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READ ME Before Installing HP BASIC/UX 8.02

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IMPORTANT NOTE

Revision 8.02 is fully Year 2000 Compliant. You should not continue to use 8.01 or any 7.xx revision if you require Year 2000 Compliance.

To achieve Year 2000 Compliance, the HP-UX Operating System must also be Year 2000 Compliant. Please see "Recommended HP-UX Patches" below for more information.

Revision 8.02 is designed to execute only under HP-UX 10.2. It has been tested and is supported under this revision of HP-UX only. It has not been tested nor is it supported under HP-UX 10.0, 10.01, 10.1, 10.3 nor any 11.x release. It will not install nor execute correctly under HP-UX 9.X systems. It is installed using the 10.X SD-UX process (swinstall) rather than the Update/Install processes of earlier revisions.

Because the included SICL I/O drivers are a separate product from BASIC, you may find a newer revision of the I/O Libraries CD in the BASIC package than the E2091E (Revision E.01.01) documented here. If a newer revision of the CD has been included, please refer to the accompanying hard copy README document for special instructions or additions to the list of supported interfaces. The hard copy README document always supercedes this file if they are different.

IMPORTANT NOTE

If you have already installed revision 8.01 on your computer, and you install revision 8.02 without first using swremove to remove revision 8.01, you will not be able to use swremove to remove revision 8.01 in the future. After revision 8.02 is installed, the swremove program will show E2045B (BASIC/UX 8.01) as an empty bundle. Removing this empty bundle does not remove any BASIC/UX files from the system. Moreover, once E2045C (BASIC/UX 8.02) is installed on the system, removing it will remove all non-versioned files from /opt/rmb, so that only a partial, unsupported installation of 8.01 is left. At that point, you need to re-install version 8.01.

If you wish to have access to both revisions, then install revision 8.02 without removing revision 8.01. You can use either version simply by



typing its full name, rmb8_01 or rmb8_02, at the command line.

If you wish to use only revision 8.02, then use swremove to remove revision 8.01 before installing revision 8.02.

Once you have logged in AFTER revision 8.02 has been installed, it will be executed if you just type rmb at the command line. If revision 8.01 remains on your disk drive and you wish to invoke it with the command rmb, you must, as super-user, edit /etc/PATH after installing revision 8.02. In that file, move the path element /opt/rmb/rmb8_01/bin: so that it precedes the element /opt/rmb/rmb8_02/bin: .

Installation

The installation procedure for HP BASIC/UX 8.02 is discussed in the "Installing and Using HP BASIC/UX 8.0" manual. Be sure to read that manual carefully before installing HP BASIC/UX 8.02 on your system.

See the "Errata" section at the end of this README for information on using the manual "Installing and Using HP BASIC/UX 8.0" with this revision 8.02 distribution.

Note that you must install at least the "SICL-RUN" fileset from the companion "HP I/O Libraries" CD-ROM. See "SICL Compatibility" below.

Contents

The Contents List packed in the shipping carton gives a detailed list of all components. Check to ensure that all these items are present and intact. If not, please call your HP Sales Representative.

System Requirements

- * This release of HP BASIC/UX runs only on the 10.2 release of HP-UX. It is not supported and may not run on previous HP-UX releases. It may not run on future HP-UX releases. (For details about compatibility with versions later than 10.2, please contact your HP Sales Representative.)
- * This release of HP BASIC/UX requires an HP 9000 Series 700 workstation that is supported by HP-UX 10.2. The list of workstations supported by BASIC/UX 8.02 follows. 8.02 adds support for workstations marked with an *.

712/60, 712/80
715/33, 715/50



715/64, 715/80, 715/100
725/50, 725/75
725/100
735
V/743
745i
747i
748i
755
C100, C110, C160, C160L, C180
B132L, B160L, *B180L
*J282 (single processor only)

No other Series or Models are supported.

Recommended HP-UX patches

Users of some systems including the 712 and B160L may experience problems with reading or writing certain floppy media with internal floppy drives. This can happen if you have not installed patch PHKL-14852 (or the superceded patch PHKL-9011).

The symptom of the problem is that with floppy media formatted on older systems, especially those formatted with only 77 or 79 tracks, the last few kilobytes are inaccessible, causing MASS STORAGE SYSTEM ERROR 90 when an attempt is made to read or write data there.

Patch PHKL-14852 should be installed if you have a floppy disk drive attached to your computer.

There is a problem on certain computer models in which lines drawn with LINE TYPE 4 may be drawn either crookedly, or with the wrong line type. Install the patch bundle PHSS-14943 (or the superceded patch PHSS-13898) if you experience either of these symptoms.

For Year 2000 compatibility, you need to take action to ensure that your HP-UX system has been updated with the applicable Year 2000 patches. These patches are available both individually and as combined bundles, which are the convenient solution for most systems.

For central information on Y2K compatibility, as well as links to patch download and registration areas, visit the website

<http://www.software.hp.com/products/Y2K/index.html>



Patches can be obtained from your HP Sales Representative or from the HP Supportline.

rmbkill Changes

The utility program rmbkill has been reimplemented in this revision due to changes in the underlying HP-UX Operating System. Although there are minor differences in its operation, its primary functionality has not changed.

I/O Considerations

RS-232 Port Allocation

Note that an RS-232 port which is configured for use by HP BASIC/UX 700 is not available for use by HP-UX termio functions, and vice-versa. The configuring of RS-232 ports is explained in the "Installing and Configuring SICL for BASIC/UX 8.0" chapter of the "Installing and Using HP BASIC/UX 8.0" manual.

LAN Instruments and Gateways

HP BASIC/UX 8.02 supports the use of LAN-gatewayed instruments. The use of these is explained in the "The SICL/LAN Interface" chapter of the "HP BASIC Interface Reference" manual update.

GPIO Interface

HP BASIC/UX 8.02 supports the use of the E2074 GPIO card. The use of this interface is explained in the "The GPIO Interface" chapter of the "HP BASIC Interface Reference" manual update.

SICL Compatibility

HP BASIC/UX 8.02 includes the run-time filesets for the E.01.01 or later version of "HP I/O Libraries for Instrument Control", which is provided on a separate CD-ROM (part number E2091E-13609). You must install the SICL fileset from the CD-ROM; if you do not, BASIC/UX will not be able to start.

If you do not need to do SICL I/O, you can minimize the time and disk space needed for the installation, and prevent a kernel rebuild, by installing only the "SICL-RUN" fileset.

If you do C-language SICL programming, it is important for the development environment to match the run-time files. The development environment for SICL is not included with HP BASIC/UX 8.02, and must be purchased separately.

The version of SICL shipped with and used by BASIC/UX 8.02 is that found

in the complete development system of "HP I/O Libraries for Instrument Control", part number HP E2091E, Revision E.01.01, or later. Examine the label on the I/O Libraries CD media to determine the revision number supplied.

VXI Access

If you want to access the VXI interface from BASIC/UX 8.02, you need to use SICL CSUBS. To write BASIC/UX CSUBS using the SICL library, you must purchase the complete SICL development system: "HP I/O Libraries for Instrument Control", part number HP E2091E, Revision E.01.01 or later. You must also have the C/ANSI-C developers bundle to compile and link C-language programs.

New Keyboard Support

(Note: "X-client" means the machine on which rmb is executing, and "X-server" means the machine at which you sit and type when using X. E.g. you might sit at a 382 computer, logged into a 715 via X, and run HP BASIC/UX 8.02 on the 715. The 382 is the X-server, and BASIC/UX executing on the 715 is the X-client in this case. The X-server and X-client are usually the same machine.)

1. New keyboard daemon

HP BASIC/UX 8.01 and 8.02 provide a new, more X-compliant method of accessing keyboards, in addition to the keyboard handling method seen in versions 7.10 and 7.11. This more robust keyboard handling goes under the generic name rmbkidx, and may allow you to use hitherto unusable X keyboards and X terminals with BASIC/UX 8.02. See "Enhanced Keyboard Handling" in chapter 1 of "Installing and Using HP BASIC/UX 8.0" for more details.

2. Unsupported Hardware

HP BASIC/UX does not support the A4220-62001 "HIL Keyboard to PS2 Converter" nor any multiprocessor Series 700 Computer. It also does not support Series 800 computers, although these can be used as diskless servers for Series 700 diskless clients on which you run BASIC/UX.

3. Unsupported Software

BASIC/UX 8.02 does not support the Japanese (Kanji) version of HP-UX 10.2. Japanese keyboards may be used with BASIC as though they were US ASCII versions, inputting only ASCII. Existing program and data files containing Kanji or kana will execute correctly, but new Kanji or kana data may not be input via the keyboard.

Setup and Operation

1. Setting Keyboard Language

If you wish to change keyboard language when using DIN keyboards, you should remove the file `/etc/kbdlang` and reboot: DIN-connected keyboards cannot be automatically identified by the computer. During boot-up the computer will guide you through selecting the appropriate keyboard language.

Note: A possible reason that the keyboard language might not be recognized under VUE is that the VUE resource `vuesession*sessionLanguage` may be set to the wrong language. This resource is usually initialized from file `$HOME/.vue/sessions/current/vue.resources`. You should normally make sure there is nothing after the entry `"vuesession*sessionLanguage:"`. Edit the file if necessary.

2. Using DIN Keyboards

If you are using either the C1405A or C1405B keyboard supplied with 700/X or 700/RX X terminals, or the A2840B (DIN) keyboard supplied with the 712 and 715 model CPUs, you should install the X Windows keymap modifier file `/opt/rmb/rmb8_02/newconfig/xmodmap.PC`. You can load it with the command:

```
/usr/bin/X11/xmodmap /opt/rmb/rmb8_02/newconfig/xmodmap.PC
```

You may wish to place this command in your `$HOME/.x11start` file, `$HOME/.xsession` file (for 700 X-terminals), or in `/usr/vue/config/Xsession` (if you use HP VUE).

The `xmodmap` should be used with both `rmbkbd` and `rmbkidx` daemons.

4. KBD_LANG

The `KBD_LANG` environment variable is ignored for all except ITF (46020A and 46021A/B) keyboards and is always ignored under `rmbkidx`. Revisions 7.01 and earlier attempted to remap PC-101 keyboards, etc., but the remapping was often incorrect.

5. Identifying Keyboards

`SYSTEM$("KEYBOARD LANGUAGE")` reports the following values for newly supported keyboards

A2840A - "PS2_DIN_" followed by language name e.g. "PS2_DIN_US_English"

Some Series 700 computers have both DIN and HP-HIL connectors. When the X-server and X-client machines are the same, bit 5 of keyboard register 9 will be 1, indicating that an HP-HIL interface is present, while bit 4 will be 1 or 0 depending on whether a DIN or an HP-HIL keyboard is attached. When the X-server is one of these models and the X-client is remote, if the keyboard is DIN, bit 5 will be 0, indicating there is no HP-HIL on the X-server; this anomaly cannot be

corrected. Bit 4 should be ignored when bit 5 is 0. Connecting both DIN and HP-HIL keyboards simultaneously is not supported.

The table in the "Keyboard Status and Control Registers" section of the chapter "The Keyboard Interface" in the manual "HP BASIC Interface Reference" that correlates register 9 values with keyboard type is no longer correct, with the advent of the newly supported keyboards. If `SYSTEM$("KEYBOARD LANGUAGE")` indicates one of the newly supported keyboards, then use the presence or absence of the substring "PS2_DIN" to determine which class of keyboard is in use. Otherwise, the table will correctly determine keyboard type.

6. Keyboard Layouts

The PS2 DIN US English and European keyboards have 1 difference from prior PC-AT mappings: Shift-F12 will perform a Clear Screen, in addition to the existing ALT-End operation.

Below is the mapping for these keyboards.

RMB function	ITF keyface	PS2 DIN keyface
=Clear	I/O Break	Scroll Lock
=Reset	Reset (Shift-Break)	Reset (Shift-Scroll Lock)
=Pause	Stop	Pause
=Stop	Shift-Stop	Stop (Shift-Pause)
=Menu	Menu	Print Screen
=Shift-Menu	Shift-Menu	Shift-Print Screen
=System	System	Num Lock
=User	User (Shift-System)	Shift-Num Lock
=Ins Char	Insert char	Insert
=Ins Line	Insert line	Shift-Insert
=Del Char	Delete char	Delete
=Del Line	Delete line	Shift-Delete
=Clr->End	Clear line	End
=Clr Ln	Shift-Clear line	Shift-End
=Clear Scr	Clear Display	Alt-End
=Clear Scr	Clear Display	Shift-F12 (alternate method)
=Home	Home (hollow up-arrow)	Home
=Shift-Home	Shift-Home	Shift-Home
=Select	Select	Shift-Return
=Recall	F9	F9
=Shift-Recall	Shift-F9	Shift-F9
=Alpha	F10	F10
=Dump Alpha	Shift-F10	Shift-F10
=Graphics	F11	F11
=Dump Graph	Shift-F11	Shift-F11
=Result	F12	F12

rmbkidx Handling



You may choose to use the newer rmbkidx functionality with any keyboard. The older rmbkbd functionality is only available with keyboards that were supported by BASIC/UX 7.11 and earlier: all keyboards not supported by 7.11 and earlier will automatically be handled using rmbkidx.

The default handler for keyboards supported by BASIC/UX 7.11 and earlier is the older rmbkbd; this can be changed in either the global rmbrc file or the \$HOME/.rmbrc file, with the command KBD_DAEMON = RMBKIDX; or on the command line with the -k rmbkidx option.

rmbkidx uses "keymaps" to define the operation of non-alphanumeric keys. Keymaps are KEYMAP commands in the global or user rmbrc file, and define the relation between a BASIC/UX function such as "Clear Screen" and the X KeySym and state values retrieved when the key corresponding to that function is pressed. HP provides a small set of useful keymaps in /opt/rmb/lib/keymaps, and the user can create new keymaps or modify existing keymaps using a text editor. The program rmbksym8_02 is provided in /opt/rmb/rmb8_02/bin/ to help you determine what KeySym and state values are emitted by a given keystroke.

Many X terminals and X keyboards not explicitly supported by BASIC/UX 8.02 may become usable after keymaps are designed and installed for them. However, HP cannot guarantee that any unsupported X terminal or keyboard will work correctly with BASIC/UX 8.02.

See "Enhanced Keyboard Handling" in Chapter 1 of "Installing and Using HP BASIC/UX 8.0" for more details.

NOTE: the example keymap ITF_EXAMPLE contains 4 function specifiers that are not used except with Kanji (Japanese) keyboards. They are: muhenkan, muhenkan_shift, henkan, and henkan_shift. These should be ignored since BASIC/UX 8.02 does not support Kanji, so these functions are not useful in this revision.

Support for Optional Graphics Hardware

Several optional graphics cards are supported by HP BASIC/UX 8.02
Some graphics cards require a change to the file:

```
/etc/X11/X0screens (was /usr/lib/X11/X0screens in HP-UX 9.x)
```

The change is to add a quantifier to the screen enabled:

```
Screen /dev/crt
to:
Screen /dev/crt
    DefaultVisual
    Depth 8
```

then restart X

Supported Graphics -----	Change to X0screens -----
HCRX-8	No
HCRX-8Z	No
HCRX-24	No
HCRX-24Z	No
CRX	No
CRX-24	Yes
CRX-24Z	Yes
CRX-48Z	Yes
VISUALIZE-EG Color	No

10.0 File System Layout -----

BASIC/UX 8.02 is designed to use the HP-UX 10.0 and later File System Layout (FSL). BASIC/UX 8.02 is installed in /opt/rmb and places its static configuration files into /etc/opt/rmb. Within the 10.0 FSL we have embedded a BASIC/UX versioning scheme, discussed in the next topic. Because of the 10.0 FSL and versioning, BASIC/UX 8.02 is not compatible with HP-UX 9.x or earlier.

BASIC/UX 8.02 is installed with the SD-UX tools, swinstall and the like, which are new in HP-UX 10.x. It is not installable with the older update utilities. SD-UX actually comprises a suite of tools for managing and using "depots"--installable software packages. The manual page for swinstall lists other SD-UX tools and references in its "SEE ALSO" section near the end. Type "man swinstall" to see this man page.

As a convenience in understanding BASIC/UX 8.02's use of the 10.0 FSL, and to help you understand what the pieces do, most directories under /opt/rmb contain a text file named "README.FILES" that briefly explains the files and subdirectories found there.

"Versioning" -----

BASIC/UX 8.02 is designed to be able to co-reside on the same HP-UX system as past and future revisions of BASIC/UX. That is, if a new version of BASIC/UX, for example BASIC/UX 8.1, were to become available, both could be installed on the same 10.x HP-UX system, and either could be used at will or both simultaneously, assuming both were compatible with the version of HP-UX running on the CPU. Similarly, Revision 8.02 can reside on the same system as 8.01, and either can be used.

To do this, BASIC uses a versioning technique that names both directory paths and individual files according to a consistent version-based naming scheme where that is needful. For example, BASIC/UX 8.02-specific files are installed in the directory /opt/rmb/rmb8_02, and



the actual executable program for rmb is /opt/rmb/rmb8_02/bin/rmb8_02. All user-invokable executables are versioned, as are the daemons (e.g. rmbkbd) needed for BASIC operation.

For convenience, during installation a symbolic link named rmb is placed in /opt/rmb/rmb8_02/bin/, linked to /opt/rmb/rmb8_02/bin/rmb8_02. This link allows you to invoke that version of BASIC merely by typing "rmb". You may also invoke BASIC/UX 8.02 by typing "rmb8_02". Other commonly used programs and files in the installation are similarly versioned and "convenience-linked". Where possible, especially for large files such as fonts, we have kept files shared and unversioned, so that duplicates do not eat up your disc space.

If you already have BASIC/UX 8.01 on your system, see the IMPORTANT NOTE that precedes the "Installation" section near the beginning of this READ ME.

Notes on Vue and CDE

The manual "Installing and Using HP BASIC/UX 8.0" describes procedures to install BASIC icons in the Vue Front Panel. This procedure will not work if you choose to install HP CDE instead of Vue the first time you boot up in HP-UX 10.2. If you are using CDE, you should start rmb from a terminal window, such as hpterm, dtterm or xterm by typing:

```
$ rmb &
```

including any options you wish to apply to rmb.

Additionally, instructions in that manual for installing Personal Toolbox icons are not correct for CDE.

Errata - "Installing and Using HP BASIC/UX 8.0"

- o Where the manual refers to "BASIC/UX 8.0", it should be read as "BASIC/UX 8.02". BASIC/UX revision 8.0 was not generally released; revisions 8.01 and 8.02 are substantially the same as 8.0, the only differences being support for HP-UX 10.2, support for additional workstation models, and defect fixes.
- o Where this manual refers to "HP-UX 10.01", it should refer to "HP-UX 10.2".
- o Path names for various files begin "/opt/rmb/rmb8_0/". They should begin "/opt/rmb/rmb8_02/".
- o Names of some files end with "8_0". They should end with "8_02".