

# ShellOS

3.0 beta 2.4

## User Manual

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# Introduction

## What Is ShellOS?

ShellOS is a general multitasking OS for the HP48GX, to be placed on a 32KB or 128KB RAM card in slot 1 of your calculator. The ShellOS's authors goal is to transform the HP48 into a handheld computer with multitasking OS and friendly user interface.

Note that ShellOS does not use any part of the HP48 ROM and is therefore totally independent of the built-in operating system. However, access to the previous operating system is provided by two programs : the RPL switcher and the RPL comp.

## Features

- Preemptive multitasking
- Friendly user interface
- Improved file management and memory usage
- Display using 4\*6 Font
- Double buffered display
- Fast bank-switching (particularly useful for large RAM Card users)
- Screen splitting
- Clipboard handling for copy/paste between applications
- Fully customizable
- About 100 routines available and documented for assembly programmers
- Handling of routine libraries

# Information

## Version

This version is still beta, which means that there might remain bugs that will, of course, be fixed in the final version.

Check out the ShellOS official website for new versions and updates :

**<http://www.multimania.com/shellos>**

## Copyright

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## Authors

For any comment, suggestion or bug report, you can post a message to the comp.sys.hp48 newsgroup, the <http://www.delphi.com/hpcalc> forum or send an e-mail to :

Stéphane Cocquereaumont: **[s.cocquereaumont@wanadoo.fr](mailto:s.cocquereaumont@wanadoo.fr)** (software & documentation)

Philippe Dedieu: **[pdedieu@hotmail.com](mailto:pdedieu@hotmail.com)** (software)

Sébastien Munch: **[docb@ragemail.com](mailto:docb@ragemail.com)** (documentation)

## Contribution

To contribute to the ShellOS project, you can add a link on your Homepage (if you have one) or simply send an e-mail to encourage us...

And, of course, the best way to motivate us and add features to ShellOS is to develop softwares for Shell OS, taking advantage of its powerful multitasking features, and its programming libraries.

# Installation

## System Requirement

To install ShellOS, you must have:

- a HP48GX calculator
- a 32KB or 128KB RAM card
- a sufficient amount of free memory (~50KB)

## Installing ShellOS

IMPORTANT: ShellOS 3.0 beta 2.4 is a version ONLY for the HP48GX calculator. It will not work on HP48G, HP48G+, HP48S or HP48SX calculators.

- Make sure that a non-protected 32KB or 128KB RAM card is present in port 1
- Free port 1 if it is merged
- Save ALL the important data you have in your calculator
- Load the file SHELL.DIR
- Go into the "SHELL.DIR" directory
- Launch "Install"
- Port 1 will be overwritten, but all the data in port 0 and VAR will be saved.

To switch back to the RPL OS, go into the RPL directory and launch "RPLswitcher".



















## Uninstalling ShellOS


There is really no reason why you should uninstall ShellOS (because it rocks!), but here is how you do it anyway:

- Switch back to the RPL OS (using RPLswitcher)
- Unprotect the card if it is protected
- Put any object in the card











# General usage information

## System keys :

-   Warm restart (Reboot)
-   Increase contrast
-   Decrease contrast
-    Move the splitted screen
-   Switch to the next application running
-   Swap between the current and previous application running
-   Kill current application and all its data
-   ...  Switch to the corresponding application, in the same order as launched

Note : if you press the  key during startup, the files Shell.ini and Startup will be ignored.

## Standard application keys :

-  Main menu
-   Cancel
-   Turn off (Pressing  turns back on)
-  Toggle selection mode ON/OFF
-  (Copy), Store current selection into clipboard
-   (Paste), Paste clipboard content into application

## System Console

The current directory is displayed in the header. The command names are shown in lower case.

List of the commands currently available :

Clear screen : `cls`

List of files in current directory : `ls, dir`

Change directory : `cd filename`

Load without running application : `load filename`

Amount of available memory : `mem`

List of applications in memory : `ps`

Go to the parent directory : `updir, cd..`

Current OS version : `ver`

Be careful! ShellOS is case-sensitive, which means that you must type the exact filenames, including characters' casing.

## System variables

It is possible to modify the value of system variables by typing the variable name, the equal character and the variable value as follows : `variable=value`.

Variables and their values :

Variable	Values	Details
Beep	yes or no	Enable / Disable the beeper
ShowClock	yes or no	Show / Hide the clock
CursorStyle	0 or 1	Changes the console cursor style
AutoPowerOff	yes or no	Enables / Disable the automatic PowerOff
Delay	0 → 255	AutoPowerOff Delay (seconds)
Prompt	0 → 255	Changes the prompt style (ASCII character)
Contrast	0 → 30	Changes the contrast (currently bugged. Don't enter a value <0 or >30)

You can add these lines in your startup file to make them run each time the calculator boots.

Do not write `delay=0` : it makes the HP turn off just after booting.

## The clipboard

The clipboard is designed to easily transfer data between applications. The standard keys to use this feature are  to COPY to the clipboard and  to PASTE.

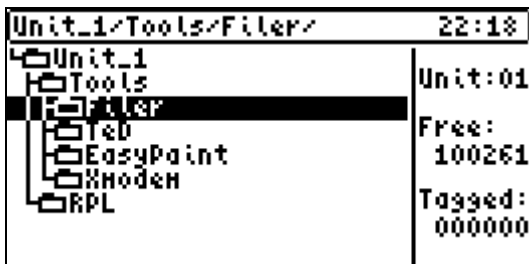
## Power management

The power manager shuts down the HP48 if no key is pressed during a certain time, depending on the value of the system variable `delay`. It can be disabled by `AutoPowerOff=no` in the `SHELL.ini` file.

## The clock manager

The clock is usually displayed in the top right corner of the screen and can be removed by setting the `ShowClock` variable to "no".


















# The files manager: Filer



The Filer is a very fast and powerful file manager. It is designed to replace the console in most cases. The file manager is launched on startup by default (see the Startup section). If you don't want to launch it on startup, you can erase the "Filer" command in the Startup file.

The header displays the current path. The "Unit" field displays the current unit. The "Free" field displays the space available in the current unit; this value is video inverted if the unit is write protected. The "Tagged" field is the sum of sizes of tagged objects (not available in this version).

## Keys :

-  Move up the selection bar
-  Move down the selection bar
-  Go to parent directory
-  Swap between directory and tree view
-   Go to the top of the list
-   Go to the end of the list
-  Change current unit to the next unit
-  ...  Set current unit
-  Evaluate file/enter directory
-  Delete file
-  Store the current file in the clipboard
-   Copy the clipboard in the current directory
-  Menu

## Menu :

### *File*

**Run** Evaluate the current file

**Purge** Delete current file

**Make Dir** Create a new directory in the current directory

**Rename** Rename current file

**Format unit** Format current unit (clear)

*\*WARNING\* IT CAN ERASE A WRITE-PROTECTED PORT 2 IF NOT ON AN HP CARD (will be fixed)*

**Exit** Quit Filer

### *Edit*

**Copy** Copy current file into clipboard

**Cut** Copy and delete current file

**Paste** Copy clipboard into current directory


### *?*

**Infos** Information on current file and memory available

**About** Copyright info

## Filer.ini :

The Filer.ini file is read each time the filer is launched.

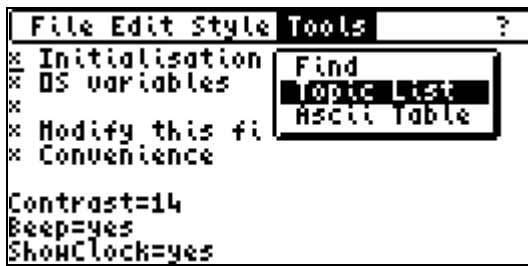
*MKLikeKeys* (default: no): Used to set the MKLikeKeys mode. When it's enabled,  is used to enter a directory. Also works like in Lynx.

*Confirm* (default: yes): If enabled, a yes/no input box is displayed when you press the key to delete a file or a directory.

*SelChar* (default: #2A): ASCII code (hexadecimal) for the selection character (used for multiple selection).



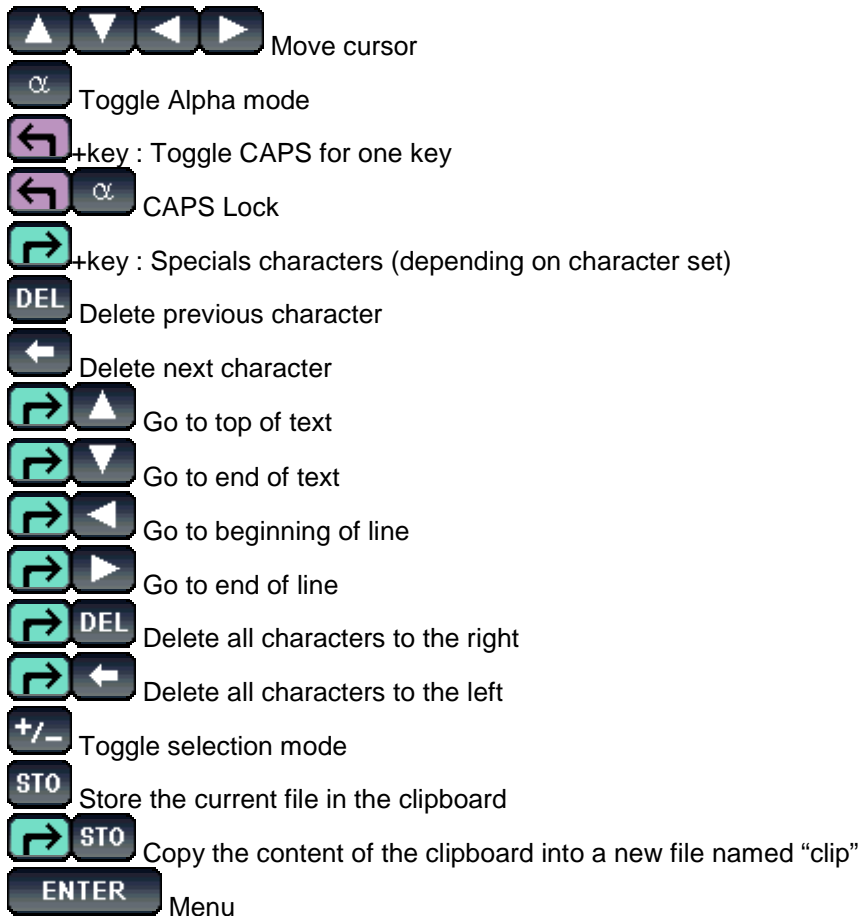
# The text editor: TeD



## Features

Picture insertion  
 Tab. support  
 Handling of underlined, inverted, italic character attributes  
 ASCII table  
 Topic list

## Keys



## Menu

### *File*

**New** Create a new text file, launching a new TeD session

**Open** Open a file, launching a new TeD session

**Save&Quit** Save current file and quit TeD session

**Exit** Quit TeD without saving file

### *Edit*

**Cut** Copy to clipboard and delete selection

**Copy** Copy selection to clipboard

**Paste** Paste clipboard to cursor position

**Delete** Delete selection

### *Style*

**Invert** Toggle inversion effect

**Underlined** Toggle underlining effect

**Italic** Toggle italic effect

### *Tools*

**Find** Find a string

**Topic List** List of "Topics" (lines beginning with an asterisk)

**Ascii Table** ASCII Character map

### *?*

**Help** Display help box

**About** Copyright info

## How to

### *How to insert graphic into text ?*

Graphics insertion is allowed by simply using the clipboard :

- Run EasyPaint
- Open or create the picture
- Copy the area you want into the clipboard
- Swap to TeD
- Paste the picture at the position of the cursor...

### *How to merge texts ?*

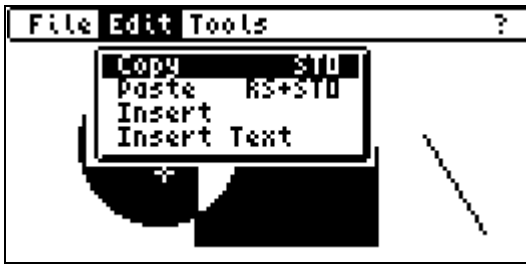
TeD allows to merge text files by using the clipboard

- Open the first file with TeD
- Run the Filer
- Copy the second file into the clipboard
- Swap to TeD
- Paste the clipboard content at the end of the file.

### *How to extract a portion of text ?*

- Open the file containing the portion of text you want to extract with TeD
- Select the portion of text
- Copy it into the clipboard
- Run the Filer
- Select the unit/directory
- Paste the portion of text
- Rename the clip file with the name wanted...

# The graphics editor: EasyPaint



## Keys

- Move cursor
- + Move cursor to extreme positions
- Draw a box
- Draw a circle (centered on the cursor)
- Pixel on or increase the size of the circle
- Pixel off or decrease the size of the circle
- Draw a line
- Fill area
- Toggle selection mode on/off
- Store the current selection in the clipboard
- Paste the clipboard content
- Menu

## Menu

### File

- Open** Open a picture
- Save** Save current file
- Exit** Quit EasyPaint

### Edit

- Copy** Store the current selection into the clipboard
- Paste** Paste from the clipboard
- Insert** Insert a picture
- Insert text** Insert a string

### Tools

- Line** Draw a line
- Circle** Draw a circle
- Box** Draw a box
- Fill** Fill an area
- Erase** Erase the screen

### ?

- Help** Display a help box
- About** Copyright info

## RPL compatibility

The RPL switcher is a program which allows to resume to the built-in OS (RPL OS).

Under RPL, run STARTSHELL to switch to ShellOS.

On startup, a file called RPLcomp is launched, which "patches" the kernel to redirect to it when an RPL port is being accessed.

## XModem

In this version you can't modify the baud rate or do transfers with the IR port, in the next version the program will detect the port and the baud rate automatically. (We hope multitasking will allow doing cable and IR transfer simultaneously...)

### Xsend

Select the file to send, and press [ENTER]. When the transfer ends, a beep will occur and the program will end.

### Xrecv

If the file is recognized as a ShellOS file, you don't have to enter the filename (unlike Xmodem standard implementation), if the file is not a valid SHELL file, it is stored as BIN with the name "?".

## ShellOS customizations

### SHELL.ini

The file *SHELL.ini* contains the default values of the various system variables listed above. The file is read at every startup.

### Startup

The file named *Startup* contains a list of commands to be executed at each new startup (see system console).

All the commands preceded by an asterisk are ignored, but written in the console screen. All the commands preceded by a "@" are not written in the console screen.

### Batch files

Batch files are simply text files containing a list of commands (see system console). When they are evaluated, all the commands are processed by the command interpreter and transmitted to the kernel.

You can create your own batch files, but actually the command interpreter is not finished yet (remember : this is a beta), and there are very few commands available.

### Splash Screen

On startup, the picture file *Splash* is displayed. it contains by default copyright info about SHELL OS. This file can be replaced by any custom picture.

Or, if you need memory, go ahead and delete it !

### Changing the font

To replace the default font by another one, simply evaluate the file containing the font. A directory containing fonts is available from the ShellOS Official Website ([www.multimania.com/shellos](http://www.multimania.com/shellos)).