

# 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 áĩŨððòĩç òĩõ FreeBSD, ùóĩĩ áðĩñŨ óôçĩ ðñĩãðòĩéĩáóßá ðĩéĩðééðĩ äêäüóãùĩ òĩõ ÊäéðĩðñäéçŸ Óðóðßĩáðĩð FreeBSD. Âĩçããß ĩã äãððñŸñäéá ôçĩ ĩãèĩãĩèĩãßá ðĩõ ÷ ñçóéĩĩðĩéãßðáé äéá ðéð äðßóçĩãð äêäüóãéð òĩõ FreeBSD éáé ðãñéãñŨöáé óá ãñãáéãßá ðĩõ äßĩáé äéáéŸóéĩá óá ùóĩðð áĩãéáóŸñĩóáé ĩá ðãñŨãĩðĩ ðãñãĩãðñĩðĩéçĩŸĩãð äêäüóãéð òĩõ FreeBSD äéá áóùðãñéçð ð ãĩðĩñéçð ÷ ñðóç éáé áĩŨððòĩç ðñĩũĩĩðùĩ.

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## 1 Áéóáãũãð

Ç áĩŨððòĩç òĩõ FreeBSD äßĩáé ĩéá ðĩéŸ áñé ÷ ðð äéãäééãóßá. Õĩ FreeBSD áðĩðãéãßðáé áðũ óóĩãéóóĩñŸð ÷ éééŨãũĩ áĩèñðùĩ áðũ ùéĩ òĩĩ èũóĩĩ. Ç ñŨãá òĩõ FreeBSD ðãñŸ ÷ äé ðñũóãáóç ĩŸóũ áĩðĩðĩð CVS[1] óá ùéĩðð, Ÿðóé þóðã ĩá ĩðĩñãß ùðĩéĩð èŸéãé ĩá äãé ĩçĩŸĩáðá log, äéãðĩñŸð (patches) ðĩõ Ÿ ÷ ĩðĩ óá äéŨðĩñã development branches, éáé Ũèãá ÷ ãñãáðçñéóóééŨ ðĩõ äĩçèĩŸĩ ôçĩ áĩŨððòĩç, óá ĩðĩßá ðñĩéŸððĩðĩ áðũ ôçĩ ÷ ñðóç áĩũð áðððçñĩŸ óðóðßĩáðĩð äéá ÷ ãßñéóçð èðãééá. Áðòù áðĩðŸéãóá éáé òĩĩ ðéĩ óçĩáĩóéèũ ðãñŨãĩðá Ÿéĩçð äéá Ÿĩá ĩããŨéĩ ãñéèũ áðũ óáéáĩðĩŸ ÷ ĩðð ðñĩãñãĩãðéóóŸð áðũ ùéĩ òĩĩ èũóĩĩ óóĩ FreeBSD. Âßĩáé ðñĩðãĩŸð, áŸãáéá, ðùð ðĩéŸ óŸĩðñã éã äß ÷ ã äßĩáé áĩðãèð ÷ áĩðééð ç éãðŨóðáóç áĩ äß ÷ áĩ ùéĩé, áðũ ùéĩ òĩĩ èũóĩĩ, ðñũóãáóç ĩá ãñŨðĩðĩ óóĩ èðãééá. Äé’ áðòù, ĩũĩ ĩéá “ãðééããĩŸĩç” ñŨãá áðũ ðãñßðĩð 300 Ũðñã Ÿ ÷ ĩðĩ ðñũóãáóç ĩá ãñŨðĩðĩ óóĩ CVS repository. Áðòĩß ĩé committers[6] äßĩáé ððãŸéðñĩé äéá òĩ ĩããáéŸðãñĩ ĩŸñĩð ôçò áĩŨððòĩçðð ðĩõ äßĩãðáé óóĩ FreeBSD. ĩéá

*ἐπιτοῖν ἐκ τῆς ὁδοῦ* [7] (core team) ἀδὴ ἀέεᾶἐπὲν ἔϋφρῶ δὴ νῆαν αἰάοεσθ' ὅδε ἀέϋαᾶοᾶε ἀέα ιά θάνϋ ÷ ἀέ ἐϋδιείω ἀβῆρῶ  
ἐἀερὰ Παρόος ἐἀε ιέα ἐἀόᾱγῆοίρος οὐί ρύφῃρ οὐί committers.

Ίε οά÷ýðάοίε ηόειηβ άίΰδδοίγφ οίο FreeBSD άάί άόβήοί έάέ θίεý ÷ ηύή ίάά οί ίάέάέΰήέοίά οίο όόόόβίάόίδ άίΰδδοίγφ όά ίέά Ύέάιός ίά θίέυόόά θίό ίά άίβέάέ ίά ÷ ηέόέήίθίέάβόάέ άόηΎύδ. Άέά ίά έόέάβ άόόυ όί άέέέέίά, ς άίΰδδοίς άβίάόάέ όάόόυ÷ ηήίά όά άόί θάνΰέέέέά ίήήδΰόά. Ί έýήείδ έίήήυό άίΰδδοίγφ άβίάέ ί **HEAD** þ *trunk* όόί CVS repository ίάό, άήυόόύό έάέ ύό “FreeBSD-CURRENT”, þ “-CURRENT” άί όόίόήβά.

[illegible][illegible]

Όρία÷πο οόÝεirióáé áðu ôiôð ÷ñPóðáð iáo áíáöiñÝð ðñiáεçìÜòùi éáé áéðPóáéð áéá éáéirýnéá ÷áñáéðçñéóóééÜ, éáôÜ ôç áéÜñéáéá ôiô éýééiô ôçð éÜèá Ýéáiôçð. Ié áíáöiñÝð ðñiáεçìÜòùi áéóÜáñióáé óôçi áÜôç **GNATS**[9] iÝóù e-mail, iá ôçi áóáñiñáP send-pr(1), P iÝóù ôiô web-interface ôiô ðáñÝ÷áðáé óôçi áéáýéôióç <http://www.FreeBSD.org/send-pr.html>. Áêòùð áðu óéð áéÜöiññáð èβóðáð çáêòññiééýi óá÷óáññáβiô iá èÝiá óá ðá÷iééÜ ÷áñáéðçñéóóééÜ ôiô FreeBSD ôðÜñ÷áé éáé ç èβóðá çáêòññiééP èβóðá ÁéÝá÷iô éáé ÁíáóóÜééóçð Ðiéúôçóáð ôiô FreeBSD (<http://lists.FreeBSD.org/mailman/listinfo/freebsd-qa>), ç iðiβá ðáñÝ÷áé Ýiá öüñiôì áéá óðæçðPóáéð ó÷áðééÜ iá óéð éáððñÝñáéáð ôçð “ññáÜñúôçð òùi áêäüóäùñ”.

Ἄεά íá áñòðçñáðòçείγí íé ðεí òòíòçñçðéεíβ ÷ ñβóðáð íáð, íá Ἰέαίòç òò FreeBsd 4.3 áñ÷βóáíá íá ÷ ñçòçείñðíείγíá íá÷÷ñεóóóγíò εíñíγý ðεáυóáυí. Ἀóòíβ íé εíñíβ áçíεíñáγíóáε εβáí ðñβí òðεá÷ðáβ ç ðáεέεβ Ἰέαίòç. ÍáðÜ ðçí áíáεíβñυóç ðçð Ἰέαίòçð, íυñ ðíεγ óçíáíóéεÝð áεεάáÝð εáε ðñíòεβεáð ó÷áðéεÝð íá ðçí áóóἸεάáá áβñíóáε óóíí εíñíυ ðçð Ἰέαίòçð. Ἀέυòð áðυ ðçí áñíáóυðçðáá áíááἸεíεóçð íÝóυ CVS, áðáεÝóεíá patchkits òðεÜ÷ñíóáε áεá íá íðíñíγ íá áíáááεíβóíòí ðá óðóðβíáðÜ ðíòð υóίε ÷ ñçòçείñðíείγí ðéð ðεáυóáéð *RELENG\_X\_Y*.

Οι ΌιΠια 2 αιχααβ ια εαδονΥναεαο οα αεΰοινα οδΰαεα οςο αεααεεαοβαο θιο ανβρεαοαε θβου αδυ εΰεα Υεαορς, ιΥ ÷νε εαε οα αβιαοα θιο ιαααίρ ιοοί ιαοααεβοδσεος θιο οοοδβιαοιθ εαε θι ΌιΠια 3 αιχααβ οςί βαεα ος αεααεεαοβα οςο ιαοααεβοδσεος. Οι ΌιΠια 5 θανεανΰοαε δυο ιθιναβ ια αθαεοαεαβ θι ααοεευ ογοςοια αδυ ονβθιθ οαε θι ΌιΠια 6 θανεανΰοαε εΰθιεα αδυ οα θνΰααοα θιο ιΰεαα αδυ οςί αεααεεαοβα Υεαορς θιο FreeBSD 4.4. ΌΥειθ, θι ΌιΠια 7 θανιρεεΰαε εΰθιεαο αδυ οεο εαοαοεγισαεο θιο εΥειθια ια θΰναε ς ατΰθδοις οοι ιΥεει.

2 Ç Äéääéêáóßá Äçíëĩõñãßáo ìéàò êäïóçò

Ίε ιΎάο άέαυόάέο όις FreeBSD όόεΰ÷-σίοάέ άδύ όις -STABLE έιμιύ άίΰόόόις όάσβδθς εΰέά όΎόόάσάέο ιΰίάο. ϸ έέάέέέάόβá όσνιόάέιέάόβáό έέάό Ύέάιός ό έέέίΰάέ ό÷άαί 45 ιΎσάό όσέί όςί άίάίάίάίς ϸάσσςίβá Ύέάιός, υόάί ι όόάγέόσθό έέάυόάί όις FreeBSD όόΎέίάέ Ύίá άσΰίá όόέό έβόόάό όαί όσνιáσνιáόέόόθί έέά ίá όόάέέίόβáέ όόιόό όσνιáσνιáόέόόΎό υόέ Ύ÷ίόί 15 ιΎσάό έάέσνι ίá εΰσθί όδέάό άέέάΎό εΎέίόί, όσέί όί δΰάαίá όις έβáέέá. ΊΎόά όá άόόυ όις έάέσνι, όέέέίβ όσνιáσνιáόέόόΎό εΰσθί έά όάέσΰ άδύ άέέάΎό όις Ύ÷ίόί ιáβίáέ όεΎίς άίυόόΎό υόό “ίáέάέάσβίáόά MFC”. Ί υθίό MFC όςίáβίáέ “Merge From CURRENT” έάέ όάέέάσΰάέ όςί έέάέέέάόβá όσνιόάσνιáό

òtō ēpāēēā iēāð āiēēiāōiŸiçð āēēāāpð áðū òtī -CURRENT ðāēñāiāōēēü ēiñiū áfŪððōiçð òðití òðāēāñiū -STABLE ēiñiū.

## 2.1 Ĵāā÷iō Ēpāēēā

ŌñēŪiōā çìŸñāð ðñēi òçí áíáíāfuiāiç çìāññçíāŸā Ÿēāiōçð, i ēpāēēāð òtō repository áēóŸñ÷āðāē óā iēā ðāñβtāi “ēāēðóðŸñçóçð”. ĒāðŪ òç āēŪñēāēā áððð òçð ðāñēüāið, üēāð iē āēēāāŸð òðití -STABLE ēiñiū ðñŸðāē iā Ÿ÷iōi òçí Ÿāēñēóç òçð Release Engineering Team <re@FreeBSD.org>. Īē āēēāāŸð ðtō āðēōñŸðñiōāē óā áððð òçí ðāñβtāi ðtō āēāñēāβ 15 çìŸñāð āβiāē:

- Āēiñēpōāēð āfūōðpí ðñiāēçìŪðut.
- Āiçìāñpōāēð òðçí ðāēiçñβùóç.
- ĀēēāāŸð ó÷āðēēŸð iā òçí áóðŪēāēā.
- ĪēēñŸð āēēāāŸð òðitōð iāçāiŸð òðōēēāðpí, üðuð ð÷. ç ðñiōēðēç òut IDs iŸui òðōēāðpí.
- Īðtēāāβðtōā Ūēēç āēēāāβ ðēóðāŸāē ç ñŪāā áfŪððōiçð üðē ðñŸðāē iā āβiāē, iā òi áíáíāfuiāiñ ðŪiōā ñβōēi.

ĪāðŪ òēð ðñpōāð 15 iŸñāð ēāēðóðŸñçóçð, òðēŪ÷iāðāē iēā āiēēiāóðēēp Ÿēāiōç āēā iā ÷ñçóēiñðtēçēāβ óāí āiēēiβ òçð ðāēēēpð Ÿēāiōçð ēāē i ēpāēēāð áēóŸñ÷āðāē óā iēā ðāñβtāi “ðāāpíāðtōð”. ðēŸiñ āβiāē ðtēŸ ðēi āŸóētēi iā āβñtōi iŸāð āēēāāŸð òðtí óŸóðçíā, āēðuð ēē áí āēiñēpñtōi ēŪðtēi ðtēŸ òiāāñi bugp ēŪðtēi ðñuāēçiā áóðŪēāēāð. ĒāðŪ òç āēŪñēāēā òtō ðāāpíāðtōð òtō ēpāēēā, òtōēŪ÷ēóðtí iβā āiēēiāóðēēp Ÿēāiōç òðēŪ÷iāðāē ēŪēā āāāñŪāā, iŸ÷ñē iā āβiāē Ÿōiēiç ç òāēēēp Ÿēāiōç. Ōēð çìŸñāð āēñēāpð ðñēi òçí ðāēēēp Ÿēāiōç, ç ñŪāā ðtō āβiāē òðāŸēðiçç āēā òēð āēāüōāēð āβiāē óā òðtíā÷p āðēēiēfuiāiā iā òçí ñŪāā áóðŪēāēāð, òçí ñŪāā òðtōðñçóçð òçð ðāēiçñβùóçð, ēāē òçí ñŪāā òðtōðñçóçð òut ports, āēā iā āāāāēüēiŸi ðuð üēā òā áðāñāβðçðā ēñiŪðēā āēā iēā ðēpñç Ÿēāiōç āβiāē āēāēŸóēiā.

## 2.2 Ēβóóā ĀēŸā÷iō òçð Ōāēēēpð ēāiōçð

¼ðutí āñēāðŸð āiēēiāóðēēŸð āēāüōāēð Ÿ÷iōi āβiāē āēāēŸóēiāð, Ÿ÷iōi āiēēiāóðāβ áðū āñēāðü ēüðtí ēāē üēā òā òiāāñŪ ēŸiāóā Ÿ÷iōi áíāēōēāβ, ç ðāēēēp Ÿēāiōç iðññāβ iā āñ÷βóāē.

### 2.2.1 Āçtēiōñāβā òtō ĒiñiŸ ēāiōçð

¼ðuð ðāñēāñŪøāiā òðçí āēóāāüāp, iē ēiñiñβ RELENG\_x\_y āβiāē iēā ó÷āðēēŪ iŸā ðñiōēðēç òðçí iāētātēiāβā òut āēāüōāpí iāð. Ōi ðñpðtí āpíā òðçí āçtēiōñāβā áððtŸ òtō ēiñiŸ āβiāē iā āāāāēüēāβðā üðē ātōēāŸāðā iā òçí òāēāððāβā Ÿēāiōç òtō ðçāāβið ēpāēēā áðū òtī RELENG\_x ēiñiū áðū òtī iðtŸi ðā òðēŪiāðā òi iŸi ēiñiū.

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

Ōi áðuiāñi āpíā āβiāē iā āçtēiōñāβāðāðā iēā áðēēŸðā (tag) òðtí òçíāβi āēēβiçóçð òtō ēiñiŸ, pððā iā iðññāβðā iā āāβðā òēð āēāðtñŸð iā òçí āñ÷p òtō ēiñiŸ āŸētēā òðtí iŸēēiñ iā òi CVS:

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

Ēāē òuðā iðññāβðā iā āçtēiōñāβāðāðā òi iŸi ēiñiū iā:

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

**Όχι!Βούρο:** *Ἰε ἀδὲέῒΥοᾶδ RELENG\_ \* ἀβίᾱέ ἀἀόι!ἀδῖΥίᾱδ ᾱέᾱ ÷-ἡπόϗ ᾱδῦ οῖῶδ CVS-meisters ἑᾱέ οϗῖ ἡῤᾱᾱ οῦῖ ᾱῆᾱῦοᾱῖ.*

Ἰ uniõ “*ἀδελφὸς*” ἀβραῖά ι̃νι̃ε̃ρα̃β̃α̃ οἷο̃ CVS. Ὁ̃για̃βραῖά Ἰ̃α̃ ũm̃ã οἷο̃ ἐ̃α̃ει̃ν̃β̃α̃ε̃ ι̃ε̃α̃ ο̃α̃ε̃α̃ε̃ν̃ει̃ Ἰ̃ι̃ς Ἰ̃ε̃α̃ι̃ο̃ς οἷο̃ ἐ̃πα̃ε̃ε̃α̃ ο̃ο̃ι̃ ÷ nũĩ. × ñς ο̃ε̃ι̃δι̃ε̃ρ̃ι̃ο̃α̃ ἀδελφὸς ο̃ο̃ι̃ δ̃ς α̃β̃ι̃ ἐ̃πα̃ε̃ε̃α̃ α̃ρ̃ε̃ῶ̃ι̃α̃ ũδι̃ε̃ι̃ ο̃ε̃ῶ̃ι̃α̃ ο̃ο̃ι̃ Ἰ̃ἔ̃ε̃ε̃ι̃ ἀ̃ε̃α̃ũõãẽd οἷο̃ FreeBSD ἰ̃α̃ ἀ̃ν̃β̃ο̃ε̃α̃ ἐ̃α̃ε̃ ἰ̃α̃ ÷ ñς ο̃ε̃ι̃δι̃ε̃α̃β̃ ἀ̃ε̃ν̃ε̃α̃ρ̃ο̃ οἷι̃ β̃α̃ε̃ι̃ ἐ̃πα̃ε̃ε̃α̃ οἷο̃ ÷ ñς ο̃ε̃ι̃δι̃ε̃β̃ε̃ς̃ε̃α̃ ἁ̃ε̃α̃ ο̃ε̃d ἀ̃δ̃β̃ο̃γ̃ι̃ãd ἀ̃ε̃ãũõãẽd ο̃ς̃ο̃ ἡ̃ῶ̃ãd οἷο̃ FreeBSD.

### 2.2.2 ÁóïÛííîáò ôíí Áñéèü êäïóçò

Ἐνταῦθα καὶ ἀποεὐχόμεθα, λαοαγευομένοισι ἐὰν ἀποτελέσῃς καὶ ἀπεεὖβ Ἐπαύρις, ὁπὺθα ἐὰν ἰὰ ἀβριῖ ἀεεᾶῖο ὁδὰ θανάεῦδου  
ἀν÷ᾶβᾶ ἀεᾶ ἰὰ θανάεῖ÷ῖοι ὁῖρ οὐοδὺ ἀνέεῖι Ἐπαύριος ἀεᾶ ὁῖ FreeBSD:

- 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

Ἰε οὐκ ἰαεῖ πόαεὸ Ἰέαιουὸς ἐάε ὁά ἀν÷αβὰ ἰα ὀεὸ ἀεῖνῆε πόαεὸ ὀοὸ ὁἀεᾶὸὸἀβᾶὸ ὀόεᾶἰβὸ δῆΥῖδαε ἀδβόοὸ ἰά δῆνιόαῖνιὸοῖνι  
 ὀόοῖ ῤῥᾶ Ἰέαιουὸς (ὀῖνι ἐῖννιὺ ὀοὸ Ἰέαιουὸς) ἐάε ἰά ἀδᾶἰαῖνᾶᾶὀοῖνι ἐάὸΥῖεεῖᾶ (ὀῖνιὸ ἄνι ἐῖννιὺὸ stable ἐάε current):

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

Ç äöäññīāP **sysinstall** ðñÝðäē äðßöçð íá áíçíāññēāß íā öñī öúóöú āñēēìù öùī ports éáē öī ÷ þñī öīō āßöēīō ðīō äðäēöāßöáē áēá öçí ÖöēēīāP öùī Ports. ÁöðÝð íē ðēçñīöññāð öðÛñ÷īōí ööī āñ÷āßī  
src/release/sysinstall/dist.c.

Άσπυ ιεῖεεεεηδεάβς ϣ δνιαιδιείαοβάδς οδς ιΥάο αδΒοιςδς Υέαιροςδ, δñΥδάε ίά αιçiανþρóaðà ìλñéeÛ añ÷άΒά άέα ίά αιçiανþρóaðà οιι έουοι άέα δς ιΥά Υέαιρος οιο 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 Ýêäiöç åßiáé Ýôieìç, ç ðãñáéÛòù áíôieìP èá äçieiõñãPóáé ôçí åôéêÝóá RELENG\_4\_8\_0\_RELEASE.

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

RELEASE\_4\_8\_0 óóá éáóÜëçëä äÝíóñá ðçāāβíø ēpāëéä.

ΙαάεεΥό οινΥό, ιδιναβ ίά ÷ ηαέαόοαβ ίά αβιρι εÜθρεάο αέαάΥό οάεαοαβα οόεαιβ ιαοÜ ογι οιθρεΥόοζ οοι αόεεαορι. ΆαρεεÜ, ααρ άβιάε άγόερε ίά αβιάε εÜοε οΥοιρι αοιγ οι CVS αδεονΥθαε ίά ιαοαεεριοάε εÜθιερο οεό αόεεΥόαο ίά ιάοιρεΥό υθυό cvs tag -d tagname filename. Άβιάε θιεγ ογιαόεεü υθυό αοόΥό ιε αέαάΥό οζό οάεαοαβαό οόεαιβ ίά ογιαεευερι ίά οεό ουόόΥό αόεεΥόαο αέα ογι οσαεαειεΥίζ Υέαοιζ. Ιε αθβόγιαό αεαυόαόε οιο FreeBSD θηΥθαε ίά άβιάε θÜιόα άγερε ίά ιάαθαη÷ειγ. ΟιθεεΥό αέαάΥό οοι θαηέαÜεερι οιο ιζ÷ιρεεγ οοι αεαυόαοι ααρ αδεονΥθιόαε.

### 3 ðàáãëþôôéóç ôçò ëäïóçò

Ιε "aeauaaeo" oio FreeBSD ioiniia ia laaaaeuooeooiia adu ioieiaaioia Y ÷ ae Yia o ÷ aeaeU anpaia iç ÷ Uicia eae dnuoaaoc ooi repository oio dcaabio epaeaa. (4eie Y ÷ ioi aooP oc aioiaouocoa, aoiy danY ÷ ioia dnuoaaoc iYou aipioio CVS! AaBoa oi Aa ÷ aenbaei oio FreeBSD aea daneaouoana eadoninaeaa.) Ç iuic aeaeep adabococ abiaa ia oou ÷ ae oiooPneic ooi dnoia oao aea oc ooeaop vn(4). (Ooi -CURRENT, aooP ç ooeaop Y ÷ ae aioeaaaoaaab adu oc iYia ooeaop aboeio aaoeoiYio oa iipç md(4). Ai ç ooeaop aai abiaa aioiaouuYic ooi dnoia oao, ouoa i eaoUeeceio iacaud ea oionueab adouiaa uoa aeaaeaaooab ç aioieP vnconfig(8) eaoU oc aeUnea ea oc oUocd aioiaaooa oio iYio aeabocod. 4ea oa anaeeaba oio ÷ naeUaioae aea ia laaaaeuooBoaa iea Yeaoc abiaa aeaeYoeia oa iioP dcaabio epaeaa ooi eaoUeia src/release. AooU oa anaeeaba Y ÷ ioi uo oeidu ia danY ÷ ioi uoe ÷ naeUaioae aea ia ÷ obaioae ie aeauaaeo oio FreeBSD ia Yia oiaop eae oaeaeeneiYi onou. Iea dePncd Yeaoc ioinaa ia laaaaeuooeooab ÷ nceioieioaoo aooU oa anaeeaba ia iea eae iui aioieP, ooi daneaiaaia iYic eae oc aieioinaa adu ISO an ÷ abio eaoUeecei aea ia eaa oa CDROM, ie aeoeYooa aeabocod, eaeb eae i eaoUeeceio aaeeaoUoaaoc iYou FTP. AooP ç aioieP abiaa ooeep ç make release.

### 3.1 Ç áíôïëþ make release

[illegible]

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 ðñíßí áñßðéáðáé òí CVS repository.
- RELEASETAG - Ç áðééÝðá CVS ðîõ áíðéóðíé÷÷ áß ðóçí Ýêáîóç òçí ðñíßá èÝéäðá íá ìáðááëüðððáððá.

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

Áí ðáñáëáßðáððá òçí áðééÝðá RELEASETAG, ðüðá èá ìáðááëüðððéóðáß íéá ðëðñçð Ýêáîóç áðü òçí èíñðð ðîõ HEAD (áç. ðîõ -CURRENT) èíñíý. Ìé áêüüóáéð ðîõ ððéÛ÷ñíðáé áðü áððüí ðñí èíñü, ðóíðëðð áíáðÝñíðáé ðáí “-CURRENT snapshots”.

ÕðÛñ÷-íðí éáé ðñééÝð Ûëëäð ìáðááëçðÝð ðîõ ðñíñíý íá ÷ ñçóéíðíéçéçíý áéá íá ðáñáíáðñíðíéçéäðá òçí Ýêáîóç ðáð. Ìé ðéí ðñééÝð áðü áððÝð ðéð ìáðááëçðÝð ðáñéáñÛñíðáé ðóçí èíñðð ðîõ áñ÷-áßíð src/release/Makefile. Ç áêñéáðð áíðíë 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 ðñíáß íá ÷ ññéóðáß ðá áñéäðÛ ìá÷-ññéóðÛ ìáðáíý ðîõð áñíðá.

- Äçíëíðñáß áñüð éáéáñíý ðáñéáÛëëíððð ðá íéá ìá÷-ññéóðð éáñáñ÷-ßá éáðáëüüí ìá òçí áíðíëð “make installworld”.
- Áíáñüáß áðü òí CVS ìéáð éáéñýñéáð Ýêáîóçð ðîõ ðçááßíð èðáééá ðîõ ðððððíáððð, òçð ðáèíçññüóçð éáé ðñí ports ìÝðá ðóçí éáñáñ÷-ßá éáðáëüüí ìáðááëðððéóçð òçð Ýêáîóçð.
- Ññéíðáéð ðñí áñ÷-áßí ðóñí éáðÛëíá /etc éáé /dev ìÝðá ðóí ðáñéáÛëëí chroot.
- ÁéðÝéáóç òçð áíðíëðð chroot ìÝðá ðóçí éáñáñ÷-ßá éáðáëüüí ðîõ áðíéíÛððçéá, áéá íá ìçí ðñíáß òí áñüðáñéëü ðáñéáÛëëí íá áðçñáÛðáé òç ìáðááëðððéóçð òçð Ýêáîóçð.
- ÁéðÝéáóç òçð áíðíëððð make world ìÝðá ðóí ðáñéáÛëëí chroot.
- Ìáðááëðððéóç ðñí áêðáëÝóéíð ðîõ áßíáé ò÷-áðééÛ ìá òí óýóçíá Kerberos.
- Ìáðááëðððéóç ðîõ ðññðíá GENERIC.
- Äçíëíðñáß áñüð ðáéééíý éáðáëüüíð ðóñí ðñíßí èá ìáðááëüðððéóðíý éáé èá áðíèçéáððéíý ìé áêðáëÝóéíðð ìñðÝð ðñí ðáéééðí ðáéÝðñí.
- Ìáðááëðððéóç éáé ááéáðÛððáóç ðñí áñááéáßíð 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 ðóñíáñýíðí òçí Ýêáîóçð.
- Ìáðáðñíðð éáé ááéáðÛððáóç òçð ðáèíçññüóçð (áá÷-áéñßáéá ÷ ñððóç, áéóáñüáééÛ éáßíáíá, óçíáëðáéð Ýêáîóçð, èßððáð ððíááðððçðáðð ðéééíý, èèð.)

- ĩāóāāēpôóéóc òuĩ “òõĩðéáõĩŸĩũĩ” (crunched) āēðāēŸóēĩũĩ ðĩō éā ÷ ñçóēĩĩðĩēçēĩŸĩ óóēð āéóēŸôðāð āāēáðŨóóáócò.
- Āçĩēĩōñāβā òuĩ ðāēŸòuĩ òçð āāēáðŨóóáócò éāē òuĩ ðāēŸòuĩ ðçāāβĩō ēpāēēā.
- Āçĩēĩōñāβā òuĩ ĩŸóuĩ āēēβĩçóçð éāē òçð āéóēŸôðāð “fixit”.
- Āçĩēĩōñāβā òçð éāñāñ÷βāð éāóāēüũĩ āēā òçĩ āāēáðŨóóáóc ĩŸóũ FTP.
- (ðñĩíéñāôēēŸ) Āçĩēĩōñāβā òuĩ ISO āñ÷āβũĩ āēā ĩŸóā CDROM/DVD media.

Āēā ðāñéóóũðāñāð ðēçñĩōĩñβāð ó÷āðēēŸ ĩā òçĩ āēāēēāóβā āçĩēĩōñāβāð ĩēāð Ÿēāĩóçð, āāβôā òçĩ óāēβāā ôāēĩçñβũòçð release(7).

### 3.2 ĩāóāāēpôóéóc òuĩ XFree86

Ōĩ āñāóēēũ ðāñēāŨēēĩ **XFree86** āβĩāē Ÿĩā óçĩāĩóēēũ ēñĩŨðē ēŨēā Ÿēāĩóçð āēā ðĩēēĩŸð ÷ ñβóóāð ðĩō ēŸēĩōĩ òĩ FreeBSD āēā óóāēĩŸð āñāóáβāð. ðñēĩ òçĩ Ÿēāĩóç 4.6-RELEASE òĩō FreeBSD, ĩē āðβóçĩāð āēüüóāēð òĩō FreeBSD ÷ ñçóēĩĩðĩēĩŸóāĩ òçĩ Ÿēāĩóç 3.x òuĩ **XFree86**. Ĩ ðēĩ āŸēĩēĩð ðñũðĩð ĩā ĩāóāāēũðôðóáðā áððŸð óēð āēüüóāēð āβĩāē ĩā ÷ ñçóēĩĩðĩēĩŸóáð òĩ ðñũāñāĩā `src/release/scripts/X11/build_x.sh`. Áðũũ òĩ ðñũāñāĩā áðāēðāβ ĩā āβĩāē ðāç óóçĩŸĩā óõĩ óŸóçũŸ óáð òũũĩ òĩ ðāñēāŨēēĩ XFree86 Ÿũĩ éāē ç āēpóóā Tcl/Tk. ĩāðŨ òçĩ ĩāóāāēpôóéóc òuĩ éāðŨēēçēũĩ X servers, òĩ ðñũāñāĩā éā ðāēāðŨñāē Ÿēā óā āñ÷āβā óā óðēēĩāŸð āñ÷āβũĩ ðĩō ðāñēĩŸĩāē ĩā āñāē òĩ `sysinstall(8)` ĩŸóā óõĩ ēāðŨēēĩāĩ `XF86336` óõĩ ĩŸóĩ āāēáðŨóóáócò.

ĩāēēĩpĩóáð ĩā òçĩ Ÿēāĩóç 4.6-RELEASE òĩō FreeBSD, òĩ `sysinstall(8)` āāēāēéóðŨ òçĩ Ÿēāĩóç 4.x òuĩ XFree86, óāĩ ēāñĩēēŨ ðāēŸóā. ÁððŨ ĩðĩñāβ ĩā āβĩāē āβôā óā ðāēŸóā ðĩō āçĩēĩŸñāçóā òĩ cluster òuĩ ports ð ĩðĩēāāðĩðā Ũēēā ðāēŸóā ðĩō Ÿ÷ĩōĩ āçĩēĩōñāçēāβ áðũ Ÿĩā ports tree ĩā òçĩ ēāðŨēēçç āðēēŸóā.

**Óçĩāβũòç:** Āβĩāē ðĩēŸ óçĩāĩóēēũ ĩā áðāēñŸóáðā áðũ òĩ āñ÷āβĩ `/etc/make.conf` ĩðĩēāóāðĩðĩā òĩðēēŸò ñòēĩβóāēð Ÿ÷āðā ēŨĩāē. Āēā ðāñŨāāēāĩā, āāĩ āβĩāē ēāēp ēāŸā ĩā āēāĩŸĩāðā āēðāēŸóēĩā ðĩō Ÿ÷ĩōĩ ĩāóāāēũðôðéóðāβ óā ēŨðĩēĩ óðāēāēñēĩŸĩĩ óŸóðçĩā ĩā ĩñéóĩŸĩç òçĩ óēĩp òçð ĩāóāāēçððò `CPUTYPE` āēā āāēðéóõĩðĩβçóç òuĩ āēðāēŸóēĩũĩ āēā ēŨðĩēĩ óðāēāēñēĩŸĩĩ áðāĩāñāáóðp.

### 3.3 ðñĩāñŨĩĩāóā Ōñβòuĩ (“ports”)

Ç Óðēēĩāp òuĩ Ports òĩō FreeBSD (<http://www.FreeBSD.org/ports>) āβĩāē ĩēā óðēēĩāp ĩā ðāñéóóũðāñā áðũ 20,000 ðñĩāñŨĩĩāóā áðũ òñβòĩðò, ðĩō āβĩāē āēāēŸóēĩā āēā FreeBSD. ĩē Ports Management Team <[portmgr@FreeBSD.org](mailto:portmgr@FreeBSD.org)> āβĩāē òðāŸððĩē āēā òçĩ óõĩðpñçóç āĩũð āŸĩóñĩō áðũ ðçāāβĩ ēpāēēā āēā óā ports, ðĩō ĩðĩñāβ ĩā ÷ ñçóēĩĩðĩēçēāβ āēā ĩā āçĩēĩōñāçēĩŸĩĩ óā ðāēŸóā ĩā óā ðñĩāñŨĩĩāóā ðĩō óðñāŸĩōĩ óēð āðβóçĩāð āēüüóāēð òĩō FreeBSD.

Ç āēāāēēāóβā óõĩðpñçóçð òçð óðēēĩāpð òuĩ ports āβĩāē ēŨðē ðĩō āāĩ ĩðĩñĩŸĩā ĩā ēāēŸøĩðĩā āāp. ĩā ĩā÷ũñéóóũ Ũñēñĩ, ĩā òβòēĩ Ç ĨñāŨtūóc ēāĩóçð òuĩ ðāēŸòuĩ ĒĩāēóĩēēŸ áðũ Ōñβòĩðò ([./releng-packages/article.html](http://releng-packages/article.html)), ēāēŸððāē áðũ òĩ ēŸĩā.

### 3.4 Āñ÷āβā ISO òçð ēāĩóçð

ĩāēēĩpĩóáð ĩā òçĩ Ÿēāĩóç 4.4 òĩō FreeBSD, ç ĨŨāā ÁĩŨðððĩçð òĩō FreeBSD áðĩōŨóēóā ĩā āēāĩŸĩāē ēāē óā òŸóóāñā ISO āñ÷āβā ðĩō ðñpóā ðĩōēĩŸóāĩ ĩē āðāēñāβāð *BSDi/Wind River Systems/FreeBSD Mall* óðēð “āðβóçĩāð” āēāmŸð CDROM ðĩō Ÿēāĩāĩ. ēŨēā Ÿĩā áðũ óā òŸóóāñā ISO āñ÷āβā ðñŸðāē ĩā ðāñēŸ÷āē Ÿĩā āñ÷āβĩ `README.TXT` ðĩō

ðññéñÛöáé óá ðññéá÷÷ùíáíá òïð áβóéïð, êé Ýíá áñ÷÷áβí CDROM.INF ðïð ðññéÝ÷÷áé ìáðá-ðéçññïññáð áéá íá ìðññáβ òï ðñññññññá sysinstall(8) íá áéÝññáé éáé íá ÷ñçóéïððñéðóáé áðòù òï áβóéï, éáèðð êé Ýíá áñ÷÷áβí filename.txt ðïð ðññÝ÷÷áé ìéá èβóðá áñ÷÷áβùí òïð CDROM. Áððð ç èβóðá ìðññáβ íá äçìéïññáçéáβ ðñéý áðéÛ, ùð áñðð:

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

Ìé òðáéáéñéíÝíáð áðáéððóáéð áéá èÛéá Ýíá áðù áððÛ óá CD ðññéñÛöïññóáé ðññáéÛðù:

### 3.4.1 Áβóéïð 1

Ì ðñððïð áβóéïð áβíáé ó÷÷áüüí áðñééáéóóééÛ áðñöÝéáóíá òçð áíðñéðð make release. Ìé ìùíáð áééáñÝð ðïð ðñÝðáé íá áβññïí óðñí éáðÛéññáí disc1 áβíáé ç ðññíóèðéç ðïð éáðÛéññáí tools, òùí XFree86, éáé ùóí òï áðñáðùí ðññéóóùðññùí ðáéÝðùí ìðññíýí íá ÷ññÝóññïí óðñí áβóéï. Ì éáðÛéññáí tools ðññéÝ÷÷áé áññáéáβá ðïð áðéðñÝðññïí óá ÷ñðóðáð Ûééùí éáéðññáéèðñí óðóðçìÛðùí íá òðéÛññïí òéð áéóéÝððáð áéèβíçóçð. Áððùð ì ðñððïð áβóéïð ðñÝðáé íá òðéÛ÷÷íáðéé bootable Ýðóé þóðá íá ìðññíýí ìé ÷ñðóðáð òùí ìñðÝññññ ððñéñáéóðñí íá áðñöáýáññïí òï óðÛáéí äçìéïññáð òùí áéóéáððñí áéèβíçóçð.

Áí ìéá áéáðññáðéèð Ýéáññóç òùí XFree86 éá áéáíÝíáðáé ìá òçí Ýéáññóç áððð, ðñÝðáé íá áçìñññéáβ òï ðñññññññá sysinstall(8) áéá òçí ÌÝá èÝóç éáé ìé ìáçáβáð áñéáðÛóðáóçð. Ì ó÷÷áééùð èðáééáð òðÛñ÷÷áé óðñí éáðÛéññáí src/release/sysinstall óðñí -STABLE èñññ ð óðñí éáðÛéññáí src/usr.sbin/sysinstall óðñí -CURRENT èñññ. ÓðáéáéñéíÝíá, óá áñ÷÷áβá dist.c, menus.c, éáé config.c éá ÷ññáéóðáβ íá áçìñññéýí.

### 3.4.2 Áβóéïð 2

Ì ááýðñññð áβóéïð áβíáé áðβóçð áðñöÝéáóíá òçð áíðñéðð make release éáðÛ Ýíá ìááÛéí ìÝññð. Áððùð ì áβóéïð ðññéÝ÷÷áé Ýíá “live filesystem” ðïð ìðññáβ íá ÷ñçóéïððñéçéáβ áðù òï sysinstall(8) áéá íá áññáðáóóíýí ðñññéðñíáðá óá ìéá áñéáðÛóðáóç òïð FreeBSD. Èé áððùð ì áβóéïð ðñÝðáé íá áβíáé bootable. Èá ðñÝðáé áðβóçð íá ðññéÝ÷÷áé Ýíá óðñíðéáóíÝññí áíððññáðññ òïð CVS repository óðñí éáðÛéññáí CVSROOT éáé ááβáìáðá áðù áðññééÛ ðññññÛññáðá óðñí éáðÛéññáí commerce.

### 3.4.3 Áβóéïð 3 éáé 4

Ìé òðñéñéðñé áðñí áβóéïð ðññéÝ÷÷ïí áðéðñññéáðá ðáéÝðá éñáéóíééýí áéá òï FreeBSD. Óá ðáéÝðá éá ðñÝðáé íá áβíáé ìááñññéçíÝíá, Ýðóé þóðá èÛéá ðáéÝðñí íá áβíáé óðñí βáéí áβóéï ìá ùéá óá ðáéÝðá áðù óá ìðñá áñññðÛóáé áéá íá áñéáðáóðáéáβ éáé íá òñÝñáé. ðññéóóùðñññð ðéçññïññáð áéá òçí äçìéïññáβá áððñí òùí áβóéïí áñáóÝñññóáé óðñí Ûñèññ Ç ÎñÃÛñóç éáññóç òùí ðáéÝðùí Éñáéóíééýí áðù Òñβðñðð (../releng-packages/article.html).

## 4 Áéáññð òùí Áêüüóãùí

### 4.1 ÁñððçññáðçðÝð FTP

¼ðáí ç Ýéáññóç áβíáé Ýðñéç, Ý÷÷áé áññéñáóðáβ áéðáñðð, éáé Ý÷÷áé ðáéáðáñéóðáβ áéá áéáññð, ì éýñéïð FTP áñððçññáðçðð ðñÝðáé íá áçìñññéáβ. Ìé áðβóçññé áñððçññáðçðÝð FTP òïð FreeBSD áβíáé ùéñé mirrors áññð éýñéïð áñððçññáðçðð óðñí ìðññí Ý÷÷ïí ðññóááóç ìùñ Ûééñé FTP áñððçññáðçðÝð. Áððùð ì áñððçññáðçðð áβíáé áññóðùð ùð ftp-master. ¼ðáí ç Ýéáññóç áβíáé Ýðñéç, ðñÝðáé íá áçìñññéýí óá ðññáéÛðù áñ÷÷áβá óðñí ftp-master:



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

Ιέα ἀδῆP web οἶθεῖἄἄ ὄτῳ ὀἶνεY ÷ ἄε ἄἄθεῖῶἄ ὁἄ ἄεÜῖῖῖῖῖ ὁçῖῖῖῖῖῖῖῖ FTP ῖῖῖῖῖῖῖῖῖῖ ῖῖῖ ὁçῖ ὁῖY ÷ ῖῖῖῖῖ Yῖῖῖῖῖ ὁῖῖ FreeBSD.

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

I éaðÜetäið aðu öii iðibi iðinryí íá aßiñöi äæéaðáðöÜöáéð iÝóu FTP, üðuð öii Ý÷æ ðñiäöieiÜöáé ç áföieP make release.

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

¼ëá ôá ðñĩĩãôããëùôôéóìÝíá ðáéÝôá ãéá ôçì ôñÝ÷ĩõóá Ýëäĩõç.

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

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

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

```

λέά όοίâîëêêP όοίôùîâóóç äéá ôîí êáoÜëîäî .../.../...ports/i386/packages-X.Y-release.

```

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

Ôá áñ÷åßá ISO.

Ἀέα ᾄναε66ουδᾰῖᾄ ðεçñīrōĩᾄḡo ρ÷ᾰḃéēŬ īᾰ ὀçĩ īᾄᾰŬfùoç ôũĩ mirror ᾗᾂᾰῖᾄᾄ FTP οἶõ FreeBSD, ᾄᾄᾄᾂᾂᾂ ᾗᾄḃôᾰ õĩ Ŭñēñĩ ÖðeŬ÷fĩᾄᾂᾂ Ýíᾰ FreeBSD mirror (/./hubs/).

[illegible]

#### 4.2 Àáæéêþ Áíáðáñáũùãþ ôúi CD-ROM

[illegible]

5 Āăēôáóéìüôçôá

[illegible]

## 5.1 Āçîēîōñāāā ĐñîóáñîîóíŸíuí Āéóēāôôpí Āēēβîççò.

ĐîēēŸò āāēāóáóôŪóāēò Ÿ÷îîí đîēýđēîēāò áđāēôpóāēò đîō îđîñāā íā ôç óāēñŪ òîōò íā áđāēôîŸí ôçî đñîóēpēç đāñēóóúôāñuí îāçāpí p āñāāēāāŸuí ÷ñpóôç óóēò āéóēŸôôāò āāēāôŪóóáóçò. Ī “îđāēŪēēēîō” òñüđîō íā òî ēŪíāôā áôôü āβíāē íā ēŪíāôā ôēò āēēāāŸò óāò óôîí ēāôŪēîāî đîō Ÿ÷āē āôîēîŪóāē îāôŪ òî ôŸēîō ôçò ç āēāāēēāóáā make release:

- ĐāñŪóôā óā patches óāò p đñîóēŸóôā óā āđēđēŸíí āñ÷āā íŸóā óôîí ēāôŪēîāî chroot ôçò Ÿēāîçò.
- `rm ${CHROOTDIR}/usr/obj/usr/src/release/release.[59]`
- Îāôāēüôôôóôā đŪēē òî sysinstall(8), òî đññpíā, p üđîēā Ūēēā đñîāñŪîāóā Ÿ÷îîí āđçñāāóóāā áđü ôēò āēēāāŸò óāò.
- `chroot ${CHROOTDIR} ./mk floppies`

Īē íŸāò āéóēŸôôāò āāēāôŪóóáóçò ēā āçîēîōñāçēîŸí óôîí ēāôŪēîāî \${CHROOTDIR}/R/stage/floppies.

ĀíāēēāēôēēŪ, îđîñāāôā íā ÷ñçóēîîđîēpóāôā òî make target boot.flp, p îđîñāāôā íā òñŸíāôā áđāôēāāô òî script òî āçîēîōñāāā óā óôôôpíāóā āñ÷āāŸuí src/release/scripts/doFS.sh.

Îđîñāāôā āđβôçò íā ēāñîβóāôā póôā āēēŸò óāò āēēāāŸò íā đāñāóôîŸí îā ññôp patch óôçî Ÿēāîç üđüò ēā ôôēŪ÷îāóāē, āññîóāò ôēîp óôçî îāôāāēçôp LOCAL\_PATCH üôāí òñŸíāôā ôçî āîôîēp make release.

## 5.2 Đñîāñāîîāôβæîîóāò òî sysinstall

Ōî āñāāēāāî āāēāôŪóóáóçò ēāē ñŸēîēóçò òîō FreeBSD, òî sysinstall(8), îđîñāā íā đñîāñāîîāôēóôāā āēā íā ēŪíāē đēî āŸēîēāò ôēò áôôñîāôîđîēçîŸíāò āāēāóáóôŪóāēò óā đîēēŪ ìç÷āípíāóā. Áôôü òî ÷āñāēôçñēóóôēü òîō đñîāñŪîîāôîō îđîñāā íā ÷ñçóēîîđîēçēāā óā óôîāôāóîü îā òî PXE[13] ôçò Intel āēā íā îāēēîpóāē ç āāēāôŪóóáóçò áđü òî āβēôôî, p óā óôîāôāóîü îā đñîóáñîîóíŸíāò āéóēŸôôāò āēēβîççò ēē Ÿíā sysinstall script. íā đāñŪāāēāîā áđü ôŸôîēî sysinstall script îđîñāāôā íā āñāāôā óôî āñ÷āāŸuí src/release/sysinstall/install.cfg.

## 6 Îāēpíāóā òîō Đpñāîā áđü ôçî êäîîç 4.4 òîō FreeBSD

Ç āēāāēēāóáā āôîēîāôāô òçò Ÿēāîçò 4.4 òîō FreeBSD îāēβîççā āđβôçîā ôçî Īç ÁôāîŸóôîō 2001. ÎāôŪ áđü áôôp ôçî çîāññîçîā, üēāò îē āēēāāŸò óôîí ēîñîü RELENG\_4 òîō FreeBSD Ÿđñāđā íā Ÿ÷îîí Ÿāēñēóç áđü ôçî Release Engineering Team <re@FreeBSD.org>. Ç đñpôç āîēēîāóôēēp Ÿēāîç āēā ôçî āñ÷ēôāēôîîēēp x86 Ÿāēíā āēāēŸóēîç óóēò 16 ÁôāîŸóôîō, ēē āēîēîōēpēçēā áđü 4 āēüîā āîēēîāóôēēŸò āēāüóāēò đîō îāpāçóāí ôçî òāēēēp Ÿēāîç óóēò 18 òîō ÓāđôŸîāñç. Ī òđāŸēôñîō áôôŪēāēāò Ÿđāēíā ôçîāîôēēü ñüēî ēāôŪ ôçî āēŪñēāēā ôçò òāēāôôāāô āāñŪāāò ēāēpò ēŪđîēā đñîāēpíāóā áôôŪēāēāò āñŸēçēāí óā đñîçāîŸîāîāò, āîēēîāóôēēŸò āēāüóāēò. ÓôñîēēŪ, đŪîü áđü 500 email óôŪēēçēāí ôçî Release Engineering Team <re@FreeBSD.org> óā āēŪóôçîā îēēñüôāñî áđü Ÿíā îpíā.

Ç ēîēîüôçôā òüî ÷ñçóôpí îāò Ÿēāíā óāôŸò üôē ç áôôŪēāēā ēāē ç óôāēāñüôçôā îēāò Ÿēāîçò āāí ēŪ 'đñāđā íā ēôôēŪæāóāē āēā ēāíāüò āβāîō đñîēāóîāô p çîāññîçîāô đîō Ÿ÷îîí òāēāā óāí óôü÷îē áđü đñēí. Ōî FreeBSD Ÿ÷āē îāāāēpóāē āñāîāôēēŪ ēāôŪ ôç āēŪñēāēā ôçò æüpò òîō óāí óŸóóçîā, ēāē ç áíŪāēç āēā óôāēāēñēîŸîç đîēēôēēp ēāē îñāŸîüôç āēā ôçî āçîēîōñāāā íŸuí āēāüóāü āβíāē đēŸíî óāíāñp đāñēóóúôāñî áđü đîōŸ. Áôôp ç áíŪāēç ēā āβíāē āēüîā đēî ôçîāîôēēp ēāēpò òî FreeBSD ēā āñ÷āāē íā îāóāŸŸñāóāē óā íŸāò đēāóôüñîāò.

## 7 ÎáëííîééÝò Êáóãðëýíóáèò

Ãßíáé æüðééðò óçíáóßáð ïé ðñáéðééÝò éáé ç ïñÃÛîóç òçð ðéááééáóßáð äçíéíðñáð òùí Æêüüóàùí íáð íá óðíááßæíðí íá òçí óðíá÷ð ðóíáíùíáíç ÆÛóç òùí ÷ñçóðíí íáð. Ìá ÆÛóç áððð òç óéÝðç Æñááæüíáóðá ðéççñÛ Æéá íá ðáèíçñéðóíðíá òçí ðéááééáóßá ðñáááùñðò òùí Æêüüóàùí òîõ FreeBSD.

- *ÐáñÛëçççç áððÝéáóç* - ÌáñééÛ ïÝñç òçð ïáðááèðððéóçð ïéáð ÆáéáðÛóðáóçð ïðñíýí íá Æñíðí “ðñéý ðáñÛëççççá”. Õá ðéí ðñééÛ áðü ðá óðÛáéá Æßíáé I/O intensive, ïðüðá ç ýðáñíç ðñéçðí ðçççðð-ðá÷ýðçðáð Æßóèùí Æßíáé ðéí óçíáíðééð áðü òçíí ÷ñðç ðñéçðí Æðáíñááóðíí Æéá íá áðéðá÷ðñéáß èÛðüð ç ðéááééáóßá ðîõ make release. Áí Æáóíñáðééßß Æßóéíé ÷ñçóéíðñéççýíí Æéá ðíðíáðá òçð éáñáñ÷ð ðîõ chroot(2) ðñáéáÛéçíðòð, ðüðá ðí CVS checkout òùí éáðáéüüüí ports éáé doc ïðñáß íá Æßíáé ðáððü÷ñííá íá òçí áñðñð make world óðíí Ûéçí Æßóéí. ×ñçóéíðñéçççç ïéá RAID éýóç (hardware ÷ software) ïðñáß íá ïáéðóáé ÆñáóééÛ ðñí óðñééü ÷ ñüñ ðñí ÷ñáéÛæáðé íá ïáðááèðððéóçð ïéá ðèðñçð Ýéáñóç.
- *Ìáðááèðððéóç Æêüüóàùí Æéá ÆéáðñáðééÝò áñ÷éðáðñééÝò* - ÈÝéáðá íá ïáðááèðððóáðá ïéá Ýéáñóç Æéá IA-64 ð Alpha óá èÛðñéíí x86 áðáíñááóðð? make TARGET=ia64 release.
- *ÃñééíÝò Æéá èÛç* - ×ñáéáæüíáóðá éáéýðáñá Æñááéáßá Æéá áððüíáðí Ýéáñ÷ñ ïñèüðçðáð óðí FreeBSD.
- *Ãñááéáßá ÆáéáðÛóðáóçð* - Õñ ðñüññáñÛ íáð Æéá òçí ÆáéáðÛóðáóç ðîõ FreeBSD Ý÷Æé ïáðáñÛóáé ðñí ðñéççç ðñí áñáíáñññ ÷ ñüñ æüðò ðîõ. ÕðÛñ÷ñ Æéáðñáð ñÛáð ðñí ÆñáÛéíðáé Æéá íá ðéíðñéççç èÛðñéíí Ûéçí, ðéí ïñðÝññí ïç÷áíéðü ÆáéáðÛóðáóçð. Ìéá áðü ðéð ðéí ððñó÷ñáíáð, Æßíáé ç ñÛáá libh[5] ðñí óðí÷áýáé òçí ðéíðñéçççç áñüð Ýñðññ, ïÝñ ðñüðñ ðáéáðáñðóíáðñ éñáéíéççç éáé áñüð GUI ðññáñÛñáðñ ÆáéáðÛóðáóçð.

## 8 Æð÷áñéóðßáò

Èá ðéáéá íá Æð÷áñéóðßáò ðñí Jordan Hubbard, ðñí ïñ Ýäüóá òçí ððéáéñßá íá ðÛññ èÛðñéá áðü òçí Æðéýíç òçð Ýéáñóçð 4.4 ðñí FreeBSD, éáèð éáé Æéá ïéç òçí ÆñééáÛ ðñí Ý÷Æé èÛñéá Æáé ÷ññéá Æéá íá Æßíáé ðñí FreeBSD áððü ðñí Æßíáé óðñáñá. ÕðééÛ, ç Ýéáñóç Æáí éá ðóáí ðñíÝ áðñáðñ íá ïéñéççññéáß ÷ ïñßð ïéç òçí ó÷áðééð ïá òçí Ýéáñóç ÆñééáÛ 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 ïéíé ïé ððñéíéðñé ðñí áð÷ñéýíðáé ïá òçí áñÛððñí ðñí FreeBSD. ÈÝèü áðßóçð íá Æð÷áñéóðßáò ðñíð Rodney Grimes <rgrimes@FreeBSD.org>, Poul-Henning Kamp <phk@FreeBSD.org>, éáé ïéñð ðñíð Ûéçíð ðñí ÆñáÛóççáí Æéá íá ððéÛññí ðá Æñááéáßá Æéá ðéð Æêüüóáéð óðéð ðñðáð ïÝñáð òçð äçíéíðñáð ðñí FreeBSD. Áððü ðñí Ûñéñí Ý÷Æé áðçñááóðáß áðü éáßíáíá ó÷áðééÛ ïá òçí ïñÃÛîóç òùí Æêüüóàùí áðü ðñí CSRG[14], òçí ñÛáá ðñí NetBSD[11], éáé òçí ðñüðáóç Æéá íéá ðéááééáóßá ïñÃÛîóçð òùí Æêüüóàùí ðñí John Baldwin[12].

## 9 ÁíáðñÝò

[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](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](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](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](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>)