

# 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 áĩŨððòĩçð òĩõ FreeBSD, ùóĩĩ áðĩñŨ óôçĩ ðñĩãðòĩéĩáóßá 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 áĩãéáóŸñĩóáé ĩá ðãñŨãĩðĩ ðãñãĩãðñĩðĩéçĩŸĩãð áêäüóãéð òĩõ FreeBSD áéá áóùðãñééð ð ãĩðĩñééð ÷ñðóç éáé áĩŨððòĩç ðñĩũĩĩðùĩ.

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## 1 Áéóáãũãð

Ç áĩŨððòĩç òĩõ FreeBSD áßĩáé ĩéá ðĩéŸ áñé÷ðð áéããééãóßá. Òĩ FreeBSD áðĩðãéãßðáé áðũ óóĩãéóóĩñŸð ÷éééŨãũĩ áĩèñðùĩ áðũ ùéĩ òĩĩ èũóĩĩ. Ç ñŨãá òĩõ FreeBSD ðãñŸ ÷áé ðñũóãáóç ĩŸóù áĩðĩðĩð CVS[1] óá ùéĩðð, Ÿðóé þóðã ĩá ĩðĩñãß ùðĩéĩð èŸéãé ĩá áãé ĩçĩŸĩáðá log, áéãñĩñŸð (patches) ðĩõ Ÿ÷ĩðĩ óá äéŨñĩãã development branches, éáé Ũèãá ÷ãñãéðçñéóóééŨ ðĩõ äĩçéĩŸĩ ôçĩ áĩŨððòĩç, óá ĩðĩßá ðñĩéŸððĩðĩ áðũ ôçĩ ÷ñðóç áĩũð áðððçñĩŸ óðóðßĩáðĩð áéá÷ãßñéóçð èðãééá. Áðòù áðĩðŸéãóá éáé òĩĩ ðéĩ óçĩáĩóéèũ ðãñŨãĩðá Ÿéĩçð áéá Ÿĩá ĩããŨéĩ áñéèũ áðũ óáéáĩðĩŸ÷ĩð ðñĩãããĩãðéóðŸð áðũ ùéĩ òĩĩ èũóĩĩ óóĩ 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 óóĩ èðãééá. Äé’ áðòù, ĩũĩ ĩéá “ãðééããĩŸĩç” ñŨãá áðũ ðãñßðĩð 300 Ũðñã Ÿ÷ĩðĩ ðñũóãáóç ĩá ãñŨðĩðĩ óóĩ CVS repository. Áðòĩß ĩé committers[6] áßĩáé ððãŸéðñĩé áéá òĩ ĩãããéŸðãñĩ ĩŸñĩð ôçò áĩŨððòĩçðð ðĩõ áßĩãðáé óóĩ FreeBSD. ĩéá

[illegible]

Ίε οά÷ýðáoðιε ñðειñß ářŨðððñçð ðιò FreeBSD áář áðßññí έάε ðιεý ÷ ñññř áέα ðι řάέαεŨñέοιá ðιò ððððßřáðιð  
 ářŨðððñçð ðá řέα Ýέαιòç řá ðιεúðçðá ðιò řá áñßέαε řá ÷ ñççέοιřðιέαßðáε áðñÝùð. Άέα řá εðέαß áððu ðι áβέεçřá, ç  
 ářŨðððñçð áßřáðáε ðáððu÷ ññřá ðá áñ ðáñŨεεçέα řñřðŨέα. Ĩ έýñείð εññιùð ářŨðððñçð áßřáε Ĩ **HEAD** ð **trunk** ððι CVS  
 repository řáð, ářιúððuð έάε ùð “FreeBSD-CURRENT”, ð “-CURRENT” ář ððññßá.

ἴαο δέῃ ὁδᾶἑαῖνιὸ ἐῖνιὸ ὁδῶδῆαβῶἑ, ἀῖνιὸὸὸ ἰᾶ ὁῖ ὠῖᾶ “FreeBSD-STABLE” ἔ δέῃ ὀῖᾶ “-STABLE”. Ἐᾶ ἰᾶ ἄῖ ἑῖνιῖβ ἄβῖᾶ ἄδῖᾶἑᾶῖᾶῖᾶ ὀῖ ἑῖᾶῖ CVS repository, ὁῖ Ἐᾶἑῖᾶῖᾶ, ἑᾶ ἰᾶἑᾶῖᾶ ἰῖᾶ ὠῖ **CVSup**[2] ὁᾶ mirrors ᾶῖῖῖ ὀῖῖ ἑῖᾶῖ. Ὀῖ FreeBSD-CURRENT[8] ἄβῖᾶ ᾶ “ᾶῖᾶ ὁᾶῖᾶ” ὁῖ ἰᾶᾶᾶᾶ ὁῖ FreeBSD ἑᾶᾶ ὁᾶ ἄᾶᾶ ἄβῖᾶᾶ ᾶᾶ ἰᾶ ἑᾶῖᾶᾶ ἑᾶᾶᾶᾶ. Ὀῖ FreeBSD-STABLE ἄβῖᾶ ἰ ἑῖνιὸ ἰᾶᾶᾶ ἄᾶ ὁῖ ἰᾶῖ ὁᾶᾶᾶᾶᾶᾶ ἰᾶ ἑᾶᾶᾶᾶ. ἰᾶ ἑᾶᾶᾶᾶ ᾶᾶᾶᾶᾶ ὁᾶ ἄᾶᾶᾶ, ὁῖ ἰᾶᾶᾶ ἑῖνιὸ ἰᾶᾶᾶᾶᾶ, ἰᾶ δέῃ ἰᾶᾶ ἰᾶᾶᾶ, ἄῖῖ ᾶῖᾶ (ὀῖᾶᾶ ἰᾶ ὁῖ ᾶῖᾶᾶᾶ ἰᾶ) ἰᾶᾶᾶᾶᾶ ὀῖ FreeBSD-CURRENT ἑᾶ ῖᾶᾶᾶ ἰᾶᾶᾶᾶ ᾶῖᾶ ἑᾶᾶ.

[illegible]

Όρία÷πο οόÝεirióáé áðu ôiôð ÷ñPóðáð iáo áíáöiñÝð ðñiáεçìÜòùí éáé áéðPóáéð áéá éáéirýnéá ÷áñáéðçñéóóééÜ, éáðÜ ôç áéÜñéáéá ôiô éýééiô ôçð éÜèá Ýéáñóçð. Ié áíáöiñÝð ðñiáεçìÜòùí áéóÜáñióáé óççí áÜôç **GNATS**[9] iÝóù e-mail, iá ôçí áöáññiáP send-pr(1), P iÝóù ôiô web-interface ôiô ðáñÝ÷áðáé óççí áéáýéôióç <http://www.FreeBSD.org/send-pr.html>. Áêòùð áðu óéð áéÜöiññáð èβóðáð çáêòññiééý óá÷öáññáβiô iá èÝíá óá ðá÷iééÜ ÷áñáéðçñéóóééÜ ôiô FreeBSD ððÜñ÷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 Ýíá öüñiôì áéá óðæçðPóáéð ó÷áðééÜ iá óéð éäððñÝñáéáð ôçð “ññáÜñúóçð ðùí áêäüóäùñ”.

Ἄεά íá áñòðçñáðòçείρýí íé ðεί ðοιòçñçðέείß ÷ ñÞòðáð íáð, íá Ἰέαίòç ðñ FreeBSÐ 4.3 áñ÷ßáíá íá ÷ ñçðείñðίείρýíá íá÷÷ñέóóρýò είñίρýð áεáυóáñ. Ἀðòίß íé είñίß áçίείñáρýíóáε εßáí ðñßí ðόέá÷ðáß ç ðáέέεß Ἰέαίòç. ἸáðÜ ðçí áíáείßñύòç ðçð Ἰέαίòçð, ίññí ðίεý ççίáíóέέÝð áεéááÝð éáε ðñíòεÞéáð ó÷÷áóέέÝð íá ðçí áóóἸεάéá áßñííóáε óðίí είñίñ ðçð Ἰέαίòçð. Ἀέυòð áðñ ðçí áñíáðúðçðá áíááἸείέóçð íÝóñ CVS, áέðáεÝóείá patchkits ðόέÜ÷ñííóáε áéá íá ðίñίρýí íá áíáááειßòίí ðá óðóðÞíáðÜ ðίðð υóίέ ÷ ñçðείñðίείρýí ðέð áεáυóáέð *RELENG\_X\_Y*.

Οι ΟιΠια 2 αιçããß ìã ããððñŸñããð ðã ããŸðñã ððŸãã ðçð ããããããðßãð ðñ ãñßðãðãã ðßòù ãðu ãŸãã Ÿããñç, ìŸ ðñãã ðã ãñãðã ðñ ìãçãñŸ ðçðŸ ìãðããðððððçð ðñ ððððñãðñ ãã ðñ ΟιΠια 3 ãìçããß ðçŸ ìããã ðç ããããããðßã ðçð ìãðããððððçð. Οι ΟιΠια 5 ðãñããñŸðã ðùð ìðñãß ìã ððããðããß ðñ ããóãã òŸððçãã ãðu ðñßðñð ãã ðñ ΟιΠια 6 ðãñããñŸðã ãŸðñãã ãðu ðã ðñŸããðã ðñ ìŸããã ãðu ðçŸ ããããããðßã Ÿããñçð ðñ FreeBSD 4.4. ŸŸñð, ðñ ΟιΠια 7 ðãññðãŸãã ãŸðñãã ãðu ðãð ããðãñŸŸããð ðñ ãŸññã ìã ðŸñã ç ãñŸðððç ðñ ìŸññ.

2 Ç Äéääéêáóßá Äçïéĩõñãßáo ìéáò êäïóçò

Ίε ιΎάο άέαυόάέο όις FreeBSD όόεΰ÷-σίοάέ άδύ όις -STABLE έιμιύ άίΰόόόις όαήβδθς εΰέα όΎόόάήάέο ιΰίάο. ϸ έέάέέέάόβá όήιόάιέιáόβáό έέάό Ύέαιόςό ίάέέΰάέ ό÷άαί 45 ιΎήάό όήέί όςί άίάίάίάίς ϸιήήήίβá Ύέαιόςό, υόάί ι όόάγέόήό άέάυόάί όις FreeBSD όόΎέίάέ Ύίá άήΰίá όόέό έβόόá όυί όήιήάίάέόέόόί έέά ίá όόάέέίόίáέ όόίόό όήιήάίάέόέόόΎό υόέ Ύ÷ίόί 15 ιΎήάό έάέήύ ίá εΰήίό υόέάό άέέάΎό εΎέίόί, όήέ όί δΰάυίá όις έπáέέá. ΊΎόά όá άόόύ όις έάέήύ, όέέέίβ όήιήάίάέόέόόΎό εΰήίό ίέá όάέήΰ άδύ άέέάΎό όις Ύ÷ίόί ίáβίáέ όεΎίς άίυόόΎό υόό “ίáέάέάήόίáόá MFC”. Ί υήίό MFC όίáβίáέ “Merge From CURRENT” έάέ όáέέάήΰάέ όςί έέάέέέάόβá όήιόάήίáό

òĩō ēpāēēā iēāō āiēēiāōĩŸĩçò āēēāāpò āðũ òĩĩ -CURRENT ðāēñāiāōēēü ēĩñiũ āĩŪðòðĩçò òòĩĩ òóāēāñiũ -STABLE ēĩñiũ.

## 2.1 Ğāā÷iō Ēpāēēā

ŌñēŪiōā çĩŸñāð ðñēĩ òçĩ āiāiāĩuiāĩç çĩāññĩçĩā Ÿēāiōçò, ĩ ēpāēēāð òĩō repository āēóŸñ÷āōāē óā iēā ðāñbĩrāi “ēāēðóóŸñçòçò”. ĒāðŪ òç āēŪñēāēā āððò òçò ðāñēüāið, üēāð iē āēēāāŸò òòĩĩ -STABLE ēĩñiũ ðñŸðāē iā Ÿ÷iōĩ òçĩ Ÿāēñēóç òçò Release Engineering Team <re@FreeBSD.org>. Ĩē āēēāāŸò ðĩō āðēōñŸðĩiōāē óā āððp òçĩ ðāñbĩrāi ðĩō āēāñēāb 15 çĩŸñāð ābĩāē:

- Āēĩñēpōāēð āĩüóðĩ ðñiāēçĩŪðüĩ.
- Āĩçĩāñpōāēð òòçĩ ðāēiçñbùóç.
- ĀēēāāŸò ó÷āðēēŸò iā òçĩ áóðŪēāēā.
- ĨēēñŸò āēēāāŸò òòĩōð iāçĩāĩýð òóóēāðĩ, üðüð ð÷. ç ðñiōēðēç òüĩ IDs iŸüĩ òðóēāðĩ.
- Ĩðĩēāāðĩōā Ūēēç āēēāāp ðēóðāĩāē ç ñŪāā āĩŪðòðĩçò üðē ðñŸðāē iā ābĩāē, iā òĩ āiāiāĩuiāĩ ðŪiōā ñbōēĩ.

ĨāðŪ òēð ðñpōāð 15 ĩŸñāð ēāēðóóŸñçòçò, òðēŪ÷iāðāē iēā āiēēiāóóēēp Ÿēāiōç āēā iā ÷ñçóēiĩðĩēçēāb óāĩ āiēēið òçò ðāēēēpð Ÿēāiōçò ēāē ĩ ēpāēēāð āēóŸñ÷āōāē óā iēā ðāñbĩrāi “ðāāpĩāðĩð”. ðēŸĩ ābĩāē ðĩēý ðēĩ āĩóēĩēĩ iā ābĩiōĩ iŸāð āēēāāŸò òðĩ óĩóóçĩā, āēðüð ēē āĩ āēĩñēpñĩĩ ēŪðĩēĩ ðĩēý òĩāāñi bugp ēŪðĩēĩ ðñüāēçĩā áóðŪēāēāð. ĒāðŪ òç āēŪñēāēā òĩō ðāāpĩāðĩð òĩō ēpāēēā, òĩōēŪ÷ēóðĩĩ ĩbā āiēēiāóóēēp Ÿēāiōç òðēŪ÷iāðāē ēŪēā āāāñŪāā, ĩŸ÷ñē iā ābĩāē Ÿĩēĩç ç òāēēēp Ÿēāiōç. Ōēð çĩŸñāð āēñēāpð ðñēĩ òçĩ ðāēēēp Ÿēāiōç, ç ñŪāā ðĩō ābĩāē òðāĩēðĩç āēā òēð āēāüóāēð ābĩāē óā òðĩā÷p āðēēĩēĩñĩbā ĩā òçĩ ñŪāā áóðŪēāēāð, òçĩ ñŪāā òðĩðpñçòçò òçò ðāēiçñbùóçò, ēāē òçĩ ñŪāā òðĩðpñçòçò òüĩ ports, āēā iā āāāāēüēĩĩŸ ðüð üēā òā āðāñābðçòā ēĩñŪðēā āēā iēā ðēpñç Ÿēāiōç ābĩāē āēāēŸóēĩā.

## 2.2 Ēbóóā ĀēŸā÷iō òçò Ōāēēēpð ēāiōçò

Ÿāðāĩ āñēāðŸò āiēēiāóóēēŸò āēāüóāēð Ÿ÷iōĩ ābĩāē āēāēŸóēĩāð, Ÿ÷iōĩ āiēēiāóóðāb āðũ āñēāðü ēüóĩĩ ēāē üēā òā òĩāāñŪ ēŸĩāóā Ÿ÷iōĩ āĩāēōēāb, ç ðāēēēp Ÿēāiōç ĩðĩñāb iā āñ÷bóāē.

### 2.2.1 Āçĩēĩñābā òĩō ēĩñiĩŸ ēāiōçò

Ÿāðüð ðāñēāñŪøāiā òòçĩ āēóāāüāp, ĩē ēĩñiĩb RELENG\_x\_y ābĩāē iēā ó÷āðēēŪ iŸā ðñiōēðēç òòçĩ ĩāēĩrēĩrēābā òüĩ āēāüóāpĩ ĩāð. Ōĩ ðñpðĩ āpĩā òòçĩ āçĩēĩñābā āððĩŸ òĩō ēĩñiĩŸ ābĩāē iā āāāāēüēābðā üðē āĩōēāĩāðā ĩā òçĩ òāēāðóābā Ÿēāiōç òĩō ðçāābĩð ēpāēēā āðũ òĩĩ RELENG\_x ēĩñiũ āðũ òĩĩ ĩðĩbĩ ēā òðēŪiāðā òĩ iŸĩ ēĩñiũ.

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

Ōĩ āðüiāĩ āpĩā ābĩāē iā āçĩēĩñāpōāðā iēā āðēēŸðā (tag) òòĩ òçĩābĩ āēēbĩçòçò òĩō ēĩñiĩŸ, pōðā iā ĩðĩñābðā iā āābðā òēð āēāöĩñŸò ĩā òçĩ āñ÷p òĩō ēĩñiĩŸ āĩēĩēā òòĩ ĩŸēēĩ ĩā òĩ CVS:

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

Ēāē òüðā ĩðĩñābðā iā āçĩēĩñāpōāðā òĩ iŸĩ ēĩñiũ ĩā:

```
/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 Αρχή 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`.

[illegible]

- `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 åôëêÝôá 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 εÜθρεάο αεεάαΥό οάεαδoαβá οόεαιβ *ιαδÜ* ογι οθρεΥόογς ουί  
 αοεεαορι. ΆαρεεÜ, ααρ άβιάε άγoερεί ίά αβιάε εÜοε οΥοιεί αοιγ οι CVS αδεονΥθαε ίά ιαοαεεριβoαε εÜθρείο οεό  
 αοεεΥoαο ίά ιαθρεΥό υδυο `cvs tag -d tagname filename`. Άβιάε θιεγ ογιαόεεü υυό αοδΥό τέ αεεάαΥό ογς  
 οάεαδoαβá οόεαιβ ίά ογιαεευερί ίά οεό ουοόΥό αοεεΥoαο αεά ογι οοαεαεηεΥίγ Υεαιόγ. Ιε αδβoγίαδ αεäυoαεό οιθ  
 FreeBSD θηΥθαε ίά άβιάε δÜιoά άγερεί ίά ιαάαηά÷ερί. ΟιθεεΥό αεεάαΥό οοι θαηεÜÜεερι οιθ ιγ÷ιρεεγ ουί  
 αεäυoαυί ααρ αδεονΥθριoαε.

### 3 àâãäåæç èé êëìíîï

Ιε "aeauaaeo" oio FreeBSD ioiniia ia laaauuouoeoioia adu ioieiaaBpiao Y ÷ ae Yia o ÷ aoeu anpaia iç ÷ Uicia eae dnuuaaoç ooi repository oio dcaabio epaeaa. (4eie Y ÷ ioi aooB oç aioiaouoçoa, aoiy danY ÷ ioia dnuuaaoç iYou aipioio CVS! AaBoa oi Aa ÷ aenbaei oio FreeBSD aea daneouoiaa eadonYnaeo.) Ç iuic aeaeep adabooç abiaa ia oou ÷ ae oiooBneic ooi dnoBia oao aea oç ooeaop vn(4). (Ooi -CURRENT, aooB ç ooeaop Y ÷ ae aioeaaaoaaba adu oç iYia ooeaop aboeio aaoeoiYio oa iBic md(4).) Ai ç ooeaop aai abiaa aioiaouuYic ooi dnoBia oao, ouoa i eaoUeeepio iaauo ea oionueaB adouiaa uoa aeaaeaoaB ç aioie vnconfig(8) eaoU oç aeUnea ea oç ouoç aioiaaBa oio iYio aeBicoo. 4ea oa anaaba oio ÷ naeUeioae aea ia laaauuouoBaoa iea Yeaioç abiaa aeaeYoeia oa iioB dcaabio epaeaa ooi eaoUeia src/release. AooU oa anaaba Y ÷ ioi uo oeio ia danY ÷ ioi uoe ÷ naeUeioae aea ia ÷ obaioae ie aeauaaeo oio FreeBSD ia Yia oiaop eae oaeaeeneyi onou. Iea deBnoç Yeaioç ioiaa ia laaauuouoeoia ÷ nçoeioieBiao aooU oa anaaba ia iea eae iui aioieB, oioaneaiamYic eae oç aieioaBa aiuo ISO an ÷ abio eaoUeeepi aea ia eaaB oa CDROM, ie aeoeYoaB aeBicoo, eaep eae i eaoUeeepio aaaoUoaooç iYou FTP. AooB ç aioieB abiaa ooeep ç make release.

### 3.1 Ç áíôïëþ make release

Ἄέά ἰά ἱὰόἀα̣εὐὸδβόἀὸἀ ἀδέοδ÷-πὸ ἱέα Ῥέαιός, ὃñÝᾀδαε δñπὸά ἰά ὁῶŨñ÷-ῖοί ὁά ἐάὸŨēēçá α̣ñ÷-ἀΒά ἰÝὸά ὀοίῖ ἐάὸŨειῖῗ  
/usr/obj. Ἰὸñᾤβὸἀ ἰά ὁά ἀçìεῖ῏ᾤᾤβὸἀὸἀ ἀβὸά ἰά ὁçí αἰὴτεῖP make world P ἀδεŨ make buildworld. Ἀέά 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 ìðíßí áñßðéáðáé òí CVS repository.
- RELEASETAG - Ç áðééÝðá CVS ðîõ áíðéóðíé÷÷ áß ðóçí Ýêáîóç òçí ìðíßá èÝéäðá íá ìáðááëüðððáððá.

Áí ááí Ý÷-áðá ðäç ðñüóááóç ðá èÛðíéí ðíðéëü CVS repository ìá ðñí èðáééá ðîõ FreeBSD, ìðíáððá 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 ìðíßí ìðíáððá 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 (äç. ðîõ -CURRENT) èíñíý. Ìé áêüüóáéð ðîõ ððéÛ÷ñíðáé áðü áððüí òñí èíñü, ðóíðëüð áíáðÝñíðáé ðáí “-CURRENT snapshots”.

ÕðÛñ÷-íðí éáé ðíééÝð Ûëëäð ìáðááëçðÝð ðîõ ìðíñíý íá ÷ ñçóéíðíéçéçý íá íá ðáñáíáðñíðíéçéäðá òçí Ýêáîóç ðáð. Ìé ðéí ðíééÝð áðü áððÝð ðéð ìáðááëçðÝð ðáñéáñÛñíðáé ðóçí èíñðð ðîõ áñ÷-áßíð src/release/Makefile. Ç áêñéáðð áíðíð ðîõ ÷ ñçóéíðíéçéäð áéá íá ððéá÷-ðáß ç áðßóçç Ýêáîóç 4.7 ðîõ FreeBSD (x86 ðéáðüüñíá) ðóáí:

```
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 ìðíáß íá ÷ ùñéóðáß ðá áñéäðÛ ìá÷-ùñéóðÛ ìáðáíý ðîõð áðíáðá.

- Äçíéíðñáß áñüð éáéáñíý ðáñéáÛëëíðð ðá íéá ìá÷-ùñéóðð éáñáñ÷-ßá éáðáëüüí ìá òçí áíðíð “make installworld”.
- Áíáñüá ðüð òí CVS ìéáð éáéñýñéáð Ýêáîóçð ðîõ ðçááßíð èðáééá ðîõ ðððððíáððð, òçð ðáèíçññüóçð éáé òñí ports ìÝðá ðóçí éáñáñ÷-ßá éáðáëüüí ìáðááëðððéóçð òçð Ýêáîóçð.
- Ñðéíðáéð òñí áñ÷-áßíð ðóñí éáðÛëíá /etc éáé /dev ìÝðá ðóí ðáñéáÛëëí chroot.
- ÁéðÝéáóç òçð áíðíðð chroot ìÝðá ðóçí éáñáñ÷-ßá éáðáëüüí ðîõ áðíéíÛððçéá, áéá íá ìçí ìðíáß òí áñüðáñéëü ðáñéáÛëëí íá áðçñáÛðáé òç ìáðááëðððéóçð òçð Ýêáîóçð.
- ÁéðÝéáóç òçð áíðíðð make world ìÝðá ðóí ðáñéáÛëëí chroot.
- Ìáðááëðððéóç òñí áéðáéÝóéíð ðîõ áßíáé ò÷-áðééÛ ìá òí óýóççíá Kerberos.
- Ìáðááëðððéóç ðîõ ððñðíá GENERIC.
- Äçíéíðñáß áñüð ðáéééíý éáðáëüüíð ðóñí ìðíßí èá ìáðááëüðððéóðíý éáé èá áðíèçéáððéíý ìé áéðáéÝóéíð ìñðÝð òñí ðáéééðí ðáéÝðüí.
- Ìáðááëðððéóç éáé ááéáðÛððáóç òñí áñááéáßíð ðîõ ÷ ñáéÛáíðáé áéá òçí ðñíáðíéíáðá òçð Ýêáîóçð éáé òç ìáðáðñíðð òçð ðáèíçññüóçð áðü òñí ðçááßíð èðáééá (SGML) ðá html éáé áñ÷-áßá éáéíÝñð ðîõ èá ðóñíáýíðí òçí Ýêáîóçð.
- Ìáðáðñíðð éáé ááéáðÛððáóç òçð ðáèíçññüóçð (áá÷-áéñßáéá ÷ ñððóç, áéóáñüáééÛ éáßíáíá, óçíáéðáéð Ýêáîóçð, èßðáð ððíááðüðçðáðð ðéééíý, èèð.)

- ĩāóāāēpôóéóc òuĩ “òõĩðēáõĩŸĩũĩ” (crunched) āēðāēŸóēĩũĩ ðĩō ēā ÷ ñçóēĩĩðĩēçēĩŸĩ óóēð āēóēŸôðāð āāēáðŨóóáócð.
- Āçĩēĩōñāβā òuĩ ðāēŸóuĩ ôçð āāēáðŨóóáócð ēāē òuĩ ðāēŸóuĩ ðçāāβĩō ēpāēēā.
- Āçĩēĩōñāβā òuĩ ĩŸóuĩ āēēβĩçóçð ēāē ôçð āēóēŸôðāð “fixit”.
- Āçĩēĩōñāβā ôçð ēāñāñ÷βāð ēáðāēüũĩ āēā ôçĩ āāēáðŨóóáóc ĩŸóuĩ FTP.
- (ðñĩíēñāôēēŸ) Āçĩēĩōñāβā òuĩ ISO āñ÷āβũĩ āēā ĩŸóā CDROM/DVD media.

Āēā ðāñēóóüðāñāð ðēçñĩōĩñβāð ó÷āðēēŸ ĩā ôçĩ āēāēēāóβā āçĩēĩōñāβāð ĩēáð Ÿēāĩóçð, āāβôā ôçĩ óāēβāā ôāēĩçñβũóçð release(7).

### 3.2 ĩāóāāēpôóéóc òuĩ XFree86

Ōĩ āñāóēēũ ðāñēāŨēēĩ **XFree86** āβĩāē Ÿĩá óçĩáĩóēēũ ēñĩŨðē ēŨēā Ÿēāĩóçð āēā ðĩēēĩŸð ÷ ñβóðāð ðĩō ēŸēĩōĩ òĩ FreeBSD āēā óðāēĩŸð āñāóáð. ðñēĩ ôçĩ Ÿēāĩóç 4.6-RELEASE òĩō FreeBSD, ĩē āðβóçĩāð āēüüóāēð òĩō FreeBSD ÷ ñçóēĩĩðĩēĩŸóáĩ ôçĩ Ÿēāĩóç 3.x òuĩ **XFree86**. Ĩ ðēĩ āŸēĩēĩð ðñũðĩð ĩā ĩāóāāēũððóðāðā áððŸð óēð āēüüóāēð āβĩāē ĩā ÷ ñçóēĩĩðĩēĩŸóáĩ òĩ ðñũāñāĩā `src/release/scripts/X11/build_x.sh`. Áðũũ òĩ ðñũāñāĩā áðāēðāβ ĩā āβĩāē ðāç óççĩŸĩá óõĩ óŸóççĩŸ óáð òũũĩ òĩ ðāñēāŨēēĩ XFree86 Ÿũĩ ēāē ç āēpóóā Tcl/Tk. ĩāðŨ ôçĩ ĩāóāāēpôóéóc òuĩ ēáðŨēēçēũĩ X servers, òĩ ðñũāñāĩā ēā ðāēāðŨñāē Ÿēā óā āñ÷āβā óā óðēēĩāŸð āñ÷āβũĩ ðĩō ðāñēĩŸĩāē ĩā āñāē òĩ `sysinstall(8)` ĩŸóā óõĩ ēáðŨēēĩāĩ `XF86336` óõĩ ĩŸóĩ āāēáðŨóóáócð.

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

**Óçĩāβũóç:** Āβĩāē ðĩēŸ óçĩáĩóēēũ ĩā áðāēñŸóðāðā áðũ òĩ āñ÷āβĩ `/etc/make.conf` ĩðĩēāóāðĩðĩā òĩðēēŸð ñòēĩβóāēð Ÿ÷āðā ēŨĩāē. Āēā ðāñŨāāēāĩā, āāĩ āβĩāē ēāēp ēāŸā ĩā āēáĩŸĩāðā āēðāēŸóēĩā ðĩō Ÿ÷ĩōĩ ĩāóāāēũððéóðāβ óā ēŨðĩēĩ óðāēāēñēĩŸĩĩ óŸóðçĩā ĩā ĩñēóĩŸĩç ôçĩ óēĩp ôçð ĩāóāāēçððð `CPUTYPE` āēā āāēðéóõĩðĩβçç òuĩ āēðāēŸóēĩũĩ āēā ēŨðĩēĩ óðāēāēñēĩŸĩĩ áðāĩāñāóðp.

### 3.3 ðñĩāñŨĩĩáðā Ōñβòũĩ (“ports”)

Ç Óðēēĩāp òuĩ Ports òĩō FreeBSD (<http://www.FreeBSD.org/ports>) āβĩāē ĩēā óðēēĩāp ĩā ðāñēóóüðāñā áðũ 20,000 ðñĩāñŨĩĩáðā áðũ òñβòĩðð, ðĩō āβĩāē āēāēŸóēĩā āēā FreeBSD. ĩē Ports Management Team <[portmgr@FreeBSD.org](mailto:portmgr@FreeBSD.org)> āβĩāē òðāŸððĩēē āēā ôçĩ óõĩðpñççç āĩũð āŸĩóñĩō áðũ ðçāāβĩ ēpāēēā āēā óā ports, ðĩō ĩðĩñāβ ĩā ÷ ñçóēĩĩðĩēçēāβ āēā ĩā āçĩēĩōñāçēĩŸĩ óā ðāēŸóā ĩā óā ðñĩāñŨĩĩáðā ðĩō óðñāŸĩōĩ óēð āðβóçĩāð āēüüóāēð òĩō FreeBSD.

Ç āēāāēēāóβā óõĩðpñçççð ôçð óðēēĩāpð òuĩ ports āβĩāē ēŨðē ðĩō āāĩ ĩðĩñĩŸĩā ĩā ēāēŸøĩðĩā āāp. ĩā ĩā÷ũñēóðũ Ũñēñĩ, ĩā ðβòēĩ Ç ĨñāŨtūóc ēāĩóçð òuĩ ðāēŸóuĩ ĒĩāēóĩēēŸ áðũ Ōñβòĩðð ([./releng-packages/article.html](http://releng-packages/article.html)), ēāēŸððāē áðũ òĩ ēŸĩā.

### 3.4 Āñ÷āβā ISO ôçð ēāĩóçð

ĩāēēĩpĩóáð ĩā ôçĩ Ÿēāĩóç 4.4 òĩō FreeBSD, ç ĩŨāā ĀĩŨðððĩçð òĩō FreeBSD áðĩōŨóēóā ĩā āēáĩŸĩāē ēāē óā óŸóóāñā ISO āñ÷āβā ðĩō ðñpóā ðĩōēĩŸóáĩ ĩē āðāēñāβāð *BSDi/Wind River Systems/FreeBSD Mall* óðēð “āðβóçĩāð” āēāmŸð CDROM ðĩō Ÿēáĩāĩ. ēŨēā Ÿĩā áðũ óā óŸóóāñā ISO āñ÷āβā ðñŸðāē ĩā ðāñēŸ÷āē Ÿĩā āñ÷āβĩ `README.TXT` ðĩō

ðǎñéǎñÛóǎé óǎ ðǎñéǎ ÷ ùíǎíǎ òìõ ǎßóèìõ, êé Ýíǎ ǎñ ÷ ǎßí CDROM.INF ðìõ ðǎñéÝ ÷ ǎé ìǎóǎ-ðéçñìõññßǎð ǎéǎ íǎ ìðññǎß òì ðñùǎñǎìǎ sysinstall(8) íǎ ǎéÝǎñǎé éǎé íǎ ÷ ñçóéìðìéßóǎé áóòù òì ǎßóèì, éǎèð òé Ýíǎ ǎñ ÷ ǎßí filename.txt ðìõ ðǎñÝ ÷ ǎé ìéǎ èßóóǎ ǎñ ÷ ǎßùí òìõ CDROM. Áóðß ç èßóóǎ ìðññǎß íǎ ǎçìéìõñǎçèǎß ðìéý áðéÛ, ùð ǎñðò:

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

Ìé óðǎéǎèñéíÝíǎð áðǎéóðóǎéð ǎéǎ èÛèǎ Ýíǎ áðù áóòÛ óǎ CD ðǎñéǎñÛìíóǎé ðǎñǎéÛòù:

### 3.4.1 Áßóèìò 1

Ì ðñðòìð ǎßóèìò ǎßíǎé ó ÷ ǎǎùí áðìééǎéóóééÛ áðìõÝéǎóíǎ òçð ǎíóìéßðò make release. Ìé ìùíǎð ǎééǎǎÝò ðìõ ðñÝðǎé íǎ ǎßíðìí óóìí éǎðÛéìǎñ disc1 ǎßíǎé ç ðñìóèèðéç òìõ éǎðÛéìǎñò tools, òùí XFree86, éǎé ùóì òì ǎóíǎóùí ðǎñéóóùðǎñùí ðǎéÝòùí ìðññíýí íǎ ÷ ùñÝóìòí óóì ǎßóèì. Ì éǎðÛéìǎñò tools ðǎñéÝ ÷ ǎé ǎñǎǎéǎßǎ ðìõ áðéóñÝðìòí óǎ ÷ ñßóóǎð Ûéèùí éǎéòìõñǎéèðí óóóðçìÛòùí íǎ òóéÛìòí òéð ǎéóéÝóóǎð ǎéèßççóçð. Áóòùð ì ðñðòìð ǎßóèìò ðñÝðǎé íǎ òóéÛ ÷ íǎóǎé bootable Ýóóé ðóóǎ íǎ ìðññíýí ìé ÷ ñßóóǎð òùí ìùíðÝñíùí òðìéìǎéóóðí íǎ áðìòǎýǎìòí òì óðÛǎéí ǎçìéìõñǎßǎð òùí ǎéóéǎóðí ǎéèßççóçð.

Áí ìéǎ ǎéǎóìñǎðéèß Ýéǎìóç òùí XFree86 éǎ ǎéǎíÝíǎóǎé ìǎ òçí Ýéǎìóç áóòð, ðñÝðǎé íǎ ǎçìǎñùèǎß òì ðñùǎñǎìǎ sysinstall(8) ǎéǎ òçí íÝǎ èÝóç éǎé ìé ìǎçǎßǎð ǎǎéǎðÛóóǎóçð. Ì ó ÷ ǎðéèùð èðǎééǎð òðÛñ ÷ ǎé óóìí éǎðÛéìǎñ src/release/sysinstall òóìí -STABLE èìñù ð óóìí éǎðÛéìǎñ src/usr.sbin/sysinstall òóìí -CURRENT èìñù. ÓðǎéǎèñéíÝíǎ, óǎ ǎñ ÷ ǎßǎ dist.c, menus.c, éǎé config.c éǎ ÷ ñǎéǎóóǎß íǎ ǎçìǎñùèíýí.

### 3.4.2 Áßóèìò 2

Ì ǎǎýðǎñìð ǎßóèìò ǎßíǎé áðßóçð áðìõÝéǎóíǎ òçð ǎíóìéßðò make release éǎðÛ Ýíǎ ìǎǎÛéì ìÝñìð. Áóòùð ì ǎßóèìò ðǎñéÝ ÷ ǎé Ýíǎ “live filesystem” ðìõ ìðññǎß íǎ ÷ ñçóéìðìéçèǎß áðù òì sysinstall(8) ǎéǎ íǎ ǎíǎóǎóóìýí ðñìǎéßíǎóǎ óǎ ìéǎ ǎǎéǎðÛóóǎóç òìõ FreeBSD. Èé áóòùð ì ǎßóèìò ðñÝðǎé íǎ ǎßíǎé bootable. Èǎ ðñÝðǎé áðßóçð íǎ ðǎñéÝ ÷ ǎé Ýíǎ óóìðéǎóìÝíí ǎíóßǎñǎóì òìõ CVS repository óóìí éǎðÛéìǎñ CVSROOT éǎé ǎǎßǎìǎóǎ áðù ǎìðìñééÛ ðñìǎñÛìǎóǎ óóìí éǎðÛéìǎñ commerce.

### 3.4.3 Áßóèìé 3 éǎé 4

Ìé òðùéìéðìé ǎòì ǎßóèìé ðǎñéÝ ÷ ìòì áðéðñùóéǎóǎ ðǎéÝóǎ èìǎéóìééíý ǎéǎ òì FreeBSD. Óǎ ðǎéÝóǎ éǎ ðñÝðǎé íǎ ǎßíǎé ñǎǎìðìéçíÝíǎ, Ýóóé ðóóǎ èÛèǎ ðǎéÝòì íǎ ǎßíǎé óóìí ßǎéì ǎßóèì ìǎ ùéǎ óǎ ðǎéÝóǎ áðù óǎ ìðìßǎ ǎíǎñðÛóǎé ǎéǎ íǎ ǎǎéǎðǎóóǎéǎß éǎé íǎ òñÝíǎé. ðǎñéóóùðǎñǎð ðéçñìõññßǎð ǎéǎ òçí ǎçìéìõñǎßǎ áóòðí òùí ǎßóèùí ǎíǎóÝñìíóǎé óóì Ûñèñí Ç ÎñÃÛñóç èǎìóçð òùí ðǎéÝòùí Èìǎéóìééíý áðù Òñßòìòð (../releng-packages/article.html).

## 4 Áéǎíñß òùí Áêäüóàùí

### 4.1 ÁìòðçñǎðçðÝò FTP

¼óǎí ç Ýéǎìóç ǎßíǎé Ýóìéìç, Ý ÷ ǎé ǎìééìǎóóǎß ǎéóǎìðò, éǎé Ý ÷ ǎé ðǎéǎðǎñéóóǎß ǎéǎ ǎéǎíñß, ì éýñéìò FTP ǎìòðçñǎðçðò ðñÝðǎé íǎ ǎçìǎñùèǎß. Ìé áðßóçìéé ǎìòðçñǎðçðÝò FTP òìõ FreeBSD ǎßíǎé ùéìé mirrors ǎíùð éýñéìò ǎìòðçñǎðçðò óóìí ìðìßí Ý ÷ ìòì ðñùóǎǎóç ìùí Ûéèìé FTP ǎìòðçñǎðçðÝò. Áóòùð ì ǎìòðçñǎðçðò ǎßíǎé ǎíùóòùð ùð ftp-master. ¼óǎí ç Ýéǎìóç ǎßíǎé Ýóìéìç, ðñÝðǎé íǎ ǎçìǎñùèíýí óǎ ðǎñǎéÛòù ǎñ ÷ ǎßǎ óóìí ftp-master:



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

λέα ἀδῆP web οἰαῖβᾶᾶ ὄϊο ὀᾶῖῖÉY ÷ ᾶέ ᾶᾶβῆοᾶᾶ οᾶ ᾶέUοῖῖῖῖῖῖ οῖῖᾶῖᾶῖῖῖῖ FTP ῆᾶᾶῖῖῖῖῖῖ ᾶῆᾶ ὀῖῖ ὀῖῖY ÷ ῖῖᾶᾶ Yῆᾶῖᾶῖᾶ ὀῖῖ FreeBSD.

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

Ἰ ἐὰν ὤψεται αὐτὸν οἱ ἰδιῶται ἰδιῶται ἰὰ ἀβήτοι ἀσέδοαδὸ ὤσας ἰὺ ὅν FTP, ὑδὺν οἱ Ὑ ÷ ἀε δὴ ἀσέδοι ὤσας ὅ ἀσέδοι **P** make release.

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

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

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

Îéá óõïâîëëêÐ óõïôùîâõóç ãéá ôîí êáôÛëîäî .../.../.../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.

Ἄεά ḁāñēōōūōāñāð ðēçñīrōĩñßāō ó÷āđēēŬ īā ôçĩ īñāŬñūôç ôũĩ mirror æéáññðò FTP õĩõ FreeBSD, ḁāñæéäëþ äåßôå õĩ Ũñēñĩ ÖðēŬ÷ñĩôåđ Ýíá FreeBSD mirror (/./hubs/).

Ἰδιναῖς ἱὰ δὴ ἄνεσθαι τὸ πᾶν αὐτῶν ὁμοῦ ὁμοῦ δὲ αἰσθάνουσαι τὴν ftp-master ἱὴν τῆς αἰσθάνουσαις ὁμοῦ  
 δεσφύουσαι αὐτῶν ὁμοῦ δὲ ἄνεσθαι τὸν FTP mirror ἱὰ ὁμοῦ τῆς Ἑσφύουσαι. Ἀνεσθαι αὐτῶν τὸν δεσφύουσαι Ἑσφύουσαι ἱὰ  
 ὁμοῦ αἰσθάνουσαι ἱὰ ὁμοῦ αἰσθάνουσαι τὸν εἰς αὐτῶν mirror sites αὐτῶν FreeBSD  
 (<http://lists.FreeBSD.org/mailman/listinfo/freebsd-hubs>) ὁμοῦ αἰσθάνουσαι ὁμοῦ αἰσθάνουσαι αἰσθάνουσαι αὐτῶν  
 Ἑσφύουσαι αὐτῶν αἰσθάνουσαι αὐτῶν FTP.

#### 4.2 Àáæéêþ Áíáðáñáũùãþ ôúi CD-ROM

[illegible]

5 Åăăêôáóéìüôçôá

[illegible]

## 5.1 Äçĭēĩōñāßá ÐñĩóáñĩĩóĩŸĩũĩ Äéóēāōōpĩ Äēēßĩçóçð.

ÐĩēēŸð āēēāóáóōŨóāēð Ÿ÷ĩōĩ ðĩēŸðēĩēāð áðāēðPóāēð ðĩō ĩðĩñāß ĩā òç óāēñŨ òĩōð ĩá áðāēðĩŸĩ òçĩ ðñĩóēPēç ðñāēóóũðāñũĩ ĩāçāpĩ P āñāāēāßũĩ ÷ñPóðç òóēð āēóēŸððāð āāēāðŨóóáóçð. Ĩ “ĩðāēŨēēēĩō” òñũðĩō ĩá òĩ ēŨĩāðā áððũ āßĩāē ĩá ēŨĩāðā òēð āēēāŸð óāð óõĩĩ ēāðŨēĩāĩ ðĩō Ÿ÷āē āðĩēĩŨóāē ĩāðŨ òĩ òŸēĩð òçð ç āēāāēēāóßá make release:

- ÐāñŨóðā òā patches óāð P ðñĩóēŸóðā òā āðēðēŸĩĩ āñ÷āßā ĩŸóā óõĩĩ ēāðŨēĩāĩ chroot òçð Ÿēāĩóçð.
- `rm ${CHROOTDIR}/usr/obj/usr/src/release/release.[59]`
- ĩāðāēũððóðā ðŨēē òĩ sysinstall(8), òĩĩ ðñPĩā, P ũðĩēā Ũēēā ðñĩāñŨĩāðā Ÿ÷ĩōĩ āðçñāāóðāß áðũ òēð āēēāŸð óāð.
- `chroot ${CHROOTDIR} ./mk floppies`

Ĩē ĩŸāð āēóēŸððāð āāēāðŨóóáóçð ēā äçĭēĩōñāçēĩŸĩ óõĩĩ ēāðŨēĩāĩ `${CHROOTDIR}/R/stage/floppies`.

ĀĩāēēāēðēēŨ, ĩðĩñāßðā ĩá ÷ñçóēĩĩðĩēPóāðā òĩ make target boot.flp, P ĩðĩñāßðā ĩá òñŸĩāðā áðāðēāßāð òĩ script ðĩō äçĭēĩōñāßá òā óðððPĩāðā āñ÷āßũĩ src/release/scripts/doFS.sh.

Ĩðĩñāßðā āðßóçð ĩá ēāñĩßóðāð þóðā āēēŸð óāð āēēāŸð ĩá ðñāāóóĩŸĩ ĩā ĩññōP patch óççĩ Ÿēāĩóç ũðũð ēā òēēŨ÷ĩāðāē, āßñĩĩðāð òēĩP óççĩ ĩāðāāēçðP LOCAL\_PATCH ũðāĩ òñŸĩāðā òçĩ āĩðĩēP make release.

## 5.2 Ðñĩāñāĩĩāðßēĩĩóāð òĩ sysinstall

Œĩ āñāāēāßĩ āāēāðŨóóáóçð ēāē ñŸēĩēóçð òĩō FreeBSD, òĩ sysinstall(8), ĩðĩñāß ĩá ðñĩāñāĩĩāðēóðāß āēā ĩá ēŨĩāē ðēĩ āŸēēāð òēð áððñĩāðĩðĩēçĩŸĩāð āāēāðáóðŨóāēð òā ðĩēēŨ ĩç÷āĩPĩāðā. Áððũ òĩ ÷āñāēðçñēóðēēũ òĩō ðñĩāñŨĩāðĩð ĩðĩñāß ĩá ÷ñçóēĩĩðĩēçēāß òā óõĩāðóáũĩ ĩā òĩ PXE[13] òçð Intel āēā ĩá ĩāēēĩPóāē ç āāēāðŨóóáóçð áðũ òĩ āßēðõĩ, P òā óõĩāðóáũĩ ĩā ðñĩóáñĩĩóĩŸĩāð āēóēŸððāð āēēßĩçóçð ēē Ÿĩā sysinstall script. ĩá ðāñŨāāēāĩā áðũ òŸðĩēĩ sysinstall script ĩðĩñāßðā ĩá āñāßðā òðĩ āñ÷āßĩ src/release/sysinstall/install.cfg.

## 6 ĩāēPĩāðā ðĩō ÐPñāĩā áðũ òçĩ êäĩóç 4.4 òĩō FreeBSD

Ç āēāāēēāóßā āðĩēĩāðāð òçð Ÿēāĩóçð 4.4 òĩō FreeBSD ĩāēßĩçóā āðßóçĩā òçĩ ĩç ÁðāĩŸóðĩō 2001. ĩāðŨ áðũ áððP òçĩ çĩāññĩçĩßā, ũēāð ĩē āēēāŸð óõĩĩ ēĩñĩũ RELENG\_4 òĩō FreeBSD Ÿðñāðā ĩá Ÿ÷ĩōĩ Ÿāēñēóç áðũ òçĩ Release Engineering Team <re@FreeBSD.org>. Ç ðñþðç āĩēēĩāðóðēēP Ÿēāĩóç āēā òçĩ āñ÷ēðāēðĩēēP x86 Ÿāēĩā āēāēŸóēĩç óóēð 16 ÁðāĩŸóðĩō, ēē āēĩēĩðēPēçēā áðũ 4 āēũĩā āĩēēĩāðóðēēŸð āēāũóāēð ðĩō ĩāPāçóāĩ òçĩ òāēēēP Ÿēāĩóç óóēð 18 òĩō ÓāððŸĩāñç. Ĩ òðāŸēðñð áóðŨēāēāð Ÿðāēĩā òçĩāĩðēēũ ñũēĩ ēāðŨ òçĩ āēŨñēāēā òçð òāēāððāßāð āāāñŨāāð ēāēþð ēŨðĩēā ðñĩāēPĩāðā áóðŨēāēāð āñŸēçēāĩ òā ðñĩçāĩŸĩāĩāð, āĩēēĩāðóðēēŸð āēāũóāēð. ÓõñēēēŨ, ðŨĩũ áðũ 500 email óðŨēēçēāĩ òçĩ Release Engineering Team <re@FreeBSD.org> òā āēŨóççĩā ĩēēñũðāñĩ áðũ Ÿĩā ĩPĩā.

Ç ēēĩēũðçðā òũĩ ÷ñçóðpĩ ĩāð Ÿēāĩā óāũŸð ũðē ç áóðŨēāēā ēāē ç óðāēāñũðçðā ĩēāð Ÿēāĩóçð āāĩ ēŨ 'ðñāðā ĩá ēððēŨæāðāē āēā ēāĩāũð āßāũð ðñĩēāóĩßāð P çĩāññĩçĩßāð ðĩō Ÿ÷ĩōĩ òāēāß óāĩ òðũ÷ĩē áðũ ðñēĩ. Œĩ FreeBSD Ÿ÷āē ĩāāāēþóāē āñāĩāðēēŨ ēāðŨ òç āēŨñēāēā òçð æũþð òĩō óāĩ óŸóççĩā, ēāē ç āĩŨāēç āēā óðāēāñēēĩŸĩç ðĩēēðēēP ēāē ĩñāŨĩũðç āēā òçĩ äçĭēĩōñāßā ĩŸũĩ āēāũóāũĩ āßĩāē ðēŸĩĩ óāĩāñP ðñāēóóũðāñĩ áðũ ðĩōŸ. ÁððP ç āĩŨāēç ēā āßĩāē āēũĩā ðēĩ òçĩāĩðēēP ēāēþð òĩ FreeBSD ēā āñ÷āßāē ĩá ĩāðāŸŸñāðāē òā ĩŸāð ðēāðũñĩāð.

## 7 ÎäëïïôëéÝò Êáôáðëýíóáëò

Ãßíáë æüðëëðò óçíáóßáð ïë ðñáëðëéÝò éáë ç ïñÃÛîóç òçð ðëááëéáóßáð äçíëíðñáð òùí Æëüüóàùí íáð íá óðíááßæííí ïá òçí óðíá÷ð ðóíáíííáíç áÛóç òùí ÷ñçóðíí íáð. Ìá áÛóç áððð òç óëÝðç ðñááæííáóðá ðëëçñÛ áëá íá ðáëíçñëðóíðíá òçí ðëááëéáóßá ðñáááùðð òùí Æëüüóàùí òîõ FreeBSD.

- *ÐáñÛëëççç áëðÝëáóç* - ÌáñëéÛ ïÝñç òçð ïáðááëðððëóçð ïéáð ðáëáðÛóðáóçð ïðñíýí íá ðñíííí “ðñëý ðáñÛëëçççá”. Óá ðëí ðñëéÛ áðü ðá óðÛáëá áßíáë I/O intensive, ïðüðá ç ýðáñíç ðñëëðí ððçëðð-ðá÷-ýðçðáð ðßóëüí áßíáë ðëí óçíáíðëëð áðü òçíí ÷ñðç ðñëëðí áðáíáñáóðíí áëá íá áðëóá÷ðíëáß ëÛðüð ç ðëááëéáóßá ðîð make release. Áí ðáëóíñáðëëëß ðßóëíë ÷ñçóëíðñëççýíí áëá ðíðíáðá òçð éáñáñ÷ðð ðîð chroot(2) ðñáëáÛëëíððð, ðüðá ðí CVS checkout òùí éáðáëüüáí ports éáë doc ïðñíáß íá áßíáë ðáððü÷ñííá ïá òçí áñííëð make world ððñí Ûëëí ðßóëí. ×ñçóëíðñëðíóáð ïéá RAID ëýóç (hardware ð software) ïðñíáß íá ïáëðóáë ðñáóóëéÛ ðñí óðñíëëü ÷ññíí ðîð ÷ñáëÛáðáë íá ïáðááëüððëóóáß ïéá ðëðñçð Ýëáíóç.
- *Ïáðááëðððëóç ðëüüóàùí áëá ðëáðñáðëéÝò áñ÷éðáðñíëéÝò* - ÈÝëáðá íá ïáðááëüððßóáðá ïéá Ýëáíóç áëá IA-64 ð Alpha óá ëÛðíëíí x86 áðáíáñáóðð? make TARGET=ia64 release.
- *ÃñëéíÝð áëá ëÛëç* - ×ñáëáæííáóðá éáëýðáñá ðñááëéáß áëá áððüíáðí Ýëáñ÷í ïñëüðçðáð ððñí FreeBSD.
- *Ãñááëáßá ÆáëáðÛóðáóçð* - Óñ ðñüáñáñÛ íáð áëá òçí ðáëáðÛóðáóç ðîð FreeBSD Ý÷áë ïáðáñÛóáë ðñí ðñëëý ðñí áíáíáñííí ÷ññíí æüðð ðîð. ÕðÛñ÷ííí ðëÛíñáð ïñÛáð ðîð ðñáÛëííóáë áëá íá ðëíðñëðóííí ëÛðíëíí Ûëëí, ðëí ïñóÝñíí íç÷áíëóí ðáëáðÛóðáóçð. Ìéá áðü ðëð ðëí ððíó÷íáíáð, áßíáë ç ïñÛáá libh[5] ðîð óðí÷áýáë òçí ðëíðñçç ðñüð Ýñððñí, íÝñ ðñüððð ðáëáðáñßóíáððð ëñáóíëëý éáë áñüð GUI ðñíáñÛíáððð ðáëáðÛóðáóçð.

## 8 Æ÷áñéóóßáð

Èá ðëáëá íá áð÷áñéóððóù ðñí Jordan Hubbard, ðîð ïñó Ýäüóá òçí ððëáëñßá íá ðÛññ ëÛðíëá áðü òçí áðëýíç òçð Ýëáíóçð 4.4 ðîð FreeBSD, éáëðð éáë áëá ïëç òçí ðñóëéÛ ðîð Ý÷áë ëÛíáë áðð éáë ÷ññíéá áëá íá áßíáë ðñí FreeBSD áððü ðîð áßíáë óðíáñá. ÕóóëéÛ, ç Ýëáíóç ááí éá ðóáí ðñóÝ äðíáðñí íá ïñíëçññüëáß ÷ññßð ïëç òçí ó÷áðëëð ïá òçí Ýëáíóç ðñóëéÛ ðîð 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> éáë ïñíë ïé ððñíëëðíë ðîð áð÷ññíýíóáë ïá òçí áñÛððíç ðîð FreeBSD. ÈÝëü áðßóçð íá áð÷áñéóððóù ðñíðð Rodney Grimes <rgrimes@FreeBSD.org>, Poul-Henning Kamp <phk@FreeBSD.org>, éáë ïñíðð ðñíð Ûëëíðð ðñí ðñáÛóççáí áëá íá ððëÛñííí ðá ðñááëáßá áëá ðëð ðëüüóáëð óóëð ðñððáð ïÝñáð òçð äçíëíðñáð ðñí FreeBSD. Áððü ðñ Ûñëñí Ý÷áë áðçñááóðáß áðü éáßíáíá ó÷áðëëÛ ïá òçí ïñÃÛîóç òùí Æëüüóàùí áðü ðñ CSRG[14], òçí ïñÛáá ðñí NetBSD[11], éáë òçí ðñüðáóç áëá ïéá ðëááëéáóßá ïñÃÛîóçð òùí Æëüüóàùí 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](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>)