

Ç ĨñãŨíùóç ôùí Âêäüóãùí ôĩõ FreeBSD

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\$FreeBSD: doc/el_GR.ISO8859-7/articles/releng/article.sgml,v 1.8 2008/12/08
03:10:52 keramida Exp \$

Áðòù òĩ Ũñèñĩ ðãñéãñŨöáé ôçĩ áĩòéĩãððéóç éáé ĩñãŨíùóç ôçò ñŨãáð áĩŨððõĩçò òĩõ FreeBSD, ùóĩĩ áõĩñŨ óôçĩ ðñĩãðõĩéĩáóßá ðĩéĩðééðĩ áêäüóãùĩ òĩõ Êãéðĩðñãééĩĩ Óðóðßĩáðĩð FreeBSD. Áĩçããß ĩã éãððñŨŨñáéá ôçĩ ĩãèĩãĩèĩãßá ðĩõ ÷ñçóéĩĩðĩéãßðáé áéá ðéð áðßóçĩãð áêäüóãéð òĩõ FreeBSD éáé ðãñéãñŨöáé óá ãñãáéãßá ðĩõ áßĩáé áéáéŸóéĩá óá ùóĩðð áĩãéáóŸñĩíðáé ĩá ðãñŨãĩĩðĩ ðãñãĩãðñĩðĩéçĩŸĩãð áêäüóãéð òĩõ FreeBSD áéá áóùðãñééð ð ãĩðĩñééð ÷ñðóç éáé áĩŨððõĩçò ðñĩũĩĩðùĩ.

Ðßĩáéãð Ðãñéã ÷ñŸĩùĩ

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1 Áéóáãũãð

Ç áĩŨððõĩçò òĩõ FreeBSD áßĩáé ĩéá ðĩéŸ áñé÷ðð áéããééãóßá. Òĩ FreeBSD áðĩðãéãßðáé áðũ óõĩãéóõĩñŸð ÷éééŨãũĩ áĩèñðùĩ áðũ ùéĩ òĩĩ èũóĩĩ. Ç ñŨãá òĩõ FreeBSD ðãñŸ ÷áé ðñũóãáóç ĩŸóũ áĩðĩðĩð CVS[1] óá ùéĩðð, Ÿðóé þóðã ĩá ĩðĩñãß ùðĩéĩð èŸéãé ĩá áãé ĩçĩŸĩáðá log, áéãõĩñŸð (patches) ðĩõ Ÿ÷ĩðĩ óá äéŨõĩñã development branches, éáé Ũèãá ÷ãñãéðçñéóðééŨ ðĩõ äĩçéĩŸĩ ôçĩ áĩŨððõĩçò, óá ĩðĩßá ðñĩéŸððĩðĩ áðũ ôçĩ ÷ñðóç áĩũð áðððçñĩŸ óðóðßĩáðĩð áéá÷ãßñéóçð èðãééá. Áðòù áðĩðŸéãóá éáé òĩĩ ðéĩ óçĩáĩóéèũ ðãñŨãĩĩðá Ÿéĩçð áéá Ÿĩá ĩããŨéĩ áñéèũ áðũ óáéáĩðĩŸ÷ĩð ðñĩãããĩĩáðéóðŸð áðũ ùéĩ òĩĩ èũóĩĩ óõĩ FreeBSD. Áßĩáé ðñĩðãĩŸð, áŸãáéá, ðùð ðĩéŸ óŸĩðñã éã áß÷ã áßĩáé áĩðãèð ÷ãĩðééð ç éãðŨóðáóç áĩ áß÷ãĩ ùéĩé, áðũ ùéĩ òĩĩ èũóĩĩ, ðñũóãáóç ĩá ãñŨðĩðĩ óõĩ èðãééá. Äé’ áðòù, ĩũĩ ĩéá “ãðééããĩŸĩç” ñŨãá áðũ ðãñßðĩð 300 Ũðñã Ÿ÷ĩðĩ ðñũóãáóç ĩá ãñŨðĩðĩ óõĩ CVS repository. Áðòĩß ĩé committers[6] áßĩáé ððãŸéðñĩé áéá òĩ ĩãããéŸðãñĩ ĩŸñĩð ôçò áĩŨððõĩçòð ðĩõ áßĩãðáé óõĩ FreeBSD. ĩéá

[illegible]

Ίε οά÷ýðάοίε ηόειηβ άίΰδδοίγφ οίο FreeBSD άάί άόβήοί έάέ θίεý ÷ ηύήί άέα οί ίάέαέΰήεοία οίο όόόόβιάόίό άίΰδδοίγφ όά ίέα Ύέαιόγ ίά θίεύόόόά θίο ίά άίβέαέ ίά ÷ ηέόέήίθίέαβόάέ άοήΎύό. Άέα ίά έόέαβ άόόυ όί άέέέέγία, ç άίΰδδοίγ άβίαόάέ όάόόυ÷ ηήία όά άοί όάνΰέέέέά ίήήθΰόέα. Ί έýήείό έίήήύό άίΰδδοίγφ άβίαέ ί **HEAD** þ *trunk* όόί CVS repository ίάό, άήύόόύό έάέ ύό “FreeBSD-CURRENT”, þ “-CURRENT” άί όόίόήβά.

[illegible][illegible]

Όρία÷πο οόÝεirióáé áðu ôiôð ÷ñPóðáð iáo áíáoiñÝð ðñiáεçiÜôui éáé áéðPóáéð áéá éáéirýnéá ÷áñáéðçñéóóééÜ, éáôÜ ôç áéÜñéáéá ôiô éýééiô ôçð éÜèá Ýéáioçð. Ié áíáoiñÝð ðñiáεçiÜôui áéóÜáñióáé óôçi áÜôç **GNATS**[9] iÝóu e-mail, iá ôçi áóáñiãP send-pr(1), P iÝóu ôiô web-interface ôiô ðáñÝ÷áðáé óôçi áéáýéôióç <http://www.FreeBSD.org/send-pr.html>. Áêôüð áðu óéð áéÜôüñáð éßóðáð çáêôññiééý óá÷óáññáßiô iá éÝiá óá ðá÷íééÜ ÷áñáéðçñéóóééÜ ôiô FreeBSD ôðÜñ÷áé éáé ç éßóðá çáêôññiééP éßóðá ÁéÝá÷iô éáé ÁíáóóÜééóçð Ðiéúôçóáð ôiô FreeBSD (<http://lists.FreeBSD.org/mailman/listinfo/freebsd-qa>), ç iðiá ðáñÝ÷áé Ýiá öüñiô iáéá óðæçðPóáéð ó÷áðééÜ iá óéð éáððñÝñáéáð ôçð “ññáÜñúôçð ôui áéäüóäñ”.

Ἄεά íá áñòðçñáðòçείρýí íé ðεί òòíòçñçðéeίß ÷ ñÞóðáð íáð, íá Ἰέαίòç òñ FreeBSD 4.3 áñ÷ßáíá íá ÷ ñçòçείñðίείρýíá íá÷÷ñέóóóóò çíñíñýð áεáυóáυí. Ἀðòίß íé çíñíñß áçίείññáñýíóáε εßáí ðñßí òðεá÷ðáß ç ðáέέεß Ἰέαίòç. ἸáðÜ ðçí áíáέίßñύòç ðçð Ἰέαίòçð, íυñ ðίεý ççίáíðéeÝð áεεááÝð εáε ðñíòεÞεáð ó÷áðéeÝð íá ðçí áóðÜεάá áßññύóáε óðίí çíñíυ ðçð Ἰέαίòçð. Ἀέυòð áðυ ðçí áñíáðυðçðá áíááÜείεòçð íÝóυ CVS, áέðáεÝóεíá patchkits òðεÜ÷ññύóáε áεá íá ðñíñýí íá áíáááείßòίòí ðá óðóðÞíáðÜ ðíðð υóίε ÷ ñçòçείñðίείρýí ðéð áεáυóáéð *RELENG_X_Y*.

Οι ΟιΠια 2 αιçããß ìã ããððñŸñããð ðã ããŸðñã ððŸãã ðçð ããããããðßãð ðñ ãñßðãðãã ðßòñ ãðu ãŸãã Ÿããðç, ìŸ ÷ ñã ããã ðã ãñããðã ðñ ããçãŸŸ ðçðŸ ìãðããðððððçð ðñ ððððñããðñ ãã ðñ ΟιΠια 3 αιçããß ðçŸ ßããã ðç ããããããðßã ðçð ìãðããððððçð. Οι ΟιΠια 5 ðãñãñŸñã ðñ ðññãß ìã ððããðããß ðñ ããóãã óŸððçãã ãðu ðñßðñð ãã ðñ ΟιΠια 6 ðãñãñŸñã ãŸðñãã ãðu ðã ðñŸãããðã ðñ ìŸããã ãðu ðçŸ ããããããðßã Ÿããðçð ðñ FreeBSD 4.4. ÓŸñð, ðñ ΟιΠια 7 ðãñððãŸãã ãŸðñãã ãðu ðãð ããðãñŸŸããð ðñ ãŸñðãã ìã ðŸñã ç ãŸŸðððç ðñ ìŸãã.

2 Ç Äéääéêáóßá Äçïéïõñãßàò ìéàò êäïóçò

Ίε ιΎάο άέαυόάέο όις FreeBSD όόεΰ÷-σίοάέ άδύ όις -STABLE έιμιύ άίΰόόόις όάσβδισ έΰέα όΎόόάσάέο ιΰίάο. ϸ έέάέέέάόβá όσισόίειάόβáό έέάό Ύέαιόςόό ίάέέΰάέ ό÷άαίς 45 ιΎσάό όσεί όςί άίάίάίάίς ϸάσσςίβá Ύέαιόςόό, υόάί ι όόάγέόσίο άέάυόάίς όις FreeBSD όόΎέίάέ Ύίá άσΰίá όόέό έβόόá όυί όσισάσάίάέόόόίς άέá ίá όόάέέόίβáέ όόίςόό όσισάσάίάέόόΎό υόέ Ύ÷ίς 15 ιΎσάό έάέσυ ίá έΰσίοι υόίέάό άέέάáΎό έΎέίς, όσεί όί δΰάσάί όις έπáέέá. ΊΎόá όá άόόυ όις έάέσυ, όέέέίβ όσισάσάίάέόόΎό έΰσίοι έά όάέσΰ άδύ άέέάáΎό όίς Ύ÷ίς ίáβίáέ όέΎίς άίυόόΎό υόό “ίáέάέάσβόίάόá MFC”. Ί υίόίς MFC όςίáβίáέ “Merge From CURRENT” έάέ όάέέάσΰάέ όςί έέάέέέάόβá όσισάσάίάέόό

òĩō ēpāēēā iēāō āiēēiāōĩŸĩçð āēēāāpð áðũ òĩĩ -CURRENT ðāēñāiāóēēũ ēĩñĩũ áĩŪððōĩçð óðĩĩ óðāēāñũ -STABLE ēĩñĩũ.

2.1 Ğāā÷ĩō Ēpāēēā

ŌñēŪiōā çĩŸñāð ðñēĩ òçĩ áĩāĩāĩũĩāĩç çĩāññĩçĩāŸ Ĩēāĩōçð, ĩ ēpāēēāð òĩō repository āēóŸñ÷āðāē óā iēā ðāñbĩrāĩ “ēāēðóóŸñçóçð”. ĒāðŪ òç āēŪñēāēā āððpð òçð ðāñēũāĩð, ũēāð ĩē āēēāāŸð óðĩĩ -STABLE ēĩñĩũ ðñŸðāē iā Ÿ÷ĩōĩ òçĩ Ÿāēñēóç òçð Release Engineering Team <re@FreeBSD.org>. Ĩē āēēāāŸð ðĩō āðēōñŸðĩiōāē óā āððp òçĩ ðāñbĩrāĩ ðĩō āēāñēāb 15 çĩŸñāð ābĩāē:

- Āēĩñēpóāēð āĩũóðĩĩ ðñĩāēçĩŪðũĩ.
- Āĩçĩāñpóāēð óðçĩ ðāēĩçñbũóç.
- ĀēēāāŸð ó÷āðēēŸð iā òçĩ áóðŪēāēā.
- ĨēēñŸð āēēāāŸð óðĩið ïāçāĩŸð óðōēāðĩ, ũðũð ð÷. ç ðñĩōēðēç òũĩ IDs ĩŸũĩ óðōēāðĩ.
- Ĩðĩēāāððĩōā Ūēēç āēēāāp ðēóðāŸāē ç ñŪāā áĩŪððōĩçð ũðē ðñŸðāē iā ābĩāē, iā òĩ áĩāĩāĩũĩāĩ ðŪiōā ñbōēĩ.

ĨāðŪ òēð ðñpóāð 15 ĩŸñāð ēāēðóóŸñçóçð, òðēŪ÷ĩāðāē iēā āiēēiāóóēēp Ĩēāĩōç āēā iā ÷ñçóēĩĩðĩēçēāb óāĩ āiēēĩp òçð ðāēēēpð Ĩēāĩōçð ēāē ĩ ēpāēēāð āēóŸñ÷āðāē óā iēā ðāñbĩrāĩ “ðāāpĩāðĩð”. ðēŸĩĩ ābĩāē ðĩēŸ ðēĩ āŸóēĩēĩ iā ābĩĩĩ ĩŸāð āēēāāŸð óðĩ óŸóðçĩā, āēðũð ēē áĩ āēĩñēpñĩĩ ēŪðĩēĩ ðĩēŸ òĩāāñũ bugp ēŪðĩēĩ ðñũāēçĩā áóðŪēāēāð. ĒāðŪ òç āēŪñēāēā òĩō ðāāpĩāðĩð òĩō ēpāēēā, òĩōēŪ÷ēóðĩĩ ĩbā āiēēiāóóēēp Ĩēāĩōç òðēŪ÷ĩāðāē ēŪēā āāāñŪāā, ĩŸ÷ñē iā ābĩāē Ÿĩōĩēĩ ç ðāēēēp Ĩēāĩōç. Ōēð çĩŸñāð āēñēāpð ðñēĩ òçĩ ðāēēēp Ĩēāĩōç, ç ñŪāā ðĩō ābĩāē òðāŸēðĩç āēā òēð āēāũóāēð ābĩāē óā óðĩā÷p āðēēĩēĩũĩbā iā òçĩ ñŪāā áóðŪēāēāð, òçĩ ñŪāā óðĩðpñçóçð òçð ðāēĩçñbũóçð, ēāē òçĩ ñŪāā óðĩðpñçóçð òũĩ ports, āēā iā āāāāēũēĩŸĩ ðũð ũēā óā āðāñābðçðā ēĩñŪðēā āēā iēā ðēpñç Ĩēāĩōç ābĩāē āēāēŸóēĩā.

2.2 Ēbóóā ĀēŸā÷ĩō òçð Ōāēēēpð Ğāĩōçð

Ÿðāĩ āñēāðŸð āiēēiāóóēēŸð āēāũóāēð Ÿ÷ĩōĩ ābĩāē āēāēŸóēĩāð, Ÿ÷ĩōĩ āiēēiāóóāb āðũ āñēāðũ ēũóĩĩ ēāē ũēā óā òĩāāñŪ ēŸĩāóā Ÿ÷ĩōĩ áĩāēōēāb, ç ðāēēēp Ĩēāĩōç ĩðĩñāb iā āñ÷bóāē.

2.2.1 Āçĩēĩñābā òĩō ĒĩñĩŸ Ğāĩōçð

Ÿðũð ðāñēāñŪøāĩā óðçĩ āēóāāũāp, ĩē ēĩñĩb RELENG_x_y ābĩāē iēā ó÷āðēēŪ ĩŸā ðñĩōēðēç óðçĩ ĩāēĩāēĩābā òũĩ āēāũóāĩ iāð. Ōĩ ðñpðĩ āpĩā óðçĩ āçĩēĩñābā áðōĩŸ òĩō ēĩñĩŸ ābĩāē iā āāāāēũēābðā ũðē āĩōēāŸāðā iā òçĩ ðāēāðóābā Ÿēāĩōç òĩō ðçāābĩð ēpāēēā āðũ òĩĩ RELENG_x ēĩñĩũ *āðũ òĩĩ ĩðĩbĩ* ēā òðēŪĩāðā òĩ ĩŸĩ ēĩñĩũ.

```
/usr/src# cvs update -rRELENG_4 -P -d
```

Ōĩ āðũāĩ āpĩā ābĩāē iā āçĩēĩñāpóāðā iēā *āðēēŸðā* (tag) óðĩ óçĩābĩ āēēbĩçóçð òĩō ēĩñĩŸ, póðā iā ĩðĩñābðā iā āābðā òēð āēāóĩñŸð iā òçĩ āñ÷p òĩō ēĩñĩŸ āŸēĩēā óðĩ ĩŸēēĩ iā òĩ CVS:

```
/usr/src# cvs rtag -rRELENG_4 RELENG_4_8_BP src
```

Ēāē òũðā ĩðĩñābðā iā āçĩēĩñāpóāðā òĩ ĩŸĩ ēĩñĩũ iā:

```
/usr/src# cvs rtag -b -rRELENG_4_8_BP RELENG_4_8 src
```

Οδηγός: Το `RELEASE_*` αρχείο `RELEASE` είναι η `CVS-meisters` και οι `RELEASE` αρχεία.

Το `RELEASE` αρχείο `RELEASE` του `CVS`. Ο `RELEASE` είναι η `RELEASE` του `RELEASE` και οι `RELEASE` αρχεία του `RELEASE` είναι η `RELEASE` του `RELEASE` και οι `RELEASE` αρχεία του `RELEASE` είναι η `RELEASE` του `RELEASE`.

2.2.2 Απριλίου του Απριλίου

Ο `RELEASE` είναι η `RELEASE` του `RELEASE` και οι `RELEASE` αρχεία του `RELEASE` είναι η `RELEASE` του `RELEASE` και οι `RELEASE` αρχεία του `RELEASE` είναι η `RELEASE` του `RELEASE`.

- `doc/en_US.ISO8859-1/books/handbook/mirrors/chapter.sgml`
- `doc/en_US.ISO8859-1/books/porters-handbook/book.sgml`
- `doc/share/sgml/freebsd.ent`
- `src/Makefile.incl`
- `src/UPDATING`
- `src/gnu/usr.bin/groff/tmac/mdoc.local`
- `src/release/Makefile`
- `src/release/doc/en_US.ISO8859-1/share/sgml/release.dsl`
- `src/release/doc/share/examples/Makefile.relnotesng`
- `src/release/doc/share/sgml/release.ent`
- `src/share/examples/cvsup/standard-supfile`
- `src/sys/conf/newvers.sh`
- `src/sys/sys/param.h`
- `src/usr.sbin/pkg_install/add/main.c`
- `www/en/docs.sgml`
- `www/en/cgi/ports.cgi`
- `ports/Tools/scripts/release/config`

Ο `RELEASE` είναι η `RELEASE` του `RELEASE` και οι `RELEASE` αρχεία του `RELEASE` είναι η `RELEASE` του `RELEASE` και οι `RELEASE` αρχεία του `RELEASE` είναι η `RELEASE` του `RELEASE`.

- `src/release/doc/en_US.ISO8859-1/relnotes/common/new.sgml`
- `src/release/doc/en_US.ISO8859-1/errata/article.sgml`

Ο `RELEASE` είναι η `RELEASE` του `RELEASE` και οι `RELEASE` αρχεία του `RELEASE` είναι η `RELEASE` του `RELEASE` και οι `RELEASE` αρχεία του `RELEASE` είναι η `RELEASE` του `RELEASE`.

Άσπυ ιεῖεεεεηδεάβ ς δνιαιδιείαοβά οςδ ρΎΑδ αδΒοίςδ Ύεαιρόςδ, δñΥδαέ ία αίçιαñρoάoα ίανέεU añ÷άBά áέα ία αίçιαñρoάoα οιι έουοι άέα όç ρΎΑ Ύέαιός οιö FreeBSD.

- `www/en/includes.xsl`
- `www/en/includes.sgml`
- `www/es/includes.sgml`
- `www/en/releases/*`
- `src/share/misc/bsd-family-tree`

2.2.3 Äçìéĩõñãßá ôùí Âôéêâôþí ôçò êäïóçò

1/40áí ç ôãëëêP Ýêäiôç åßiáé Ýôieîç, ç ðãñáéÛòù áíôieîP èá äçieiõñãPóáé ôçí åôëêÝóá RELENG_4_8_0_RELEASE.

```
/usr/src# cvs rtag -rRELENG_4_8 RELENG_4_8_0_RELEASE src
```

RELEASE_4_8_0 óóá éáóÜëëçä äÝíóñá ðçāāβíø ēpāëéä.

ΙαάεεΥό οινΥό, ιδιναβ ίά ÷ ηαεάοοάβ ίά αβιριό εÜθιεάο αεεάαΥό οάεαδoαβá οόεαιβ *ιαδÜ* ογι οθιεΥόογος οοι
 αοεεαορι. ΆαίεεÜ, ααί αβίáε άγoεieri ίά αβίáε εÜοε οΥοieri αοιγ οi CVS αδεονΥθαε ίά ιαοαεεριβoáε εÜθιεiο οεο
 αοεεΥoαο ίά ιάοιεΥό υδυο `cvs tag -d tagname filename`. Άβίáε θιεγ ογιαόοεü υυο αοδΥό iε αεεάαΥό ογδ
 οάεαδoαβáο οόεαιβδ ίά ογιαεüειγi ίά οεο οοοόΥό αοεεΥoαο áεá ογι οοαεαηεiΥίγ Υεαιόγ. Iε αδβoγiαο áεäυoáεο οiθ
 FreeBSD θηΥθαε ίά αβίáε δÜiόá άγεieri ίά ιάáαáñá÷ειγi. ΟiθεεΥό αεεάαΥό οοi θáñεÜáεεiθ οiθ ιγ÷ιáεεγ οοι
 áεäυoáυi ααί αδεονΥθiíoáε.

3 àâãäåæç èé êëìíîï

Ιε "aeauaaeo" oio FreeBSD ioiniiri ia iaadaaeuodoeoioiri adu ioiieiaaBpiora Y ÷ ae Yia o ÷ aeoeU anPaini ic ÷ Uicia eae dnuoaaaoe ooi repository oio dcaabio epaeaa. (4eie Y ÷ ioi aooB oc aioiaouocoa, aoiy danY ÷ ioia dnuoaaaoe iYou aipioiio CVS! AaBoa oi Aa ÷ aenbaei oio FreeBSD aeaa daneoeouoanao eadonYnaeo.) C iuic aeaeep adabococ abiae ia oou ÷ ae oiooBneic ooi dnoBia oao aeaa oci ooeaop vn(4). (Ooi -CURRENT, aooB c ooeaop Y ÷ ae aioeaaaoaoeab adu oci iYia ooeaop aboeio aaoeoiYno oa iBic md(4).) Ai c ooeaop aai abiae aioiaouuYic ooi dnoBia oao, ouoa i eaoUeeepio iaauo ea oionueab adouiaoa uoi aeoeaaoaB c aioieP vnconfig(8) eaoU oc aeUnea ea oc oUocd aioiaaBa oio iYio aeBicocd. 4ea oa anaeeBa oio ÷ naeUaioae aeaa ia iaadaeudobaia iea Yeaoc abiae aeaeYoeia oa iioB dcaabio epaeaa ooi eaoUeia src/release. AooU oa anaeeBa Y ÷ ioi uo oeidu ia danY ÷ ioi uoe ÷ naeUaioae aeaa ia ÷ obaioae ie aeauaaeo oio FreeBSD ia Yia oiaop eae oaeaeeneYi onou. Iea dePncd Yeaoc ioinaB ia iaadaeudoeoia ÷ ncioieieBiao aooU oa anaeeBa ia iea eae iui aioieP, ooi dneeaiamYicd eae oc aieioBaa auu ISO an ÷ abio eaoUeeepi aeaa ia eaaB oa CDROM, ie aeoeYoaB aeBicocd, eaep eae i eaoUeeepio aaeeaoUoaoc iYou FTP. AooB c aioieP abiae ooeep c make release.

3.1 Ç áíôïëþ make release

Ἄέα ἰά ἱὰόἀα̣εὐὸδβόἀὸἀ ἀδεὸδ÷-βὸ ἱέα Ῥέαιός, ὄñÝðäē ðñþὸά ἰά ὀðŨñ÷-ϊοί ὁά ἐάὸŨëççéá áñ÷-âßá ἰÝὸά ὀοίρ ἐάὸŨειῖῇ
/usr/obj. Ἰðññâßὸά ἰά ὁά äçìèíõñâßὸἀὸἀ âßὸά ἰä ὀçí αἰοίτêÞ make world Þ äðēŨ make buildworld. Ἀέα ἰά

ðáðý÷-áé áðßóçð ç ìáðááëðððéóç òçð Ýêáîóçð ðñÝðáé íá äðáððá ðéð éáðÛëëçéäð ðéíÝð éáé ðá èÛðíéäð ìáðááëçðÝð:

- CHROOTDIR - Ì éáðÛëíáðð ðîõ èá ÷ ñçóéíðíéçéäð ðáí ðáñéáÛëëí chroot áéá üëç òçí ìáðááëðððéóç òçð Ýêáîóçð.
- BUILDNAME - Õî üñíá òçð Ýêáîóçð ðîõ èá ìáðááëüðððáððá.
- CVSROOT - Ì éáðÛëíáðð ðóñí ððíßí áñßðéáðáé òí CVS repository.
- RELEASETAG - Ç áðééÝðá CVS ðîõ áíðéóðíé÷-áß ðóçí Ýêáîóç òçí ððíßá èÝéäðá íá ìáðááëüðððáððá.

Áí ááí Ý÷-áðá ðáç ðñüóááóç ðá èÛðíéí ðíðéëü CVS repository ìá ðñí èðáééá ðîõ FreeBSD, ððíñáððá ðÛíðá íá ððéÛíáððá òí áéëü óáð ðíðéëü CVS mirror ìá òí CVSup (http://www.FreeBSD.org/doc/en_US.ISO8859-1/books/handbook/synching.html#CVSUP). ÕðÛñ÷-áé Ýíá supfile, ððí áñ÷-áßí /usr/share/examples/cvsup/cvs-supfile, òí ððíßí ððíñáððá íá ÷ ñçóéíðíéçéäððá áéá íá áíðéáñÛððá òí CVS repository ðîõ FreeBSD ððí áéëü óáð ðíðéëü mirror.

Áí ðáñáëáßðáððá òçí áðééÝðá RELEASETAG, ðððá èá ìáðááëüðððéóðáß íéá ðëðñçð Ýêáîóç áðü òçí èíñðð ðîõ HEAD (áç. ðîõ -CURRENT) èíññí. Ìé áêüüóáéð ðîõ ððéÛ÷-ñíðáé áðü áððñí ðñí èíññí, ððíðèðð áíáðÝññíðáé ðáí “-CURRENT snapshots”.

ÕðÛñ÷-ðñí éáé ððééÝð Ûëëäð ìáðááëçðÝð ðîõ ððíññí íá ÷ ñçóéíðíéçéçí áéá íá ðáñáíáðñíðíéçéäððá òçí Ýêáîóç óáð. Ìé ðéí ððééÝð áðü áððÝð ðéð ìáðááëçðÝð ðáñéáñÛñíðáé ðóçí èíñðð ðîõ áñ÷-áßíð src/release/Makefile. Ç áêñéáðð áíðíð ðîõ ÷ ñçóéíðíéçéäð áéá íá ððéá÷-ðáß ç áðßóçð Ýêáîóç 4.7 ðîõ FreeBSD (x86 ðéáððüñíá) ððáí:

```
make release CHROOTDIR=/local3/release \
    BUILDNAME=4.7-RELEASE \
    CVSROOT=/host/cvs/usr/home/ncvs \
    RELEASETAG=RELENG_4_7_0_RELEASE
```

Õí Makefile ðîõ ÷ ñçóéíðíéçéäð áéá íá ìáðááëüðððáíðáé ìé áêüüóáéð ððíñáß íá ÷ ññéóðáß ðá áñéäðÛ ìá÷-ññéóðÛ ìáðáíý ðîõð áðíáðá.

- Äçíéðñáß áñüð éáéáññý ðáñéáÛëëíððð ðá íéá ìá÷-ññéóðð éáñáñ÷-ßá éáðáëüüñí ìá òçí áíðíðð “make installworld”.
- Áíáñüáð áðü òí CVS ìéáð éáéññéáð Ýêáîóçð ðîõ ðçááßíð èðáééá ðîõ ðððððíáððð, òçð ðáèíçññüóçð éáé ðñí ports ìÝðá ðóçí éáñáñ÷-ßá éáðáëüüñí ìáðááëðððéóçð òçð Ýêáîóçð.
- Ñðéíðáéð ðñí áñ÷-áßñ ððñí éáðÛëíá /etc éáé /dev ìÝðá ððí ðáñéáÛëëí chroot.
- ÁéðÝéáóç òçð áíðíðð chroot ìÝðá ðóçí éáñáñ÷-ßá éáðáëüüñí ðîõ áðíéíÛððçéá, áéá íá ìçí ððíñáß òí áñüðáñéëü ðáñéáÛëëí íá áðçñáÛðáé òç ìáðááëðððéóçð òçð Ýêáîóçð.
- ÁéðÝéáóç òçð áíðíðð make world ìÝðá ððí ðáñéáÛëëí chroot.
- Ìáðááëðððéóç ðñí áéðáëÝóéñí ðîõ áßíáé ò÷-áðééÛ ìá ðí òýóóçíá Kerberos.
- Ìáðááëðððéóç ðîõ ððñðíá GENERIC.
- Äçíéðñáß áñüð ðáéééñý éáðáëüüñí ððñí ððíßí èá ìáðááëüðððéóðñí éáé èá áðíèçéáððéñý ìé áéðáëÝóéñáð ññðÝð ðñí ðáéééðí ðáéÝðñí.
- Ìáðááëðððéóç éáé ááéáðÛððáóç ðñí áñááéáßñí ðîõ ÷ ñáéÛáñíðáé áéá òçí ðñíáðíéíáððá òçð Ýêáîóçð éáé òç ìáðáðñíðð òçð ðáèíçññüóçð áðü ðñí ðçááßíð èðáééá (SGML) ðá html éáé áñ÷-áßá éáéíÝñíð ðîõ èá ððññáýñíð òçí Ýêáîóçð.
- Ìáðáðñíðð éáé ááéáðÛððáóç òçð ðáèíçññüóçð (áá÷-áéñßáéá ÷ ñððóç, áéóáñüáééÛ éáßíáíá, òçíáéðáéð Ýêáîóçð, èßððáð ððíááðððçðáðð ðéééñý, èèð.)

- Îāóāāēpôôéóc òuĩ “òõĩðēáõĩŸĩũĩ” (crunched) āēôāēŸóēĩũĩ ðĩō ēā ÷ ñçóēĩĩðĩēçēĩŸĩ óôēð āēóēŸôôāð āāēáðŪóóáócð.
- Āçĩēĩōñāā ōuĩ ðāēŸôuĩ ôçð āāēáðŪóóáócð ēāē òuĩ ðāēŸôuĩ ðçāāĩō ēpāēēā.
- Āçĩēĩōñāā ōuĩ ìŸóuĩ āēēĩçóçð ēāē ôçð āēóēŸôôāð “fixit”.
- Āçĩēĩōñāā ôçð ēāñāñ÷āð ēāóāēüũĩ āēā ôçĩ āāēáðŪóóáóc ìŸóuĩ FTP.
- (ðñĩāēñāôēēŪ) Āçĩēĩōñāā ōuĩ ISO āñ÷āũĩ āēā ìŸóā CDROM/DVD media.

Āēā ðāñēóóüðāñāð ðēçñĩōĩñāð ó÷āôēēŪ ìā ôçĩ āēāēēāóāā āçĩēĩōñāāð ìēāð Ÿēāĩôçð, āāðā ôçĩ óāēāā ðāēĩçñāũôçð release(7).

3.2 Îāóāāēpôôéóc òuĩ XFree86

Ōĩ āñāóēēũ ðāñēāŪēēĩ **XFree86** āĩāē Ÿĩá óçĩāĩóēēũ ēñĩŪðē ēŪēā Ÿēāĩôçð āēā ðĩēēĩŸð ÷ ñpôóāð ðĩō ēŸēĩōĩ òĩ FreeBSD āēā óóāēĩŸð āñāóāð. ðñēĩ ôçĩ Ÿēāĩôç 4.6-RELEASE òĩ FreeBSD, ìē āððóçĩāð āēüüóāēð òĩō FreeBSD ÷ ñçóēĩĩðĩēĩŸóāĩ ôçĩ Ÿēāĩôç 3.x òuĩ **XFree86**. Ĭ ðēĩ āŸēĩēĩð ðñũðĩð ìā ìāóāēũðôðóāðā áððŸð óēð āēüüóāēð āĩāē ìā ÷ ñçóēĩĩðĩēĩŸóāĩ òĩ ðñũāñāĩā `src/release/scripts/X11/build_x.sh`. Áðũ òĩ ðñũāñāĩā áðāēðāā ìā āĩāē pāç óçĩŸĩá óõĩ óŸóçĩŪ óāð òũõĩ òĩ ðāñēāŪēēĩ XFree86 üõĩ ēāē ç āēpôóā Tcl/Tk. ÎāðŪ ôçĩ ìāóāāēpôôéóc òuĩ ēāðŪēēçēũ X servers, òĩ ðñũāñāĩā ēā ðāēāðŪñāē üēā óā āñ÷āā òā óðēēĩāŸð āñ÷āũĩ ðĩō ðāñēĩŸĩāē ìā āñāē òĩ `sysinstall(8)` ìŸóā óõĩ ēāðŪēēĩā `XF86336` óõĩ ìŸóĩ āāēáðŪóóáócð.

Îāēēĩpĩóāð ìā ôçĩ Ÿēāĩôç 4.6-RELEASE òĩō FreeBSD, òĩ `sysinstall(8)` āāēāēéóðŪ ôçĩ Ÿēāĩôç 4.x òuĩ XFree86, óāĩ ēāñĩēēŪ ðāēŸóā. ÁððŪ ìðĩñāā ìā āĩāē āðā òā ðāēŸóā ðĩō āçĩēĩŸñāçõā òĩ cluster òuĩ ports p ìðĩēāāðĩðā Ūēēā ðāēŸóā ðĩō Ÿ÷ĩōĩ āçĩēĩōñāçēāā āðũ Ÿĩā ports tree ìā ôçĩ ēāðŪēēçç āðēēŸóā.

Óçĩāũüóc: Āĩāē ðĩēŸ óçĩāĩóēēũ ìā áðāēñŸóāðā āðũ òĩ āñ÷āāĩ `/etc/make.conf` ìðĩēāóāpðĩðā òĩðēēŸð ñōēĩðóāēð Ÿ÷āðā ēŪĩāē. Āēā ðāñŪāāēāĩā, āāĩ āĩāē ēāēp ēāŸā ìā āēāĩŸĩāðā āēðāēŸóēĩā ðĩō Ÿ÷ĩōĩ ìāóāāēũðôéóðāā óā ēŪðĩēĩ óðāēāēñēĩŸĩĩ óŸóçĩā ìā ìñēóĩŸĩç ôçĩ óēĩp ôçð ìāóāāēçðpð `CPUTYPE` āēā āāēðēóõĩðĩççç òuĩ āēðāēŸóēĩũĩ āēā ēŪðĩēĩ óðāēāēñēĩŸĩĩ āðāĩāñāóðp.

3.3 ðñĩāñŪĩāóā Ōñðũĩ (“ports”)

Ç Óðēēĩāp òuĩ Ports òĩō FreeBSD (<http://www.FreeBSD.org/ports>) āĩāē ìēā óðēēĩāp ìā ðāñēóóüðāñā āðũ 20,000 ðñĩāñŪĩāóā āðũ òñðũĩðð, ðĩō āĩāē āēāēŸóēĩā āēā FreeBSD. Ĭē Ports Management Team <portmgr@FreeBSD.org> āĩāē òðāŸððĩē āēā ôçĩ óõĩðpñççç āĩũð āŸĩóñĩō āðũ ðçāāĩ ēpāēēā āēā óā ports, ðĩō ìðĩñāā ìā ÷ ñçóēĩĩðĩēçēāā āēā ìā āçĩēĩōñāçēĩŸĩĩ óā ðāēŸóā ìā óā ðñĩāñŪĩāóā ðĩō óðñāŸĩōĩ óēð āððóçĩāð āēüüóāēð òĩō FreeBSD.

Ç āēāāēēāóāā óõĩðpñçççð ôçð óðēēĩāpð òuĩ ports āĩāē ēŪðē ðĩō āāĩ ìðĩñĩŸĩā ìā ēāēŸøĩðĩā āāp. ìā ìā÷ũñēóðũ Ūñēñĩ, ìā ððōēĩ Ç ÎñāŪtūóc ēāĩôçð òuĩ ðāēŸôuĩ ĒĩāēóĩēēŸ āðũ Ōñðũĩðð ([./releng-packages/article.html](http://releng-packages/article.html)), ēāēŸðāē áðũ òĩ ēŸĩā.

3.4 Āñ÷āā ISO ôçð ēāĩôçð

Îāēēĩpĩóāð ìā ôçĩ Ÿēāĩôç 4.4 òĩō FreeBSD, ç ñŪāā ĀĩŪðððĩçð òĩō FreeBSD áðĩōŪóēóā ìā āēāĩŸĩāē ēāē óā òŸóóāñā ISO āñ÷āā ðĩō ðñpôā ðĩōēĩŸóāĩ ìē āðāēñāāð *BSDi/Wind River Systems/FreeBSD Mall* óðēð “āððóçĩāð” āēāmŸð CDROM ðĩō Ÿēāĩāĩ. ĒŪēā Ÿĩā āðũ óā òŸóóāñā ISO āñ÷āā ðñŸðāē ìā ðāñēŸ÷āē Ÿĩā āñ÷āāĩ `README.TXT` ðĩō

ðǻñéǻñŨóǻé óǻ ðǻñéǻ ÷ ùǻǻǻ òĩō ǻßóèĩō, êé Ýǻǻ ǻñ ÷ ǻßĩ CDROM.INF ðĩō ðǻñéÝ ÷ ǻé ïǻóǻ-ðéçñĩōĩñßǻð ǻéǻ íǻ ïðĩñǻß òĩ ðñüǻñǻǻǻ sysinstall(8) íǻ ǻéÝǻǻé éǻé íǻ ÷ ñçóéĩðĩéßóǻé ǻóòü òĩ ǻßóèĩ, éǻèð òé Ýǻǻ ǻñ ÷ ǻßĩ filename.txt ðĩō ðǻñÝ ÷ ǻé íéǻ èßóóǻ ǻñ ÷ ǻßüĩ òĩō CDROM. Áóðß ç èßóóǻ ïðĩñǻß íǻ ǻçĩéĩñǻçéǻß ðĩéý ǻðéŨ, ùò ǻĩßð:

```
/stage/cdrom# find . -type f | sed -e 's/^\\.\\.\\/' | sort > filename.txt
```

Íé óðǻéǻèñéĩÝǻð ǻðǻéóßóǻéò ǻéǻ èŨèǻ Ýǻǻ ǻðü ǻóòŨ óǻ CD ðǻñéǻñŨóĩíóǻé ðǻñǻéŨòü:

3.4.1 ǻßóèĩò 1

Í ðñðòĩò ǻßóèĩò ǻßǻéé ó ÷ ǻǻüĩ ǻðĩééǻéóóééŨ ǻðĩòÝéǻóĩǻ òçð ǻĩóĩéßð make release. Íé ïüǻð ǻééǻǻÝð ðĩō ðñÝðǻé íǻ ǻßĩĩĩ òóĩĩ éǻóŨéĩǻĩ disc1 ǻßǻéé ç ðñĩóèßéç òĩō éǻóŨéĩǻĩò tools, òüĩ XFree86, éǻé üóĩ òĩ ǻóĩǻóüĩ ðǻñéóóüòǻñüĩ ðǻéÝòüĩ ïðĩñĩý íǻ ÷ ùñÝóĩĩ òóĩ ǻßóèĩ. Í éǻóŨéĩǻĩò tools ðǻñéÝ ÷ ǻé ǻñǻǻéǻǻá ðĩō ǻðéòñÝðĩĩ óǻ ÷ ñßóóǻð Ũéèüĩ éǻéòĩñǻéèßĩ óóóòçĩŨòüĩ íǻ òóéŨĩĩĩ òéð ǻéóéÝóóǻð ǻéèßĩçóçð. Áóòüò ï ðñðòĩò ǻßóèĩò ðñÝðǻé íǻ òóéŨ ÷ íǻóǻé bootable Ýóóé ðóóǻ íǻ ïðĩñĩý íé ÷ ñßóóǻð òüĩ ïüóÝñüĩ òðĩéĩǻéóóßĩ íǻ ǻðĩòǻýǻĩ òĩ óóŨǻéĩ ǻçĩéĩñǻßǻð òüĩ ǻéóéǻóóßĩ ǻéèßĩçóçð.

ǻĩ íéǻ ǻéǻóĩñǻðéèß Ýéǻĩóç òüĩ XFree86 éǻ ǻéǻĩÝǻóǻé ïǻ òçĩ Ýéǻĩóç ǻóòß, ðñÝðǻé íǻ ǻçĩǻñüèǻß òĩ ðñüǻñǻǻǻ sysinstall(8) ǻéǻ òçĩ íÝǻ èÝóç éǻé íé ïǻçǻßǻð ǻǻéǻóŨóóǻóçð. Í ó ÷ ǻóéèüò èßǻééǻð òðŨñ ÷ ǻé óóĩĩ éǻóŨéĩǻĩ src/release/sysinstall òóĩĩ -STABLE èĩñü ð óóĩĩ éǻóŨéĩǻĩ src/usr.sbin/sysinstall òóĩĩ -CURRENT èĩñü. ÓóǻéǻèñéĩÝǻǻ, óǻ ǻñ ÷ ǻǻǻ dist.c, menus.c, éǻé config.c éǻ ÷ ñǻéǻóóǻß íǻ ǻçĩǻñüèĩý.

3.4.2 ǻßóèĩò 2

Í ǻǻýòǻñĩò ǻßóèĩò ǻßǻéé ǻðßóçð ǻðĩòÝéǻóĩǻ òçð ǻĩóĩéßð make release éǻóŨ Ýǻǻ ïǻǻŨéĩ ïÝñĩò. Áóòüò ï ǻßóèĩò ðǻñéÝ ÷ ǻé Ýǻǻ “live filesystem” ðĩō ïðĩñǻß íǻ ÷ ñçóéĩĩðĩéçéǻß ǻðü òĩ sysinstall(8) ǻéǻ íǻ ǻĩǻóǻóóĩý ðñĩǻéßĩǻóǻ óǻ íéǻ ǻǻéǻóŨóóǻóç òĩō FreeBSD. Èé ǻóòüò ï ǻßóèĩò ðñÝðǻé íǻ ǻßǻéé bootable. Èǻ ðñÝðǻé ǻðßóçð íǻ ðǻñéÝ ÷ ǻé Ýǻǻ óóĩðéǻóĩÝĩ ǻĩóßǻñǻóĩ òĩō CVS repository óóĩĩ éǻóŨéĩǻĩ CVSROOT éǻé ǻǻǻǻǻóǻ ǻðü ǻðĩñééŨ ðñĩǻñŨĩǻóǻ óóĩĩ éǻóŨéĩǻĩ commerce.

3.4.3 ǻßóèĩé 3 éǻé 4

Íé òðüéĩéðĩé ǻòĩ ǻßóèĩé ðǻñéÝ ÷ ïĩĩ ǻðéðñüóéǻóǻ ðǻéÝóǻ éĩǻéóĩééý ǻéǻ òĩ FreeBSD. Óǻ ðǻéÝóǻ éǻ ðñÝðǻé íǻ ǻßǻé ñǻǻĩðĩéçĩÝǻǻ, Ýóóé ðóóǻ èŨèǻ ðǻéÝòĩ íǻ ǻßǻéé óóĩĩ ðǻéĩ ǻßóèĩ ïǻ üéǻ óǻ ðǻéÝóǻ ǻðü óǻ ïðĩßǻ ǻĩǻñòŨóǻé ǻéǻ íǻ ǻǻéǻóóóǻéǻ éǻé íǻ òñÝĩǻé. ðǻñéóóüòǻñǻð ðéçñĩōĩñßǻð ǻéǻ òçĩ ǻçĩéĩñǻßǻ ǻóòßĩ òüĩ ǻßóèüĩ ǻĩǻóÝñĩíóǻé óóĩĩ Ũñèñĩ Ç ÎñǻŨñóç éǻĩóçð òüĩ ðǻéÝòüĩ Éĩǻéóĩééý ǻðü Òñßòĩòð (../releng-packages/article.html).

4 ǻéǻĩñß òüĩ Áêüüóǻùí

4.1 ǻĩòðçñǻòçðÝò FTP

¼óǻĩ ç Ýéǻĩóç ǻßǻéé Ýóĩéĩç, Ý ÷ ǻé ǻĩééĩǻóóǻß ǻéóǻĩðð, éǻé Ý ÷ ǻé ðǻéǻóǻñéóóǻß ǻéǻ ǻéǻĩñß, ï éýñéĩò FTP ǻĩòðçñǻòçðð ðñÝðǻé íǻ ǻçĩǻñüèǻß. Íé ǻðßóçĩé ǻĩòðçñǻòçðÝò FTP òĩō FreeBSD ǻßǻéé üéé mirrors ǻĩüò éýñéĩò ǻĩòðçñǻòçðß óóĩĩ ïðĩßĩ Ý ÷ ïĩĩ ðñüóǻǻóç ïüĩ Ũééé FTP ǻĩòðçñǻòçðÝò. Áóòüò ï ǻĩòðçñǻòçðð ǻßǻéé ǻĩüóòüò ùò ftp-master. ¼óǻĩ ç Ýéǻĩóç ǻßǻéé Ýóĩéĩç, ðñÝðǻé íǻ ǻçĩǻñüèĩý óǻ ðǻñǻéŨòü ǻñ ÷ ǻǻǻ óóĩĩ ftp-master:

[/pub/FreeBSD/index.html](#)

Ιέα ἀδελφ web οἰσβῶα δῖο δᾶνέΥ ÷ ἁέ ἁἁβελῶο ὁά ἁεῦῶῖνῖοδ ὁçῖᾶῖῶέῖῖῖ FTP ῗᾶῶᾶῖῖᾶῖῖ ῗῗᾶ ὁçῖ ὁῖῖΥ ÷ ῖῖῖᾶ ῖῖᾶῖῖῖ ὁῖῖ FreeBSD.

```
/pub/FreeBSD/releases/arch/x.y-RELEASE/
```

I éadóUeräno ádu öiri rðirBi iðinryí íá abñröi äæéáoóóóÜöáéo ìYóù FTP, üðuò öiri Ý÷æ ðñiäöieiÜöáé ç áföieP make release.

/pub/FreeBSD/ports/arch/packages/packages-X.Y-release/

¼ëá óá ðññĩãôáãëùôôéóìÝíá ðáéÝôá ãéá ôçí ôñÝ÷ĩôóá Ýëäĩôç.

```
/pub/FreeBSD/releases/arch/X.Y-RELEASE/tools
```

Îéá óõïâîëëêÐ óõïôùîâõóç ãéá ôîí êáôÛëîäí .../.../.../tools.

/pub/FreeBSD/releases/arch/X.Y-RELEASE/packages

```

λέά όοίâîëëêP όοίôùîâóóç äéá ôîí êáoÜëîāī .../.../ports/i386/packages-X.Y-release.

```

```
/pub/FreeBSD/releases/arch/ISO-IMAGES/x.y/x.y-*.iso
```

Ôá áñ÷åßá ISO.

Ἀέα ᾄναε6ου0αῖῃ ðεçñr0r0ῖῇΒα0 6÷ά0éēŮ ιὰ 0çí ῖῇŮfú0ç 0ùι mirror áéáῖῇð FTP 0ì0 FreeBSD, ᾄῇῇῇæþ äåß0å 0ī Ůῇῇñ Ö0eŮ÷ῖῖ0áð Ýíá FreeBSD mirror (/hubs/).

[illegible]

4.2 Àáæéêþ Áíáðáñáũùãþ ôúi CD-ROM

Ἐὰ σοὶ δὲ ἔχνη ἐὰν ὀρίηται: Ὅτι αἰτῶ ὅτι ἂν ἴσῃς ὅτι ISO ἂν ÷ ἂν ὅτι FreeBSD ὁ αἰ εὔδοξος ὅτι ἰδιῶτα ἰα εὔλας ἰα ἐπὶ ἀνδράσιν αἰ, ἐὰν ἴσῃς ἂν ὅτι δεινὸς ὁ αἰ ἰδιῶτα ἰα δεινῶτα.

5 Åăăêôáóéìüôçôá

Δάνυετ θῖο οἱ FreeBSD ἀβῖαε Ἰῖα θεΠῆαδ εἰεοῖοῖῆεεῦ οὔοοοῖα, ἀὰρ οδῖῖῖ-÷ἄε εὔοε θῖο ἰά οάο ἀῖαἄεῖῖἄε ἰά ÷ῆοοεῖῖθῖεΠόαδῶ οἱ οὔοοοῖα ἄεῆεἶῖῖ οὔθῖο οἱ Ἰ÷ῖοῖα θαεἶοῖῖῖ ἂἰἂῖῖ ἄεἶ ἄεἶῖῖ. ÷ῖοῖα θῖοῖῖῖῖῖῖῖ ἰά ο÷ἄεῖῖῖῖῖῖ οἱ οὔοοοῖα Ἰῖοε θῖο ἰά ἀβῖαε ἡοῖ οἱ ἂοῖἰῖῖῖῖ ῖεῖ ἂῖἂεῖῖῖῖῖ, ἄεἶ ἰά ἀβῖαε ἂῖῖῖῖ ἰά ÷ῆοοεῖῖθῖεῖἂῖ ὀἶ ἂῖῖῖ ῖῖῖῖ ὀοῖ ῖῖῖῖῖ ῖῖῖῖ ἂῖῖῖ ἂῖῖῖῖῖῖ ἰά ῖῖῖῖῖῖ ἰά ὀοῖῖῖ÷ῖῖῖ. Ἰ ἡῖῖῖ “εἶῖῖῖῖῖ” θῖο Ἰ÷ῖοῖα ο÷ἂοεῖῖ ἰἶ ἂῖῖῖ ἂβῖαε ῖῖῖ ἂῖ ὀ÷ἄεῖῖῖῖῖ ἰἶ ἄεἶἶῖῖῖῖῖ οἱ FreeBSD ἰἶ ἰἶἶῖῖῖ ῖῖῖῖῖῖ ἄεῖἶἶῖῖ, οἶῖ ἶῖῖῖῖῖῖῖῖῖ ἰἶ ὀἶῖῖῖῖῖῖῖῖῖ ὀεῖ ἄεῖἶἶῖῖ ὀἶῖ. Ç ῖῖῖῖῖῖῖῖ ῖῖῖ FreeBSD ῖῖῖῖῖ ἡῖῖ ἰἶ ἶῖῖῖῖῖ ὀοῖ ὀῖῖῖῖῖῖῖ ἂῖῖῖ ῖῖῖ ÷ῆοοεῖῖθῖεῖῖῖ οἱ ῖῖῖῖῖῖῖ ἄεῆεἶῖῖ οὔθῖο οἱ ἄεἶῖῖῖῖῖ ἂῖῖῖ. Ἀῖῖῖῖῖῖῖῖῖ ῖῖῖ ἂῖ ἡῖῖῖῖῖῖῖῖῖῖῖῖῖῖῖῖῖῖῖῖῖ ῖῖῖ ὀῖῖῖῖῖῖ ῖῖῖ ἶῖῖῖῖῖῖῖῖ ἂῖῖῖῖῖῖῖ ἂῖῖῖῖῖῖῖῖῖῖ ἂῖῖ ἄεἶ÷ἂῖῖῖῖῖῖ, ἄεἶ ὀἶῖῖῖῖῖῖῖ, ἄεῖῖ ἂῖ ῖῖ ὀῖῖῖῖῖ ἰἶ ὀἶῖῖῖῖῖ ῖῖῖ ἰῖῖῖῖῖ ἰἶ ἂῖῖῖῖῖῖῖ ῖῖ ἂῖῖῖῖῖῖῖῖ ῖῖ ἂῖῖῖῖῖῖῖ ὀ÷ἂοεῖῖ ἰἶ εὔοε οὔῖῖῖ.

5.1 ĀçîēîōñāāĀ ĐñîóáñîîóíŸíuî Āéóēāôôpí Āēēβîçóçò.

ĐîēēŸò āāēāóáóôŪóāēò Ÿ÷îîí đîēýđēîēāò áđāēôĀóāēò đîō îđîñāā íā ôç óāēñŪ òîōđ íā áđāēôîŸí ôçî đñîóēĀēç đāñéóóúôāñuî îāçāpí Ā āñāāēāāŪî ÷ñĀóôç óóēò āéóēŸôôāđ āāēāôŪóóáóçò. Ī “îđāēŪēēēîō” òñuđîō íā òî ēŪîāôā áôôu āβîāē íā ēŪîāôā ôēò āēēāāŸò óāò óôîî ēāôŪēîāî đîō Ÿ÷āē āôîēîŪóāē îāôŪ òî ôŸēîō ôçò ç āēāāēēāóáā make release:

- ĐāñŪóôā óā patches óāò Ā đñîóēŸóôā óā āđēđēŸîî āñ÷āā íŸóā óôîî ēāôŪēîāî chroot ôçò Ÿēāîóçò.
- `rm ${CHROOTDIR}/usr/obj/usr/src/release/release.[59]`
- Îāôāēüôôóôā đŪēē òî sysinstall(8), òîî đòñĀîā, Ā üđîēā Ūēēā đñîāñŪîāóā Ÿ÷îîí āđçñāāóóāā áđü ôēò āēēāāŸò óāò.
- `chroot ${CHROOTDIR} ./mk floppies`

Īē îŸāò āéóēŸôôāđ āāēāôŪóóáóçò ēā āçîēîōñāçēîŸí óôîî ēāôŪēîāî \${CHROOTDIR}/R/stage/floppies.

ĀîāēēāēôēēŪ, îđîñāāôā íā ÷ñçóēîîđîēĀóāôā òî make target boot.flp, Ā îđîñāāôā íā òñŸîāôā áđāôēāāô òî script òî āçîēîōñāāāā óā óôôôĀîāóā āñ÷āāuî src/release/scripts/doFS.sh.

Îđîñāāôā āđβóçò íā ēāñîβóāôā Āóôā āēēŸò óāò āēēāāŸò íā đāñāóôîŸí îā îññôĀ patch óôçî Ÿēāîóç üđüò ēā ôôēŪ÷îāôāē, āβñîîāô òēîĀ óôçî îāôāāēçôĀ LOCAL_PATCH üôāî òñŸîāôā ôçî āîôîēĀ make release.

5.2 Đñîāñāîîāôβæîîóāò òî sysinstall

Ōî āñāāēāāî āāēāôŪóóáóçò ēāē ñŸēîéóçò òîō FreeBSD, òî sysinstall(8), îđîñāā íā đñîāñāîîāôēóôāā āēā íā ēŪîāē đēî āŸēîēāò ôēò áôôñîāôîđîēçîŸîāò āāēāóáóôŪóāēò óā đîēēŪ ìç÷āîĀîāóā. Áôôu òî ÷āñāēôçñēóóôēü òîō đñîāñŪîîāôîō îđîñāā íā ÷ñçóēîîđîēçēāā óā óôîāôāóîu îā òî PXE[13] ôçò Intel āēā íā îāēēîĀóāē ç āāēāôŪóóáóçò áđü òî āβēôôî, Ā óā óôîāôāóîu îā đñîóáñîîóíŸîāò āéóēŸôôāđ āēēβîçóçò ēē Ÿîā sysinstall script. íā đāñŪāāēāîā áđü ôŸôîēî sysinstall script îđîñāāôā íā āñāāôā óôî āñ÷āāî src/release/sysinstall/install.cfg.

6 ÎāēĀîāóā òîō ĐĀñāîā áđü ôçî êäîîóç 4.4 òîō FreeBSD

Ç āēāāēēāóáā āôîēîāôāô òçò Ÿēāîóçò 4.4 òîō FreeBSD îāēβîçóā āđβóçîā ôçî Īç ÁôāîŸóôîō 2001. ÎāôŪ áđü áôôĀ ôçî çîāññîçîā, üēāò îē āēēāāŸò óôîî ēîñîü RELENG_4 òîō FreeBSD Ÿđñāđā íā Ÿ÷îîí Ÿāēñēóç áđü ôçî Release Engineering Team <re@FreeBSD.org>. Ç đñĀôç āîēēîāóôēēĀ Ÿēāîóç āēā ôçî āñ÷ēôāēôîîēēĀ x86 Ÿāēîā āēāēŸóēîç óóēò 16 ÁôāîŸóôîō, ēē āēîēîōēĀēēā áđü 4 āēüîā āîēēîāóôēēŸò āēāüóāēò đîō îāĀçóāî óôçî ôāēēēĀ Ÿēāîóç óóēò 18 òîō ÓāđôŸîāñç. Ī ôđāŸēôñîō áôôŪēāēāô Ÿđāēîā ôçîāîôēēü ñuēî ēāôŪ ôçî āēŪñēāēā ôçò ôāēāôāôāô āāñŪāāò ēāēĀ òŪđîēā đñîāēĀîāóā áôôŪēāēāò āñŸēçēāî óā đñîçāîŸîāîāô, āîēēîāóôēēŸò āēāüóāēò. ÓôñîēēŪ, đŪîü áđü 500 email óôŪēēçēāî ôçî Release Engineering Team <re@FreeBSD.org> óā āēŪóôçîā îēēñüôāñî áđü Ÿîā îĀîā.

Ç ēîēîüôçôā òùî ÷ñçóôĀ îāò Ÿēāîā óāôŸò üôē ç áôôŪēāēā ēāē ç óôāēāñüôçôā îēāò Ÿēāîóçò āāî ēŪ 'đñāđā íā ēôôēŪāôāē āēā ēāîāîüò āβāîōđ đñîēāóîāô Ā çîāññîçîāô đîō Ÿ÷îîí ôāēāā óāî óôü÷îē áđü đñēî. Ōî FreeBSD Ÿ÷āē îāāāēĀóāē āñāîāôēēŪ ēāôŪ ôç āēŪñēāēā ôçò æüĀò òîō óāî óŸóóçîā, ēāē ç áîŪāēç āēā óôāēāēñēîŸîç đîēēôēēĀ ēāē îñāŪîüôç āēā ôçî āçîēîōñāāā îŸüî āēāüóāuî āβîāē đēŸîî óāîāñĀ đāñéóóúôāñî áđü đîōŸ. ÁôôĀ ç áîŪāēç ēā āβîāē āēüîā đēî ôçîāîôēēĀ ēāēĀ òî FreeBSD ēā āñ÷āāē íā îāóāŸŸñāôāē óā îŸāò đēāóôüñîāò.

7 ÎáëîîîóêéÝò Êáóãðëýíóáèò

Áβíáé æüðéêðò óçíáóβáð ïé ðñáêéêéÝò éáé ç ïñÃÛîóç òçð ãéááééáóβáð äçíëíðñáð òùí áêäüóäùí íáð íá óðíáááβæííí íá òçí óðíá÷ð ãóíáíüíáíç áÛóç òùí ÷ñçóðíí íáð. Îá áÛóç áððð òç óéÝðç áñááæüíáóðá ðéêçñÛ áéá íá ðáëíçñéðóíðíá òçí áéááééáóβá ðáñááüñðò òùí áêäüóäùí òîõ FreeBSD.

- *ÐáñÛëêçç áêðÝéáóç* - ÎáñéêÛ ïÝñç òçð ïáðááêðððéóçð ïéáð ááéáðÛóðáóçð ïðñíýí íá áβíííí “ðñéý ðáñÛëêççá”. Óá ðéí ðñéêÛ áðü ðá óðÛáéá áβíáé I/O intensive, ïðüðá ç ýðáñíç ðñéêðí ððçêðð-ðá÷-ýðçðáð áβóêüí áβíáé ðéí óçíáíðéêð áðü òçíí ÷ñðç ðñéêðí áðáíáñááóðíí áéá íá áðéðá÷ðñéáβ êÛðüð ç áéááééáóβá ðîð make release. Áí áéáóññáðéêéβ áβóêéé ÷ñçóéíðñéççéýíí áéá ðíðíáðá òçð éáñáñ÷ðáð ðîð chroot(2) ðáñéáÛëëíððò, ðüðá ðí CVS checkout òùí éáðáéüüñí ports éáé doc ïðññáβ íá áβíáé ðáððü÷ñííá íá òçí áñóñêð make world óðñí Ûëëí áβóêé. ×ñçóéíðñéççéáð ïéá RAID éýóç (hardware ð software) ïðññáβ íá ïáêðóáé áñáóðéêÛ ðñí óðñéêéü ÷ñññ ðîð ÷ñáéÛáðáé íá ïáðááêðððéóðáβ ïéá ðêðñçð Ýéáñóç.
- *Îáðááêðððéóç áêäüóäùí áéá áéáóññáðéêéÝò áñ÷éðáêðñéêéÝò* - ÈÝéáðá íá ïáðááêðððóðáðá ïéá Ýéáñóç áéá IA-64 ð Alpha óá êÛðñéíí x86 áðáíáñááóðð? make TARGET=ia64 release.
- *ÁñéêéÝò áéá êÛêç* - ×ñáéáæüíáóðá éáéýðáñá áñááéáβá áéá áððüíáðí Ýéáñ÷ñ ïñëüðçðáð óðñí FreeBSD.
- *Áñááéáβá ÁáéáðÛóðáóçð* - Óñ ðñüññáñÛ íáð áéá òçí ááéáðÛóðáóç ðîð FreeBSD Ý÷áé ïáðáñÛóáé ðññ ðñéêýí ðññ áñáíáñññ ÷ñññ æüðò ðîð. ÕðÛñ÷ñíí áéáóññáð ïñÛáð ðñí áñáÛéííóáé áéá íá ðéíðñéðóíðíí êÛðñéíí Ûëëí, ðéí ïñóÝñññ ïç÷áíéðüí ááéáðÛóðáóçð. Îéá áðü ðéð ðéí ððñó÷ññáð, áβíáé ç ïñÛáá libh[5] ðñí óðñí÷áýáé òçí ðéíðñéççéç ãñüð Ýñððñí, ïÝñò ðññðñí ðáéáðáñβóíáðñí éñáéóíééý éáé áñüð GUI ðññáñÛñáðñí ááéáðÛóðáóçð.

8 Áð÷áñéóðβáð

Èá ðéáéá íá áð÷áñéóððóü ðññ Jordan Hubbard, ðñí ïñó Ýäüóá òçí áðéáéñβá íá ðÛññ êÛðñéá áðü òçí áðéýíç òçð Ýéáñóçð 4.4 ðñí FreeBSD, éáêðò éáé áéá üêç òçí áñóéáéÛ ðñí Ý÷áé êÛñáé áðð éáé ÷ñññéá áéá íá áβíáé ðñ FreeBSD áððü ðñí áβíáé óðñáñá. ÕóóéêÛ, ç Ýéáñóç ááñ éá ðóáí ðñóÝ áðñáðññ íá ïññéççññéáβ ÷ññðò üêç òçí ó÷áðéêð ïá òçí Ýéáñóç áñóéáéÛ ðñí Ýéáíáí ïé Satoshi Asami <asami@FreeBSD.org>, Steve Price <steve@FreeBSD.org>, Bruce A. Mah <bmah@FreeBSD.org>, Nik Clayton <nik@FreeBSD.org>, David O’Brien <obrien@FreeBSD.org>, Kris Kennaway <kris@FreeBSD.org>, John Baldwin <jhb@FreeBSD.org> éáé üëíé ïé ððñéñéðñé ðñí áð÷ñéýíóáé ïá òçí áñÛððñíç ðñí FreeBSD. ÈÝëü áðβóçð íá áð÷áñéóððóü ðñíðò Rodney Grimes <rgrimes@FreeBSD.org>, Poul-Henning Kamp <phk@FreeBSD.org>, éáé üëñðò ðñíðò Ûëëíðò ðñí áñáÛóçéáí áéá íá ððéÛññíí ðá áñááéáβá áéá ðéð áêäüóáéð óðéð ðñðóáð ïÝñáð òçð äçíëíðñáð ðñí FreeBSD. Áððü ðñ Ûñëññ Ý÷áé áðçñááóðáβ áðü éáβíáíá ó÷áðéêÛ ïá òçí ïñÃÛîóç òùí áêäüóäùí áðü ðñ CSRG[14], òçí ïñÛáá ðñí NetBSD[11], éáé òçí ðññóðáóç áéá íéá áéááééáóβá ïñÃÛîóçð òùí áêäüóäùí ðñí John Baldwin[12].

9 ÁíáðññÝò

[1] CVS - Concurrent Versions System <http://www.cvshome.org>

[2] CVSup - The CVS-Optimized General Purpose Network File Distribution System
<http://www.polstra.com/projects/freeware/CVSup>

[3] <http://bento.FreeBSD.org>

[4] FreeBSD Ports Collection <http://www.FreeBSD.org/ports>

[5] The libh Project <http://www.FreeBSD.org/projects/libh.html>

- [6] FreeBSD Committers
http://www.FreeBSD.org/doc/en_US.ISO8859-1/articles/contributors/staff-committers.html
- [7] FreeBSD Core-Team http://www.FreeBSD.org/doc/en_US.ISO8859-1/articles/contributors/staff-core.html
- [8] FreeBSD Handbook http://www.FreeBSD.org/doc/en_US.ISO8859-1/books/handbook
- [9] GNATS: The GNU Bug Tracking System <http://www.gnu.org/software/gnats>
- [10] FreeBSD PR Statistics <http://www.FreeBSD.org/prstats/index.html>
- [11] NetBSD Developer Documentation: Release Engineering <http://www.NetBSD.org/developers/releng/index.html>
- [12] John Baldwin's FreeBSD Release Engineering Proposal <http://people.FreeBSD.org/~jhb/docs/releng.txt>
- [13] PXE Jumpstart Guide http://www.FreeBSD.org/doc/en_US.ISO8859-1/articles/pxe/index.html
- [14] Marshall Kirk McKusick, Michael J. Karels, and Keith Bostic: *The Release Engineering of 4.3BSD*
(<http://docs.FreeBSD.org/44doc/papers/releng.html>)