HomeBase (HB) is a User-RPL program for managing/organizing/lauching User-RPL programs on the HP50g. **HB resides in the HOME directory.** It simplifies the processes of installation of User-RPL projects created using **UEdit/UCalc**, program execution, application copying to other storage locations (port :2:-flash and port :3:-SD memory card), and backing up of data generated by the applications to flash and/or SD memory cards.

What is HomeBase?

The HP50g calculator has 241K of memory storage in the HOME directory, so storage of programs in the HOME directory is limited. However, it has a flash memory and a SD memory card slot. HB takes advantage of the use of the flash and SD card(s) for storing User-RPL applications and their data, providing a virtually unlimited storage space for all your User-RPL written programs and applications.

HB makes the process of installations of applications written using UEdit to your HP50g effortless. Once the application is installed to its HOME directory, the user can then copy it to either the flash, and/or to a SD memory card. With the application copied to either the flash and/or the SD card, the application may be deleted from its HOME directory to free up precious RAM space.

Through HB, the user can execute an application easily from its HOME directory location, the flash location, and even the SD memory card location. HB automatically finds the location of the application and executes it. If the app is found in HOME, it executes the app from there. If not, it searches if it is found in the flash or in the SD memory card if one is inserted. Data produced by applications when executed will be saved in its HOME directory (if the app is not deleted from the HOME directory), and backed up in the Flash memory. If an app also exists in the SD memory card, the data will be saved there as well.

Installing/Removing HomeBase to/from the HOME Directory

Prerequisite: The URPLUI User Interface for User-RPL Applications

Most of the User-RPL applications in this web site including HomeBase use the URPLUI User Interface routines to function property. URPLUI provides a set of commonly used User-RPL User Inteface routines. These routines provide functions such as data input, table views, option selections, etc.

Go to www.stanlui.x10.mx/user-rpl_programs.htm Free User-RPL program download page and download URPLUI. Follow the instructions in the readme file to install URPLUI to the HP50g. After URPLUI is installed, the directory {HOME URPLUI} should exist with the UI routines in it. Includes with the HomeBase distribution there is a separate program (variable) named 'UUTILSD'. UUTILSD is a utility to copy or recall the URPLUI UI routines

to and from the SD card. It provides a safeguard for the URPLUI to recover from SD card in case the HP50g loses its RAM memory. See the section in **Advanced Topics** on how to use UUTILSD to backup URPLUI.

To install HomeBase to the HP50g, use UEdit to transfer the HOMEBASE variable file to the HP50g HOME Directory. To remove HomeBase from the HOME directory, enter 'HOMEBASE', and issue the PURGE command from CATALGOUE.

The HomeBase Main Screen

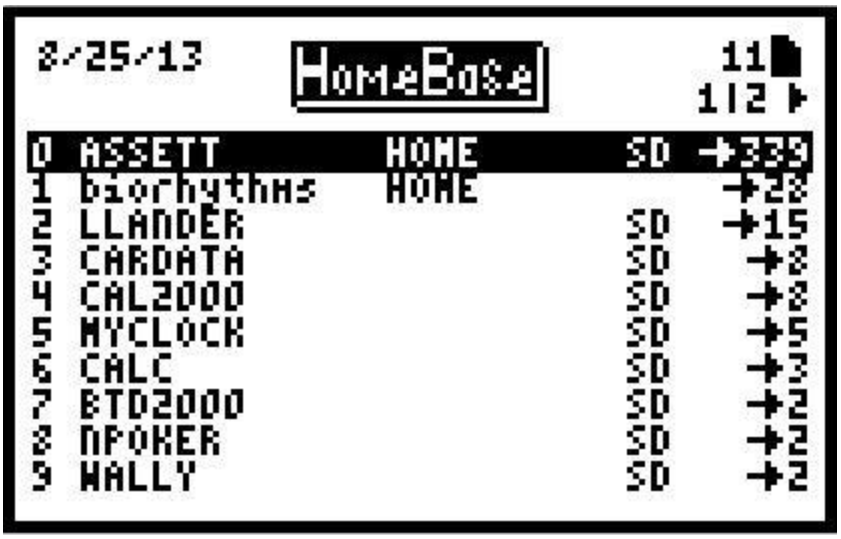


Figure 1: HomeBase Main Screen

Figure 1 shows the HB main screen, which displays the User-RPL program catalogue. The total number of User-RPL applications installed and available for execution is shown at the top right corner, and the current page number and total number of pages is shown underneath it. Up to 10 applications are listed for each page of the program catalogue. Press the up and down arrow keys (or the numeric keys 0 to 9) to navigate and set focus to an application. Press the alpha key 'R' or the key 'ENTER' to run the application. Other commands can be executed on the focused application such as copying it to other locations, deleting it from selected locations, and viewing its status. To navigate to the next or previous page of the program catalogue, use the left and right arrow keys.

Each line of the program catalogue represents one application. It shows the name of the application, where the application is located (HOME, FLASH, and or SD), and how many times the application has been run. HomeBase does a sorting on the order of the applications to display based on the number of times an application has been run. The most popular application is always at the first line of the main screen.

Running and Exiting HomeBase

To run HB, press the 'HOMEBASE' menu key. To exit HB, press the alpha key 'X'.

The Help Annunciator 

As with any User-RPL applications in this web site, when the help annunciator is displayed, you can view the current key input commands available for the application by pressing the key '+'. Navigate the page(s) of the help function by pressing the left and right arrow keys. To exit help, press the key 'ENTER'.

Application Installations Using HomeBase

The main function of HB is to provide a painless way of installing User-RPL programs into the HP50g's HOME directory memory. Once installed in the HOME directory, the user has the options to copy the application to the FLASH (port :2:) or the SD card (port :3:). The application installed in the HOME directory can be deleted to free up previous memory in the HOME directory. HB automatically searches for copy of the application in the FLASH/SD memory and execute the copy.

Before applications are installed, the user is asked to select the option of either to install the apps to HOME, then move the apps to the SD card (if one is presented), and then remove the copy at HOME; or to just install the apps to the HOME directory. The first option is the default, and is the more efficient way of managing the HOME directory memory space.

The '*.hba' Variables

User-RPL applications to be installed by HB are User-RPL global variables with the name '*.hba', where '*' is the name of the application, and the extension '.hba' stands for 'HomeBase Application'.

'*.hba's are actually lists which contain the information about the application, including the program variable(s), any data variable(s) it generates, and its HOME directory path.

Steps to Install a User-RPL Application

- **Using UEdit, transfer the '.hba' variable to the HP50g HOME directory.**
- **Run HB.**

HB automatically searches for '.hba' variables for application installations in the HOME directory during start up. During installation of application(s), the installation status is displayed. When status indicates application(s) are installed, press the alpha key 'X' to exit the installation process. Upon the successful installation of an application, its .hba variable is purged from the HOME directory. The following figure shows the typical successful installation.

Figure 2: Successful Installation

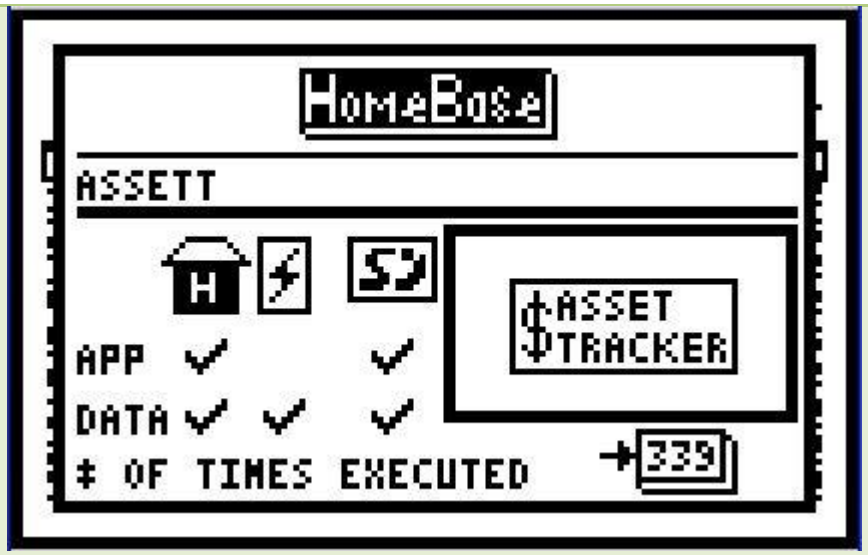
If an application is updated and new .hba variable is generated, the variable may be transferred to the HOME directory. HB will replace the existing application in the HOME/FLASH/SD memory with the update.

HomeBase checks the validity of the *.hba variables before installation. If an error occurred, its error code is displayed in the status. Refer to the section **Advanced Topics** to view the possible error codes.

HomeBase Command Summary

The following shows the major HomeBase commands:

Alpha Key	Command Function
Right Arrow	Display the next page of the program catalogue
Left Arrow	Display the previous page of the program catalogue
Up Arrow	Move up one application to set focus on that application
Down Arrow	Move down one application to set focus on that application
0 to 9	Move to specific application to set focus on it (see F)
C	Copy the focused application between HOME,FLASH, or SD
D	Delete the application from HOME, FLASH, or SD
F	Toggle to select whether pressing the keys 0-9 will set focus on the application, or will set focus and run the application also.
R	Run the focused application (same as 'ENTER')
ENTER	Run the focused application (same as 'R')
S	Update current locations and show the details of the focused application. To exit the 'S' command, press the alpha key 'X'.

	 **Figure 3: Location Details of an Application** Figure 3 shows the screen image when Alpha 'S' is pressed. The name of the application, its logo, and number of times executed as shown. It also shows the current locations of the application program and its data variables (HOME, FLASH, and/or the SD card).
T	Toggle to enable or disable running the HomeBase daily task which is run by a daily alarm set by HB. The default is enabled. The *.hba variable (which contains the application to be installed) may contain a program variable dubbed as the daily task to be run by HB on behalf of the application. By default, the HB daily alarm is enabled to run all the applications' daily tasks (if exists)
U	Update the location status of all applications. May be used after SD card is physically removed from the HP50g. Note: This command should be used sparingly because it accesses the SD frequently to get status and may consume more battery power.
W	Backup the HomeBase data to FLASH and exit
X	Exit HomeBase without backing up HB data to FLASH
+	Display the command help screen to view available commands

Recommanded Storage Scheme for User-RPL Applications

HomeBase is useful in that by allowing User-RPL applications to be stored in the SD card, it does not waste precious HOME directory memory space. The Flash memory space is useful for backing up application generated data. HB automatically backup changed app data after each run to Flash, and also to the SD card if the application also exists there.

To manage the best use of memory space, it is recommended that once an occasionally used application is installed to the HOME directory, it is then copied to the SD card, and then the copy at the HOME directory be deleted. If an application is to be frequently used, or if the application

has a daily task needs to be run, then it should be kept at the HOME directory.

Annunciators

The following are the annunciators and their meanings in HomeBase:

Annunciator	Meaning
	HOME directory memory space usage meter. The HP50g has about 241K bytes of memory space in HOME. This will show the current usage of that memory.
	The daily task execution is currently disabled. No system alarm is scheduled.
	Key command help is available. Press the '+' to view help.
	If there is no key stroke activity happens in HomeBase for 3 minutes, HB will exit automatically.
	Calculator's system battery low condition detected. Writing/reading to and from the Flash and/or SD card cannot be performed. Replace with fresh batteries.

Advanced Topics

Programming Information

If you want to use HomeBase to manage your User-RPL programs written in UEdit on the HP50g, you need to pack your application information to form an .hba variable. As mentioned before, .hba variable is a list. The following is the contents required in the list.

```
{ {appdir}  {appvars}  {appdata}  'main_program_name'  'logo_name' {<<appvar1>>
<<appvar2>> ... <<appvarN>>} 'daily task var name' }
 where   {appdir} is the home directory path of the User-RPL program
         {appvars} is a list of var names of the variables for the program
         {appdata} is a list of names of data variables generated by executing the program
         'main_program_name' is the name of the variable to be evaluated
         'logo_name' is the name of the application logo
         { <<appvarN>> or GROB } is a list of programs/grobs for each of the var names in
{appvars}
         'daily task var name' is the name of the daily task var to be executed daily for
the application by HomeBase, 0 if no task

Note: if there is no data generated from the program, specify {} for {appdata}.
```

Example:
An application named TEST has 3 global program variables named 'main', 'sub' and 'dailytask'. It's logo global grob variable is named 'testgrob'. When TEST is run, it will create a global data variable (which will be a list) name 'testdata'. The home directory where TEST will reside is {HOME TEST}. The main program variable is 'main'. With this information, TEST.hba should be as follows:

```
{ {HOME TEST}
  {main sub testgrob dailytask}
  {testdata}
  'main'
  'testgrob'
  {
    <<  @ code for 'main'  >>
    <<  @ code for 'sub'  >>
    GROB code for 'testgrob'
    <<  @ code for 'dailytask' >>
  }
  'dailytask'
}
```

Installation Error Codes

HomeBase checks the validity of the *.hba variables before installation. The following error code lists all the possible errors in the *.hba variable:

```
Error codes    0: no error found in .hba file
              -1: .hba var is not a list
              -2: .hba list is not 7 members in size
              -3: invalid member type(s)
              -4: invalid app directory path
              -5: app var list size is 0
              -6: invalid member in app var list
              -7: invalid member in app data list
              -8: invalid member for main program name or logo name
              -9: main program name or logo name not found in {appvars}
             -10: size of the {appvars} list and { <<appvarN>> or GROB } list not same
             -11: invalid member type in  { <<appvarN>> or GROB } list
             -12: daily task var name not found in {appvars}
             -13: main program name or logo name do not point to correct data type
             -14: daily task name do not point to correct data type
```

UUTILSD

UUTILSD is a User-RPL program provided to backup the URPLUI User Interface routines to the SD memory card. UUTILSD resides in the {HOME} directory. It can be used to copy all the variables in {HOME URPLUI} to and from the SD. In addition, it can be used to remove the copy stored in the SD card. The following shows the UUTILSD screen:

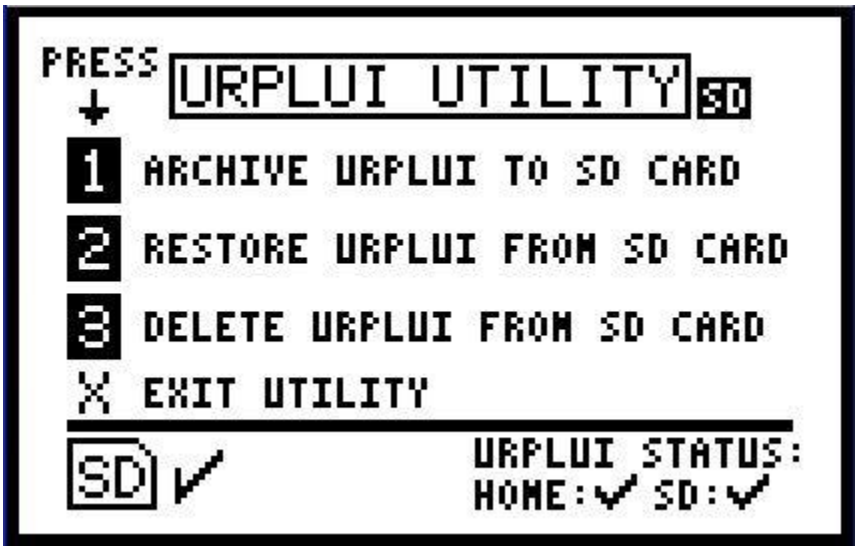


Figure 4: The UUTILSD Utility