

Ç ĨñãŨíùóç ôùí Âêäüóãùí ôĩõ FreeBSD

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03:10:52 keramida Exp \$

Áðòù òĩ Ũñèñĩ ðãñéãñŨöáé ôçĩ áĩòéĩãððéóç éáé ĩñãŨíùóç ôçò ñŨãáð áĩŨððòĩçð òĩõ FreeBSD, ùóĩĩ áðĩñŨ óôçĩ ðñĩãðòĩéĩáóßá ðĩéĩðééðĩ äêäüóãùĩ òĩõ Êäéðĩðñäéçĩ Óðóðßĩáðĩð FreeBSD. Âĩçããß ĩã äãððñŨŨñáéá ôçĩ ĩäèĩäĩèĩãßá ðĩõ ÷ñçóéĩðĩèĩãßóáé äéá ðéð äðßóçĩãð äêäüóãéð òĩõ FreeBSD éáé ðãñéãñŨöáé óá ãñãáéãßá ðĩõ äßĩáé äéáéŸóéĩá óá ùóĩðð áĩáéáóŸñĩóáé ĩá ðãñŨãĩðĩ ðãñãĩãðñĩðĩéçĩŸĩãð äêäüóãéð òĩõ FreeBSD äéá áóùðãñééð ð äĩðĩñééð ÷ñðóç éáé áĩŨððòĩç ðñĩũĩũĩðùĩ.

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1 Áéóáãũãð

Ç áĩŨððòĩç òĩõ FreeBSD äßĩáé ĩéá ðĩéŸ áñé÷ðð äéãäééãóßá. Òĩ FreeBSD áðĩðãéãßóáé äðũ óóĩãéóóñŸð ÷éééŨãũĩ áĩèñðùĩ äðũ ùéĩ òĩĩ èũóĩĩ. Ç ñŨãá òĩõ FreeBSD ðãñŸ ÷äé ðñũóãáóç ĩŸóũ áĩðĩðĩð CVS[1] óá ùéĩðð, Ÿðóé þóðã ĩá ĩðĩñãß ùðĩéĩð èŸéäé ĩá ääé ĩçĩŸĩáðá log, äéãðñŸŸð (patches) ðĩõ Ÿ÷ĩðĩ óá äéŨðĩñã development branches, éáé Ũéëã ÷ãñãéðçñéóðééŨ ðĩõ äĩçéĩŸĩ ôçĩ áĩŨððòĩç, óá ĩðĩßá ðñĩéŸððĩðĩ äðũ ôçĩ ÷ñðóç áĩũð áðððçñĩŸ óðóðßĩáðĩð äéã÷ãßñéóçð èðäééá. Áðòù áðĩðŸéãóá éáé òĩĩ ðéĩ óçĩáĩóéèũ ðãñŨãĩðá Ÿéĩçð äéá Ÿĩá ĩããŨéĩ äñéèũ äðũ óáéáĩðĩŸ÷ĩð ðñĩãããĩãðéóðŸð äðũ ùéĩ òĩĩ èũóĩĩ óóĩ FreeBSD. Âßĩáé ðñĩðãĩŸð, äŸãáéá, ðùð ðĩéŸ óŸĩðñã éã äß÷ã äßĩáé áĩðãèð ÷ãĩðééð ç éãðŨóðáóç áĩ äß÷ãĩ ùéĩé, äðũ ùéĩ òĩĩ èũóĩĩ, ðñũóãáóç ĩá ãñŨðĩðĩ óóĩ èðäééá. Äé’ áðòù, ĩũĩ ĩéá “ãðééããĩŸĩç” ñŨãá äðũ 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

[illegible]

Ίε οά÷ýðáoðιε ñðειñß ářŨðððñçð ðιò FreeBSD áář áðßññí έάε ðιεύ ÷ ñññř áέα ðι řάέαεŨñέοιá ðιò ððððßřáðιð
 ářŨðððñçð ðá řέα Ýέαιòç řá ðιεύððçðá ðιò řá ářßέαε řá ÷ ñççέοιřðιέαßðάε áðñÝùð. Άέα řá εðέαß áððñ ðι
 ářŨðððñçð áßřáðάε ðáððñ÷ ññřá ðá áðι ðáñŨεεçέα řñřðŨðέα. Ĩ έýñείð εññññð ářŨðððñçð áßřάε Ĩ **HEAD** ð **trunk** ððι CVS
 repository řáð, ářñðððð òέάε ùð “FreeBSD-CURRENT”, ð “-CURRENT” ář ððñññßá.

ἴαο δέῃ ὁδᾶἑαῖνιὺδ ἐῖνιὺδ ὁδῶδῃαβῶδᾶῃ, ἀῖνιὺδὺδ ἰᾶ ὁῖ ὑῖνᾶ “FreeBSD-STABLE” ἔ δέῃ ὀῖῥῥᾶ “-STABLE”. Ἐᾶῃ ἱῃ ἁῖ ὀῖνῖβ ἁβῖᾶῃ ἁδῖῃῃῃῃῃῃῃῃ ὀῖ ὀῖνῖῃ CVS repository, ὀῃῃ Ἐᾶῃὀῖνῖᾶ, Ἐᾶῃ ἁῖὀῃῃῃῃῃῃῃῃ ἰῃῃ ὀῖνῖῃ **CVSup**[2] ὀᾶ mirrors ῥᾶῖῃῃ ὀῖῃ ὀῖῃῃ. Ὀῖ FreeBSD-CURRENT[8] ἁβῖᾶῃ ῃ “ῥῃῃῃ ὀᾶῃῃῃ” ὀῃῃ ἁῖῃὀῃὀῃὀῃὀῃ ὀῖῃ FreeBSD Ἐᾶῃὀῃ ὀᾶ ἁὀὀῃ ἁβῖῃὀᾶῃ ῥῃὀᾶ ἱῃ Ἐᾶῃῃῃῃᾶ ἁῃῃᾶῃῃ. Ὀῖ FreeBSD-STABLE ἁβῖᾶῃ ἱ ὀῖνῖῃ ἁῖῃὀῃὀῃὀῃ ἁὀῃ ὀῖῃ ῖὀῃῃ ὀὀῃῃῃῃῃῃῃῃ ἱῃ ἁῃὀᾶὀᾶὀ. ἱῃ ἁῃῃᾶῃῃ ἁὀῃῃῃῃῃῃῃ ὀᾶ ἁὀὀῃ, ὀῖῃ ἁῃὀᾶῃ ὀῖνῖῃ ἁῖῃὀῃὀῃὀῃ, ἰᾶ δέῃ ἁῃᾶῃ ῃὀῃῃ, ἁὀῃῃ ῥῃὀᾶ (ὀῃῃῃῃ ἰᾶ ὀῃῃ ῥῖῃὀὀῃῃ ἰᾶ) ἁῖῃῃᾶὀὀῃῃ ὀῖῃ FreeBSD-CURRENT Ἐᾶῃ ῃῃῃῃῃ ἁῖὀᾶὀᾶὀᾶὀ ῥῖῃ Ἐᾶῃῃ.

[illegible]

Όρία÷πο οόÝεirióáé áðu ôiôð ÷ñPóðáð iáo áíáöiñÝð ðñiáεçìÜòùí éáé áéðPóáéð áéá éáéirýnéá ÷áñáéðçñéóóééÜ, éáôÜ ôç áéÜñéáéá ôiô éýééiô ôçð éÜèá Ýéáiôçð. Ié áíáöiñÝð ðñiáεçìÜòùí áéóÜáñióáé óôçí áÜôç **GNATS**[9] iÝóù e-mail, iá ôçí áöáñiñáP send-pr(1), P iÝóù ôiô web-interface ôiô ðáñÝ÷áðáé óôçí áéáýéôióç <http://www.FreeBSD.org/send-pr.html>. Áêòùð áðu óéð áéÜöiññáð éßóðáð çáêòññiééýi óá÷öáññáßiô iá éÝiá óá ðá÷iééÜ ÷áñáéðçñéóóééÜ ôiô FreeBSD ôðÜñ÷áé éáé ç éßóðá çáêòññiééP éßóðá ÁéÝá÷iô éáé ÁíáóóÜééóçð Ðiéúôçóáð ôiô FreeBSD (<http://lists.FreeBSD.org/mailman/listinfo/freebsd-qa>), ç iðißá ðáñÝ÷áé Ýiá öüñiôì áéá óðæçðPóáéð ó÷áðééÜ iá óéð éáððñÝñáéáð ôçð “ññáÜñúôçð òùí áéäüóäùñ”.

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 ðáεέεß Ἰέαίòç. ἸáðÜ ðçí áíáείßñύòç ðçð Ἰέαίòçð, íυñ ðίεý ççίáíðéeÝð áεεááÝð εáε ðñíòεÞεáð ó÷áðéeÝð íá ðçí áóðÜεάá áßñííóáε óðίí çíñíυ ðçð Ἰέαίòçð. Ἀέυòð áðυ ðçí áñíáðυðçðá áíááÜείεòçð íÝóυ CVS, áέðáεÝóεíá patchkits òðεÜ÷ñííóáε áεά íá ðίñíýí íá áíáááείßòίí ðá óðóðÞíáðÜ ðíðð υóίε ÷ ñçòçείñðίείρýí ðéð áεáυóáéð *RELENG_X_Y*.

Οι ΌιΠια 2 αϊααβ ια εαδδδνΥναεαδ οα αεÜοιηα οδÜäεα οζδ αεαäεεαοβαδ διο ανβδδδäε δβδύ αδυ εÜεα Υεαϊοç, ιΥ ÷ñε εäε οα äΠιαδä διο ιαçαϊρϊ οδçι ιαδäαεβδδδεοç διο οδδδΠιαδιδ εäε δι ΌιΠια 3 αϊααβ οçι βαäε οç αεαäεεαοβä οζδ ιαδäαεβδδδεοçδ. Οι ΌιΠια 5 δανδανÜοäε δυδ ιδινββ ιä äδäεδäεäβ δι äαοέευ ογδδçια αδυ οηβδιτδ εäε δι ΌιΠια 6 δανδανÜοäε εÜδιδεä αδυ οα δηÜαδä διο ιÜεαιä αδυ οçι αεαäεεαοβä Υεαϊοçδ διο FreeBSD 4.4. ΟΥειδ, δι ΌιΠια 7 δανιδδδεÜäε εÜδιδεäο αδυ οεδ εαδäδδδγιäεδ διο εΥειδιä ιä δÜηäε ç αΓÜδδδδç οδι ιΥεει.

2 Ç Äéääéêáóßá Äçïéĩõñãßáo ìéáò êäïóçò

Ίε ιΎάο άέαυόάέο όις FreeBSD όόεΰ÷-σίοάέ άδύ όις -STABLE έιμιύ άίΰόόόις όάσβδισ έΰέα όΎόόάσάέο ιΰίάο. ϸ έέάέέέάόβá όσισόίειάόβáό έέάό Ύέαιόςό ίάέέΰάέ ό÷άαίς 45 ιΎσάό όσεί όςί άίάίάίάίς ϸάσσςίβá Ύέαιόςό, υόάί ι όδáyέόσδ όέάυόάίς όις FreeBSD όόΎέίάέ Ύίá άσΰίá όόέό έβόόá όυί όσισάσάέόέόόίς άέά ίá όδάέέόίβáέ όόίςό όσισάσάέόέόόΎό υόέ Ύ÷ίς 15 ιΎσάό έάέσυ ίá έΰίςίς υδέέάό άέέάΎό έΎέίς, όσεί όί δΰάσά όις έβáέά. ΊΎόά όά άόόυ όις έάέσυ, όέέέίβ όσισάσάέόέόόΎό έΰίςίς ίέά όάέσΰ άδύ άέέάΎό όίς Ύ÷ίς ίάβίáέ δέΎίς άίυόόΎό υό “ίάέάέάσβόίάόά MFC”. Ί υίςίς MFC όςίάβίáέ “Merge From CURRENT” έάέ δάέέάσΰάέ όςί έέάέέέάόβá όσισάσάέό

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

2.1 Ğāā÷ĩō Ēpāēēā

ŌñēŪiōā çĩŸñāð ðñēĩ òçĩ áĩáĩāĩũĩāĩç çĩāññĩçĩā Ÿēāĩōçð, ĩ ēpāēēāð òĩō repository áēóŸñ÷āðāē óā iēā ðāñbĩrāĩ “ēāēðóóŸñçóçð”. ĒāðŪ òç āēŪñēāēā áððð òçð ðāñēũāĩð, ũēāð iē āēēāāŸð óðĩĩ -STABLE ēĩñĩũ ðñŸðāē iā Ÿ÷ĩōĩ òçĩ Ÿāēñēóç òçð Release Engineering Team <re@FreeBSD.org>. Ĩē āēēāāŸð ðĩō āðēōñŸðĩiōāē óā áððð òçĩ ðāñbĩrāĩ ðĩō āēāñēāb 15 çĩŸñāð ābĩāē:

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

ĨāðŪ òēð ðñpóāð 15 ĩŸñāð ēāēðóóŸñçóçð, òðēŪ÷iāðāē iēā āiēēiāóóēēp Ÿēāĩōç āēā iā ÷ñçóēĩĩðĩēçēāb óāĩ āiēēĩp òçð ðāēēēpð Ÿēāĩōçð ēāē ĩ ēpāēēāð áēóŸñ÷āðāē óā iēā ðāñbĩrāĩ “ðāāpĩāðĩð”. ðēŸĩĩ ābĩāē ðĩēŸ ðēĩ āŸóēĩēĩ iā ābĩiōĩ iŸāð āēēāāŸð óðĩ óŸóðçĩā, āēðũð ēē áĩ āēĩñēpñĩōĩ ēŪðĩēĩ ðĩēŸ òĩāāñũ bugp ēŪðĩēĩ ðñũāēçĩā áóðŪēāēāð. ĒāðŪ òç āēŪñēāēā òĩō ðāāpĩāðĩð òĩō ēpāēēā, òĩōēŪ÷ēóðĩĩ ĩbā āiēēiāóóēēp Ÿēāĩōç òðēŪ÷iāðāē ēŪēā āāāñŪāā, ĩŸ÷ñē iā ābĩāē Ÿōĩēĩç ç ðāēēēp Ÿēāĩōç. Ōēð çĩŸñāð āēñēāpð ðñēĩ òçĩ ðāēēēp Ÿēāĩōç, ç ñŪāā ðĩō ābĩāē òðāŸēðĩç āēā òēð āēāũóāēð ābĩāē óā óðĩā÷p āðēēĩēĩũĩbā ĩā 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 Ÿēāĩōç ābĩāē āēāēŸóēĩā.

2.2 Ēbóóā ĀēŸā÷ĩō òçð Ōāēēēpð Ğāĩōçð

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

2.2.1 Āçĩēĩōñābā òĩō ēĩñĩŸ Ğāĩōçð

Ÿðũð ðāñēāñŪøāĩā óðçĩ āēóāāũāp, ĩē ēĩñĩb RELENG_x_y ābĩāē iēā ó÷āðēēŪ iŸā ðñĩōēðēç óðçĩ ĩāēĩāēĩābā òũĩ āēāũóāĩ iāð. Ōĩ ðñpðĩ āpĩā óðçĩ āçĩēĩōñābā áðōĩŸ òĩō ēĩñĩŸ ābĩāē iā āāāāēũēābðā ũðē āĩōēāŸāðā ĩā òçĩ ðāēāðóābā Ÿēāĩōç òĩō ðçāābĩð ēpāēēā áðũ òĩĩ RELENG_x ēĩñĩũ áðũ òĩĩ ĩðĩbĩ ēā òðēŪiāðā òĩ iŸĩ ēĩñĩũ.

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

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

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

Ēāē òũðā ĩðĩñābðā iā āçĩēĩōñāpóāðā òĩ iŸĩ ēĩñĩũ 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`.

Áōiŷ iēēēçñùēāß ç ðñīāōiēiāóāß òçð iŷāð āðßçìçð Ýēāiōçð, ðñÝðāē íā áíçīāñþóāðā iāñēēŪ āñ÷āß āēā íā áíçīāñþóāðā òiī ēüōiī āēā òç iŷā Ýēāiōç òiō FreeBSD.

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

2.2.3 Āçīēiōñāßā òuì Āōēēāðī òçð ēāiōçð

¼ðāí ç òāēēēß Ýēāiōç āßiāē Ýōiēiç, ç ðāñāēŪðū āíōiēß ēā āçīēiōñāþóāē òçí āðēēÝðā `RELENG_4_8_0_RELEASE`.

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

İē ððāŷēðñē òçð Ōāēiçñßùçð ēāē òuì Ports āßiāē āðōiß ðiō ðñÝðāē íā āçīēiōñāþóāē òēð āðēēÝðāð `RELEASE_4_8_0` óā ēāðŪēēçēā āŷiōñā ðçāāßiō ēþāēēā.

İāñēēÝð òñÝð, iðñāß íā ÷ñāēāóðāß íā āßiōi ēŪðīēāð āēēāāÝð òāēāðōāßā óðēāiß *iāðŪ* òçí òiðñēÝðçç òuì āðēēāðī. ĀāiēēŪ, āāi āßiāē āŷōēiēi íā āßiāē ēŪðē òÝōiēi āōiŷ òi CVS āðēōñÝðāē íā iāðāēēiþóāē ēŪðīēið òēð āðēēÝðāð iā āíōiēÝð ùðð ò `cvs tag -d tagname filename`. Āßiāē ðñēŷ óçīāíðēēü ùiðð āððÝð iē āēēāāÝð òçð òāēāðōāßāð óðēāiþð íā óçīāēüēiŷi iā òēð óuóðÝð āðēēÝðāð āēā òçí óðāēāñēiŷiç Ýēāiōç. İē āðßçìāð āēāüóāēð òiō FreeBSD ðñÝðāē íā āßiāē ðŪíðā āŷēiēi íā āíāðāñā÷ēiŷi. ŌiðēēÝð āēēāāÝð óōi ðāñēāŪēēiī òiō iç÷āíēiŷi òuì āēāüóāuī āāi āðēōñÝðñiðāē.

3 İāðāāēþðōēóç òçð ēāiōçð

İē “āēāüóāēð” òiō FreeBSD iðñiŷi íā iāðāāēüððēóðīŷi āðü iðīēiñāþðiðā Ý÷āē Ýiā ó÷āðēēŪ āñþāñi iç÷Ūiçīā ēāē ðñüóāāç óōi repository òiō ðçāāßiō ēþāēēā. (¼ēiē Ý÷iōi āððß òç āðīāðüðçðā, āōiŷ ðāñÝ÷iōiā ðñüóāāç iŷōü āiþiðiō CVS! Āāßðā òi Āā÷āēñßāēi òiō FreeBSD āēā ðāñēóóüðāñāð ēāððñÝñāēāð.) Ç iüiç āēāēēß āðāßðççç āßiāē íā ððŪñ÷āē ððiððñēiç óōiī ððñþiā óāð āēā òçí óðōēāðß `vn(4)`. (Óōi `-CURRENT`, āððß ç óðōēāðß Ý÷āē āíðēēāðāóāēāß āðü òçí iŷā óðōēāðß āßóēiō āāóēōiŷiñ òā iþiç `md(4)`.) Áí ç óðōēāðß āāi āßiāē āíōüiāðüiŷiç óōiī ððñþiā óāð, òüðā i ēāðŪēēçēið iāçāüð ēā òñðüēāß āððüiāðā üðāí āēðāēāðōāß ç āíðēēß `vnconfig(8)` ēāðŪ òç āēŪñēāēā òçð òŪççð āðīēiāóßāð òiō iŷōiō āēēßiççð. ¼ēā ðā āñāāēāßā ðiō ÷ñāēŪæiñðāē āēā íā iāðāāēüððßóāðā iēā Ýēāiōç āßiāē āēāēÝðēiā óā iññðß ðçāāßiō ēþāēēā óōiī ēāðŪēiēi `src/release`. ĀððŪ ðā āñāāēāßā Ý÷iōi ùð óēiðü íā ðāñÝ÷iōi üðē ÷ñāēŪæiñðāē āēā íā ÷ðæiñðāē iē āēāüóāēð òiō FreeBSD iā Ýiā óōiāðß ēāē óðāēāñēiŷiñ òñüði. İēā ðēþñçð Ýēāiōç iðñāß íā iāðāāēüððēóðāß ÷ñçōēiñðēþiðāð āððŪ ðā āñāāēāßā iā iēā ēāē iüñi āíðēēß, óðiðāñēēāiāññÝiçð ēāē òçð āçīēiōñāßāð āíüð ISO āñ÷āßiō ēāðŪēēçēi āēā íā ēāāß óā CDROM, iē āēóēÝððāð āēēßiççð, ēāēþð ēāē i ēāðŪēēçēið āāēāðŪóðāçð iŷōü FTP. Āððß ç āíðēēß āßiāē òðōēēß ç `make release`.

3.1 Ç āíðēēß `make release`

Āēā íā iāðāāēüððßóāðā āðēð÷þð iēā Ýēāiōç, ðñÝðāē ðñþðā íā ððŪñ÷iōi ðā ēāðŪēēçēā āñ÷āßā iŷōā óōiī ēāðŪēiēi `/usr/obj`. İðñāßðā íā ðā āçīēiōñāþóāðā āßðā iā òçí āíðēēß `make world` þ āðēŪ `make buildworld`. Āēā íā

ðáðý÷-áé áðßóçð ç ðáðááêðððéóç òçð Ýêáîóçð ðñÝðáé íá áððáðá ðéð éáðÛêêçðð ðéíÝð éáé ðá ðÛðéáð ðáðááêçðÝð:

- CHROOTDIR - Ì éáðÛêíáðð ðîõ éá ÷ ñçóéíððéççáß ðáí ðáñéáÛêéí chroot áéá üêç òçí ðáðááêðððéóç òçð Ýêáîóçð.
- BUILDNAME - Õî üñíá òçð Ýêáîóçð ðîõ éá ðáðááêüððððáðá.
- CVSROOT - Ì éáðÛêíáðð ððñí ððßí áñßðéáðáé òí CVS repository.
- RELEASETAG - Ç áðééÝðá CVS ðîõ áíðéóððé÷÷ áß ðóçí Ýêáîóç òçí ððßá ðÝéáðá íá ðáðááêüððððáðá.

Áí ááí Ý÷-áðá ðáç ðñüðááóç ðá ðÛðéí ðððéü CVS repository íá ðñí êðáééá ðîõ FreeBSD, ððñáðá ðÛðá íá ððéÛáðá òí áéüü óáð ðððéü CVS mirror íá 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 ððßí ððñáðá íá ÷ ñçóéíððéççáðá áéá íá áíðéáñÛðáðá òí CVS repository ðîõ FreeBSD ððí áéüü óáð ðððéü mirror.

Áí ðáñááßðáðá òçí áðééÝðá RELEASETAG, ðððá éá ðáðááêüððððáß íéá ðêðñçð Ýêáîóç áðü òçí êñððð ðîõ HEAD (áç. ðîõ -CURRENT) êññíý. Ìé áêüüóáðð ðîõ ððéÛ÷-ñíðáé áðü áððñí ðñí êññíü, ððíðèðð áíáðÝññíðáé ðáí “-CURRENT snapshots”.

ÕðÛñ÷-ðñí éáé ððééÝð Ûêêðð ðáðááêçðÝð ðîõ ððñíý íá ÷ ñçóéíððéççáßí áéá íá ðáñáíáðñíððéççáðá òçí Ýêáîóç óáð. Ìé ðéí ððééÝð áðü áððÝð ðéð ðáðááêçðÝð ðáñéáñÛðñíðáé ðóçí êññðð ðîõ áñ÷-áßíð src/release/Makefile. Ç áêñéáðð áíððð ðîõ ÷ ñçóéíððéççáðá áéá íá ððéá÷-ðáß ç áðßóçç Ýêáîóç 4.7 ðîõ FreeBSD (x86 ðéáðüüñíá) 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 ÷ ñçóéíððéççáðáé áéá íá ðáðááêüððððáñíðáé ðé áêüüóáðð ððñáß íá ÷ ðñéóðáß ðá áñéáðÛ ðá÷-ðñéóðÛ ðáðáíý ðîðð áðñáðá.

- Äçíððñáß áñüð éáéáñíý ðáñéáÛêéíððð ðá íéá ðá÷-ðñéóðð éáñáñ÷-ßá éáðáéüüí íá òçí áíððð “make installworld”.
- Áñáñáð áðü òí CVS íéáð éáéñýñéáð Ýêáîóçð ðîõ ðçááßíð êðáééá ðîõ ðððððáðáðð, òçð ðáêñññüóçð éáé ðñí ports ðÝðá ðóçí éáñáñ÷-ßá éáðáéüüí ðáðááêðððéóçð òçð Ýêáîóçð.
- Ñðéíðáðð ðñí áñ÷-áßí ððñí éáðÛêíáð /etc éáé /dev ðÝðá ððí ðáñéáÛêéí chroot.
- ÁêðÝéáóç òçð áíðððð chroot ðÝðá ðóçí éáñáñ÷-ßá éáðáéüüí ðîõ áðéíÛððçéá, áéá íá ðçí ððñáß òí áñððáñéü ðáñéáÛêéí íá áðçñáÛðáé òç ðáðááêðððéóçð òçð Ýêáîóçð.
- ÁêðÝéáóç òçð áíðððð make world ðÝðá ððí ðáñéáÛêéí chroot.
- ðáðááêðððéóç ðñí áêðáéÝóéíð ðîõ áßíáé ò÷-áðééÛ íá òí òýóóçíá Kerberos.
- ðáðááêðððéóç ðîõ ððñðáíá GENERIC.
- Äçíððñáß áñüð ðáéééíý éáðáéüüíð ððñí ððßí éá ðáðááêüðððððíý éáé éá áððéççáððéíý ðé áêðáéÝóéíð ðñðÝð ðñí ðáéééðí ðáéÝðñí.
- ðáðááêðððéóç éáé ááéáðÛððáóç ðñí áñááéáßí ðîõ ÷ ðáéÛáñíðáé áéá òçí ðñíáðñíðáðá òçð Ýêáîóçð éáé òç ðáðáðñíðð òçð ðáêñññüóçð áðü ðñí ðçááßíð êðáééá (SGML) ðá html éáé áñ÷-áßá éáéíÝñíð ðîõ éá ððñááýíðí òçí Ýêáîóçð.
- ðáðáðñíðð éáé ááéáðÛððáóç òçð ðáêñññüóçð (áá÷-áéñßáéá ÷ ððððç, áéóáñüáééÛ éáßíáíá, òçíáêðáðð Ýêáîóçð, êßððð ððñááðððçðáðð ðéééíý, êêð.)

- Îāóāāēpôóéóc òuĩ “ôõĩðéáõĩŸĩũĩ” (crunched) āēôāēŸóēĩũĩ ðĩō éā ÷ ñçóēĩĩðĩēçēĩŸĩ óóēð āéóēŸôôāð āāēáðŪóóáócð.
- Āçĩēĩōñāā ōuĩ ðāēŸôuĩ ôçð āāēáðŪóóáócð éāē òuĩ ðāēŸôuĩ ðçāāβĩō ēpāēēā.
- Āçĩēĩōñāā ōuĩ ìŸóuĩ āēēβĩçóçð éāē ôçð āéóēŸôôāð “fixit”.
- Āçĩēĩōñāā ôçð éāñāñ÷βāð éāóāēüũĩ āēā ôçĩ āāēáðŪóóáóc ìŸóuĩ FTP.
- (ðñĩíēñāôēēŪ) Āçĩēĩōñāā ōuĩ ISO āñ÷āβũĩ āēā ìŸóā CDROM/DVD media.

Āēā ðāñéóóüðāñāð ðēçñĩōĩñāð ó÷āôēēŪ ìā ôçĩ āēāēēāóāā āçĩēĩōñāāð ìēāð Ÿēāĩóçð, āāβôā ôçĩ óāēβāā ôāēĩçñāβũóçð release(7).

3.2 Îāóāāēpôóéóc òuĩ XFree86

Ōĩ āñāóēēũ ðāñēāŪēēĩ **XFree86** āβĩāē Ÿĩā óçĩāĩóēēũ ēñĩŪóē ēŪēā Ÿēāĩóçð āēā ðĩēēĩŸð ÷ ñβóóāð ðĩō ēŸēĩōĩ òĩ FreeBSD āēā óóāēĩŸð āñāóāóāð. ðñēĩ ôçĩ Ÿēāĩóç 4.6-RELEASE òĩō FreeBSD, ìē āðβóçĩāð āēüüóāēð òĩō FreeBSD ÷ ñçóēĩĩðĩēĩŸóāĩ ôçĩ Ÿēāĩóç 3.x òuĩ **XFree86**. Ĭ ðēĩ āŸēĩēĩð ðñũðĩð ìā ìāóāēüðôóóāðā āóðŸð óēð āēüüóāēð āβĩāē ìā ÷ ñçóēĩĩðĩēĩŸóāĩ òĩ ðñũāñāĩā `src/release/scripts/X11/build_x.sh`. Áðũũ òĩ ðñũāñāĩā āðāēðāβ ìā āβĩāē ðāç óóçĩŸĩā óõĩ óŸóçĩŪ óāð òũõĩ òĩ ðāñēāŪēēĩ XFree86 üõĩ éāē ç āēpóóā Tcl/Tk. ÎāðŪ ôçĩ ìāóāāēpôóéóc òuĩ éāðŪēēçēũ X servers, òĩ ðñũāñāĩā éā ðāēāðŪñāē üēā óā āñ÷āβā óā óðēēĩāŸð āñ÷āβũĩ ðĩō ðāñēĩŸĩāē ìā āñāē òĩ `sysinstall(8)` ìŸóā óõĩ ēāðŪēēĩ `XF86336` óõĩ ìŸóĩ āāēáðŪóóáócð.

Îāēēĩpĩóāð ìā ôçĩ Ÿēāĩóç 4.6-RELEASE òĩō FreeBSD, òĩ `sysinstall(8)` āāēāēéóðŪ ôçĩ Ÿēāĩóç 4.x òuĩ XFree86, óāĩ ēāñĩēēŪ ðāēŸóā. ÁððŪ ìðĩñāβ ìā āβĩāē āβôā óā ðāēŸóā ðĩō āçĩēĩŸñāçóā òĩ cluster òuĩ ports ð ìðĩēāāðĩôā Ūēēā ðāēŸóā ðĩō Ÿ÷ĩōĩ āçĩēĩōñāçēāβ āðũ Ÿĩā ports tree ìā ôçĩ ēāðŪēēçç āðēēŸóā.

Óçĩāβũóç: Āβĩāē ðĩēŸ óçĩāĩóēēũ ìā áðāēñŸóāðā āðũ òĩ āñ÷āβĩ `/etc/make.conf` ìðĩēāóāðĩôā òĩðēēŸð ñòēĩβóāēð Ÿ÷āðā ēŪĩāē. Āēā ðāñŪāāēāĩā, āāĩ āβĩāē ēāēp ēāŸā ìā āēāĩŸĩāðā āēôāēŸóēĩā ðĩō Ÿ÷ĩōĩ ìāóāāēüðôóéóāβ óā ēŪðĩēĩ óðāēāēñēĩŸĩĩ óŸóçĩā ìā ìñēóĩŸĩç ôçĩ óēĩp ôçð ìāóāāēçðð `CPUTYPE` āēā āāēóéóõĩðĩβçóç òuĩ āēôāēŸóēĩũĩ āēā ēŪðĩēĩ óðāēāēñēĩŸĩĩ āðāĩāñāóðp.

3.3 ðñĩāñŪĩĩāóā Ōñβôuĩ (“ports”)

Ç Óðēēĩāp òuĩ Ports òĩō FreeBSD (<http://www.FreeBSD.org/ports>) āβĩāē ìēā óðēēĩāp ìā ðāñéóóüðāñā āðũ 20,000 ðñĩāñŪĩĩāóā āðũ òñβôĩðð, ðĩō āβĩāē āēāēŸóēĩā āēā FreeBSD. Ĭē Ports Management Team <portmgr@FreeBSD.org> āβĩāē òðāŸððĩēē āēā ôçĩ óõĩðpñçóç āĩũð āŸĩóñĩō āðũ ðçāāβĩ ēpāēēā āēā óā ports, ðĩō ìðĩñāβ ìā ÷ ñçóēĩĩðĩēçēāβ āēā ìā āçĩēĩōñāçēĩŸĩ óā ðāēŸóā ìā óā ðñĩāñŪĩĩāóā ðĩō óðñāŸĩōĩ óēð āðβóçĩāð āēüüóāēð òĩō FreeBSD.

Ç āēāāēēāóāā óõĩðpñçóçð ôçð óðēēĩāpð òuĩ ports āβĩāē ēŪóē ðĩō āāĩ ìðĩñĩŸĩā ìā ēāēŸøĩðĩā āāp. Ĭā ìā÷ũñēóðũ Ūñēñĩ, ìā òβôēĩ Ç ÎñāŪtūóc ēāĩōçð òuĩ ðāēŸôuĩ ĒĩāēóĩēēŸĩ āðũ Ōñβôĩðð ([./releng-packages/article.html](http://releng-packages/article.html)), ēāēŸððāē āðũ òĩ ēŸĩā.

3.4 Āñ÷āβā ISO ôçð ēāĩóçð

Îāēēĩpĩóāð ìā ôçĩ Ÿēāĩóç 4.4 òĩō FreeBSD, ç ìŪāā ĀĩŪðððĩçð òĩō FreeBSD āðĩōŪóēóā ìā āēāĩŸĩāē ēāē óā ôŸóóāñā ISO āñ÷āβā ðĩō ðñpóā ðĩōēĩŸóāĩ ìē āðāēñāβāð *BSDi/Wind River Systems/FreeBSD Mall* óðēð “āðβóçĩāð” āēāmŸð CDROM ðĩō Ÿēāĩāĩ. ĒŪēā Ÿĩā āðũ óā ôŸóóāñā ISO āñ÷āβā ðñŸðāē ìā ðāñēŸ÷āē Ÿĩā āñ÷āβĩ `README.TXT` ðĩō

ðǎñéǎñÛöǎé óǎ ðǎñéǎ÷ìíǎíǎ òîõ ǎßóêîõ, êé Ýíǎ ǎñ÷ǎßí CDROM.INF ðîõ ðǎñéÝ÷ǎé ìǎðǎ-ðêçñîîññßǎð ǎéǎ íǎ ìðññǎß òî ðñüǎñǎìǎ sysinstall(8) íǎ ǎéÝǎñǎé êǎé íǎ ÷ñçóêîîðîéßóǎé áðòü òî ǎßóêî, êǎêð òé Ýíǎ ǎñ÷ǎßí filename.txt ðîõ ðǎñÝ÷ǎé ìéǎ êßóðǎ ǎñ÷ǎßüí òîõ CDROM. Áðòß ç êßóðǎ ìðññǎß íǎ ǎçìéîññǎçêǎß ðîéý áðêÛ, ùð ǎñßð:

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

Îé óðǎéǎêñéíÝíǎð áðǎéòßóǎéð ǎéǎ êÛêǎ Ýíǎ áðü áðòÛ óǎ CD ðǎñéǎñÛîîíóǎé ðǎñǎéÛòü:

3.4.1 Áßóêîõ 1

Î ðñðòîð ǎßóêîõ ǎßíǎé ó÷ǎǎüí áðîééǎéóóéêÛ áðîðÝéǎóíǎ òçð ǎíóîéßð make release. Îé ìüíǎð ǎééǎǎÝð ðîõ ðñÝðǎé íǎ ǎßñîí óóñí êǎðÛéñǎñ disc1 ǎßíǎé ç ðññíóèßê ðîõ êǎðÛéñǎñ tools, òüí XFree86, êǎé üóí òî ǎðíǎðüí ðǎñéóóüðǎññüí ðǎéÝòüí ìðññíý íǎ ÷ñÝóñí óóñí ǎßóêî. Î êǎðÛéñǎñ tools ðǎñéÝ÷ǎé ǎñǎǎéǎßǎ ðîõ áðéòñÝðñí óǎ ÷ñßóðǎð Ûéèüí êǎéðññǎéêñí óðóðçíÛòüí íǎ òðéÛññí òéð ǎéóéÝððǎð ǎéêßíçóçð. Áðòüð ì ðñðòîð ǎßóêîõ ðñÝðǎé íǎ òðéÛ÷ǎðǎé bootable Ýðóé ðóðǎ íǎ ìðññíý ìé ÷ñßóðǎð òüí ìüðÝññüí ððñéñǎéóðñí íǎ áðñóǎýǎñí òî óðÛǎéí ǎçìéîññǎð òüí ǎéóéǎððñí ǎéêßíçóçð.

Áí ìéǎ ǎéǎññǎðéêß Ýéǎñóç òüí XFree86 êǎ ǎéǎíÝíǎðǎé ìǎ òçí Ýéǎñóç áðòß, ðñÝðǎé íǎ ǎçìǎññèǎß òî ðñüǎñǎìǎ sysinstall(8) ǎéǎ òçí íÝǎ òÝóç êǎé ìé ñǎçǎßǎð ǎǎéǎðÛóðǎóçð. Î ó÷ǎðéèüð êñǎééǎð òðÛñ÷ǎé óóñí êǎðÛéñǎñ src/release/sysinstall óóñí -STABLE êññü ð óóñí êǎðÛéñǎñ src/usr.sbin/sysinstall óóñí -CURRENT êññü. ÓðǎéǎêñéíÝíǎ, óǎ ǎñ÷ǎßǎ dist.c, menus.c, êǎé config.c êǎ ÷ñǎéǎóðǎß íǎ ǎçìǎññèýí.

3.4.2 Áßóêîõ 2

Î ǎǎýðǎññð ǎßóêîõ ǎßíǎé áðßóçð áðñðÝéǎóíǎ òçð ǎíóîéßð make release êǎðÛ Ýíǎ ìǎǎÛéí ìÝññð. Áðòüð ì ǎßóêîõ ðǎñéÝ÷ǎé Ýíǎ “live filesystem” ðîõ ìðññǎß íǎ ÷ñçóêîîðîéçêǎß áðü òî sysinstall(8) ǎéǎ íǎ ǎñǎðǎóóíýí ðññǎéßíǎðǎ óǎ ìéǎ ǎǎéǎðÛóðǎóç òîõ FreeBSD. Êé áðòüð ì ǎßóêîõ ðñÝðǎé íǎ ǎßíǎé bootable. Êǎ ðñÝðǎé áðßóçð íǎ ðǎñéÝ÷ǎé Ýíǎ óðñðéǎóíÝñí ǎíðßǎñǎññ òîõ CVS repository óóñí êǎðÛéñǎñ CVSROOT êǎé ǎßǎìǎðǎ áðü ǎðññéêÛ ðññǎñÛñǎðǎ óóñí êǎðÛéñǎñ commerce.

3.4.3 Áßóêîõ 3 êǎé 4

Îé òðññéðñé ǎðñí ǎßóêîõ ðǎñéÝ÷ǎéí ððéðññüéǎðǎ ðǎéÝóǎ êñǎéóíééý ǎéǎ òî FreeBSD. Óǎ ðǎéÝóǎ êǎ ðñÝðǎé íǎ ǎßíǎé ñǎǎññéçíÝíǎ, Ýðóé ðóðǎ êÛêǎ ðǎéÝðñí íǎ ǎßíǎé óóñí ðǎéí ǎßóêî ìǎ üéǎ óǎ ðǎéÝóǎ áðü óǎ ñðßǎ ǎñǎñðÛóǎé ǎéǎ íǎ ǎǎéǎðǎóðǎéǎß êǎé íǎ òñÝíǎé. ðǎñéóóüðǎññð ðêçñîîññßǎð ǎéǎ òçí ǎçìéîññǎß áðòñí òüí ǎßóêüí ǎíǎóÝññíóǎé óóñí Ûñèññ Ç ÎñǎÛîùόç êǎñóçð òüí ðǎéÝòüí Êñǎéóíééý áðü Òñßðñðð (../releng-packages/article.html).

4 Áéǎññß òüí Áêäüüóàùí

4.1 ÁñðççñǎðçðÝð FTP

¼ðǎí ç Ýéǎñóç ǎßíǎé Ýóñéíç, Ý÷ǎé ǎñééíǎóðǎß ǎéðǎñðð, êǎé Ý÷ǎé ðǎéǎðǎñéóðǎß ǎéǎ ǎéǎññß, ì éýñéñð FTP ǎñðççñǎðçðð ðñÝðǎé íǎ ǎçìǎññèǎß. Îé áðßóçñé ǎñðççñǎðçðÝð FTP òîõ FreeBSD ǎßíǎé üéñé mirrors ǎñüð éýñéñð ǎñðççñǎðçðð óóñí ñðññí Ý÷ǎéí ðññóǎǎóç ìüñ Ûééñé FTP ǎñðççñǎðçðÝð. Áðòüð ì ǎñðççñǎðçðð ǎßíǎé ǎñüðüð ùð ftp-master. ¼ðǎí ç Ýéǎñóç ǎßíǎé Ýóñéíç, ðñÝðǎé íǎ ǎçìǎññèýí óǎ ðǎñǎéÛòü ǎñ÷ǎßǎ óóñí ftp-master:

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

Ιέα ἀδὲP web οἶθεῖῖα ὄτῳ ὀάνεY ÷ ἁε ἁἁβεῖῶῶ ὁᾶ ἁεῦῖῖῖῖῖ ὁῖῖᾶῖῖῖῖῖ FTP ἑᾶῶᾶῖῖῖῖῖ ἁεᾶ ὁῖῖ ὁῖY ÷ ῖῖῖᾶ
 Yῖᾶῖῖ ὁῖῖ FreeBSD.

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

I éadóUeraíod ádhú ón ióiribí ióinríy íá abfíoi áaeáoáoóUóáoed iYóu FTP, údúo ón Y÷áe ðniáoieiÜóáe ç afóieP 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 óõïâîëëêP óõïôùîâõóç ãéá ôîí êâôÛëîãî .../.../.../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 īñāŬñūōç ôũĩ mirror æéáññð FTP õĩõ FreeBSD, ḁāñæéæþ æåßôå õĩ Ũñēñ ÖðēŬ÷ññōād Ýíá FreeBSD mirror (/./hubs/).

[illegible]

4.2 Àíáðáñáũùã òúi CD-ROM

[illegible]

5 Åăăêôáóéìüôçôá

[illegible]

5.1 ĀçîēîōñāāĀ ĐñîóáñîîóíŸíuî Āéóēāôôpí Āēēβîçóçð.

ĐîēēŸð āāēāóáóôŪóāēð Ÿ÷îîí đîēýđēîēāð áđāēðĀóāēð đîō îđîñāā íā ôç óāēñŪ òîōð íā áđāēôîŸí ôçî đñîóēĀēç đāñēóóúðāñuî îāçāpí Ā āñāāēāāŪî ÷ñĀóôç óóēð āēóēŸôðāð āāēāðŪóóáóçð. Ī “îðāēŪēēēîð” òñuđîð íā òî ēŪîāðā áððu āβîāē íā ēŪîāðā òēð āēēāāŸð óāð óôîí ēāðŪēîāî đîō Ÿ÷āē āôîēîŪóāē îāðŪ òî ôŸēîð ôçð ç āēāāēēāóáā make release:

- ĐāñŪóðā óā patches óāð Ā đñîóēŸóðā óā āđēðēŸîí āñ÷āā íŸóā óôîí ēāðŪēîāî chroot ôçð Ÿēāîóçð.
- `rm ${CHROOTDIR}/usr/obj/usr/src/release/release.[59]`
- Îāðāēüððóðā đŪēē òî sysinstall(8), òîí đðñĀîā, Ā üđîēā Ūēēā đñîāñŪîāðā Ÿ÷îîí āđçñāāóðāā áðu òēð āēēāāŸð óāð.
- `chroot ${CHROOTDIR} ./mk floppies`

Īē îŸāð āēóēŸóðāð āāēāðŪóóáóçð ēā āçîēîōñāçēîŸí óôîí ēāðŪēîāî \${CHROOTDIR}/R/stage/floppies.

ĀîāēēāēðēēŪ, îđîñāāðā íā ÷ñçóēîîđîēĀóāðā òî make target boot.flp, Ā îđîñāāðā íā òñŸîāðā áđāðēāāð òî script òî āçîēîōñāāāā óā óðððĀîāðā āñ÷āāuî src/release/scripts/doFS.sh.

Îđîñāāðā āðβóçð íā ēāñîβóðāð þóðā āēēŸð óāð āēēāāŸð íā đāñāóôîŸí îā ïññðĀ patch óôçî Ÿēāîóç üðuð ēā òðēŪ÷îāðāē, āññîðāð òēĀĀ óôçî îāðāāēçðĀ LOCAL_PATCH üðāî òñŸîāðā ôçî āîðîēĀ make release.

5.2 Đñîāñāîîāðβæîîóāð òî sysinstall

Ōî āñāāēāāî āāēāðŪóóáóçð ēāē ñŸēîéóçð òîō FreeBSD, òî sysinstall(8), îđîñāā íā đñîāñāîîāðēóðāā āēā íā ēŪîāē đēî āŸēîēāð òēð áððîñāðîîđîēçîŸîāð āāēāðáóðŪóāēð óā đîēēŪ ìç÷āîĀîāðā. Áððu òî ÷āñāēðçñēóðēēu òîō đñîāñŪîāðîð îđîñāā íā ÷ñçóēîîđîēçēāā óā óôîāðóáóîu îā òî PXE[13] ôçð Intel āēā íā îāēēîĀóāē ç āāēāðŪóóáóçð áðu òî āβēððî, Ā óā óôîāðóáóîu îā đñîóáñîîóíŸîāð āēóēŸóðāð āēēβîçóçð ēē Ÿîā sysinstall script. íā đāñŪāāēāîā áðu òŸðîēî sysinstall script îđîñāāðā íā āñāāðā òðî āñ÷āāî src/release/sysinstall/install.cfg.

6 ÎāēĀîāðā òîō ĐĀñāîā áðu ôçî êäîîóç 4.4 òîō FreeBSD

Ç āēāāēēāóáā āðîēîāðāð òçð Ÿēāîóçð 4.4 òîō FreeBSD îāēβîçðā āðβóçîā ôçî Īç ÁðāîŸóðîð 2001. ÎāðŪ áðu áððĀ ôçî çîāññîçîā, üēāð îē āēēāāŸð óôîí ēîñîü RELENG_4 òîō FreeBSD Ÿðñāðā íā Ÿ÷îîí Ÿāēñēóç áðu ôçî Release Engineering Team <re@FreeBSD.org>. Ç đñĀðç āîēēîāðóðēēĀ Ÿēāîóç āēā ôçî āñ÷ēðāēðîîēēĀ x86 Ÿāēîā āēāēŸóēîç óóēð 16 ÁðāîŸóðîð, ēē āēîēîðēĀēēā áðu 4 āēüîā āîēēîāðóðēēŸð āēāüóāēð đîō îāĀçóáî óôçî ðāēēēĀ Ÿēāîóç óóēð 18 òîō ÓāððŸîāñç. Ī òðāŸēðñð áóðŪēāēāð Ÿðāēîā ôçîāîðēēü ñüēî ēāðŪ ôçî āēŪñēāēā ôçð ðāēāððāðāð āāāñŪāð ēāēðð ēŪðîēā đñîāēĀîāðā áóðŪēāēāð āñŸēçēāî óā đñîçāîŸîāîāð, āîēēîāðóðēēŸð āēāüóāēð. ÓðñîēēēŪ, đŪîü áðu 500 email óðŪēēçēāî ôçî Release Engineering Team <re@FreeBSD.org> óā āēŪóðçîā îēēñüðāñî áðu Ÿîā îĀîā.

Ç ēîēîüðçðā òùí ÷ñçóðpí îāð Ÿēāîā óāðŸð üðē ç áóðŪēāēā ēāē ç óðāēāñüðçðā îēāð Ÿēāîóçð āāî ēŪ 'ðñāðā íā ēððēŪæāðāē āēā ēāîāîüð āβāîðð đñîēāðîāðā Ā çîāññîçîāð đîō Ÿ÷îîí ðāēāā óáî óðu÷îē áðu đñēî. Ōî FreeBSD Ÿ÷āē îāāāēþóāē āñāîāðēēŪ ēāðŪ ôçî āēŪñēāēā ôçð æüðð òîō óáî óŸóóçîā, ēāē ç áîŪāēç āēā óðāēāñēîŸîç đîēēðēēĀ ēāē îñāŪîüðçð āēā ôçî āçîēîōñāāā îŸuî āēāüóāuî āβîāē đēŸîí óáîāñĀ đāñēóóúðāñî áðu đîōŸ. ÁððĀ ç áîŪāēç ēā āβîāē āēüîā đēî ôçîāîðēēĀ ēāēðð òî FreeBSD ēā āñ÷āāē íā îāðāŸŸñāðāē óā îŸāð đēāððüñîāð.

7 ìǎëëĩĩôéêÝò Êáôǎõèýíóǎéò

[illegible]

- [illegible]

8 Å ÷ á ñ é ó ô ß à ò

Εὰ Πεᾶέα ἰά ἀο÷ἀνεόδΠουὸ οἱ Jordan Hubbard, θῖο ἱτὸ Ὑᾷουᾶ οῖς ἀδεᾶένβΑ ἰά δῦNυ ἐῤῥιεᾶ αῊυ οῖς ἀεῃγῖ οῖο Ὑεᾶιτόο 4.4 οἱο FreeBSD, εᾶεϐο εᾶε ᾶεᾶ ὑεῖς οῖς ἁιρεᾶεῤῥ οἱο Ὑ÷ᾶε εῤῥἰᾶε ᾶᾳ εᾶε ÷nυἰεᾶ ᾶεᾶ ἰά ᾶβἰᾶε οἱ FreeBSD ᾶδου οἱο ᾶβἰᾶε οፓἰᾶᾶ. Ὤοόεεῤῥ, ϗ Ὑεᾶιτόο ᾶἰρ εᾶ Ποᾶἰ οἱο Ὑ ᾶοἰᾶουἰ ἰά ἱεἱεῖεῖνυεᾶβ ÷nυβ ὑεῖς οῖς ο÷ᾶδεεΠ ἰᾶ οῖς Ὑεᾶιτόο ἁιρεᾶεῤῥ οἱο Ὑεᾶἰᾶἰ ἱε Satoshi Asami <asami@FreeBSD.org>, Steve Price <steve@FreeBSD.org>, Bruce A. Mah <bmah@FreeBSD.org>, Nik Clayton <nik@FreeBSD.org>, David O'Brien <o'brien@FreeBSD.org>, Kris Kennaway <kris@FreeBSD.org>, John Baldwin <jhb@FreeBSD.org> εᾶε ὑεἱεἰ ἱε ὀδυἱεἰεἰθῖε οἱο ᾶο÷ἱεἱγἰᾶε ἰᾶ οῖς ἱῤῥ῏δοῖς οἱο FreeBSD. Èῤῥῡ ᾶδββοῖο ἰᾶ ἀο÷ἀνεόδΠουὸ οἱο Rodney Grimes <rgrimes@FreeBSD.org>, Poul-Henning Kamp <phk@FreeBSD.org>, εᾶε ὑεἱτοῖο οἱο ὘εἱτοῖο οἱο ᾶᾶᾯὔοοεᾶἰ ᾶεᾶ ἰᾶ οῖο Ὑἱοἰ οᾶ ᾶᾶᾶεᾶβᾶ ᾶεᾶ οῖο ᾶεᾷουᾶέο οῖο δᾶπῑᾶο ἰῤῥᾶο οῖο ᾶῖεἱεἱᾶᾶᾶο οἱο FreeBSD. Ἀοῡ οἱ Ὑᾶᾶἱ Ὑ÷ᾶε ᾶδῇᾶᾶοᾶᾶ ᾶῡ εᾶβἰᾶἰᾶ ο÷ᾶδεεῤῥ ἰᾶ οῖς ἱᾶᾯῤῥοῖς οἱο ᾶεᾷουᾶἰ ᾶῡ οἱ CSRG[14], οῖς ἱῤᾶᾶ οἱο NetBSD[11], εᾶε οῖς δᾶῡᾶοῖς ᾶεᾶ ἱεᾶ ᾶεᾶᾶεᾶᾶᾶ ἱᾶᾯῤῥοῖο οἱο ᾶεᾷουᾶἰ οἱο John Baldwin[12].

9 ÁíáöïñÝò

- [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
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- [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>)