack (length = 10).
call_back: stack empty.
C{demo_sr}%
```

where *{install-dir}* is the actual **S/REXX** installation directory.

PUSH_RX - Add a String on Top of the External Data Queue

```
void push_rx(str, len)
  char *str;
  int len;
```

The `str` string, whose length is given by `len`, is added on top the External Data Queue (or stack). `str` does not need to be a `NULL` terminated string.

Example: see the `demo4.c` example on page page 668.

QUEUE_RX - Add a String to the External Data Queue

```
void queue_rx(str, len)
  char *str;
  int len;
```

The `str` string, whose length is given by `len`, is added to the External Data Queue (or stack). `str` does not need to be a `NULL` terminated string.

Example:

A `C demo4.c` program:

```
#include <stdio.h>
int push(string, len)
  char *string;
  int len;
{ push_rx(string, len);
  printf ("push: \"%s\" has been pushed.\n", string);
  return(0);
}
int queue(string, len)
  char *string;
  int len;
{ queue_rx(string, len);
  printf ("queue: \"%s\" has been queued.\n", string);
  return(0);
}
main()
{ int rc;
  env_rx("push", push, 1);
  env_rx("queue", queue, 1);
  rc = run_rx("r_demo4", "/home/xed", NULL, NULL, NULL);
  exit_rx(rc);  /* exit_rx() cleans up before exiting */
}
```

An `r_demo4` **S/REXX** program called by the `demo4` program:

```
address queue 'This will be queued'
address push  'This will be pushed'
parse pull a
say a
parse pull a
say a
```

To compile and execute this program, issue the following commands:

```
C{foo}% cd {install-dir}/demo/demo_sr
C{demo_sr}% make demo4
cc    -O    -o    demo4    demo4.c    ../../lib/sun4/libsr.o
-I../../include  -lc -lm
9.1u 1.5s 0:11 95% 0+900k 1+68io 0pf+0w
C{demo_sr}% demo4
queue: "This will be queued" has been queued.
push: "This will be pushed" has been pushed.
This will be pushed
This will be queued
C{demo_sr}%
```

where *{install-dir}* is the actual **S/REXX** installation directory.

QUEUED_RX - Query External Data Queue Length

```
int queued_rx()
```

queued_rx returns the external data queue (or stack) length.

Example:

A C demo5.c program:

```
#include <stdio.h>

int call_back(string, len)
  char *string;          /* ARGSUSED */
{
  printf ("call_back: stack length = %d\n", queued_rx());
  return(0);
}
main()
{
  int rc;
  env_rx("MyEnv", call_back, 1);
  rc = run_rx("r_demo5", "/home/xed", NULL, NULL, NULL);
  exit_rx(rc);  /* exit_rx() cleans up before exiting */
}
```

An r_demo5 **S/REXX** program called by the demo5 program:

```
''
queue '1'
queue '2'
queue '3'
''
pull .
pull .
pull .
''
```

To compile and execute this program, issue the following commands:

```
C{foo}% cd {install-dir}/demo/demo_sr
C{demo_sr}% make demo5
cc    -O    -o    demo5    demo5.c    ../../lib/sun4/libsr.o
-I../../include  -lc -lm
8.8u 2.0s 0:13 82% 0+876k 44+71io 81pf+0w
C{demo_sr}% demo5
call_back: stack length = 0
call_back: stack length = 3
call_back: stack length = 0
C{demo_sr}%
```

where *{install-dir}* is the actual **S/REXX** installation directory.

RUN_RX - Run an S/REXX Program

```
#include "rexx.h"

int run_rx(args, inst, ss, ret_str, len_ret_str)
  char *args, *inst, **ret_str;
  SAV_COMP **ss;
  int *len_ret_str;
```

`args` is a `NULL` terminated string which starts with a filename related to an **S/REXX** program, optionally followed by the argument to be passed to this program.

`inst` is a `NULL` terminated string indicating the **S/REXX** installation directory, which must contain a `passwds` file with a valid password identifying the cpu on which `run_rx` will execute. If `inst` is `NULL`, `run_rx` will attempt to use a `REXXHOME` environment variable instead. In this case, before using `run_rx`, the user must issue a command such as "`setenv REXXHOME /home/xed`" (C-Shell) or "`export REXXHOME=/home/xed`" (Korn Shell).

On **WINDOWS** systems, `inst` can optionally contain the name of the `.exe` module to be used when the REXX `CALL` clause is used with `OPTION NOLOAD` in effect:

```
#  define INST "C:\\Program Files\\SEDIT\\srexx.new.exe"
  rc = run_rx(args, INST, NULL, NULL, NULL);
```

`ss` is a pointer to a structure which will be filled with the compiled form of the `args` **S/REXX** program, or a `NULL` pointer if this save is not to be performed.

If `ss` is not a `NULL` pointer, it must be set to zero before the first `run_rx` call. Subsequent `run_rx` calls will use the `ss` compiled form instead of compiling the `args` program every time, saving a substantial amount of time. Note that `run_rx` will notice if the `args` program has been externally modified between two successive calls, and automatically compile it again.

If `ret_str` is not a `NULL` pointer, `ret_str` will be filled with an allocated `NULL` terminated string containing the string passed to the **S/REXX** `EXIT` statement, if any. `len_ret_str` will contain the `ret_str` length.

It is the responsibility of the caller to free `*ret_str` after usage.

Example:

A C demo6.c program:

```
#include <stdio.h>
#include "srexx.h"
int call_back(string, len)
  char *string;
{ printf ("call_back: received \"%s\"\n", string);
  return(0);
}
void dsp(exit_value, len_exit_value, rc)
  char *exit_value;
  int len_exit_value, rc;
{ if (exit_value)
   { printf ("demo6: exit_value = \"%s\",  len = %d\n",
             exit_value, len_exit_value);
     free(exit_value);
   }
  printf ("demo6: return code = %d\n", rc);
}
main()
{ char *exit_value;
  SAV_COMP *compiled;
  int len_exit_value, rc;
  env_rx("MyEnv", call_back, 1);
  /*
   * Compiled form not saved
   */
  run_rx("r_demo6", "/home/xed", NULL, NULL, NULL);
  /*
   * Compiled form saved
   */
  compiled = NULL;    /*  **** MANDATORY **** */
  rc = run_rx("r_demo6", "/home/xed", &compiled,
              &exit_value, &len_exit_value);
  dsp(exit_value, len_exit_value, rc);
  /*
   * run_rx() will use the previous compiled form
   */
  rc = run_rx("r_demo6 1", "/home/xed", &compiled,
              &exit_value, &len_exit_value);
  dsp(exit_value, len_exit_value, rc);
  /*
   * run_rx() will recompile r_demo6  because we modify it
   */
  system("touch r_demo6");
  rc = run_rx("r_demo6 2", "/home/xed", &compiled,
              &exit_value, &len_exit_value);
  dsp(exit_value, len_exit_value, rc);
  rc = run_rx("r_demo6 3", "/home/xed", &compiled,
               &exit_value, &len_exit_value);
  dsp(exit_value, len_exit_value, rc);
  exit_rx(rc);  /* exit_rx() cleans up before exiting */
}
```

An r_demo6 **S/REXX** program called by the demo6 program:

```
parse arg what .

say
say '************************************'
say 'demo6: called with "'what'" argument.'

'Sent to the MYENV callback routine'

select
  when what = 1 then exit
  when what = 2 then exit 12**1.001
  when what = 3 then return 'Exit String'
  otherwise nop
end
```

To compile and execute this program, issue the following commands:

```
C{foo}% cd {install-dir}/demo/demo_sr
C{demo_sr}% make demo6
cc -O -o demo6 demo6.c ../../lib/sun4/libsr.o -I../../include  -lc -lm
9.1u 1.6s 0:12 84% 0+880k 49+67io 82pf+0w
C{demo_sr}% demo6

************************************
demo6: called with "" argument.
call_back: received "Sent to the MYENV callback routine"

************************************
demo6: called with "" argument.
call_back: received "Sent to the MYENV callback routine"
demo6: return code = 0

************************************
demo6: called with "1" argument.
call_back: received "Sent to the MYENV callback routine"
demo6: return code = 0

************************************
demo6: called with "2" argument.
call_back: received "Sent to the MYENV callback routine"
demo6: exit_value = "12.029856",  len = 9
demo6: return code = 12

************************************
demo6: called with "3" argument.
call_back: received "Sent to the MYENV callback routine"
demo6: exit_value = "Exit String",  len = 11
demo6: return code = 1165519220
C{demo_sr}%
```

where *{install-dir}* is the actual **S/REXX** installation directory.

SETVAL_RX - Set an S/REXX Variable.

```
void setval_rx(symb, l_symb, str, l_str)
  char *symb, *str;
  int l_symb, l_str;
```

`symb` is a character string which must contain a valid **S/REXX** name. `l_symb` is its length.

`str` is a character string to be assigned to symb. `l_str` is its length.

Example:

A `C demo7.c` program:

```
#include <stdio.h>

int call_back(string, len)
  char *string;
{
  printf ("call_back: received \"%s\"\n", string);
  setval_rx(string, len, "Value assigned", 14);
  return(0);
}

main()
{
  int rc;
  env_rx("MyEnv", call_back, 1);
  rc = run_rx("r_demo7", "../..", NULL, NULL, NULL);
  exit_rx(rc);  /* exit_rx() cleans up before exiting */
}
```

An `r_demo7` **S/REXX** program called by the `demo7` program:

```
say 'val = 'val
'val'
say 'val = 'val
```

To compile and execute this program, issue the following commands:

```
C{foo}% cd {install-dir}/demo/demo_sr
C{demo_sr}% make demo7
cc    -O    -o    demo7    demo7.c    ../../lib/sun4/libsr.o
-I../../include  -lc -lm
9.1u 1.4s 0:11 95% 0+904k 12+58io 12pf+0w
C{demo_sr}% demo7
val = VAL
call_back: received "val"
val = Value assigned
C{demo_sr}%
```

where *{install-dir}* is the actual **S/REXX** installation directory.

STOP_RX - Stop an S/REXX Program.

```
void stop_rx(str, l_str, rc)
  char *str;
  int l_str, rc;
```

stop_rx will make **S/REXX** behave as if the statement "EXIT STR" had been entered. run_rx will return to its caller with a rc return code. l_str is str length. str may be NULL, which will simulate a simple "EXIT" statement.

Example:

A C demo8.c program:

```
#include <stdio.h>
int call_back(string, len)
  char *string;
  int len;
{
  printf ("call_back: received \"%s\"\n", string);
  stop_rx(string, len, 12);
  return(0);
}
main()
{
  char *exit_value;
  int len_exit_value, rc;
  env_rx("MyEnv", call_back, 1);
  rc = run_rx("r_demo8", "/home/xed", NULL, &exit_value,
              &len_exit_value);
   if (exit_value)
    printf ("demo8: exit_value = \"%s\"\n", exit_value);
   exit_rx(rc); /* exit_rx() cleans up before exiting */
}
```

An r_demo8 **S/REXX** program called by the demo7 program:

```
say 'demo8 started'
'exiting'
say 'Not displayed'
```

To compile and execute this program, issue the following commands:

```
C{foo}% cd {install-dir}/demo/demo_sr
C{demo_sr}% make demo8
cc    -O    -o    demo8    demo8.c    ../../lib/sun4/libsr.o
-I../../include  -lc -lm
6.6u 1.5s 0:08 95% 0+868k 3+62io 0pf+0w
C{demo_sr}% demo8
demo8 started
call_back: received "exiting"
demo8: exit_value = "exiting"
C{demo_sr}%
```

where *{install-dir}* is the actual **S/REXX** installation directory.

Adding Built-in Functions

It is possible to add built-in functions by modifying and compiling the rx_add_on.c example supplied in the {install-dir}/demo/demo_built directory.

A typical makefile on an IBM RS/6000 is shown below:

```
ARCH    = ibm
CCLIB   = ../../lib/$(ARCH)
CCPATH = ../../include
CC      = cc -O
FILES   = $(CCLIB)/libsr.o $(CCLIB)/srexx.o

srexx2:  rx_add_on.o $(FILES) $(CCPATH)/srexx.h
         $(CC) -o srexx2 rx_add_on.o $(FILES) -I$(CCPATH)
-lbsd -lc -lm

rx_add_on.o:  rx_add_on.c $(CCPATH)/srexx.h
              $(CC) -c rx_add_on.c -I$(CCPATH)

clean:
         rm srexx2 rx_add_on.o
```

Note that the lbsd library is required on IBMs RS/6000 only.

This makefile creates a srexx2 module, which incorporates two new built-in functions described in the rx_add_on.c file.

rx_add_on must start with the following statements:

```
#include <stdio.h>
#include "srexx.h"
#define NB  2
static ITEM *bu_left2(),
            *bu_pi2();
static BUILT bb[NB] =
        { "left2"  , 0, bu_left2,
          "pi2"    , 0, bu_pi2
        };
void rx_add_on()
{
  rx_add_on1(bb, NB);
}
```

These statements defines NB new built-in functions. They will be named left2 and pi2. The C functions bu_left2() and bu_pi2() will be called by the **S/REXX** interpreter when the left2 and pi2 built-in functions will be used.

pi2(N) returns the first N π decimals.

`left2` is a simple copy of the standard `left` function. It demonstrates the use of various internal subroutines:

```
rx_nbfa(args, its, nb_its)
  LEX *args;
  ITEM ***its;
  int *nb_its;
```

The first call within a built-in function must be `rx_nbfa`, which computes the supplied arguments.

The number of arguments passed to the routine will be stored in `*nb_its`. The actual arguments will be stored in the ITEM array `*its`.

The following is an example of an `ITEM` structure:

```
typedef struct str
 { char *str;
   int len;
 } STR;

typedef struct item
 { enum { IT_DB, IT_STR } type;
   union
    { STR str;
      double db;
    } val;
   int prec;
 } ITEM;
```

It may be either a string `STR` structure, or a `double`.

The `it2str` function allows the user to convert an `ITEM` value into a string, regardless of its initial content:

```
void it2str(it, v_it, l_it, ind)
  ITEM *it;
  char **v_it;
  int *l_it, ind;
```

`it2str` uses 10 static internal buffers to store the data. `ind` indicates which buffer is to be used, and may be the constant values `ST1`, `ST2`, ... `ST10` defined in the `srexx.h` include file.

For example:

```
it2str(its[0], &arg1, &len1, ST1);
```

stores the its[0] content in character format into arg1.

The functions malloc_a(), realloc_a() and strdupa() must be used in replacement for the standard C library functions malloc(), realloc() and strdup(). They cleanly abort the srexx process when no more memory is available.

The rx_round function rounds a double value to a specified value:

```
double rx_round(val, nd)
  double val;
  int nd;
```

The rx_bu_err function cleanly aborts any built-in function which receives an erroneous argument:

```
void rx_bu_err(args, its, nb_its, ierr, mes)
  LEX *args;
  ITEM **its;
  int ierr;
  char *mes;
```

its are the arguments computed by the rx_nbfa function. mes is an error message to be displayed. When no message is to be displayed, mes may be replaced by the NULL statement.

free_it allows the user to free the storage allocated by the rx_nbfa function:

```
for (i=0; i<nb_its; i++) free_it(&its[i]);
free(its);
```

Using the RXD Debugger

`rxd` is a graphical debugger which is licensed separately.

Entering RXD Explicitly

To enter `rxd` explicitly on **UNIX** systems, type:

```
/home/xed/rxd test1 args
```

This starts `rxd`, which will run the `test1` **S/REXX** program, passing to it the `args` optional arguments.

To enter `rxd` explicitly on **WINDOWS** systems, type:

```
cd c:\Program Files\SEDIT
rxd test1 args
```

or use the **S/REXX Debugger** icon located in the **SEDIT** folder.

No modification of the program is necessary to start the debugger.

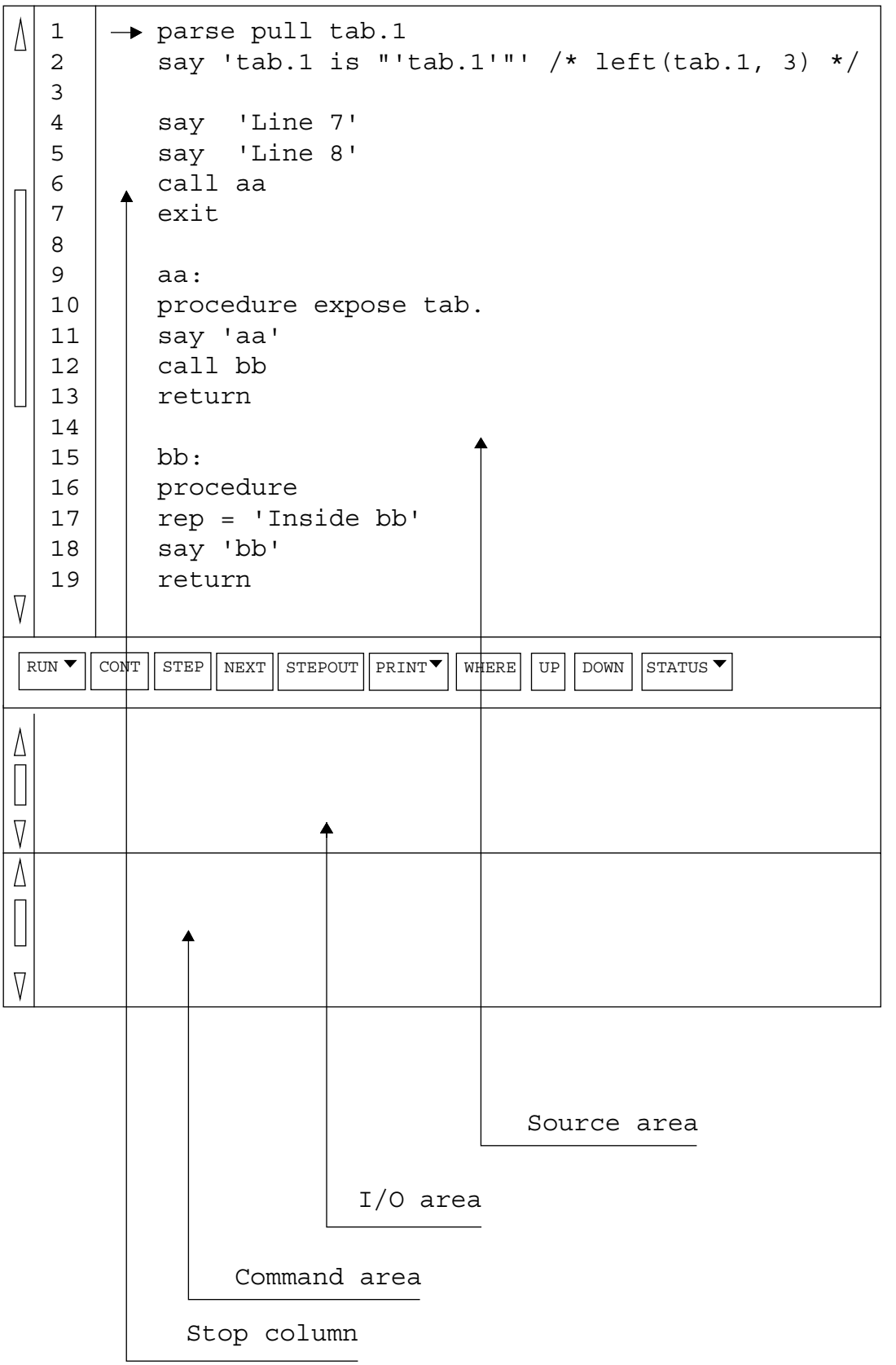
Entering RXD Implicitly

To enter `rxd` implicitly, add the following statement within the **S/REXX** program to debug:

```
trace x
```

This method is the only way to debug an **SEDIT** macro.

rxd will initiate and display the following window:



The I/O area is used by the REXX process to display its output, and permits the user to enter a string to be sent to the REXX process (a response to a `PULL` statement for example).

This input is modifiable using the editing keys, until it is sent to the REXX process by hitting the `Return` or `Enter` key. Therefore, it is not possible to use the REXX `charin()` function to read one character at a time.

The command area is used to enter the following `rxd` commands:

`alias new old`	`new` will be a synonym to the `old` command.
`alias new "old"`	allows the user to specify a synonym ending with a ";". For example: `alias cwd "say cwd();"`
`alias`	displays all the defined synonyms.
`down`	moves down the call stack one level.
`cont`	continues execution.
`delete numline`	removes a stop at line `numline`.
`delete all`	removes all the stops.
`kill`	terminates the REXX process.
`list proc`	displays in the source area the `proc` procedure.
`next`	continues execution, and pauses at the next statement within the same stack level. This enables subroutines to be skipped over.
`print var`	prints the variable `var`.
`print expr`	executes the `interpret say expr` statement within the REXX process, and displays the result in the I/O window. Within the `expr` statement, two variables are defined to access the selection: `.sel` becomes the current selection. `.selw` becomes the REXX variable containing the selection. For example, to print `tab.1`, select one letter in the word `tab` and click on the `print` button, which is assigned to the command `print .selw`.
`run {args}`	when `args` is not specified, `run` terminates the current REXX process, and restarts it with the arguments used for the previous run. When specified, `args` are the new process arguments.
`rerun {args}`	is similar to the `run` command. When `args` is omitted, **no** argument is passed to the REXX process.
`sav_stat file`	saves the stops location in the specified file.
`source file`	reads the specified file, and executes every line.
`set`	set function keys. See using the 'using the set command' section.
`status`	displays the stops.
`step`	continues execution, and pauses at the next statement.
`stepout`	continues execution, and pauses after exiting the current

	subroutine.
`stop at line`	sets a stop at the specified line.
`stop in proc`	sets a stop at the beginning of the `proc` procedure. `proc` does not need to be loaded.
`unalias new`	removes the new synonym.
`up`	moves up the call stack one level.
`upcmd n`	shrinks `n` lines the command line subwindow.
`upsource n`	shrinks `n` lines the source subwindow.
`where`	displays the call stack.
`expr;`	sends the `expr` expression to the REXX process to be interpreted.
`^c`	typing `Control-c` interrupts the REXX process. An empty `DO` loop or a `parse pull` statement cannot be interrupted.

The I/O and command areas can be edited using the following keys:

`Arrow UP`	progressively displays the previous commands in a reverse chronological sequence.
`Arrow DOWN`	progressively displays the previous commands in a chronological sequence.
`Arrow LEFT`	moves the cursor to the left.
`Arrow RIGHT`	moves the cursor to the right.
`Insert` or `^i`	switches insert and replace mode.
`Home` or `^h`	moves the cursor to the start of the line.
`End` or `^e`	moves the cursor to the end of the line.
`Escape` or `L3`	erases the characters following the cursor.
`F3` or `L6`	saves the selection into an internal buffer named the shelf.
`F4` or `L8`	pastes the shelf content at the cursor location.
`Mouse 2`	pastes the current selection at the cursor location.

Setting Stops

When the mouse enters the stop area, the mouse cursor shape becomes circular.

Clicking with the first mouse button sets a stop at the specified line location. Clicking on a line where a stop is displayed removes the stop.

Customizing RXD

When initializing, `rxd` searches for a `.rxdinit` file in the current directory, the user's home directory and the **S/REXX** installation directory.

This file may contain the following elements:

```
back_command xx xx xx
```

The command subwindow background color, where `xx xx xx` corresponds to the RED/GREEN/BLUE value, which is a number in the range 0 to 255.

`windows ht1 ht2 ht3`

On **UNIX** systems, the relative sizes of the source window, the I/O window and the command window.
For example, `windows 50 35 15` specifies that the source window occupies 50% of the total windows height, the I/O windows occupies 35%, and the command window the remaining 15%.

On **WINDOWS** systems, the relative sizes are memorized when `rxd` exits, and the memorized values are used the next time `rxd` is started.

`back_source xx xx xx`

The source subwindow background color.

`back_panel xx xx xx`

The button subwindow background color.

`back_io xx xx xx`

The I/O subwindow background color.

`back_prefix xx xx xx`

The color in use to display the line numbers.

`back_current xx xx xx`

The color to display the line where the REXX process is stopped.

`back_up xx xx xx`

The color to display a line after a `UP` command.

`back_cursor xx xx xx`

The cursor color.

`foreground xx xx xx`

The foreground color.

`font fnt` On **UNIX** systems, the general font.

`dy_font fnt` The font to be used by the buttons.

`geometry hhxll+xx+yy`

On **UNIX** systems, the height (`hh`) in units of characters, the width (`ll`) in units of characters, and the position (`xx`, `yy`) in pixel units of the `rxd` window starting at the upper-left corner.

On **WINDOWS** systems, these values are memorized when `rxd` exits, and the memorized values are used next time `rxd` is started.

`button dis cmd`

Creates a button labeled `dis`, which will execute the `cmd` command.

`mbutton dis "dis1:cm1" "dis2:cmd2" ......`

On **UNIX** systems, creates a menu button labelled `dis`. When the first mouse button is used upon this button, `cmd1` is executed. When the third mouse button is used, a menu with the `dis1`, `dis2`, ... labels is displayed, permitting the choice amongst the `cmd1`, `cmd2`, ... commands to be executed.

In addition, any command, such as `alias`, may be used within `.rxdinit`.

An example is provided in the `{install-dir}/.rxdinit` file.

The following options may be used when starting `rxd` in explicit mode on **UNIX** systems:

`-Ww or -width`	`columns`	the number of columns.
`-Wh or -height`	`lines`	the number of lines.
`-Wf or -font`	`fontname`	the font to be used at initialization.
`-dy_font`	`fontname`	the font to be used by the buttons.
`-display`	`display`	the X11 display to be used.
`-Wp or -position`	`x y`	the **RXD** window location.
`-WP or -icon_position`	`x y`	the **RXD** icon location.

These options override the settings described in the `.rxdinit` file.

Using the Function Keys

The default function keys setting is the following:

F3	`s_copy` copies the selection into the internal buffer named shelf.
F4	`s_paste` pastes the shelf contents at the cursor location.
F5	`cont` continues execution.
F10	`next` continues execution, and pauses at the next statement within the same stack level. This enables subroutines to be skipped over.
F11	`step` continues execution, and pauses at the next statement.
F12	`stepout` continues execution, and pauses after exiting the current subroutine.
S-F5	`run` terminates the current REXX process, and restarts it with the arguments used for the previous run.
S-F11	`stepout`
L3	`eof`
L6	`s_copy`
L8	`s_paste`
^c	`break` interrupts the REXX process. An empty `DO` loop or a `parse pull` statement cannot be interrupted.
^i	`upsource -1` shrinks 1 line the source subwindow.
^k	`kill` terminates the REXX process.
^o	`upcmd 1` shrinks 1 line the command line subwindow.
^p	`upcmd -1` expands 1 line the command line subwindow.
^u	`upsource 1` expands 1 line the source subwindow.
^v	`s_paste`

The set command can be used to change the functions keys action.

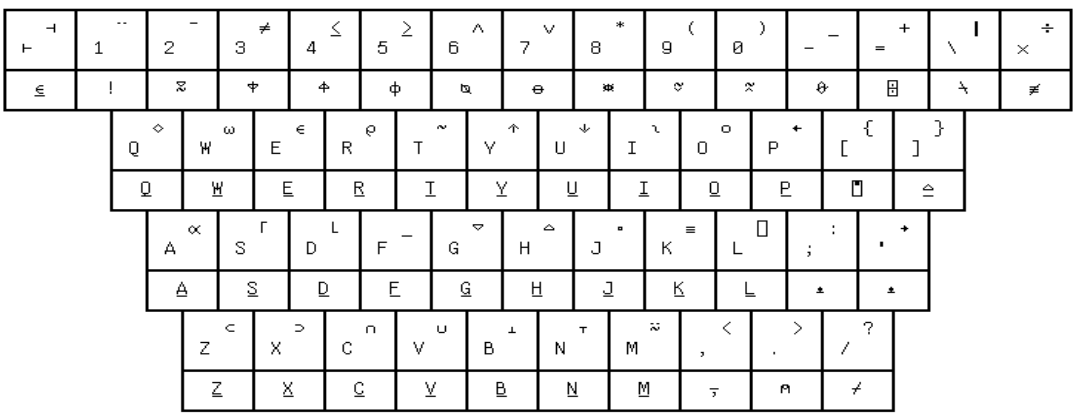
```
SET    |                    Fk    {string}
       |  {S-} {C-} {M-}    Rk
       |  {S-} {C-} {M-}    Lk
       |                    ^cc
```

affects `string` to the given function key.

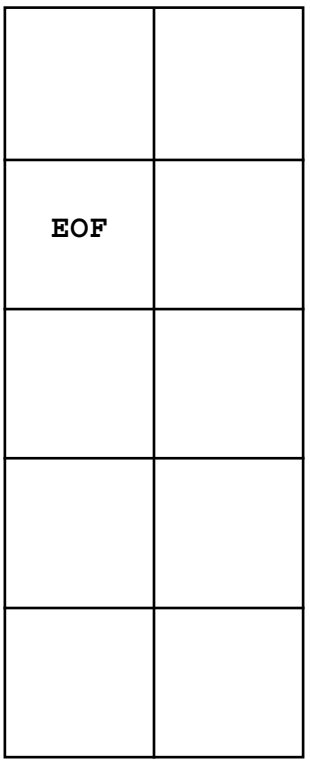
Without arguments, `set` displays the function keys setting.

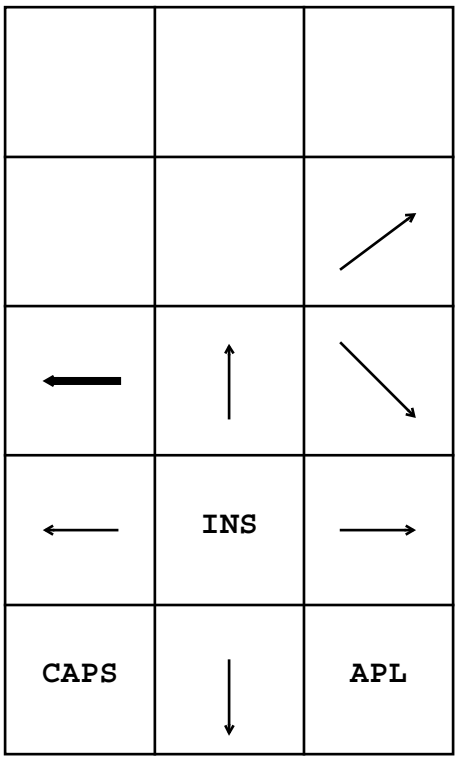
Appendix A: Keyboard Layouts

SUN APL Keyboard Layout

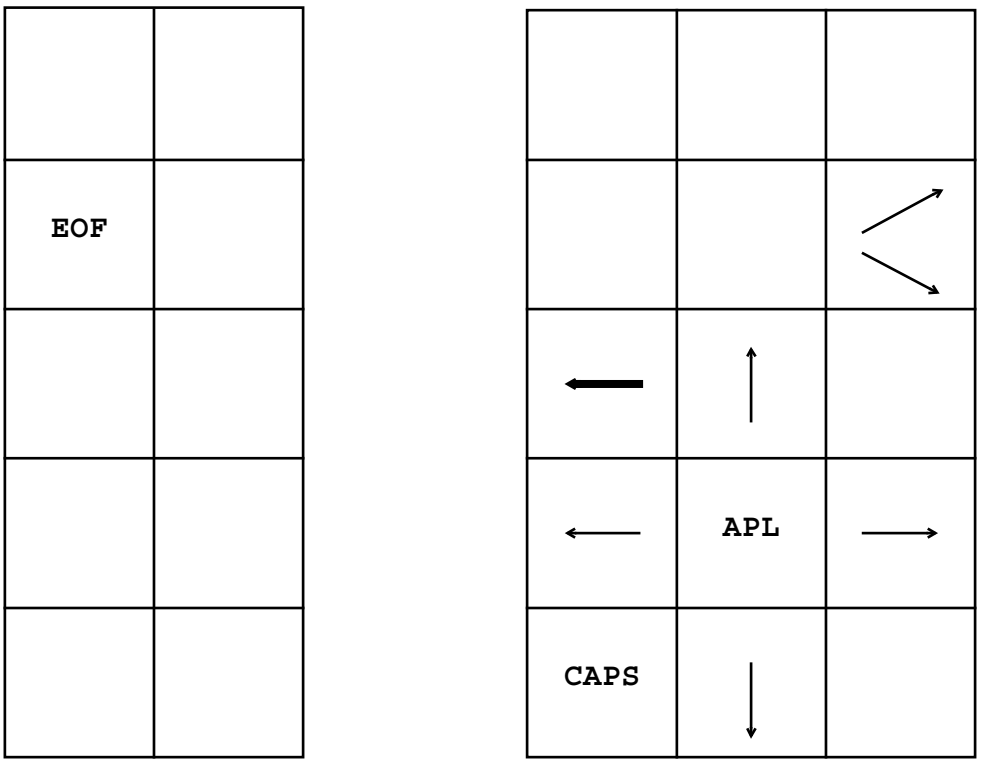


SUN Type 3 Keyboard 3270 Simulation Layout





SUN Type 4 Keyboard 3270 Simulation Layout



SUN Type 5 Keyboard Layout

When using a type 5 Sun keyboard with OpenWindows 3.x, most of the right `Ri` keys are not available.

To modify the layout for one particular user, the user must have a `~/.xinitrc` file.
If this file does not exist, issue the following command:

```
% cp $OPENWINHOME/lib/Xinitrc ~/.xinitrc
```

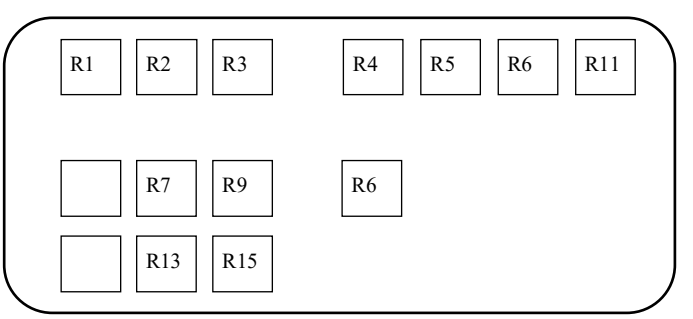
Then, insert the following command in the user's `~/.xinitrc` file **before** the last `wait` statement in this file:

```
xmodmap /home/xed/keyboard/key5.remap
```

When using Solaris 2.4 and OpenWindows 3.4 (and above), use:

```
xmodmap /home/xed/keyboard/key5-4.remap
```

This will map the keyboard in the following way for all users:



The numerical keypad will always be active, and the `Compose` key will be assigned the previous SUN type 4 keyboard `LineFeed` character, which is used by **SEDIT** as the 3270 `Up-Field` function.

The `AltGraph` key will be assigned the 3270 `Down-Field` function.

`Control-AltGraph` enters the `linefeed` command separator.

If you need to use the `Compose` key for other applications, please edit the `key5.remap` file, and remove the line related to the `Compose` key.

SUN Keyboard Mapping

```
L2                MAtch
L3                Erase end of field (3270 EOF)
Shift-L3          Erase all field (3270 EAF)
L4                UNDO
Shift-L4          REDO
L6                S_COPY
L8                S_PASTE
L9                S_FIND
L10               S_CUT
F1                Quit
Control-F1        FLQuit
F2                C_EXT
F3                Save
Shift-F3          File
Control-F3        FLFile
F4                C_SPLIT
F5                SWitch
Shift-F5          ISWitch
F6                C_ENDLine
Shift-F6          C_ENDCURL
F7                BAckward
META-F7           S_LSHIFT
F8                FORward
META-F8           S_RSHIFT
F9                ?
Shift-F9          ?I
F10               CURsor Home
F12               =
R1                COMPLete
S-R1              COMPLete Reverse
S-R2 or S-F11     TOP
S-R3 or S-F12     Bot
Control-R5        filter $xhome/filters/$arch/toggle_comment
C-Left-Arrow      prevword
C-Right-Arrow     nextword
Control-a         C_LINEAdd
Control-c         smart_comp $name 0
Control-C         smart_comp $name 1
Control-d         C_LINEDel
Control-f         f
Control-g         smart_compd $name 0
Control-G         smart_compd $name 1
Control-h         C_SCRH
Control-l         S_Lower
Control-n         f $fn *
Control-p         shell lpr -h $name &
Control-r         Tree
Control-u         S_Upper
Control-U         S_Upper WORD
```

```
Control-v       C_SCRV
Control-w       C_SCRJ
Control-x       S_Xed
Control-z       Left 0
Control--       NEXTerror
Control-=       C_Dup
```

IBM, Silicon Graphics and PCs Keyboard Mapping

```
Escape            Erase end of field (3270 EOF)
Control-Escape    Erase all field (3270 EAF)
F1                S_FIND
F2                S_CUT
F3                S_COPY
F4                S_PASTE
F5                SWitch
Shift-F5          ISWitch
F6                C_ENDLine
Shift-F6          C_ENDCURL
F7                BAckward
META-F7           S_LSHIFT
F8                FORward
META-F7           S_RSHIFT
F9                ?
Shift-F9          ?I
F10               CURsor Home
F11               UNDO
Shift-F11         REDO
F12               =
R1                Quit
Control-R1        FLQuit
R2                COMPLete
S-R2              COMPLete Reverse
R3                Save
Control-R6        filter $xhome/filters/$arch/toggle_comment
C-Left-Arrow      prevword
C-Right-Arrow     nextword
Shift-R3          File
Shift-R6          TOP
Shift-R9          Bot
Control-R3        FLFile
Control-a         C_LINEAdd
Control-c         smart_comp $name 0
Control-C         smart_comp $name 1
Control-d         C_LINEDel
Control-f         f
Control-g         smart_compd $name 0
Control-G         smart_compd $name 1
Control-h         C_SCRH
Control-l         S_Lower
Control-m         MAtch
Control-n         f $fn *
Control-p         shell lpr -h $name &
Control-r         Tree
Control-s         C_SPLIT
Control-u         S_Upper
Control-U         S_Upper WORD
Control-v         C_SCRV
```

```
Control-w       C_SCRJ
Control-x       S_Xed
Control-z       Left 0
Control--       NEXTerror
Control-=       C_Dup
```

DEC/COMPAQ/HP TRUE64 Station Keyboard Mapping

```
F1                s_find
F2                s_cut
F3                s_copy
F4                s_paste
F5                switch
F6                c_endline
F7                backward
F8                forward
F9                ?
F10               cursor home
F11               undo
F12               =
F13               Erase end of field (3270 EOF)
S-F13             Erase all field (3270 EAF)
F14               filter $xhome/filters/dec/toggle_comment
F15               help
F16               save
S-F5              iswitch
S-F6              c_endcurl
S-F7              pgup
S-F8              pgdown
S-F9              ?i
S-F11             redo
S-F15             help task
S-F16             file
C-F7              left40
C-F8              right40
C-F10             delay.home
C-F16             flfile
META-F7           S_LSHIFT
META-F8           S_RSHIFT
R7                backward
R9                forward
S-R7              top
S-R9              bot
C-Left-Arrow      prevword
C-Right-Arrow     nextword
L1                quit
L2                match
C-L1              flquit
L3                COMPLete
S-L3              COMPLete Reverse
^-                nexterror
^=                c_dup
^C                smart_comp $name 1
^G                smart_compd $name 1
^N                f $fn * $fd
^a                c_lineadd
^c                smart_comp $name 0
```

```
^d              c_linedel
^e              c_apltrace
^f              flist
^g              smart_compd $name 0
^h              c_scrh
^l              s_lower
^n              f $fn *
^p              shell lpr $name &
^r              tree
^s              c_split
^t              tree
^u              s_upper
^v              c_scrv
^w              c_scrj
^x              s_xed
^z              left0
```

HP Keyboard Mapping

```
F1                s_find
F2                s_cut
F3                s_copy
F4                s_paste
F5                switch
F6                c_endline
F7                backward
F8                forward
F9                ?
F10               home
F11               undo
F12               =
S-F1              s_find
S-F5              iswitch
S-F6              c_endcurl
S-F7              pgup
S-F8              pgdown
S-F9              ?i
S-F10             home
S-F11             redo
S-F12             bot
C-F1              s_find
C-F7              left40
C-F8              right40
C-F10             delay.home
M-F1              s_find
R1                quit
R2                save
R9                backward
R11               forward
S-R2              file
S-R9              top
S-R11             bot
C-R1              flquit
C-R2              flfile
C-R9              filter $xhome/filters/hp/toggle_comment
C-Left-Arrow      prevword
C-Right-Arrow     nextword
L1                Erase end of field (3270 EOF)
Shift-L1          Erase all field (3270 EAF)
L6                complete
Shift-L6          complete Reverse
^-                nexterror
^=                c_dup
^C                smart_comp $name 1
^G                smart_compd $name 1
^N                f $fn * $fd
^X                s_man
^a                c_lineadd
^c                smart_comp $name 0
^d                c_linedel
```

```
^e              c_apltrace
^f              f
^g              smart_compd $name 0
^h              c_scrh
^l              s_lower
^m              match
^n              f $fn *
^p              shell lp $name &
^r              tree
^s              c_split
^t              tree
^u              s_upper
^v              c_scrv
^w              c_scrj
^x              s_xed
^z              left0
```

WINDOWS Keyboard Mapping

```
Escape            Erase end of field (3270 EOF)
Shift-Escape      Erase all field (3270 EAF)
F1                S_FIND
F2                C_LINEADD
F3                SAVE
F4                C_SPLIT
F5                SWITCH
F6                C_ENDLINE
F7                BACKWARD
F8                FORWARD
F9                ?
F10               HOME
F11               UNDO
F12               =
S-F1              S_FIND
S-F2              C_EXT
S-F3              FILE
S-F5              ISWITCH
S-F6              C_ENDCURL
S-F7              PGUP
S-F8              PGDOWN
S-F9              ?I
S-F11             REDO
C-F1              S_FIND
C-F3              FLFILE
C-F7              LEFT40
C-F8              RIGHT40
C-F10             DELAY.HOME
META-F7           S_LSHIFT
META-F8           S_RSHIFT
R1                AQUIT
R2                COMPLETE
R5                C_STARTLINE
R6                BACKWARD
R7                C_ENDLINE
R9                FORWARD
C-Left-Arrow      PREVWORD
C-Right-Arrow     NEXTWORD
s_R1              FLQUIT
S-R2              COMPLETE REVERSE
S-R6              TOP
S-R9              BOT
C-R1              FLQUIT
C-R6              FILTER $xhome\filters\wnt\toggle_comment
^a                S_SET ALL
^c                S_COPY
^d                C_LINEDEL
^f                FLIST
^h                C_SCRH
```

```
^l              S_LOWER
^m              MATCH
^n              F "$fn" *
^p              PRINTFILE
^q              AQUIT
^r              TREE
^s              DY_SAVE
^t              TREE
^u              S_UPPER
^v              S_PASTE SHELF
^w              C_SCRJ
^x              S_CUT
^z              UNDO
^C              smart_comp $name 0
^F              FLOW
^G              smart_compd $name 0
^H              S_HELP
^L              LEFTADJUST
^M              MATCH CURSOR
^N              F "$fn" * "$fd"
^R              RIGHTADJUST
^V              S_PASTE SHELF OVERLAY
^X              S_XED
^-              NEXTERROR
^=              C_DUP
```

Character Mode Terminals Mapping

Escape	Erase end of field (3270 EOF)
F1	Quit
F2	NEXTerror
F3	Save
F4	C_SPLIT
F5	SWitch
F6	C_ENDLine
F7	BAckward
F8	FORward
F9	?
F10	CURsor Home
F11	UNDO
F12	=
Control-a	C_LINEAdd
Control-b	C_STARTS
Control-c	smart_comp $name 0
Control-d	C_LINEDel
Control-e	C_ENDS
Control-f	f
Control-g	smart_compd $name 0
Control-h	Backspace
Control-i	NEXT-FIELD
Control-j	UP-FIELD
Control-l	command separator
Control-m	Return or Enter
Control-n	C_ENDSR
Control-o	S_COpy
Control-p	shell lpr -h $name &
Control-r	REFRESH Clear
Control-t	enters the tab character
Control-u	S_Upper
Control-v	C_SCRV
Control-w	C_SCRJ
Control-x	S_Xed
Control-y	S_Paste
Control-z	Left 0

Appendix B: Hardware String

Within this manual, arch or $arch is the following hardware dependent string:

SUN SunOS	sun4
SUN Solaris (sparc)	sparc
SUN Solaris (PCs)	i86pc
IBM RS/6000	ibm
Hewlett Packard	hp
SiliconGraphics	sgi
SCO PC systems	sco
Linux PC systems	linux
Unixware PC systems	uxw
DEC/COMPAQ/HP Alpha TRUE64 systems	alpha
Siemens RM systems	sinix
Windows systems	wnt

SEDIT Release Notes

This appendix highlights **SEDIT** enhancements since the release of version 3.50

The 3.60 File Editor Enhancements

New Commands

- ARBCHAR
- DOSFILE
- DOSSAVE
- DUPLICAT
- DY_ALL
- DY_EXCLUDE
- DY_FIND
- DY_FONT
- DY_OPEN
- DY_SAVE
- DY_SHOW
- ESCAPEDELAY
- EXCLUDE
- FLATH
- HEX
- ISOCONV
- MBUTTON
- METAKEY
- MODE TOPLINE
- MODE CURSOR
- MODE GET
- PRESERVE
- READSCREEN
- RELOAD
- RESTORE
- SHOW
- SOS INS
- SOS BAKSPACE
- S_HELP
- XTESTCHARS
- WRAP

Miscellaneous

- `$` command substitution can be escaped with a backslash. See Avoiding Variable Substitution on page 148.
- All directory related commands accept the `~user` C-Shell syntax: typing

`cd ~john` will switch to `john`'s home directory, as described in the `/etc/passwd` file.

- Error messages are displayed on a specific field.
- New `ARBCHAR/ENVIRON/FILE/MATCH/WRAP EXTRACT` operands.
- The `UNDO` command accepts a parameter.
- The `Ch` command is renamed `Change`. `CHANGE` allows the user to insert a string in the first zone column, and supports hexadecimal specification when `HEX` is `ON`.
- The `SCh` command is renamed `SChange`.
- The TOP OF FILE line is a virtual 0 line, allowing the user to insert data before the first line in the file. Since this is an incompatible change with the previous **SEDIT** release, the `MODE` command allows the user to set the TOP OF FILE line to 1.
- The `AUTOI` command is renamed `AUTOIndent`.
- The `MODE Change` command is renamed into `MODE CHange`.
- The `SET` command allows the user to program the keyboard arrow keys.
- The `VERIFY` command allows the user to enable the new `fullshift` mode.
- The `GET` command allows the user to specify the number of lines to be inserted.
- The `GET_PANEL` command allows the user to specify a field intensity, a cursor location and a `refresh` mode.
- The `SAVE` and `FILE` commands respect the owner and the group of the saved file.
- The **MOTIF** version returns the focus keyboard to the window that had the focus at **SEDIT** initialization.
- **S/REXX MOTIF** and OPENLOOK dialog facilities.

The 3.60 Directory Editor Enhancements

- The length of the filename zone is variable, allowing full display of longer file names.
- The file related permissions display may be switched off by typing `^a`, or by using the **SEDIT** `FLATH` command.
- New `DIFF` built-in command.

The 3.60 Tree Editor Enhancements

- New button `SCAN ALL`.
- Initial scanning hides subdirectories belonging to different file systems.

The 4.0 File Editor Enhancements

New or Enhanced Commands

- ALL
- AQUIT
- BACKWARD
- BOUNDS
- BUILTIN
- CAPS
- CANCEL
- CHANGE
- CLEARERRORS
- CN
- COLOR * and COLOR CURSOR
- COPY
- COUNT
- CTLCHAR
- CREATE
- DELETE
- DUPLICAT
- EDIT
- END
- EXCLUDE
- FIND
- FINDUP
- FORWARD
- HELP
- HEXTYPE
- HISTORY
- IMPCMSCP
- LASTLORC
- LOCATE
- LOWERCAS
- MACRO
- MODE
- MOVE
- MOUSEMODE
- NFIND
- NFINDUP
- NUMBER
- POINT
- PQUIT
- PREFIX
- PRESERVE
- PRINTSCREEN
- RESERVE

- PUT
- QUIT
- READ
- READSCREEN
- REPEAT
- RESTORE
- RESERVED
- SET
- SC
- SCN
- SELECT
- SHIFT
- SPAN
- STACK
- STAY
- S_PASTE
- UPPERCAS
- VARBLANK
- VERIFY
- XCSHELL
- XKSHELL

Miscellaneous

- New /CTLCHAR/IMPCMSCP/MACRO/NUMBER/POINT/PREFIX/RESERVED /SOURCE/SPAN/VARBLANK/STAY/ENTER/LASTLORC/NBSCOPE/MOUSEMO DE/CMDLINE EXTRACT operands.
- EXTRACT/SELECTION/ returns a different set of values.
- EXTRACT VERIFY returns 3 strings instead of 2.
- VERIFY accepts ON and OFF as parameter.
- PRESERVE and RESTORE save and restore new settings.
- A logical operator within an ALL target must be enclosed within delimiters. The previous **SEDIT** release accepted a search string such as "/str|/str2". You must now type "/str/|/str2".
- DISplay is renamed into DISPlay.
- Left is renamed LEft.
- MOde renamed MODe.
- MEnu renamed MENu.
- Put renamed PUT.
- SHell renamed SHEll.
- SETP without parameters frees the last window line.
- General XEDIT targets. * is now a target that cannot be used as a comment within an internal macro: **the user will have to edit all its previous internal macros, and replace the * comment sign with the # comment sign**.
- The various CHANGE commands are no longer restricted by the VERIFY setting.
- Commands and macros are parsed up to the first non-alphabetic character. "SCREEN1" is treated as "SCREEN 1". **In order to call macros ending with a**

numerical character, such as `set_sun_t5`, the new `MACRO` command must be used. Entering "`set_sun_t5`" will fail. The user must enter "`MACRO set_sun_t5`" instead.

- When more than one message is issued from a macro, **SEDIT** creates a new file in the editing ring displaying all the messages.
- The `/home/xed/xedit` scrip allows the user to start **SEDIT** using the `/home/xed/prof_xedit.sedit` profile, which initializes **SEDIT** with the same default settings as XEDIT default settings.
- The `-p` option allows the use of shortened profile names: "`sedit -p foo`" is the same as "`sedit -p foo.sedit`".
- The `CURLINE` command accepts an optional `ON` keyword.
- The `XED` command is renamed into `XEDit`.
- **RXD** graphical debugger support.
- The `NEXT` and `UP` commands return 1 when the end or top of a file is reached.
- `QUIT` **is now the same as** `QQUIT`. However, the standard profile file makes `QUIT` a synonym to the new `AQUIT` command, which performs in the same way as the `QUIT` command under **SEDIT** 3.60.
- The `SET` command permits the user to define the `ENTER` key, and recognize the XEDIT `AFTER`/`ONLY`/`IGNORE`/`BEFORE` keywords. Note that `SET F1 string` is now treated as `SET F1 BEFORE string`. The previous **SEDIT** release treated all key definitions as `ONLY` definitions. **To define the same key action as SEDIT 3.60, the user should enter** `SET F1 ONLY string`.
- In earlier versions, `QUERY` was ignored since every **SEDIT** command without parameters returned its status. In this release, `QUERY` is defined in the same way as in XEDIT and accepts a limited number of parameters, the same ones as XEDIT `QUERY`.
- The `NEXTERROR` command finds the lines in error even when the user adds or deletes lines.
- `GET_PANEL` saves the mouse position in the `MOUSE` environment variable, and the cursor position in the `CURSOR` environment variable.
- `PRINTSCREEN` allows the user to specify a default printer.
- `HELP` supports **S/REXX** help files.
- `LINUX` support.
- The `-np` option suppresses the profile execution at initialization.
- The `-font` option accepts a fontname starting with a `-`.

The 4.0 Directory Editor Enhancements

- The file size field is larger.
- New `^xx` commands.

The 4.0 Tree Editor Enhancements

- `TREESCANLEVEL` command.

The 4.10 File Editor Enhancements

New or Enhanced Commands

- CENTER
- CHANGE
- COLOR
- DY_OPEN
- DY_SAVE
- FOLLOW
- FLOW
- FORMAT
- GET
- LEFTADJUST
- MARGINS
- MATCH
- MODE
- MOUSEMODE
- NUMBER
- NUMBER_SCREEN
- PREFIX
- PREFIX_SCREEN
- PRINTSCREEN
- PUT
- RFLIST
- RIGHTADJUST
- SCALE
- SCALE_SCREEN
- SYNTAX
- TABLINE
- TABLINE_SCREEN
- VERIFY
- VERIFY_SCREEN

Miscellaneous

- New `/FORMAT/MARGINS/ EXTRACT` operands.
- **SEDIT** supports 62 colors.
- The background and foreground colors are no longer set by modifying the `BLACK` and `WHITE` colors. Use `COLOR BACKGROUND R G B` and `COLOR FOREGROUND R G B` for that purpose. This is an incompatible change with previous **SEDIT** releases. **The user will have to edit all its previous macros using the** `COLOR WHITE` **or** `COLOR BLACK` **commands**.
- Syntax coloring.
- The `/NUMBER/PREFIX/SCALE/TABLINE/ZONE/` settings are both file and view dependent.
- Text formatting capabilities.
- When the screen is split with the '`screen N`' or '`screen N V`' command, this

command will be applied automatically every time the window is resized.

- MOUSEMODE FULLMOTIF assigns the cursor motion function to the first mouse button.
- PENDING prefix commands are displayed in the function keys help field.
- The userid is displayed at the top of the **SEDIT** window.
- MODE EXPAND ON ENV makes **SEDIT** search for **UNIX** environment variables within commands. MODE EXPAND OFF disables completely any variable substitution.
- Used with ARBCHAR and ZONE, the CHANGE command can remove a set of columns.
- The PUT and GET commands can be used with native **UNIX** file names.
- C_ENDLINE extends the line if necessary.
- Directory symbolic link resolving can be disabled with the FOLLOW command.
- SUN's SunView and IBM's WORKBENCH are no longer supported.

The 4.10 Directory Editor Enhancements

- Better pattern matching, with ? meta character support.
- Regular expression pattern matching.

The 4.10 Tree Editor Enhancements

- TREE supports the Home, End, PageUp and PageDown function keys.
- The PRINTSCREEN command changes the default TREE printer and printing daemon.

The 4.20 File Editor Enhancements

New or Enhanced Commands

- ACCESS
- BACKUP
- DRELEASE
- DY_LASTFILES
- FD
- FLDATE
- FLPP
- FN
- FORMAT
- FT
- GLOBALCASE
- LASTFILES
- POWERINPUT
- PRINTFILE
- RELEASE
- SCKEYS changes the confirmation keys used by SCHANGE.
- SHOWPATH
- SHOWCDPATH

Miscellaneous

- SAVE error messages are displayed in the editing ring.
- When MOUSEMODE is set to **MOTIF** or FULLMOTIF, rectangular selections can be pasted with the second mouse button.
- PRIntscreen renamed into PRINTScreen.
- The backup string (% by default) can be changed with the BACKUP command.
- The SHIFT command, and the <, >, <<, and >> prefix commands affect text from the left zone column.
- When the STRING keyword is not used in a SYNTAX file, the quote and double quotes characters are not treated as the start of a string.
- **WINDOWS NT** and **WINDOWS 95** support.
- The POWERINPUT mode supports characters inserted in the middle of a line.
- The search for a file in the path does not stop when finding a directory with the same name as the requested file.
- C_LINEADD scrolls down one line when the cursor is on the last displayed line.
- **S/REXX** macros are enabled without an **S/REXX** license.

The 4.20 Directory Editor Enhancements

- **FLIST** displays a "`..`" string. Clicking on it initiates a new **FLIST** level upon the parent directory.
- `Shift-F2` and `^M` generate an **SEDIT** file with the full names of the files displayed within **FLIST**.
- **FLIST** can display dates in US format.

The 4.20 Tree Editor Enhancements

- `^s` (and `FIND` on Sun keyboards) searches for a directory.
- The `UP` and `DOWN` arrow keys scroll the view.

The 4.30 File Editor Enhancements

New or Enhanced Commands

- C_ENDSALL
- DY_FILL
- LINECOL
- MBUTTON
- MENU
- MENUBAR
- NEXTWORD
- PREVWORD
- PRINTFILE
- RELOAD
- REPEATDELAY
- SET
- SORT
- SOS
- S_SET
- STAMPDELAY
- VISIBLE

Miscellaneous

- New `/VISIBLE/` `EXTRACT` operands.
- `Alt-cc` (or `Meta-cc`) keys can be programmed.
- The line and column corresponding to the cursor position are displayed, as well as the hexadecimal value of the character on the screen.
- Files describing a menu can reference another file.
- `PRINTFILE` prints only the visible part of the file defined with the `ALL` command.
- `SORT` sorts only the visible part of the file defined with the `ALL` command.
- Pressing the first button mouse on the field located between the prefix fields and the data fields selects a whole line.
- `O` and `OO` prefix commands.

The 4.30 Directory Editor Enhancements

- ? displays the last command.
- The total size of the displayed files is displayed on the first line.

The 4.30 Tree Editor Enhancements

- New **CLONE** menu option.

The 4.40 File Editor Enhancements

New or Enhanced Commands

- AUTOBIN
- BEEP
- BINARY
- CASE
- CHANGE
- CURSOR
- CN
- EXIT
- EXTRACT
- FLOW
- FMACRO
- KEEPBLANKS
- POWERINPUT
- RCHANGE
- SCHANGE
- SCN
- SET
- SHBLANK
- SRCHANGE
- SORT
- SYNONYM (QUERY SYNONYM)
- SYNTAX for COBOL files (SEDIT 4.40B and above)
- VERIFY_KSAVE
- VERIFY_SSAVE
- VERIFY_SAVE
- XBIN
- XKB

Miscellaneous

- The `SORT` and the various `CHANGE` commands case sensitivity is tailored by the `CASE` command.
- Binary files editing.
- New `/BINARY/KEEPBLANKS/RMATCH/SHBLANK/SYNONYM EXTRACT` operands.
- An internal or **S/REXX** macro can use the `NULL` character.
- The `POWERINPUT` mode has been enhanced, and is now a file related setting.
- `xinfo` is a graphical utility, and can be used on remote clients.
- The license server is supported on **WINDOWS NT** systems.
- The `EXTRACT` command can be replaced with the extract built-ins, such as the `arbchar.0()` built-in. See Using EXTRACT on page 142 for more information.
- `EXTRACT/CMDLINE/` also returns the command line content.
- `EXTRACT/CURSOR/` also returns the line position of the cursor in the file when the cursor is on the corresponding prefix field.

- CURSOR can place the cursor at the start of a prefix field.
- Function keys can be specified with several modifiers held down, and SET uses symbolic names like LeftArrow. See the SET command.
- Bookmarking with the ^nn keys. See the section Using Function Keys for more information.
- KEDIT-like keyboard personality with the kedit command (**UNIX**) or icon (**WINDOWS**).
- **S/REXX** syntax error messages are displayed within the **SEDIT** window.

The 4.40 Directory Editor Enhancements

- XBIN and XKB commands.
- The file size field is no longer limited to 2 Gb.
- **S/REXX** macros (see page 484).

The 4.50 File Editor Enhancements

New or Enhanced Commands

- DFLIST
- FFLIST
- MESSAGESDIR
- RECYCLE
- SAVECLEARUNDO
- SET ? displays all the editor settings.
- SHOWHISTORY
- SORTRING
- SOS INSERT
- STATUS
- S_COPY
- S_PASTE
- XCSHELL
- XKSHELL
- XSHELL
- XSHELLMAX
- XSHOWHISTORY

Miscellaneous

- `-batch` option. See Using the BATCH Option on page 144.
- New `/INSERT/XSHELL/WIDTH/ EXTRACT` operand.
- The command field extends automatically to 2 lines when needed.
- The history commands can search for commands starting with a given letter.

The 4.50 Directory Editor Enhancements

- On **WINDOWS** systems, when `RECYCLE` is `ON`, removing files places them in the recycle bin.
- The command fields expand to 2 lines when needed.
- Sorting files is done in reversed order when using the shift key.
- `Control-HOME` and `Control-END` scroll to the first and last file.
- On **WINDOWS** systems, the `HOME` and `END` keys move the cursor to the start and the end of the typed string. See **FLIST** function keys description page 470 to achieve the same functionality on **UNIX** systems.
- `WIPE` macro.
- `DFLIST` only displays directories.
- `FFLIST` only displays non-directories.

The 4.50 Tree Editor Enhancements

- On **WINDOWS** systems, when `RECYCLE` is `ON`, removing files or directories places them in the recycle bin.

The 4.60 File Editor Enhancements

New or Enhanced Commands

- EXTRACT
- FONT

Miscellaneous

- New /FONT/CLIPBOARD/ EXTRACT operand.
- Clicking with the first mouse button on the scale line changes the first VERIFY setting to the corresponding column. This allows to scroll the file display to the right up to this column.
- with non-US keyboards, it is necessary to remove the default right ALT key "down_field" assignment.
  This is achieved by adding in the profile the "set down_field" command after the architecture dependent "set_xxx" keyboard setting macro has been called. On IBM stations for example, the keyboard setting macro is "set_ibm".
  Using "set down_field" replaces the obsolete
  "setenv SEDIT_META_ON_RIGHT" syntax.
- Files with a large number of lines (100,000+) load much faster.

The 4.60 Directory Editor Enhancements

- The CP, MV and DIFF commands used without arguments bring the filename, filetype and the = sign on the corresponding command line, allowing easy editing.
- BOTTOM and TOP commands.

The 4.70 File Editor Enhancements

New or Enhanced Commands

- ALT
- EXTRACT/SELECT/
- COLOR EDITED
- LIMIT
- SELECTALL

Miscellaneous

- A large file is a file larger than 2,147,483,647 bytes. **SEDIT** supports large files on the operating systems displayed when typing HELP LARGEFILES.

The 4.70 Directory Editor Enhancements

- A large file is a file larger than 2,147,483,647 bytes. **SEDIT** supports large files on the operating systems displayed when typing HELP LARGEFILES, and **FLIST** displays correctly large files length.

The 4.70 Tree Editor Enhancements

- WIPE menu option.

The 4.80 File Editor Enhancements

New or Enhanced Commands

- EXTRACT /RECLevel/XEDlast/
- NSORT
- WINSHRinktofit

Miscellaneous

- .With files like "`aaa.bbbb.c`", the filename is "`aaa.bbbb`" and the filetype is "`c`".

The 4.80 Directory Editor Enhancements

- .With files like "`aaa.bbbb.c`", the filename is "`aaa.bbbb`" and the filetype is "`c`".

The 5.00 File Editor Enhancements

New or Enhanced Commands

- MOUSEMODE
- PRINTFILE (**WINDOWS**, SEDIT 5.01)
- RTLF
- SHELLEXT
- SYNTAX
- WHEEL
- PRNOPAR (**WINDOWS**, SEDIT 5.05)
- RTLF no longer useful (**WINDOWS**, SEDIT 5.05)
- VERIFY accepts the I parameter
- MVLINEDUP and MVLINEDOWN macros mapped to Control Up and Down arrows (**SEDIT** 5.07)
- WORDCHARS (**SEDIT** 5.07)
- EXTRACT/VISIBLE/ enhanced (**SEDIT** 5.07G)
- Option to Cancel EXIT when a file has been modified (**WINDOWS**, **SEDIT** 5.08)

Miscellaneous

- Mouse wheel support (**WINDOWS**).
- "variable object" in SYNTAX file.
- CD menubar item (**WINDOWS**).
- FLIST -> Browse menubar item (**WINDOWS**).
- 64 bit Version (**WINDOWS**).
- Symbolic links support on **WINDOWS** (SEDIT 5.01).
- UNC Name Syntax (file names similar to "`\\server\share\file_path`") supported on Windows (**SEDIT** 5.04).

The 5.00 Directory Editor Enhancements

- `O` command, allowing to open a file with the default **WINDOWS** action.
- **WINDOWS** default executes on clicking files whose filetype is defined by

SHELLEXT

The 5.09D File Editor Enhancements

- **WINDOWS**: support for long name path above the 260 character limit, up to 32767 characters.
- **WINDOWS:** data saved in the clipboard remains available after **SEDIT** exits

The 5.10 File Editor Enhancements

New or Enhanced Commands

- REGTYPE

Miscellaneous

- **SEDIT** supports the ECMAScript syntax for regular expressions on **WINDOWS**, and the PCRE syntax on **LINUX**..
- **WINDOWS**: when started with the default supplied profile.sedit profile file, **SEDIT** will copy it and all the files related to the menu and menubar customization on C:\Users\{username}\AppData\Local\SEDIT. A new Session menubar item will be enabled allowing to save and retrieve a set of currently edited files.

The 5.20 File Editor Enhancements

Miscellaneous

- Various speed improvements, especially for the Windows S/REXX debugger.
- The license server can be hostname locked, allowing to update the operating system or the hardware where the server runs without having to request a new key.
- **WINDOWS**: uses a standalone SCROLLBAR control to ensure compatibility with WindowBlinds 11.
- UNDO remembers the cursor position.

S/REXX Release Notes

This appendix highlights **S/REXX** enhancements since the release of version 1.0.

1.10 Enhancements

Enhanced Built-in Functions

- ARG
- CHARIN
- DATE

Miscellaneous

- ISPF-like tables.
- Programming Interface.
- { and } support.

1.20 Enhancements

New or Extended Instructions

- DO
- EXECIO
- OPTION

New Built-in Functions

- DY_BUTTON
- DY_DESTROY
- DY_END
- DY_INPUT
- DY_LABEL
- DY_MAP
- DY_SINPUT
- DY_START
- DY_STG
- DY_TG
- DY_UNMAP
- DY_VINPUT
- DY_VTG
- MKDIR
- RM
- TEE
- SLEEP
- USLEEP

Enhanced Built-in Functions

- STATE

Miscellaneous

- When `SIGNAL ON NOVALUE` is in effect, and a variable which has not been assigned a value is used, an error 71 occurs when the `NOVALUE` label is not defined.
- Floating S/REXX licenses.
- VM/CMS EXECIO support.
- Dialog management.
- `ccsr` allows the user to compile a program.

2.00 Enhancements

New or Extended Instructions

- `ADDRESS` has been extended to include the C shell or the Korn shell as command destinations.
- `OPTION`

New Built-in Functions

- `CHANGE`
- CSH
- DY_CH
- DY_VCH
- KSH
- SH
- TEEC
- TEEK

Miscellaneous

- Bracket indexing.
- **RXD** graphical debugger support.
- The dialog boxes can be used in standalone REXX shells.
- `CUSERID()` accepts a parameter.

2.10 Enhancements

New or Enhanced Built-in Functions

- DY_ASCL
- DY_BEEP
- DY_BUTTON
- DY_BUTTON_COLOR
- DY_CH_COLOR
- DY_DSCL
- DY_FOCUS
- DY_INPUT
- DY_INPUT_COLOR
- DY_LABEL
- DY_LABEL_COLOR
- DY_OPEN
- DY_PSCL
- DY_RSCL
- DY_SCL
- DY_SCL_COLOR
- DY_SSCL
- DY_TG_COLOR
- DY_VSCL
- SORT
- SUBDIRS
- TBOPEN
- TCSH

Miscellaneous

- Dialog scrolled lists.
- When `OPTION NOLOAD` is in effect, **S/REXX** searches for external subroutines, and executes them in a different subprocess. See Using OPTION NOLOAD on page 507.
- The `.srexxrc` and `sedit.srexxrc` files tailor the default settings. See Setting Default Options for SEDIT REXX Macros on page 508.
- **MOTIF** dialog items can be colored individually.
- The `DISKI` and `DISKD EXECIO` options allow the insertion and removal of lines from a file.
- `ADDRESS` supports the `tcsh` option.
- The license server is supported on **WINDOWS NT** systems.

2.20 Enhancements

New or Enhanced Built-in Functions

- CLOSE_CONS
- CONCAT
- CP or COPY
- DEL or RM
- DIR or LS
- DY_PRINTER
- DY_SLABEL
- DY_WARP
- FILECONV
- GETPID
- MV or RENAME
- OPEN_CONS
- RMDIR

Miscellaneous

- The `PATH` environment variable is parsed every time an external routine is called.
- **WINDOWS NT** and **WINDOWS 95** support.
- Specific double click reason code for scrolled lists.

2.30 Enhancements

New or Enhanced Built-in Functions

- ACOS
- ASIN
- ATAB
- COS
- CVTAILS
- DATE
- DESBUF
- DROPBUF
- DY_END
- DY_OPEN
- DY_SCH
- EXECIO
- MAKEBUF
- SENTRIES
- SIN
- STATE
- SCRIPT
- TAN

Miscellaneous

- `env_rx2()` new programming interface.
- `RENAME()` and `MV()` work across file systems.
- The background color can be specified with `DY_END()` and `DY_OPEN()`.
- The C API applies to the **MOTIF** `msrexx` or the **WINDOWS** `wsrexx.exe` version.

2.40 Enhancements

New or Enhanced Built-in Functions

- ACCEPT
- BIND
- C2O
- CHARIN
- CLEAR
- CLOSESOCKET
- CLS
- CONNECT
- CPUID
- DATE
- FOLLOW
- FORK
- FLFILES
- GETFILE
- GETHOSTBYADDR
- GETHOSTBYNAME
- GETHOSTID
- GETPEERNAME
- GETSOCKNAME
- GETSOCKOPT
- IOCTL
- KILL
- LINEIN
- LISTEN
- QPID
- RECV
- RECVFROM
- REGISTRY_DEL
- REGISTRY_GET
- REGISTRY_KEYS
- REGISTRY_SET
- REGISTRY_VALUES
- SELECT
- SEND
- SENDTO
- SERVICE_CREATE

- SERVICE_DELETE
- SERVICE_START
- SERVICE_STATUS
- SERVICE_STOP
- SETSOCKOPT
- SHUTDOWN
- SOCKAC52CEPT
- SOCKBIND
- SOCKCLOSE
- SOCKCONNECT
- SOCKDROPFUNCS
- SOCKET
- SOCKGETHOSTBYADDR
- SOCKGETHOSTBYNAME
- SOCKGETHOSTID
- SOCKGETPEERNAME
- SOCKGETSOCKNAME
- SOCKGETSOCKOPT
- SOCKINIT
- SOCKIOCTL
- SOCKLISTEN
- SOCKLOADFUNCS
- SOCKPSOCK_ERRNO
- SOCKRECV
- SOCKRECVFROM
- SOCKSELECT
- SOCKSEND
- SOCKSENDTO
- SOCKSETSOCKOPT
- SOCKSHUTDOWN
- SOCKSOCKET
- SOCKSOCK_ERRNO
- SOCKSOCLOSE
- SOCKVERSION
- STATE
- STIME
- SYSCLS
- SYSFILEDELETE
- SYSFILESEARCH
- SYSFILETREE
- SYSGETKEY
- SYSMKDIR
- SYSRMDIR
- SYSSEARCHPATH
- SYSSETPRIORITY
- SYSSLEEP

- SYSTEMPFILENAME
- SYSVERSION
- UTIME
- VERSION
- WAITPID

Miscellaneous

- The **S/REXX Debugger** supports function keys, and various new commands.
- The **S/REXX Debugger** runs on WINDOWS systems.
- On **WINDOWS** systems, the `EXECIO PRINT` command and the dialog box management are supported by both `srexx.exe` and `wsrexx.exe`.
- An **S/REXX** program can be used as a standard input filter. See the `LINEIN()` and `CHARIN()` functions for more information.

2.50 Enhancements

New or Enhanced Built-in Functions

- DY_HEADER
- DY_REFRESH
- DY_OPEN: several filters can be specified by using a ; separator.
- KILL
- RECYCLE
- WIPE

Miscellaneous

- `GLOBALV` support.
- `OPTION GLOBALV NOGLOBALV`.
- The `WINDOWS` environment supports the `ASSOC CLS COPY DEL ERASE FTYPE MD MOVE RD REN RENAME START TIME TYPE VER VERIFY VOL` DOS commands.
- On **WINDOWS** systems, `anysrexx.exe` and `anywsrexx.exe` can be used for automatic execution of an **S/REXX** program.
- `srexx fname` searches `fname` in the PATH.

2.60 Enhancements

New or Enhanced Built-in Functions

- EXEC
- GETDISKSPACE
- LSTATE (see the STATE() built-in)

Miscellaneous

- ADDRESS EXEC
- The `WINDOWS` environment also supports the `DIR` DOS commands.
- `"123"[4:]` returns an empty string instead of reporting an index error.

2.70 Enhancements

Miscellaneous

- When the query to the system succeeds, `STATE()` and `LSTATE()` set the `RC` REXX variable to 0.
  When the query fails, `STATE()` and `LSTATE()` return 0, and set `RC` to a string describing the error.

2.80 Enhancements

New or Enhanced Instruction

- SAYR
- TRACE
- UPPERW

New or Enhanced Built-in Functions

- ARG
- EXECV
- FWC
- LN
- FN and FT:
  with files like "`aaa.bbbb.c`", the filename is "`aaa.bbbb`" and the filetype is "`c`".
- SORT

Miscellaneous

- When the query to the system succeeds, `STATE()` and `LSTATE()` set the `RC` REXX variable to 0.
  When the query fails, `STATE()` and `LSTATE()` return 0, and set `RC` to a string describing the error.
- "`CALL SORT TAB`" does not return an error if `tab.0` is `0`

3.00 Enhancements

New or Enhanced Built-in Functions

- ActivateKeyboardLayout (S/REXX 3.02)
- ARG
- ASKCONS S/REXX 3.06E1)
- CHANGE
- COMMA
- CPUUSAGE (S/REXX 3.06b)
- FILEISLOCKED (S/REXX 3.08)
- GetAdaptersInfo (S/REXX 3.01)
- INDEX
- IOUSAGE (S/REXX 3.07b)
- LN (S/REXX 3.01)
- ISMAIN

- MKLISTFILES
- NETUSAGE (S/REXX 3.07b)
- POS
- RCHANGE
- SYSTEM
- SETARG (S/REXX 3.07g)
- ShellExecute
- SORT creates a set of stem.SortOrder.NN variables set to the sort order.
- WINDOWS accepts a & end of command to start it in the background.
- WINDOWS_NE (S/REXX 3.07F1)
- WAITPID waits for a background command on Windows too.
- DY_FOLDER
- PARG parses the finale string.
- OBF and UNOBF

Miscellaneous

- Symbolic links support (S/REXX 3.01).
- UNC Name Syntax (file names similar to "`\\server\share\file_path`") supported on Windows (**S/REXX** 3.03).
- New processes inherits SetPriority() value (3.08b)
- SCRIPT() and the RXD debugger work with Windows 10 (3.08b)

3.09D Enhancements

- Windows only: support for long name path above the 260 character limit, up to 32767 characters.

New or Enhanced Built-in Functions

- MKDIR (WINDOWS only) creates intermediate directories recursively if needed.

3.10 Enhancements

- `RCHANGE` supports the ECMAScript syntax for regular expressions.

3.20 Enhancements

New or Enhanced Built-in Functions

- IsFileOpened (Windows only)

Miscellaneous

- Various speed improvements, especially for the Windows debugger.
- The license server can be hostname locked, allowing to update the operating system or the hardware where the server runs without having to request a new key.

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