

# 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 \$

Άδου οĩ Ũñēñĩ δāñēāñŨōāē ôçĩ áĩôēĩāôþðēóç ēāē ĩñãŨíùóç ôçð ñŨāāð áĩŨððôĩçð ôĩõ FreeBSD, ũóĩĩ áôĩñŨ óôçĩ ðñĩāôĩēĩáóßā ðĩēĩôēēþĩ āēäüóãùĩ ôĩõ ÊāēôĩõñāēēĩŨ Óðóðßĩáôĩõ FreeBSD. Âĩçāāß ĩā ēāððñŨŨñāēā ôçĩ ĩāēĩāĩēĩāßā ðĩõ ÷ñçóēĩĩðĩēĩāßōāē āēā ôēð āðßôçĩāð āēäüóãēð ôĩõ FreeBSD ēāē δāñēāñŨōāē óā āñāāēāßā ðĩõ āßĩāē āēāēŨóēĩā óā ũóĩõð āĩāēāōŨñĩĩôāē ĩā ðāñŨāĩĩôĩ ðāñāĩāðñĩðĩēçĩŨĩāð āēäüóãēð ôĩõ FreeBSD āēā āóũðāñēēþ ð āĩðĩñēēþ ÷ñþóç ēāē áĩŨððôĩç ðñĩũĩĩôũĩ.

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## 1 Άέόάãũāþ

Ç áĩŨððôĩç ôĩõ FreeBSD āßĩāē ĩēā ðĩēŨ āñē÷ðþ āēāāēēāóßā. Ôĩ FreeBSD áðĩôāēāßōāē āðũ óôĩāēóōĩñŨð ÷ēēēŨāũĩ áēñþðũĩ āðũ ũēĩ ôĩĩ ēũóĩĩ. Ç ñŨāā ôĩõ FreeBSD ðāñŨŨ ÷āē ðñũóāāóç ĩŨóũ āĩþĩôĩĩõ CVS[1] óā ũēĩõð, Ũóóē þóðā ĩā ĩðĩñāß ũðĩēĩõ ēŨēāē ĩā āāē ĩçĩŨĩāóā log, āēāōĩñŨŨð (patches) ðĩõ ŨŨ ÷ĩôĩ óā āēŨōĩñā development branches, ēāē Ũēēā ÷āñāēðçñēóóēēŨ ðĩõ āĩçēĩŨŨĩ ôçĩ áĩŨððôĩç, óā ĩðĩßā ðñĩēŨððĩôĩ āðũ ôçĩ ÷ñþóç āĩũð áððôçñĩŨŨ óðóðßĩáôĩõ āēā÷āßñēóðð ēþāēēā. Áðũ āðĩôŨēāōā ēāē ôĩĩ ðēĩ ôçĩāĩôēēũ ðāñŨāĩĩôā Ũēĩçð āēā Ũĩā ĩāāŨēĩ āñēēũ āðũ ôāēāĩôĩŨŨ ÷ĩõ ðñĩāñāĩāðēóðŨð āðũ ũēĩ ôĩĩ ēũóĩĩ óôĩ FreeBSD. Áßĩāē ðñĩōāĩŨð, āŨāāēā, ðũð ðĩēŨ óŨĩôñā ēā āß÷ā āßĩāē áĩôāēþð ÷āĩôēēþ ç ēāðŨóðāóç áĩ āß÷āĩ ũēĩē, āðũ ũēĩ ôĩĩ ēũóĩĩ, ðñũóāāóç ĩā āñŨøĩôĩ óôĩ ēþāēēā. Äē’ áðũ, ĩũĩ ĩēā “āðēēāñŨŨŨŨŨ” ñŨāā āðũ ðāñßðĩõ 300 Ũōñā ŨŨ ÷ĩôĩ ðñũóāāóç ĩā āñŨøĩôĩ óôĩ CVS repository. Áðōĩß ĩē committers[6] āßĩāē ððāŨēōñēē āēā ôĩ ĩāāāēŨōāñĩ ĩŨñĩ ôçð áĩŨððôĩçðð ðĩõ āßĩāðāē óôĩ FreeBSD. ĩēā

*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 ñðείηβ άίŨððοίçð οίò FreeBSD άάί άòßñíò έάέ ðίεý ÷ ññíí άέά οί ίάέάέŨñέοίά οίò όóóóßιάόίð άίŨððοίçð όά ίέά Ύέαιόç ίά ðίέυóçόά ðíò ίά άίβæάέ ίά ÷ ñçέóήíðίέάßόάέ άòñŨýð. Άέά ίά έðέάß άóòñ οί άβέέçíά, ç άίŨððοίç άßíάόάέ όάóòñ÷ ñííά όά άοί ðάνŨέέçέά ίíñðŨόέά. Ί έýñέíð έíñíυð άίŨððοίçð άßίάέ í **HEAD** ð **trunk** όóí CVS repository ίάð, άíυóóυð έάέ υò “FreeBSD-CURRENT”, ð “-CURRENT” άί όóíòñßά.

ἴαο δέῃ ὁδᾶᾶνῖο ἐῖνῖο δᾶῖδᾶβᾶᾶ, ᾶῖῖοῖο ἰᾶ ὀῖ ὑῖᾶ “FreeBSD-STABLE” ἔ δέῃ ὀῖᾶ “-STABLE”. Ἐᾶ ἰᾶ ᾶῖ ἰῖῖῖ ᾶβῖᾶ ᾶῖῖᾶᾶῖᾶῖᾶ ὀῖ ἰῖῖῖ CVS repository, ὀῖ Ἐᾶᾶῖῖᾶ, Ἐᾶ ᾶῖᾶᾶῖᾶῖᾶ ἰῖῖ **CVSup**[2] ὀᾶ mirrors ᾶῖῖῖ ὀῖῖ ἰῖῖῖ. Ὀῖ FreeBSD-CURRENT[8] ᾶβῖᾶ ᾶ “ᾶῖᾶ ὀᾶῖῖ” ὀῖ ᾶῖᾶᾶῖᾶ ὀῖ FreeBSD Ἐᾶᾶ ὀᾶ ᾶῖῖ ᾶβῖᾶᾶ ᾶῖᾶ ἰᾶ Ἐᾶῖῖᾶᾶ ᾶᾶᾶᾶῖ. Ὀῖ FreeBSD-STABLE ᾶβῖᾶ ἰ ἰῖῖῖ ᾶῖᾶᾶῖᾶ ᾶῖ ὀῖ ἰῖῖῖ ὀῖᾶῖᾶᾶ ἰᾶ ᾶᾶῖᾶᾶ. ἰᾶ ᾶᾶᾶᾶῖ ᾶᾶῖᾶῖᾶ ὀᾶ ᾶῖῖῖ, ὀῖ ᾶῖᾶᾶῖ ἰῖῖῖ ᾶῖᾶᾶῖᾶ, ἰᾶ δέῃ ᾶᾶῖ ᾶῖῖῖ, ᾶῖῖ ᾶῖᾶ (ὀῖῖῖῖ ἰᾶ ὀῖ ᾶῖᾶᾶᾶ ἰᾶ) ᾶῖᾶᾶῖᾶ ὀῖ FreeBSD-CURRENT Ἐᾶ ῖᾶῖᾶ ᾶᾶᾶᾶᾶ ᾶῖῖ Ἐᾶῖ.

[illegible]

Όρία÷πο οόÝεirióáé áðu ôiôð ÷ñPóðáð iáð áíáöiñÝð ðñiáεçìÜòùi éáé áéðPóáéð áéá éáéirýnéá ÷áñáéðçñéóóééÜ, éáðÜ ôç áéÜñéáéá ôiô éýééiô ôçð éÜèá Ýéáiôçð. Ié áíáöiñÝð ðñiáεçìÜòùi áéóÜáñióáé óôçi áÜôç **GNATS**[9] iÝóù e-mail, iá ôçi áöáñiñáP 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÷öáññáβiô iá èÝiá 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 Ýiá öüñiôì áéá óðæçðPóáéð ó÷áðééÜ iá óéð éäððñÝñáéáð ôçð “ññáÜñúôçð ðùi áêäüóäùñ”.

[illegible]

Οι ΌιΠια 2 αϊααβ ια εαδδδνΥναεαδ οα αεÜοιηα οδÜäεα οζδ αεαäεεαοβαδ διο ηηβδδδäε δβδύ αδυ εÜεα Υεαϊοç, ιΥ ÷ ηε εäε οα αΠιαδä διο ιαçαϊρϊ οδçι ιαδäαεηδδδδεοç διο οδδδΠιαδιδ εäε δι ΌιΠια 3 αϊααβ οçι βαäε οç αεαäεεαοβä οζδ ιαδäαεηδδδδεοçδ. Οι ΌιΠια 5 δηηεανÜοäε δυδ ιδηηαβ ιä äääεδäεαβ δι ääδδδ ογδδçια αδυ ηηβδιδδ εäε δι ΌιΠια 6 δηηεανÜοäε εÜδιδεä αδυ οα δηÜääδä διο ιÜεαηä αδυ οçι αεαäεεαοβä Υεαϊοçδ διο FreeBSD 4.4. ΟΥειδ, δι ΌιΠια 7 δηηιδδδÜäε εÜδιδεäδ αδυ δεδ εαδäδδδγιäδδ διο εΥειδä ιä δÜηäε ç αΓÜδδδδç δδι ιΥεει.

2 Ç Äéääéêáóßá Äçíëĩõñãßáo ìéàò êäïóçò

Ίε ιΥάο άάαυόάοδ οίο FreeBSD οόεΰ ÷ ιίίοάε άδύ οίί -STABLE είιιύ άίΰδδοίχοδ δαίιβδίο εΰεά οΥόόάιίάοδ ιΐΐάδ. Ç άεάάεεάοβά διίιάοίεαίόβάδ ιεάδ Ύεαίόχοδ ιάεεΐΰάε ο÷άαυι 45 ιΥίίάδ δίίει όχοι άίάίάίυιάίς çιιιιιιίβά Ύεαίόχοδ, υόάι ι όδáyεοίιό άάαυόάυι οίο FreeBSD οόΎείάε Ύίά αίΰΰία οόέδ εβόόάδ ουι διίιάιίάιόεοόοιι άεά ίά όδάρεοιβόάε οόίοδ διίιάιίάιόεοόόΎδ υόε Ύ÷ίοι 15 ιΥίίάδ εάείιύ ίά εΰίίοι υδίεάδ άεεάάΎδ εΎείοι, δίίε οί δΰάυια οίο ειαεέα. ΊΥόά οά άοδύ οίί εάείιύ, δίεείβ διίιάιίάιόεοόόΎδ εΰίίοι ιεά οάείΰ άδύ άεεάάΎδ δίο Ύ÷ίοι ιάβίάε δεΎίί άίυόόΎδ υό “ιάεάεάιιβόίάόά MFC”. Ί υίίό MFC όçίάβίάε “Merge From CURRENT” εάε δάιίεάιΰόάε όχοι άεάάεεάοβά διίιόάιίάβδ

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

## 2.1 ĩēāā ÷ iō ēpāēēā

ŌñēŪiōā çĩŸñāð ðñēĩ òçĩ áĩāĩāĩũĩāĩç çĩāññĩçĩā Ÿēāiōçð, ĩ ēpāēēāð òĩō repository āēóŸñ ÷ āðāē óā iēā ðāñbĩrāĩ “ēāēðóóŸñçóçð”. ĒāðŪ òç āēŪñēāēā āððð òçð ðāñēũāið, ũēāð iē āēēāāŸð óðĩĩ -STABLE ēĩñĩũ ðñŸðāē iā Ÿ ÷ iōĩ òçĩ Ÿāēñēóç òçð Release Engineering Team <re@FreeBSD.org>. Ĩē āēēāāŸð ðĩō āðēōñŸðĩiōāē óā āððp 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.
- Ĩðĩēāāpðĩōā Ūēēç āēēāāp ðēóðāŸāē ç ñŪāā áĩŪððōĩçð ũðē ðñŸðāē iā ābĩāē, iā òĩ áĩāĩāĩũĩāĩ ðŪiōā ñbōēĩ.

ĨāðŪ òēð ðñpóāð 15 ĩŸñāð ēāēðóóŸñçóçð, òðēŪ ÷ iāðāē iēā āiēēiāóóēēp Ÿēāiōç āēā iā ÷ ñçóēĩĩðĩēçēāb óāĩ āiēēĩp òçð ðāēēēpð Ÿēāiōçð ēāē ĩ ēpāēēāð āēóŸñ ÷ āðāē óā iēā ðāñbĩrāĩ “ðāāpĩāðĩð”. ðēŸĩĩ ābĩāē ðĩēŸ ðēĩ āŸóēĩēĩ iā ābĩĩĩ iŸāð āēēāāŸð óðĩ óŸóðçĩā, āēðũð ēē áĩ āēĩñēpñĩĩ ēŪðĩēĩ ðĩēŸ òĩāāñũ bugp ēŪðĩēĩ ðñũāēçĩā áóðŪēāēāð. ĒāðŪ òç āēŪñēāēā òĩō ðāāpĩāðĩð òĩō ēpāēēā, òĩðēŪ ÷ óóðĩĩ ĩbā āiēēiāóóēēp Ÿēāiōç òðēŪ ÷ iāðāē ēŪēā āāāñŪāā, ĩŸ ÷ ñē iā ābĩāē Ÿĩēĩç ç ðāēēēp Ÿēāiōç. Ōēð çĩŸñāð āēñēāpð ðñēĩ òçĩ ðāēēēp Ÿēāiōç, 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 Ÿēāiōç ābĩāē āēāēŸóēĩā.

## 2.2 Ēbóóā ĀēŸā ÷ iō òçð Ōāēēēpð ēāiōçð

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

### 2.2.1 Āçĩēĩñābā òĩō ēĩñĩŸ ēāiōçð

Ÿðũð ðāñēāñŪøāĩā óðçĩ āēóāāũāp, ĩē ēĩñĩb RELENG\_x\_y ābĩāē iēā ó ÷ āðēēŪ iŸā ðñĩōēðēç óðçĩ ĩāēĩāēĩābā òũĩ āēāũóāĩ iāð. Ōĩ ðñpðĩ āpĩā óðçĩ āçĩēĩñābā áðōĩŸ òĩō ēĩñĩŸ ābĩāē iā āāāāēũēābðā ũðē āĩōēāŸāðā ĩā òçĩ ðāēāðóābā Ÿēāiōç òĩō ðçāābĩð ēpāēēā āðũ òĩĩ RELENG\_x ēĩñĩũ āðũ òĩĩ ĩðĩbĩ ēā òðēŪiāðā òĩ iŸĩ 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 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 āçĩēĩñāpóāðā òĩ iŸĩ ēĩñĩũ ĩā:

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

**Όχι!Βούρο:** *Ἰε ἀδὲέῒΥοᾶδ RELENG\_ \* ἀβίᾱέ ἀἀόι!ἀδῖΥίᾶδ ἀεά ÷-ἡΠόρς ἄδῦ δῖδ CVS-meisters ἐάέ ὀρῖ ἡῚᾱᾱ ὀῖι ἀἔᾱῡδᾱῖ.*

Ἰ uniõ “*ἀδελφὸς*” ἀβραῖά ι̃νι̃ε̃ρα̃β̃α̃ οἷο̃ CVS. Ὁ̃για̃βραῖά Ἰ̃α̃ ũm̃ã οἷο̃ ἐ̃α̃ει̃ν̃β̃α̃ε̃ ι̃ε̃α̃ ο̃α̃ε̃α̃ε̃ν̃ει̃ Ἰ̃ι̃ς Ἰ̃ε̃α̃ι̃ο̃ς οἷο̃ ἐ̃πα̃ε̃ε̃α̃ ο̃ο̃ι̃ ÷ nũĩ. × ñς ο̃ε̃ι̃δι̃ε̃ρ̃ι̃ο̃α̃ο̃ ἀδελφὸς ο̃ο̃ι̃ δ̃ς α̃β̃ι̃ ἐ̃πα̃ε̃ε̃α̃ α̃ρ̃ς Ὑ̃ι̃α̃ ũδι̃ε̃ι̃ ο̃ο̃ε̃ Ὑ̃ι̃α̃ ο̃ο̃ι̃ Ἰ̃Ἰ̃ε̃ε̃ι̃ ἀ̃ε̃α̃ũο̃α̃ε̃δ̃ οἷο̃ FreeBSD ἰ̃α̃ ἀ̃ν̃β̃ο̃ε̃α̃ ἐ̃α̃ε̃ ἰ̃α̃ ÷ ñς ο̃ε̃ι̃δι̃ε̃ρ̃ι̃α̃ ἀ̃ε̃ν̃ε̃α̃ρ̃ οἷι̃ β̃α̃ε̃ι̃ ἐ̃πα̃ε̃ε̃α̃ οἷο̃ ÷ ñς ο̃ε̃ι̃δι̃ε̃ρ̃ε̃ς̃ε̃α̃ ἁ̃ε̃α̃ ο̃ε̃δ̃ ἀ̃δ̃β̃ο̃γ̃ι̃α̃δ̃ ἀ̃ε̃α̃ũο̃α̃ε̃δ̃ ο̃ς̃ οἷ̃ Ὑ̃ι̃α̃ο̃ οἷο̃ FreeBSD.

### 2.2.2 ÁóïÛííîáò ôíí Áñéèü êäïóçò

Ἐνῆι ἰθαῖ ἅ ἀοέεΥόα, ἰαοάαεῦοοεοόαβ εἰε ἀοιείαοόαβ ἅ οἰεεῖβ Υἑαῖορ, ὃνΥθαῖ ἰά αἴἢἢοῖ αἑεἰάΥο οόα ὃαἡεῖῖοῦ  
 ἁἡ÷ἁἂ ἁεἰ ἰά ὃαἡεΥ÷ἢοῖ ὃἢ οῦοῖοῦ ἁἡεῖῖο Υἑαῖορὃ ἁεἰ ὃἢ 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 ὀέο ἀεῖνῆε πόαεὸ ὀοὸ ὁἀεᾶὸ ὁἀβᾶὸ ὀόεαιᾶ ὁñ ὸΰᾶε ἀδβᾶὸ ἰά ὁñ ἰόανῖ ἰοίῳῖ  
 ὀόῖ ῖ ῖ Ἰέαιουὸς (ὀῖνῖ ἔνῖνῖ ὀοὸ Ἰέαιουὸς) ἐάε ἰά ἀδᾶἰαἰαᾶ ὀοίῳῖ ἐάὸ ὸῖεῖᾶ (ὀῖῖ ὀῖ ἔνῖνῖ ὀῖ 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 öñí öùöóü āñēēüü öñí ports éáē öī ÷pñī öīō āßöēīō ðīō äðäēöāßöáē áēá öçí ÖöēēīāP öñí Ports. ÁöðÝð íē ðēçñīöíñßāð öðÜñ÷íöí öóí āñ÷āßí  
src/release/sysinstall/dist.c.

Άσπυ ρεῖρεεεεεεεεεεε ε δνιιιιιιιιιιιιιι οδε ρΥάο αδβοεοδε Υεαοροδε, δνΥδαι ια αιειαηποαοα ιανεεU αν÷αβα αεα ια αιειαηποαοα οιι ευοιι αεα δε ρΥΑ Υεαορο 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 áíôieP 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 éáóÜëëçä 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 αοδΥό ιε αέαάΥό οζό οάεαοαβαό οόεαιβό ίά ογιαεευεριγ ίά οεό ουοόΥό αόεεΥόαο αέα ογι οσαεαεηεΥίγ Υέαοιζ. Ιε αδβόγιαό αεαυοάεό οιο FreeBSD θηΥθαε ίά άβιάε δÜιόα άγερε ίά ιάαθαηα÷ειγ. ΟιθεεΥό αέαάΥό οοι θαηέαÜεεη οιο ιζ÷ιάεεγ οοι αεαυοαυι ααρ αδεονΥθιόαε.

### 3 ðàáãëþôôéóç ôçò ëäïóçò

Ιε "aeauaaed" oio FreeBSD ioiniia ia laaaeeuodoeoioia adu ioieiaaBpiao Y ÷ ae Yia o ÷ aoeEU anPaiai ic ÷ Uicia eae  
 dnuoaaoc ooi repository oio dcaabio epaeaa. (4eie Y ÷ ioi aodp oc aioiaouocda, aoiy danY ÷ ioia dnuoaaoc iYou  
 alpioio CVS! AaBoa oi Aa ÷ aenbaei oio FreeBSD aea daneaouoanaa eadonYnaea.) C iuic aeaeep adabococ abiae  
 ia odUn ÷ ae oiooBneic ooi ddnpia oad aea oci ooeaop vn(4). (Ooi -CURRENT, aodp c ooeaop Y ÷ ae  
 afoeaaadaoaaab adu oci rY a ooeaop aboeio aaoeoiYio oa iBic md(4). Ai c ooeaop aai abiae afoiaouuYic ooi  
 ddnpia oad, ouoa i eadUeeceio iacaud ea oionueab adouiaa uoa aeaaeaoaB c afoieP vnconfig(8) eadU oc  
 aeUnaea oc oUocd aoiiaaoba oio iYio aeBicocd. 4ea oa anaeeaba oio ÷ naeUaioae aea ia laaaeeuodoba ia  
 Yeaoc abiae aeaeYoeia oa iioB dcaabio epaeaa ooi eadUeia src/release. AodU oa anaeeaba Y ÷ ioi uo oeiou ia  
 danY ÷ ioi uoe ÷ naeUaioae aea ia ÷ obaioae ie aeauaaed oio FreeBSD ia Yia oiaop eae oaeaeeneiYi onou. Iea  
 dePncd Yeaoc ioinaa ia laaaeeuodoeoia ÷ nceioieipioad aodU oa anaeeaba ia iea eae iui afoieP,  
 oioaneaiaaiaYic eae oc aeleioaba ariu ISO an ÷ abio eadUeecei aea ia eaaB oa CDROM, ie aeoeYoda  
 aeBicocd, eaeb eae i eadUeeceio aaeaoUoaoocd iYou FTP. Aodp c afoieP abiae ooeep c make release.

### 3.1 Ç áíôïëþ make release

Ἄέα ἰά ἱὰόἀα̃εὐὸδβόἀὸἀ ἀδεὸ÷-ò ἱέα Ῥέαιός, ὄñÝðáε ὀηπόά ἰά ὀðŨñ÷-íοί ὁά ἐáoÜēęçéá áñ÷-âßá ἰÝόά ὀοίῖ ἐáoUειῗῗ  
/usr/obj. Ìðñᾶβὸἀ ἰά ὁά ἀcιέíονᾶβὸἀἀ ἂβὸἀ ἰά ὀcί αἰóιεÞ make world Þ ἀðĚŨ make buildworld. Ἄέα 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, ððíáððá 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, ððí áñ÷-áßí /usr/share/examples/cvsup/cvs-supfile, òí ððíßí ððíáððá íá ÷ ñçóéíðíéçéäð áéá íá áíðéáñÛððá òí CVS repository ðîõ FreeBSD ððí áéëü óáð ðíðéëü mirror.

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

ÕðÛñ÷-íðí éáé ððééÝð Ûëëäð ìáðááëçðÝð ðîõ ððíññí íá ÷ ñçóéíðíéçéçí áéá íá ðáñáíáððíðíéçéçéäð òçí Ýêáîóç óáð. Ìé ðéí ððééÝð áðü áððÝð ðéð ìáðááëçðÝð ðáñéáñÛñíðáé ðóçí èíñðð ðîõ áñ÷-áßíð src/release/Makefile. Ç áêñéáðð áíðíð ðîõ ÷ ñçóéíðíéçéçéäð 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 éáðáëüüí ìá òçí áíðíðð “make installworld”.
- Áíáñüá ððü òí CVS ìéáð éáéññéáð Ýêáîóçð ðîõ ðçááßíð èðáééá ðîõ ðððððíáððð, òçð ðáèíçññüóçð éáé ðñí ports ìÝðá ðóçí éáñáñ÷-ßá éáðáëüüí ìáðááëðððéóçð òçð Ýêáîóçð.
- Ñðéíðáéð ðñí áñ÷-áßíð ððñí éáðÛëíá /etc éáé /dev ìÝðá ððí ðáñéáÛëëí chroot.
- ÁéðÝéáóç òçð áíðíðð chroot ìÝðá ðóçí éáñáñ÷-ßá éáðáëüüí ðîõ áðíéíÛððçéä, áéá íá ìçí ððíñáß òí áñüðáñéëü ðáñéáÛëëí íá áðçñáÛðáé òç ìáðááëðððéóçð òçð Ýêáîóçð.
- ÁéðÝéáóç òçð áíðíðð make world ìÝðá ððí ðáñéáÛëëí chroot.
- Ìáðááëðððéóç ðñí áéðáëÝóéñíð ðîõ áßíáé ò÷-áðééÛ ìá òí óýóçíá Kerberos.
- Ìáðááëðððéóç ðîõ ððñðíá GENERIC.
- Äçíéðñáß áñüð ðáéééñý éáðáëüüíð ððñí ððíßí èá ìáðááëüðððéóðíý éáé èá áðíèçéäððéñý ìé áéðáëÝóéñáð ññðÝð ðñí ðáéééðí ðáéÝðñí.
- Ìáðááëðððéóç éáé ááéáðÛððáóç ðñí áñááéáßíð ðîõ ÷ ñáéÛáñíðáé áéá òçí ðñíáðíéíáðá òçð Ýêáîóçð éáé òç ìáðáðñíðð òçð ðáèíçññüóçð áðü ðñí ðçááßíð èðáééá (SGML) ðá html éáé áñ÷-áßá éáéíÝñð ðîõ èá ððñááýñíð òçí Ýêáîóçð.
- Ìáðáðñíðð éáé ááéáðÛððáóç òçð ðáèíçññüóçð (áá÷-áéñßáéá ÷ ñðððç, áéóáñüáééÛ éáßíáíá, óçíáéðáéð Ýêáîóçð, èßððáð ððíááðððçðáðð ðéééñý, èèð.)

- Îāóāāēpôôéóc òuĩ “ôõĩðēáõĩŸĩũĩ” (crunched) āēôāēŸóēĩũĩ ðĩō ēā ÷ ñçóēĩĩðĩēçēĩŸĩ óôēð āēóēŸôôāð āāēáðŪóóáócð.
- Āçĩēĩōñābā òuĩ ðāēŸôũĩ ôçð āāēáðŪóóáócð ēāē òuĩ ðāēŸôũĩ ðçāābĩō ēpāēēā.
- Āçĩēĩōñābā òuĩ ìŸóũĩ āēēbĩçóçð ēāē ôçð āēóēŸôôāð “fixit”.
- Āçĩēĩōñābā ôçð ēāñāñ÷bāð ēāóāēüũĩ āēā ôçĩ āāēáðŪóóáóc ìŸóũĩ FTP.
- (ðñĩíēñāôēēŸ) Āçĩēĩōñābā òuĩ ISO āñ÷ābũĩ āēā ìŸóā CDROM/DVD media.

Āēā ðāñēóóũðāñāð ðēçñĩōĩñbāð ó÷āôēēŸ ìā ôçĩ āēāēēāóbā āçĩēĩōñābāð ìēāð Ÿēāĩóçð, āābôā ôçĩ óāēbāā ôāēĩçñbũóçð release(7).

### 3.2 Îāóāāēpôôéóc òuĩ XFree86

Ōĩ āñāóēēũ ðāñēāŪēēĩ **XFree86** ābĩāē Ÿĩā óçĩāĩóēēũ ēñĩŪðē ēŪēā Ÿēāĩóçð āēā ðĩēēĩŸð ÷ ñpôóāð ðĩō ēŸēĩōĩ òĩ FreeBSD āēā óóāēĩŸð āñāóāð. ðñēĩ ôçĩ Ÿēāĩóç 4.6-RELEASE òĩ FreeBSD, ìē āðbóçĩāð āēüüóāēð òĩō FreeBSD ÷ ñçóēĩĩðĩēĩŸóāĩ ôçĩ Ÿēāĩóç 3.x òuĩ **XFree86**. Ĭ ðēĩ āŸēĩēĩð ðñũðĩð ìā ìāóāēũðôðóāðā āóðŸð óēð āēüüóāēð ābĩāē ìā ÷ ñçóēĩĩðĩēĩŸóāĩ òĩ ðñũāñāĩā `src/release/scripts/X11/build_x.sh`. Áðũũ òĩ ðñũāñāĩā āðāēðāb ìā ābĩāē pāç óççĩŸĩā óõĩ óŸóççĩŸ óāð òũũĩ òĩ ðāñēāŪēēĩ XFree86 Ÿũĩ ēāē ç āēpôóā Tcl/Tk. ÎāðŪ ôçĩ ìāóāāēpôôéóc òuĩ ēāðŪēēçēũ X servers, òĩ ðñũāñāĩā ēā ðāēāðŪñāē Ÿēā óā āñ÷ābā óā óðēēĩāŸð āñ÷ābũĩ ðĩō ðāñēĩŸĩāē ìā āñāē òĩ `sysinstall(8)` ìŸóā óõĩ ēāðŪēēĩā `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 ìðĩñāb ìā ābĩāē ābôā óā ðāēŸóā ðĩō āçĩēĩŸñāçõā òĩ cluster òuĩ ports p ìðĩēāāðĩðā Ūēēā ðāēŸóā ðĩō Ÿ÷ĩōĩ āçĩēĩōñāçēāb āðũ Ÿĩā ports tree ìā ôçĩ ēāðŪēēçç āðēēŸóā.

**Óçĩābũóç:** Ābĩāē ðĩēŸ óçĩāĩóēēũ ìā áðāēñŸóāðā āðũ òĩ āñ÷ābĩ `/etc/make.conf` ìðĩēāóāpðĩðā òĩðēēŸð ñòēĩbóāēð Ÿ÷āðā ēŪĩāē. Āēā ðāñŪāāēāĩā, āāĩ ābĩāē ēāēp ēāŸā ìā āēāĩŸĩāðā āēðāēŸóēĩā ðĩō Ÿ÷ĩōĩ ìāóāāēũðôéóðāb óā ēŪðĩēĩ óðāēāēñēĩŸĩĩ óŸóççĩā ìā ìñēóĩŸĩç ôçĩ óēĩp ôçð ìāóāāēçðpð `CPUTYPE` āēā āāēðēóõĩðĩbçóç òuĩ āēðāēŸóēĩũĩ āēā ēŪðĩēĩ óðāēāēñēĩŸĩĩ āðāĩāñāóðp.

### 3.3 ðñĩāñŪĩĩāðā Ōñbôũĩ (“ports”)

Ç Óðēēĩāp òuĩ Ports òĩō FreeBSD (<http://www.FreeBSD.org/ports>) ābĩāē ìēā óðēēĩāp ìā ðāñēóóũðāñā āðũ 20,000 ðñĩāñŪĩĩāðā āðũ òñbôĩðð, ðĩō ābĩāē āēāēŸóēĩā āēā FreeBSD. Ĭē Ports Management Team <[portmgr@FreeBSD.org](mailto:portmgr@FreeBSD.org)> ābĩāē òðāŸððĩēē āēā ôçĩ óõĩðpñçóç āĩũð āŸĩóñĩō āðũ ðçāābĩ ēpāēēā āēā óā ports, ðĩō ìðĩñāb ìā ÷ ñçóēĩĩðĩēçēāb āēā ìā āçĩēĩōñāçēĩŸĩ óā ðāēŸóā ìā óā ðñĩāñŪĩĩāðā ðĩō óðñāŸĩōĩ óēð āðbóçĩāð āēüüóāēð òĩō FreeBSD.

Ç āēāāēēāóbā óõĩðpñçóçð ôçð óðēēĩāpð òuĩ ports ābĩāē ēŪðē ðĩō āāĩ ìðĩñĩŸĩā ìā ēāēŸðĩðĩā āāp. Ĭā ìā÷ũñēóðũ Ūñēñĩ, ìā ðbôēĩ Ç ÎñāŪtūóc ēāĩōçð òuĩ ðāēŸôũĩ ĒĩāēóĩēēŸ āðũ Ōñbôĩðð ([./releng-packages/article.html](http://releng-packages/article.html)), ēāēŸððāē āðũ òĩ ēŸĩā.

### 3.4 Āñ÷ābā ISO ôçð ēāĩóçð

Îāēēĩpĩóāð ìā ôçĩ Ÿēāĩóç 4.4 òĩō FreeBSD, ç ñŪāā ĀĩŪðððĩçð òĩō FreeBSD āðĩōŪóēóā ìā āēāĩŸĩāē ēāē óā ôŸóóāñā ISO āñ÷ābā ðĩō ðñpôā ðĩōēĩŸóāĩ ìē āðāēñābāð *BSDi/Wind River Systems/FreeBSD Mall* óðēð “āðbóçĩāð” āēāmŸð CDROM ðĩō Ÿēāĩāĩ. ĒŪēā Ÿĩā āðũ óā ôŸóóāñā ISO āñ÷ābā ðñŸðāē ìā ðāñēŸ÷āē Ÿĩā āñ÷ābĩ `README.TXT` ðĩō

ðǎñéǎñÛöǎé óǎ ðǎñéǎ÷üíǎíǎ òîõ ǎßóêîõ, êé Ýíǎ ǎñ÷ǎßí CDROM.INF ðîõ ðǎñéÝ÷ǎé íǎðǎ-ðêçñîüññßǎð ǎéǎ íǎ ïðññǎß òî ðñüǎñǎíǎ sysinstall(8) íǎ ǎéÝǎñǎé êǎé íǎ ÷ñçóêîüðîéßóǎé áðòü òî ǎßóêî, êǎêð òé Ýíǎ ǎñ÷ǎßí filename.txt ðîõ ðǎñÝ÷ǎé íéǎ êßóðǎ ǎñ÷ǎßüí òîõ CDROM. Áðòß ç êßóðǎ ïðññǎß íǎ ǎçíêîññǎçêǎß ðîéý áðêÛ, ùð ǎñßð:

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

Íé óðǎéǎêñêíÝíǎð áðǎéòßóǎéð ǎéǎ êÛêǎ Ýíǎ áðü áðòÛ óǎ CD ðǎñéǎñÛöüííóǎé ðǎñǎéÛòü:

### 3.4.1 Áßóêîõ 1

Í ðñðòîð ǎßóêîõ ǎßíǎé ó÷ǎǎüí áðîéêǎéóóéêÛ áðîðÝéǎóíǎ òçð ǎíóîéßð make release. Íé üííǎð ǎééǎǎÝð ðîõ ðñÝðǎé íǎ ǎßüííí òóüí êǎðÛêîǎñ disc1 ǎßíǎé ç ðñîóèßêç ðîõ êǎðÛêîǎñ tools, òüí XFree86, êǎé üóí òî ǎóíǎóüí ðǎñéóóüðǎññüí ðǎéÝòüí ïðññíý íǎ ÷ñÝóüííí òóüí ǎßóêî. Í êǎðÛêîǎñ tools ðǎñéÝ÷ǎé ǎñǎǎéǎßǎ ðîõ áðéòñÝðîííí óǎ ÷ñßóðǎð Ûêêüí êǎéòîññǎéêñí óðóðçíÛòüí íǎ òóéÛüííí òéð ǎéóéÝððǎð ǎéêßíçóçð. Áðòüð ï ðñðòîð ǎßóêîõ ðñÝðǎé íǎ òóéÛ÷ǎéǎé bootable Ýðóé ðóðǎ íǎ ïðññíý íé ÷ñßóðǎð òüí üíðÝññüí ððîéíǎéóóðí íǎ áðîðǎýǎííí òî óðÛǎéí ǎçíêîññǎßð òüí ǎéóéǎððí ǎéêßíçóçð.

Áí íéǎ ǎéǎóüñǎðéêß Ýêǎíóç òüí XFree86 éǎ ǎéǎÝíǎðǎé íǎ òçí Ýêǎíóç áðòß, ðñÝðǎé íǎ ǎçíǎññèǎß òî ðñüǎñǎíǎ sysinstall(8) ǎéǎ òçí íÝǎ òÝóç êǎé íé íǎçǎßǎð ǎǎéǎðÛóðǎóçð. Í ó÷ǎðééüð êñǎééǎð òðÛñ÷ǎé óóüí êǎðÛêîǎñ src/release/sysinstall òóüí -STABLE êññü ð óóüí êǎðÛêîǎñ src/usr.sbin/sysinstall òóüí -CURRENT êññü. ÓðǎéǎêñêíÝíǎ, óǎ ǎñ÷ǎßǎ dist.c, menus.c, êǎé config.c éǎ ÷ñǎéǎóðǎß íǎ ǎçíǎññèýíí.

### 3.4.2 Áßóêîõ 2

Í ǎǎýðǎññð ǎßóêîõ ǎßíǎé áðßóçð áðîðÝéǎóíǎ òçð ǎíóîéßð make release êǎðÛ Ýíǎ íǎǎÛêîí Ýññð. Áðòüð ï ǎßóêîõ ðǎñéÝ÷ǎé Ýíǎ “live filesystem” ðîõ ïðññǎß íǎ ÷ñçóêîüðîéçêǎß áðü òî sysinstall(8) ǎéǎ íǎ ǎíǎðǎóóüýí ðññǎéßíǎðǎ óǎ íéǎ ǎǎéǎðÛóðǎóç òîõ FreeBSD. Êé áðòüð ï ǎßóêîõ ðñÝðǎé íǎ ǎßíǎé bootable. Êǎ ðñÝðǎé áðßóçð íǎ ðǎñéÝ÷ǎé Ýíǎ óóüðéǎóüíÝíí ǎíóßǎñǎóüí òîõ CVS repository óóüí êǎðÛêîǎñ CVSROOT êǎé ǎßǎíǎðǎ áðü ǎðññéêÛ ðññǎñÛñǎðǎ óóüí êǎðÛêîǎñ commerce.

### 3.4.3 Áßóêîõ 3 êǎé 4

Íé òðüêîéðîé ǎðí ǎßóêîõ ðǎñéÝ÷ǎéíí áðéðññüóéǎðǎ ðǎéÝóǎ êñǎéóíéêéý ǎéǎ òî FreeBSD. Óǎ ðǎéÝóǎ éǎ ðñÝðǎé íǎ ǎßíǎé ñǎǎíðîéçíÝíǎ, Ýðóé ðóðǎ êÛêǎ ðǎéÝòü íǎ ǎßíǎé óóüí ðǎéí ǎßóêî íǎ üéǎ óǎ ðǎéÝóǎ áðü óǎ ïðñǎ ǎíǎñðÛóǎé ǎéǎ íǎ ǎǎéǎðǎóðǎéǎß êǎé íǎ òñÝíǎé. ðǎñéóóüðǎññð ðêçñîüññßǎð ǎéǎ òçí ǎçíêîññǎßǎ áðòðí òüí ǎßóêüí ǎíǎóÝññíóǎé óóüí Ûñêññ Ç ÎñãÛîùόç êǎíóçð òüí ðǎéÝòüí Êñǎéóíéêéý áðü Òñßòîðð (./releng-packages/article.html).

## 4 Áéǎíñß òüí Áêäüüóàùí

### 4.1 ÁíððçñǎðçðÝð FTP

¼ðǎí ç Ýêǎíóç ǎßíǎé Ýóíêíç, Ý÷ǎé ǎíéêíǎóðǎß ǎéðǎíðð, êǎé Ý÷ǎé ðǎéǎðǎñéóóǎß ǎéǎ ǎéǎíñß, ï êýñéíð FTP ǎíððçñǎðçðð ðñÝðǎé íǎ ǎçíǎññèǎß. Íé áðßóçííé ǎíððçñǎðçðÝð FTP òîõ FreeBSD ǎßíǎé üéé mirrors ǎíüð êýñéíð ǎíððçñǎðçðð óóüí ïðññí Ý÷ǎéíí ðññóǎǎóç üüí Ûêêé FTP ǎíððçñǎðçðÝð. Áðòüð ï ǎíððçñǎðçðð ǎßíǎé ǎíüóóüð ùð ftp-master. ¼ðǎí ç Ýêǎíóç ǎßíǎé Ýóíêíç, ðñÝðǎé íǎ ǎçíǎññèýíí óǎ ðǎñǎéÛòü ǎñ÷ǎßǎ óóüí ftp-master:



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

Ιέα ἀδῆP web οἶθεῖἄἄ ὄτῳ ὀἶνεῖY ÷ ἄε ἄἄθεῖἄἄ ὁἄ ἄεῖῖῖῖῖῖ ὁῖῖῖῖῖῖῖῖ FTP ἑἄἄἄἄἄἄῖῖῖ ἄἑἄ ὁῖῖ ὁἡY ÷ ῖῖῖἄ  
 ῖῖἄἄἄἄ 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 ðεçñïröîṇḂao ó÷âðéēŬ îä ôçî īṇāŬîùôç ôûî mirror äéáñḂò FTP öîø FreeBSD, ᾄᾄᾄäéæḂ äåßôå öî Ũñēñ ÖðeŬ÷īīōåð Ýíá FreeBSD mirror (/./hubs/).

[illegible]

#### 4.2 Àáæéêþ Áíáðáñáũùãþ ôúi CD-ROM

[illegible]

5 Āăēôáóéìüôçôá

[illegible]

## 5.1 Äçìéĩõñãßá ĐñĩóáñĩĩìíÙìì Äéóêâôôpí Âêêßícóçò.

DreëYð āāēāōāōðÜōāēð Ý÷ioi ðieyðereāð āðāēōPōāēð ðio iðināß iā ôç oāēñÜ ðioð íā āðāēðiyí ôçí ðñioēPēç  
 ðāñēōōūðāññiñ iāçāñi P āñāēēāßñi ÷ñPōōç óōēð āēōēÝðōāð āāēāōÜōðāōçð. Ī “iðāēÜēēēið” ðñuðio íā ði eÜíāōā āðōū  
 āßíāē íā eÜíāōā ðēð āēēāāÝð óāð óðñi ēāðÜēerāi ðio Ý÷āē āðieiÜōāē iāðÜ ði ðÝēið ôçð ç āēāāēēāōBā make  
 release:

- `ĐăŃŨôôă ôă patches óóđ Đ đňĩôēŸôôă ôă đđēđēŸĩĩ đă÷ăăă ĩŸôă ôôĩĩ éáoŨēĩĩĩ chroot ôçđ Ÿēăĩôçđ.`
- `rm ${CHROOTDIR}/usr/obj/usr/src/release/release.[59]`
- `ĭăăăăēũđôđôă đŨēē ôĩ sysinstall(8), ôĩĩ đđňĐĩăă, Đ ũđĩēă Ũēēă đňĩăăŨĩăăă Ÿ÷ĩđĩ đđçňăăăôđăă đđũ ôēđăăēăăŸđ óáđ.`
- `chroot ${CHROOTDIR} ./mk floppies`

İe íŸàò äéôêŸôâò ããêâôŸóôâóçò èá àçìéíõñãçèíŸí óôíí êâôŸëíäí \$ {CHROOTDIR}/R/stage/floppies.

ÀáææææææÛ, ìðññáßòá íá ÷ ñçóéíðíéßòáòá òí make target boot . flp, ß ìðññáßòá íá òñÝíáòá áðáòæáßàò òí script ðñò àçíéíðññáß òá óðóðßíáòá áñ÷áßñí src/release/scripts/doFS.sh.

ἸδρῖνὰΒοὰ ἀδΒοçð íá εἰσῖνΒοαὸἀ ὡοὸά αέεΥð óað αέέαΥð íá δᾶναόóιγí ιὰ ιιñòÞ patch óççí Υέαιòç υùðð έἂ òεÜ÷íáðἂé, ἁβῖνῖðað ðεíÞ óççí ιᾶðἂἂέçðÞ LOCAL\_PATCH υòἂί ðñΥíῖðἂ ðççí ἂíóιēÞ make release.

## 5.2 Ðñĩãñàìáôßæĩíôáò ôĩ sysinstall

[illegible]

## 6 àèPíàôá ðĩõ ĐPñàíà áõũ ôçĩ êäĩôç 4.4 ôĩõ FreeBSD

Ç æéääéæáóßá ãðíæíáóßáð ðçð Ýêäíðçð 4.4 ðíð FreeBSD íæßíçóá ãðßçíá ðçí 1ç Áðäíýððíð 2001. Ìæð ãðu äðð ðçí çìññçíßá, ùæð ðé æéæáÝð óðíí èìííù `RELENG_4` ðíð FreeBSD Ýðñáðá íá Ý÷íð Ýæñéóç áðu ðçí Release Engineering Team <re@FreeBSD.org>. Ç ðñðç äíæíáóðéèÞ Ýêäíð æéá ðçí áñ÷ðæððíðèèÞ x86 Ýæíá æéáÝðéíç ððéð 16 Áðäíýððíð, èé æèíðèèÞçæá áðu 4 æèíá äíæíáóðéèÝð ææüóáéð ðíð ðäÞçóáí ððçí ðæéèèÞ Ýêäíð ððéð 18 ðíð ÓáððÝíñç. Ì ððäýèððíð áóðÙæéáð Ýðáéíá ççíáíðéèù ñüèí éáð ðçí æÈñèæéá çðð ðææáðáßáð ááñÙááð éæðð èÙðíéá ðñíæèíáðá áóðÙæéáð áñÝççéáí óá ðñíçäíýíáíáð, äíæíáóðéèÝð ææüóáéð. ÓðñéèèÙ, ðÙíù áðu 500 email ððÙèèççéáí ððçí Release Engineering Team <re@FreeBSD.org> óá æÈÙðçíá íéèñüðáñí áðu Ýíá ÌÞíá.

[illegible]

7 ìäëëïíôéeêÝò Êáôãõèýíóãéò

[illegible]

- [illegible]

8 Å ÷ á ñ é ó ô ß à ò

Εὰ Πεᾶέα ἰά ἀο÷ἀνεόδΠου οἱ Jordan Hubbard, θῖο ἱτὸ Ὡαυόα ὀγῖ ἀδεᾶένΒἈ ἰά δῦΝη εὔΘιεᾶ αῶθ ὀγῖ ἀδεῃγῖ ὀδο Ὡεᾱτοçð 4.4 οἱθ FreeBSD, ἐᾶεðð ἐᾶέ ᾶέᾶ ὑεç ὀγῖ ᾱιρεᾶεῦ ὁἱθ Ὡ÷ᾶε εὔἲᾱε ᾱᾱþ ἐᾶέ ÷ñῡἲεᾶ ᾶέᾶ ἰά ᾱβἱᾱέ ὁἱ FreeBSD ᾱðου ὁἱθ ᾱβἱᾱέ οᐅᑭᾱᾱᾶ. ÖðóéēŨ, ç Ὡεᾱτοç ᾱᾱἱ ἐᾶ Þóᾱἱ ὁἱθ Ὡ ᾱðἱᾱðuἱ ἰᾶ ἱεἱθεçñῡεᾱß ÷ññðò ὑεç ὀγῖ ó÷ᾱðéēÞ ἰᾶ ὀγῖ Ὡεᾱτοç ᾱιρεᾶεῦ ὁἱθ Ὡεᾱἱᾱ ἱέ 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> ἐᾶέ ὑεἱέ ἱέ ὀδυἱεἱθέἱε ὁἱθ ᾱó÷ἱεἱγἱᾱέ ἰᾶ ὀγῖ ᾱἲŨððἱç ὁἱθ FreeBSD. ÈŸèù ᾱðßððð ἰᾶ ἀο÷ἀνεόδΠου ὁἱθð Rodney Grimes <rgrimes@FreeBSD.org>, Poul-Henning Kamp <phk@FreeBSD.org>, ἐᾶέ ὑεἱτόð ὁἱθð Ŭεἱτόð ὁἱθ ᾱᾱᾶŬóçεᾱἱ ᾶέᾶ ἰᾶ ὀðéŨἱἱἱ ὀᾶ ᾱᾱᾶεᾶßᾶ ᾶέᾶ ὀéð ᾱεᾱüðᾱéð ὀéðð ðñþðð ἱŸñðð ὀço ᾱçἱeἱtōᾱᾱßð ὁἱθ FreeBSD. ሉðou ὁἱ Ŭñēñ Ὡ÷ᾶε ᾱðçᾱᾱððᾱß ᾱðu ἐᾶßἱᾱἱ ὀ÷ᾱðéēŨ ἰᾶ ὀγῖ ἱᾱᾶŮἱúç ὀῡἱ ᾱεᾱüðᾱἱ ᾱðu ὁἱ CSRG[14], ὀγῖ ḥŮᾱᾶ ὁἱθ NetBSD[11], ἐᾶέ ὀγῖ ðñῡðᾱç ᾶέᾶ ἱéᾶ ᾱéᾱᾱéᾶᾱßᾶ ἱᾱᾶŮἱúçð ὀῡἱ ᾱεᾱüðᾱἱ ὁἱθ 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](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>)