

Questions and responses: the EkaPad and Spanish

October - November 2009

This was a fascinating email conversation for me with someone in Spain who was interested in an EkaPad. The email comments have been rearranged for this blog to make them more understandable. Only minor edits to correct spelling or grammar have been made, plus a few clarifications by me (George). A few comments not pertinent to the EkaPad have been left out.

Background of inquirer

I'm a Spanish programmer and web designer. I use Debian GNU/Linux.

Two years ago I moved to the Dvorak keyboard layout (Spanish variant), and at the same time I bought an Advantage Kinesis keyboard. It took me two months to achieve with Dvorak the speed I had with the awful QWERTY, but I never regretted the effort. That was a great change for my work and my wrists. I'm very satisfied with the Dvorak and Kinesis combination.

But now I want to improve the mobility of my system (I use an Asus Eee sublaptop I carry in my bike trips...) and the comfort: I want to be able to work almost anywhere when I'm bike touring (the Kinesis is too big and heavy to carry, though sometimes I did!; and the Asus' keyboard is a pain).

That's why I'd like to acquire a chorded keyboard, learn it and make it my main input device. I want it to be usable without a flat surface and with either hand. EkaPad and Twiddler 2 are the only alternatives I've found. Twiddler 2 is no longer available (its website seems frozen; and I've found nothing about it in eBay). I've considered to build a chording keyboard myself (I like to tinker with electronics and all kind of machines), following some homemade projects I've found on the Internet, but I'm afraid right now I don't have the time.

Responder

George Forester, CEO, EkaTetra

Thanks for your thoughtful emails. I'll answer your questions as best I can, and tell you something about our design philosophy as it relates to chord selection.

Response on mobility and speed

The EkaPad will certainly increase your mobility. You will probably never reach the speed you have with your Dvorak keyboard. Our experience, and that of some other users, is chording the EkaPad is much faster than keying a smart phone keyboard.

Most importantly, most of us can chord faster with the EkaPad than we can compose. If we use one application much of the time we can store, either as Keeps (strings) or ShortCuts (commands), sets of keystrokes we use frequently - this can speed things up remarkably.

(Response from Inquirer

But that's not an important factor for me. Most of the time, while typing, I'm thinking, pausing for seconds. I think typewriting speed is critical only for dictates or such professional tasks.)

The mobility factor is huge. The EkaPad hangs on the thumb of either hand and allows you to chord with your hand and arm in any position. Plus it's small. No flat surface is required. It's perfect to use if you are walking or riding.

Twiddler is out of business. You could build a chording keypad yourself - the one's I've seen on the web leave a lot to be desired. If you're going to learn a new one anyway, the EkaPad has solved most of the problems.

Response about the EkaPad for a programmer

With the EkaPad you can produce 48 (with numerals, 58) characters with a single chord - these are the English alphabet, most punctuation, and some common symbols. In addition there are 4 single chord commands. (This does not include the configuration chords.) 39

fairly common characters like capital letters, some punctuation, and some symbols require 2 chords - a prefix chord (Caps) plus a chord. 38 less common characters also require 2 chords - a prefix chord (Post) plus a chord.

Excluding accented characters, 30 characters require 3 chords- Post, Caps, chord. The point here is that even in English with the EkaPad we are often chording more than one chord for a character.

For programming, you can store many often used command strings in ShortCuts using the 10-ones protocol. Also, you can store passwords, short and long strings in Keeps

Questions

Question 1

EkaPad looks better designed but, as far as I know after reading the docs in the website, it's not programmable (I mean, I could not redefine its chords to make them easier for Spanish). I've seen the CheatSheets for other languages, but I guess you made those versions of the firmware for those languages. Am I right? **Is there a way for the user to reprogram the chords?**

Response 1

The user can not reprogram the chords. By changing the keyboard used by the computer's operating system, different characters may be produced using a given EkaPad chord. There is only one version of the EkaPad firmware, and that works best with the U.S. keyboard selected.

Question 2

How can I chord the common Spanish characters? In Spanish the letter frequency is different than in English, and the accented vowels á, é, í, ó, ú are used a lot; also the letter ñ and the signs "¿" and "¡"; the letter ü is used too, but it's not frequent.

After reading the Chording Book, **I think the combination "accents chord" + "accent key" + "vowel chord" would be a drawback.** A direct chord to the acute accent, as in a

standard keyboard, would be much better: "acute accent chord" + "vowel chord".

Response 2

All characters used in Spanish are available with the EkaPad. This means ç, ,, , ÿ ñ ü are available. Each of these require 3 chords to produce. However, a user can program 10 of these into a single finger Keep, and 10 others into a single finger ShortCut - this then would allow 20 characters (which now require 3 chords) to be generated with just 2 chords - Keep (or ShortCut) chord plus a single finger chord.

This would give you almost what you want: "Keep" chord plus "a" = á. This works for á, é, í, and ó. ú would need to use the "r" key. ñ fits in too. But I should point out that for ñ using the Accent chord + ~ + n is very fast as the ~ and the n use the same single finger chord, and é is also very fast because it follows the same pattern, ´ and e use the same single finger chord.

The alphabetic letter frequencies used optimize placement of the characters for English. Spanish is not a perfect fit, but the placement works well.

(Response from Inquirer

That seems a very good solution.

But what about uppercase? Do Caps or Shift modify Shortcuts? That would be helpful to type the uppercase accented vowels. I mean, if I store lowercase "á" in a Keep or Shortcut, and then I retrieve it after Caps or Shift, will I get uppercase "Á"? If not, a second set of ShortCuts will be needed, and that would be less intuitive.

Response 2a

Caps or Shift do not modify ShortCuts.

Question 3

How would I use Shift with navigation keys? That is needed to select text in many applications. In the website you say the user can select text with the mouse and then replace it with the EkaPad, as the demo video shows, but I prefer to use the keyboard when possible

(e.g. my window manager is Ratpoison). Would I have to P&R the Caps key and then a cursor key, while in navigation mode? Is there a way to keep Shift pressed in navigation mode?

Response 3

Navigation and Shift. Shift (or any Command chord) can be used with Navig as follows: Shift plus a directional Navig chord will select the characters included by the Navig chord - "Shift" then "one character left" selects the character; "Shift" then "up a line" selects the line. Shift ends after any next chord.

All the command chords end after the next chord, including Shift, except when command chords are entered sequentially. But if you use the mouse, chording Ctrl lets you select disconnected elements with the mouse, and chording Shift using the mouse to go to two locations will select all in between.

Because I only need one hand for the keyboard, I use the mouse all the time; it resides in my 'other' hand.

Question 4

How would I get a character by its ASCII or Unicode code? With a standard keyboard, that is achieved pressing Alt while typing the code number with the NumPad.

Response 4

In Windows mode, you can access characters either by chording Alt, plus NLock, then the 4 number chords; or by chording the chord (sequence) as shown on the EkaPad Cheat Sheet. You have both ways with the EkaPad.

In Macintosh mode, you can access characters either by chording Option and/or Shift, then a letter chord, or by chording the chord (sequence) as shown on the EkaPad Cheat Sheet. You have both ways with the EkaPad.

Comment 5

Inquirer: Let me tell you how important mobility for me is.

5a; Inquirer: On the road: When I'm bike touring for days or weeks I usually have to work in public places, without a proper seat, without a flat surface, and without enough privacy.

(He enclosed two photos of his latest bike touring.) Both of them show part of my computer equipment in small villages, where I use to "camp" at night. As you see, this time I carried the Kinesis keyboard in my panniers.

The first photo is taken in a kind of amusement castle of a kids' park; the second one, in the atrium (or arcade) of an ancient church... Can you imagine using a standard keyboard in that situation, sitting on the ground? When I camp with my little tent, it's even worse in some aspects.

So, comfort and mobility are the main factors for me. Privacy is involved too, because a standard keyboard is too remarkable in that situations (both visually and because of its sounding), and it takes time to unpack and pack carefully.

Response 5a

Using the EkaPad on cycling trips:

The EkaPad is small, light weight, rugged, and easy to clean (dust, rain, etc.). You can use it with a 1 meter (standard) or a 4 meter (available) USB cord. It plugs into your computer.

The EkaPad hangs on your thumb - no flat surface, no surface at all required. It is noiseless.

It stays with you, so if you go to a library to use their computers you can plug in your EkaPad and have all your personal Keeps etc available. It's even possible to use the EkaPad while biking, though that's not what I would do. In public places, the EkaPad can be used very discretely. The EkaPad is mobile, silent, and comfortable to use.

5b; Inquirer: At the desk:

When I work at my desk, I have almost everything I need (well, if only the wonderful Advantage Kinesis keyboard would be silent!). I miss only some free space on the desk and

more mobility (I don't use an external monitor, to make it easier to move around, without reconfiguring the screen resolution every time, but the big external keyboard is a handicap). And the silent typing would a good point too. So I think the benefits of a chord keypad at the desk are worthwhile for me too.

Response 5b

At the desk: I use an external monitor with the EkaPad at my desk. I have a very clear space for notes, papers, books, and mouse pad. I use the Desk Stand with the EkaPad mostly; unless I'm chording a lot, when I keep the EkaPad just on my thumb - I find it more comfortable and freer.

Response 5c

The mobility factor is huge. The EkaPad hangs on the thumb of either hand and allows you to chord with your hand and arm in any position. Plus it's small. No flat surface is required.

Comment 6

Inquirer: Other keyboard layouts: When I moved to Dvorak, I discovered that its Spanish variant, included in most Linux systems, was taken from a personal website of a programmer who designed it without a deep investigation: he simply added the "ñ", exchanged "r" and "h" and moved a bit the QWERTY layout for punctuation... It was a disappointment for me. That led me to investigate how other people designed "real" Dvorak variants, I mean, layouts designed from scratch for one language (e.g. there are several Dvorak layouts for French and Portuguese created that way, and they have nothing to do with the English original). I wrote some programs to analyze texts, compare letter frequencies, letter combinations and so on, to find out a better layout for Spanish. It was a fascinating subject.

I think the letter placement and the chords in EkaPad are very well chosen, a great job. They are a good combination of letter frequencies with logical and mnemonic touches.

Comment 7

Inquirer: A programmable EkaPad would be unbeatable: In a way analogous to Keeps and Shorcuts, the user would decide what chord produces what key code (with certain limits). The next step would be the possibility to configure the EkaPad also with plain text config files sent from the computer via USB or a flash card... Then you could sell the same model all over the world and publish the configuration files on the website, and anyone could adapt them and contribute them. Just thinking loud. I know such features would mean to redesign the whole thing, both firmware and chipset, in fact to create a new product.

Anyway, I think GNU/Linux gives me the power to personalize the EkaPad to some extent: I could modify the keyboard config files of the system, both for the console and X-Windows. I'm not an expert about it, but they are plain text files (as usual in Unix) with a documented syntax, a kind of programming language.

In fact I used to tinker a bit with that issue when I acquired my Asus Eee. Its keyboard has a strange "feature": the digits row is shifted one key to the left. I made special keyboard config files to remap the keys of that row, and then moved the physical keys one position to the right.

So my idea is: I could write modified versions of the GNU/Linux keyboard config files, and activate them when the EkaPad is connected. Of course I could not choose the chords, but I could change the effect of the key codes received, as I did with the Asus' keyboard. For example, I could configure *when the key code combination that usually produces the letter H is received, produce the letter L instead...* That would be a definitive solution for me, to make the letter positioning a bit more suitable for Spanish.

The only disadvantage of doing so and learning customized letter positions is I could not use the EkaPad easily with other people's computers, but I rarely need to.

Response 7

Multi language EkaPad:

Thanks for the ideas. A programmable EkaPad is not practical for us, but a fun and useful product development project. Only a few potential users would want to program the common keys for an EkaPad. Our plan is to produce EkaPads with chords, characters and software designed specifically for each language. We want these EkaPads to be as good in the other language as the present EkaPad is for English. For this, we only need to change the software - relatively easy. The hard part is understanding the way characters are used in each language.

Changing the HID code map in the computer? Yes you could. You could modify the computer's map to produce any character you wanted for a given EkaPad chord.

Question 8

What about consecutive command chords? For example, Ctrl+Shift+C, Ctrl+Alt+D... I found no mention in the docs; all examples I've seen have two chords. If all command chords end after the next chord, then the only way to get those consecutive commands chords is to store them as ShortCuts.

I read the following: "all keyboard characters, commands, control characters, symbols can be chorded" but I need to be sure that consecutive command chords are possible, e.g. Control+Shift+letter, Control+Alt+letter, Control+Alt+Shift+letter... It is not fully clear in the support docs.

Response 8

You can store in a ShortCut up to 4 cords in a row, command chords and/or characters. I have not seen a keyboard shortcut which uses more than 3 command chords in a row plus an additional character. (The EkaPad allows you to store 100 ShortCuts.)

Command chords - command or Ctrl, Option or Alt, ctrl or ww, Shift - both right and left qwerty keyboard Command keys - can be chorded sequentially. After any Command chord,

another Command chord can be chorded, up to 3 Command chords in a sequence. To end a Command chord sequence, a character chord must be entered for the Command to be carried out. If the Alpha chord is entered at any time, the Command sequence is aborted.

Shift is not Caps. Caps is a prefix used by EkaPad. Shift is an EkaPad chord matching the Shift Key for a computer, which stays active until some other chord is pressed. Same for Ctrl.

You can't make a stored Keep or ShortCut come out differently by using Caps or CapsLock. The only time a Keep or a ShortCut may come out differently is if you change the selected Keyboard between entering and accessing the Keep or ShortCut.

Yes, you can store up to 4 sequential command chords in a ShortCut.

Question 9

One little doubt I had while reading the Reference Book: At the end of page 18 you explain the zero set for the 10-ones access method. I understand those ten ShortCuts (00...09) are the same than the single digit ones (0...9), and they could be entered with a single SC Enter chord as well. Am I right?

Response 9

In order to use the 10-ones access method you first enter ShortCuts into a specific set/sequence of ShortCut storage registers which all have the same first digit. For example, you enter into ShortCut 20, then ShortCut 21, then ShortCut 22 ... then end with ShortCut 29. (You can enter less than 10 ShortCuts.) To access these ShortCuts for single finger use, you chord the 10-ones chord, then 2 chord. Now you can access each of the 20s ShortCuts by using just a single chord for the second digit.

You can keep accessing each of these ShortCuts continuously, one by one, until you exit the 10-ones method by chording Alpha.

In order for the zero shortcuts to work (00, 01...09) with the 10-ones method, you do need to enter them as two digits: KeepEnter + KeepEnter + 0 + 1, for example.

Question 10

Keeps and Shortcuts

Do Shift and CapsLock change the content returned by a Keep or Shortcut? For example, if I store "abc" into a Keep, and I retrieve it after Shift, will I get "Abc"?; and will I get "ABC" in CapsLock mode? That would let me access the Spanish accented vowels both in lower case and upper case with the same set of Keeps.

Response 10

A prefix before a Keep or ShortCut has no effect. Caps followed by a Keep is nothing - it is a sequence unknown to the EkaPad - so the sequence is cancelled - and the next chord just puts out its letter.

Question 11

Keycodes and keyboard layouts

I didn't find the chords for "¿" (start question mark), "¡" (start exclamation mark) and "ñ" (n with tilde) in the documentation. I thought the only way to get those characters I need would be to store them into a Keep or Shortcut with the Alt+code method.

But then I realized the EkaPad works like a standard keyboard, with no special driver, what means the keycodes it sends are interpreted in different ways depending on the keyboard layout selected in the operating system. For example, the hexadecimal keycode 0x2F produces ";" in a USA Qwerty layout, "ñ" in a Spanish Qwerty and "s" in most Dvoraks. I deduct the same happens with EkaPad. **May you confirm it, please? Yes, that's exactly what happens with the EkaPad. If you choose a Spanish Qwerty keyboard layout in your operating system and chord ";", do you get the letter "ñ" (n with tilde)? Yes, you do.**

That would mean I'd get the same characters described in the docs for every chord only if I use the EkaPad with a USA Qwerty layout. **Right? Yes.** (Of course, the English letters will be the same because they are mapped in the same positions in Spanish and English Qwerty layouts). So far so good. I could write my own keyboard layout to suit my needs

Question 12

Keycodes and accented letters

But, if my former deduction is right, I don't understand what keycodes the EkaPad sends when chording the accented letters, because these are defined in the operating system's keyboard layout, usually by a combination of several keycodes.

After reading again The EkaPad Reference Book this doubt is even bigger. In page 5 I read accented capital letters don't work in CapsLock mode and a workaround is needed. In page 9 I read only seven letters (a, e, i, o, u, n, y) can be accented, while I imagined any combination would be possible, as far as the accented character actually exists: ç, ê, ê, ê, ê, ê, ê, ù...

All this make me think the keycodes the EkaPad sends to the computer when chording an accented letter is the keycode sequence needed to get (by any means) that specific character in a USA Qwerty layout.

But the same accented character may be defined by different keycodes in other keyboard layout. E.g. the keycode used as a dead key to produce an acute accented vowel in a Spanish Qwerty or Dvorak layout can have a different meaning in a USA Qwerty (it may be associated to a simple letter or symbol).

So my question is: Will the EkaPad's method to get accented characters produce the same characters when a different keyboard layout is selected in the operating system, or will it produce different characters at all (what I suspect)?

Response 12

Keycodes:

The keycode for a given accented character the EkaPad sends is the HID code the U.S. keyboard expects for that accented character.

With respect to CapsLock, it happens that when using it with accented upper case letters that we haven't been able to fit into our processor the extended software procedure that would be

required to make it work properly (or we're not smart enough to have figured out a compact way to do it). Instead of getting Ñ OR É, with CapsLock we get ~N OR ´E. To make it work, every accented upper case letter must be entered as follows: Accent + mark + caps + letter.

With a keyboard different than U.S. keyboard, the Accent method can produce very different and unusable character sequences; in particular the Spanish keyboard produces garbage from the Accent method.

Accents with the U.S. keyboard

Using the Accent procedure in the EkaPad: To create 'á' takes 3 chords - Accent, mark, letter. To create 'Á' takes 4 chords - Accent, mark, Caps, letter.

Using a single digit Keep to create an accented letter (once it has been stored) requires 2 chords - KeepAccess + single finger chord.

However, if you move to a double digit Keep, it then requires 4 chords - Keep, Keep, digit, digit.

We think you'll do just as well to use the Accent system in the EkaPad - with it, 56 accented characters are available. You may find that for the most frequent accented characters that a Keep may be worth it. However, é and ñ and ö and i are quick because the accent mark is on the same key as the letter, so you do a fast double press.

Other characters:

¿ is Post Caps in, ? is Caps in ; ¡ is Post Caps er ; ! is Caps er; ñ is Accent n n. Also lower quotes are available: ‚ is Post Caps ar ; „ is Post Caps an . Other characters are also available: å, ø, ç, f, ß, µ, æ, œ, Å, Ø, Ç, ð. π, Π, and more with Windows.

In your concern for accented letters, the EkaPad in U.S. keyboard mode only produces the accented characters found in the U.S. keyboard (using the Accent process). Other characters can be found from the Special Character menu or from knowing the Alt nnnn code.

Doing this I checked to see what happens if I tell my Mac to be a Spanish or Spanish-ISO keyboard. Quite a few differences show up, particularly none of the Accent sequences work

as designed for U.S. keyboard. So if you use a Spanish keyboard for your computer you will have to store the accented characters as Keeps, remembering to create the Keep when the language keyboard you use is selected for the computer. (These comments pertain to the Mac. I'm not always sure what happens with Windows.)

Question 13

What about CheatSheet's in Spanish?

Response 13

To use the CheatSheet supplied with the EkaPad, you must use the U.S. keyboard. If you use another keyboard, then you need to make your own cheat sheet for that keyboard.

Instructions and template is available from our web page on making a cheat sheet for any keyboard or font.

You can write a procedure for your own computer's keyboard layout and use the EkaPad standard output to display whatever you want.

In conclusion, I think the EkaPad will do what you want, except for Caps Keep. If you create a customized OS's keyboard layout you'll find it will work perfectly.

Final conclusions 14

Inquirer: Thank you Mr. Forester for your answers.

I've ordered the EkaPad.

I appreciate the information you offered about the keycodes sent by the device. I'm really excited about learning and using the EkaPad.

May you add two extra pieces of DualLock? I'll use them to fix the EkaPad at either side of the back of my netbook's screen.

Conclusion 14

Thanks for your order. It will be shipped today. You should receive it in about 10 days. We mail using the US Postal Service Priority Mail.

I have included a piece of DualLock (approx 7x7 cm). Cut it with scissors. To remove the backing paper, bend a corner (small piece) sharply and then a finger nail can loosen the paper from the DualLock.

I have also included a Mac Spanish keyboard CheatSheet.

Since you will have to learn the chords, characters and locations anyway, and there is no relationship between qwerty keys and EkaPad chords, we strongly recommend using the EkaPad with the U.S. keyboard layout. Make Keeps and ShortCuts as you need them.