ersion 1.9.3

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## 0. Keyboard Switcher is Obsolete

System 7 provides new capabilities for handling keyboard layouts, so that there is little reason for using Keyboard Switcher. In fact I can think of only one reason why someone might want to use Keyboard Switcher with System 7: Keyboard Switcher's menu can be put anywhere, for instance to the left of the apple menu, whereas the System 7 keyboard menu appears in a fixed position. Therefore, this will probably be the last release of Keyboard Switcher.

System 7 recognizes a new type of file, a keyboard layout file. A keyboard layout file has type 'kfil' and contains a single keyboard layout resource and associated keyboard icons. The sample keyboard layouts that I provided with previous versions of Keyboard Switcher are now provided in this new format. Like fonts, keyboard layouts can be moved into or out of the System file using the Finder.

Users of foreign versions of System 7 will see a menu of available keyboards between the help menu and the application menu, as shown below. One can also type command-option-space to rotate through the available keyboards.

.S. users can also get this menu, with the help of ResEdit. Here’s how: Open the System file with ResEdit. (ResEdit will warn you that it is hazardous to edit the same System file that you are using. Laugh maniacally and

proceed.) Open the 'itlc' resource. Change the value of the “Always Show Icon” flag from 0 to 1. Close and save changes.

System 7.0 requires keyboard layouts to be installed directly into the System. Installing them with Suitcase II, or in an application, will not work properly. This may change in future versions of the System.

## 1. The Theory of Keyboard Customization

When you type a keystroke (a normal key, plus perhaps some modifier keys like Shift and Option), the Macintosh system software creates a keyboard event. The keystroke is translated into a character using a special translation table called a KCHR resource. When the system software is “localized” for a particular language, a suitable KCHR is designed. Users can also use KCHRs to personalize their keyboard layout.

Certain keystrokes called “dead keys” modify the succeeding character instead of typing anything themselves. For example, in the standard U.S. KCHR, Option-e is one of 5 dead keys. If you type Option-e alone, nothing happens immediately. But if you then type, say, an e, you will get an e with an acute accent.

Each “script”, or writing system, owns a certain range of resource ID numbers for KCHRs. A KCHR belonging to the Roman script (which is used for most European languages) should have a resource ID in the range 0 to 16383. The standard U.S. KCHR is number 0.

Each KCHR has a corresponding small icon resource with the same resource ID. In System 6, the icon has type SICN, whereas in System 7 there is a black and white icon of type kcs#, which is equivalent to ics#, and color icons of types kcs4 and kcs8. U.S. users do not normally see this icon, but some foreign systems display it in the menu bar. Clicking on it switches scripts (but not keyboards within a script) in System 6. This was the inspiration for Keyboard Switcher.

## 2. Creating or Modifying KCHRs

You can modify or create KCHR resources using ResEdit, a free utility from Apple. You can probably figure out how to do so by trial and error. However, documentation on ResEdit, and on editing KCHRs in particular, can be found in books such as “ResEdit Reference”, published by Addison-Wesley, “Zen and the Art of Resource Editing: a BMUG Guide to ResEdit,” and “ResEdit Complete” by Alley and Strange. The KCHR article in the BMUG book was written by Yours Truly.

Do not attempt to use ResEdit on a file while it is held open by Suitcase II or MasterJuggler. Do not use attempt to switch KCHRs while a KCHR file is open in ResEdit.

## 3. Installing KCHRs

A KCHR resource (and its icon) can be installed directly into the System file using ResEdit or ResCopy, or a file containing KCHRs can be opened with Suitcase II or MasterJuggler. I have given the “sample KCHRs” file the file type of a System 7 keyboard file. If you want to open them with so that Suitcase II or MasterJuggler, you may have to set a special option so that these utilities will see all files rather than just fonts, sounds, FKEYs, and DAs.

Make sure that you do not have more than one KCHR with the same ID number. As explained above, the number should normally be between 1 and 16383.

## 4. The Sample KCHRs

Several sample KCHR resources, with icons, are provided with Keyboard Switcher. These include:

ANSI Dvorak: The Dvorak keyboard layout is reputed to allow more efficient typing of English text than the standard “QWERTY” layout. I have provided a Dvorak KCHR that follows the ANSI standard, X4.22-1983.

US Undead: This is the standard U.S. KCHR with the dead keys removed. You could use this if, for example, you have an uncontrollable urge to assign a QuicKeys macro to Option-e. (It is not possible to assign QuicKeys macros to dead keys.)

No Capslock: This KCHR disables the Capslock modifier key. This is for those who frequently hit Capslock by accident, and rarely hit it on purpose.

Shift Cancels Capslock: With this KCHR, you can keep the Capslock key down, but use the Shift key to type occasional lowercase letters.

Shift comma: In this KCHR, the period and comma keys are unmodified by Shift. But if you do want to type < or >, you can use Shift-Option.

## 5. Apple’s “Keyboard” Control Panel

If you have more than one KCHR installed, then Keyboard will show you a scrolling list of the KCHRs. Clicking on a member of this list will make it the active KCHR, and also the startup KCHR.

## 6. Keyboard Switcher

Keyboard Switcher is an INIT/cdev which makes it easy to use more than one KCHR.

### 6.1 Normal Operation

Keyboard Switcher puts the icon representing the active KCHR into the menu bar. Clicking on this icon makes the next available KCHR the active KCHR, without changing the startup KCHR. If the new KCHR belongs to a different script, as indicated by its resource ID, then Keyboard Switcher will change scripts accordingly.

Option-clicking on the icon drops a menu of the available KCHRs, so you can choose one by name. The active KCHR is indicated with a check-mark.

If you have more than one script system installed (say, Roman and Arabic), then Command-clicking on the icon will switch scripts. Otherwise, command-clicking does nothing.

### 6.2 The Keyboard Switcher control panel

With the Control Panel, you can perform some less common operations with Keyboard Switcher. You should see approximately the following.

he middle section shows the names of the active and startup KCHRs. By clicking the “Set” button, you can reset the startup KCHR to be the same as the active KCHR. Note that doing so modifies your System file. Therefore it may annoy some virus-protection programs, and will not work if your System file is locked.

In the lower section, you can control whether Keyboard Switcher’s icon will appear in the menu bar, and if so, where. Using the scroll bar, you can move the icon anywhere along the scroll bar. You’ll want to move it somewhere that it will not interfere with normal menus or with MultiFinder’s application icon. I like to put it at the extreme left, to the left of the Apple menu.

By clicking the “Click for menu” check-box, you can interchange the meaning of clicking and option-clicking on Keyboard Switcher’s icon. The “Show startup icon” check-box which determines whether Keyboard Switcher will show its icon during startup.

## 6.3 Compatibility Notes

Keyboard Switcher has been tested primarily with System 6.0.7, MultiFinder, and Suitcase II. I have also tested it with MasterJuggler.

I have not been able to test Keyboard Switcher with 32-bit addressing or A/UX.

Startup Manager, part of Now Utilities 2.0, issues a deceptive error message if you activate it at startup and your startup KCHR is installed with Suitcase II or MasterJuggler. It says that Startup Manager, the System file, or your disk may be damaged. Actually, it is just upset that it cannot find the startup KCHR. Version 2.0.3 of Startup Manager is more forgiving; it beeps at you, but allows you to proceed.

The shareware text editor Alpha (in at least version 3.50) contains a modified copy of KCHR 0, but does not contain a SICN 0. (This modified KCHR 0 is the same as the “US undead” KCHR provided among the sample KCHRs with Keyboard Switcher.) This has several effects on Keyboard Switcher: When Alpha is running in the foreground, the usual diamond representing KCHR 0 is replaced by a question mark. If you look at the menu of

KCHRs, you will see two copies of “US”. When you release the menu, Keyboard Switcher will issue a warning alert saying that there are two KCHRs with the same ID, 0. Switching KCHRs by clicking, rather than by using the menu, produces no bad effects.