

Ç ĩñãŨíùóç ôùí Âêäüóãùí ôĩõ FreeBSD

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\$FreeBSD: release/9.1.0/el_GR.ISO8859-7/articles/releeng/article.sgml 38826
2012-05-17 19:12:14Z hrs \$

Áðòù òĩ Ũñèñĩ ðãñéãñŨòãé ôçĩ áĩòéĩãòþðéóç éãé ĩñãŨíùóç ôçò ñŨããð áĩŨððòĩçð òĩõ FreeBSD, ùóĩĩ áòĩñŨ óôçĩ ðñĩãòĩéĩáóßá ðĩéĩòééþĩ äêäüóãùĩ òĩõ Êãéòĩõñãééĩĩ Óðóðßĩáòĩõ FreeBSD. Âĩçããß ĩã èãððñŨñãéã ôçĩ ĩãèĩãĩéĩãßá ðĩõ ÷ñçóéĩĩðĩéãßðáé ãéã ðéð äðßóçĩãð äêäüóãéð òĩõ FreeBSD éãé ðãñéãñŨòãé óã ãñããéãßá ðĩõ ãßĩáé äéãéŸóéĩá óã ùóĩõð ãĩãéãóŸñĩĩóãé ĩã ðãñŨĩĩĩĩ ðãñãĩãðñĩðĩéçĩŸĩãð äêäüóãéð òĩõ FreeBSD ãéã áóùðãñééþ ð ãĩðĩñééþ ÷ñþóç éãé áĩŨððòĩçð ðñĩũĩĩòùĩ.

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1 Âéóããũãþ

Ç áĩŨððòĩçð òĩõ FreeBSD ãßĩáé ĩéã ðĩéŸ áñé÷ðþ äéããééãóßá. Òĩ FreeBSD áðĩðãéãßðáé äðũ óóĩãéóóĩñŸð ÷éééŨãũĩ áĩéñþðũĩ äðũ ùéĩ òĩĩ èũóĩĩ. Ç ñŨãã òĩõ FreeBSD ðãñŸ ÷ãé ðñũóããóç ĩŸóũ áĩþĩòĩĩõ CVS[1] óã ùéĩòð, Ÿðóé þóðã ĩã ĩðĩñãß ùðĩéĩò èŸéãé ĩã ããé ĩçĩŸĩáóã log, äéãóĩñŸð (patches) ðĩõ Ÿ÷ĩĩĩ óã äéŨóĩñãã development branches, éãé Ũéãã ÷ãñãéðçñéóóééŨ ðĩõ äĩçéĩŸĩ ôçĩ áĩŨððòĩçð, óã ĩðĩßá ðñĩéŸððĩĩĩ äðũ ôçĩ ÷ñþóç áĩũð áððòçñĩŸ óðóðßĩáòĩõ äéã÷ãßñéóçð éþãééã. Áðòù áðĩðŸéãóã éãé òĩĩ ðéĩ óçĩãĩóééũ ðãñŨĩĩĩĩá Ÿéĩçð ãéã Ÿĩã ĩããŨéĩ ãñééũ äðũ óãéãĩóĩŸ÷ĩò ðñĩãããĩĩáðéóóŸð äðũ ùéĩ òĩĩ èũóĩĩ óóĩ FreeBSD. Âßĩáé ðñĩóãĩŸð, ãŸããéã, ðùð ðĩéŸ óŸĩðñã éã ãß÷ã ãßĩáé áĩóãéþð ÷ãĩóééþ ç éãðŨóóãóç áĩ ãß÷ãĩ ùéĩé, äðũ ùéĩ òĩĩ èũóĩĩ, ðñũóããóç ĩã ãñŨøĩĩ óóĩ éþãééã. Äé’ áðòù, ĩũĩĩ ĩéã “ãðééããĩŸĩç” ñŨãã äðũ ðãñßðĩõ 300 Ũóñã Ÿ÷ĩĩ ðñũóããóç ĩã ãñŨøĩĩ óóĩ CVS repository. Áðòĩß ĩé committers[6] ãßĩáé ððãŸéòñĩé ãéã òĩ ĩãããéŸóãñĩ ĩŸñĩò ôçò áĩŨððòĩçðð ðĩõ ãßĩãðáé óóĩ FreeBSD. ĩéã

[illegible]

Ίε όα÷ýόάόιε ñόειñß ářŨððóñçό όιò FreeBSD áäř áòßñíò éáé ðñëý ÷ñññ áéá όι ïáéáéŨñéóíá όιò όóóóßíáóìð ářŨððóñçό όá ïéá Ýéαιòç ïá ðñéυóçόá ðñò ïá áñßæáé ïá ÷ñçóéññðñéáßóáé áòñŨýð. Áéá ïá éðéáß áóóñ όι áßéççíá, ç ářŨððóñç áßñáóáé óáóóñ÷ññíá όá áοñ ðáñŨéççéá ïññðŨóéá. Ĩ éýñéìð éññññð ářŨððóñçό áßñáé Ĩ **HEAD** ð **trunk** óóñ CVS repository ïáð, áññóóñð éáé ùð “FreeBSD-CURRENT”, ð “-CURRENT” ář óóñññá.

ἴαο δέῃ ὁδᾶἑαῖτιοῦ ἐῖντιοῦ ὁδῶδῆαβῶδᾶῃ, ἀῖτιοῦδῶῖο ἰᾶ ὁῖ ὑῖνᾶ “FreeBSD-STABLE” ἔ δέῃ ὁῖῖνᾶ “-STABLE”. Ἐᾶῃ ἱῃ ἁῖοῖ ἐῖντιῖβ ἁβῖᾶῃ ἁδῖῃῃῃῃῃῃῃῃ ὁῖῃ ἑῖνῃῃ CVS repository, ὁῃῃ Ἐᾶῃῃῃῃῃῃῃῃ, ἑᾶῃ ἁῖῃῃῃῃῃῃῃῃῃ ἰῖῃῃ **CVSup**[2] ὁᾶ mirrors ῥᾶῖῃῃ ὁῖῃῃ ἑῖῃῃῃ. Ὀῖ FreeBSD-CURRENT[8] ἁβῖᾶῃ ῃ “ῥῃῃῃῃ ὁᾶῃῃῃ” ὃῃῃ ἁῖῃῃῃῃῃῃῃ ὁῖῃ FreeBSD ἑᾶῃῃ ὁᾶ ἁῃῃῃ ἁβῖῃῃῃῃ ῥῃῃῃῃ ἱῃ ἑᾶῃῃῃῃῃῃ ἁῃῃῃῃῃ. Ὀῖ FreeBSD-STABLE ἁβῖᾶῃ ἱ ἑῖντιοῦ ἁῖῃῃῃῃῃῃ ἁῃῃ ὁῖῃ ἱῃῃῃ ὁῃῃῃῃῃῃῃῃῃῃ ἱῃ ἁῃῃῃῃῃῃ. ἱῃ ἁῃῃῃῃῃῃ ῥῃῃῃῃῃῃῃῃ ὁᾶ ἁῃῃῃῃ, ὁῖῃ ἁῖῃῃῃῃῃ ἑῖντιοῦ ἁῖῃῃῃῃῃῃῃ, ἰᾶ δέῃ ἁῖῃῃ ἢῃῃῃῃ, ἁῖῃῃ ῥῃῃῃῃ (ὁῖῃῃῃῃ ἰᾶ ὃῃῃ ῥῃῃῃῃῃῃ ἰᾶῃ) ἁῖῃῃῃῃῃῃῃ ὁῖῃ FreeBSD-CURRENT ἑᾶῃ ῖῃῃῃ ἁῖῃῃῃῃῃῃ ῥῃῃῃ ἑᾶῃῃ.

[illegible]

Όρια÷ ποσό Υεῖνῖοάε αἰὺ οἶοδ ÷ nΠοόῶδ ἰαδ ἀράοῖνΥδ δῖνἰαεçÛοῖρ ἐαε ἀεδΠοάεδ ἁεἱ ἐαεῖνῖνέα ÷ ἁῖαεδçñεοόεεÛ, ἐαδÛ οç æÛñεἱἁεἱ οἶο εῖεεῖο οçδ εÛεἱ Ἰεἱαῖοçδ. Ἰε ἀράοῖνΥδ δῖνἰαεçÛοῖρ ἀεοÛἁῖνῖοάε οδçἱ ἁÛοç **GNATS**[9] ἰΥῶν e-mail, ἰἁ οçἱ ἁῖοἁῖῖἁP send-pr(1), Π ἰΥῶν οἶο web-interface δῖο δἁῖνΥ ÷ ἁῖοάε οδçἱ ἀεἱῖεῖοἶοç <http://www.FreeBSD.org/send-pr.html>. Ἀεοῦδ αἰὺ οεοδ æÛöῖνῖἁδ εἴοόῶδ çἁεἱδῖνῖεῖῖ οἱ ÷ ὁἁῖῖἁἅῖο ἰἁ εἸῖἱ ὁἱ δἱ ÷ ἰεεÛ ÷ ἁῖαεδçñεοόεεÛ οἶο FreeBSD οδÛñ ÷ ἁε ἐαε ç εἴοόἱ FreeBSD Quality Assurance mailing list (<http://lists.FreeBSD.org/mailman/listinfo/freebsd-qa>), ç ἰδῖἅ δἁῖνΥ ÷ ἁε Ἰἱἱ öῖῖῖῖ ἁεἱ οῶαεçδΠοάεδ ο ÷ ἁῖεεÛ ἰἁ οεοδ εἱδδῖνΥñἱεἱἁ οçδ “ῖῖἁÛῖοçδ οῖρ ἁεἱῶοἱῖ”.

Ἄεά íá áñòðçñáðòçείγí íé ðεí òòíòçñçðéεíβ ÷ ñβóðáð íáð, íá Ἰέαίòç òñ FreeBSD 4.3 áñ÷βóáíá íá ÷ ñçòçείñðíεíγíá íá÷÷ñεóóγíò 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 áóðÜεάá áβññíóáε óóñ εíñíυ ðçð Ἰέαίòçð. Ἀέυòð áðυ ðçí áñíáðυðçðá áíááÜείεóçð íÝóυ CVS, áðáεÝóεíá patchkits òðεÜ÷ññíóáε áεά íá ðíñíγí íá áíáááεíβóíñ ðá óðóðβíáðÜ ðíðð υóίε ÷ ñçòçείñðíεíγí ðéð ðεáυóáéð *RELENG_X_Y*.

Οι ΟιΠια 2 αιçããß ìã ããððñŸñããð ðã ããŸðñã ððŸãã ðçð ããããããðßãð ðñ ãñßðãðãã ðßòñ ãðu ãŸãã Ÿããðç, ìŸ ÷ ñã ããã ðã ãñããðã ðñ ããçãŸŸ ðçðŸ ìãðããððððãðç ðñ ððððñããñð ãã ðñ ΟιΠια 3 αιçããß ðçŸ ßããã ðç ããããããðßã ðçð ìãðããðððãðçð. Οι ΟιΠια 5 ðãñãñŸŸãã ðñ ðññãß ìã ððããðããß ðñ ããðãã ðŸððçãã ãðu ðñßðñð ãã ðñ ΟιΠια 6 ðãñãñŸŸãã ãŸðñãã ãðu ðã ðñŸãããðã ðñ ìŸããã ãðu ðçŸ ããããããðßã Ÿããðçð ðñ FreeBSD 4.4. ÔŸñð, ðñ ΟιΠια 7 ðãñððãŸããã ãŸðñãã ãðu ðãð ããðãðŸŸããð ðñ ãŸññãã ìã ðŸñãã ç ãñŸðððç ðñ ìŸããã.

2 Ç Äéääéêáóßá Äçíëĩõñãßáo ìéàò êäïóçò

Ié rYáo àèauóáèð òìð FreeBSD óðeÜ ÷ ðíðáè áðu òíí -STABLE èíñìù áíÜððòíçð ðáñððìð eÜèá òÝóóáñáèð íðíáð. Ç áèáèèèáóðá ðñíáðòíèíáóðáð íèáð Ýèáíòçð íáèèíÜèé ó÷ ááuí 45 íÝñáð ðñèí òçí áíáíáíuíáíç çíáññíçíðá Ýèáíòçð, ùðáí í òðáyè÷òìð àèauóáíí òìð FreeBSD óðÝèíáè Ýíá áñÜííá óðèð èðóðáð òuí ðñíáñáííáðèóóðíí áèá íá òðáíèòíðóáè óðìðð ðñíáñáííáðèóóðÝð ùðè Ý÷íòí 15 íÝñáð èáèñù íá eÜííòí ùðíèáð áèèááÝð eÝèíòí, ðñèí òí ðÜáuííá òìð èðáèèá. ÍÝóá óá áðòù òíí èáèñù, ðíèèíð ðñíáñáííáðèóóðÝð eÜííòí íèá óáèñÜ áðu áèèááÝð ðìð Ý÷íòí íáðíáè ðèÝíí áíùóóÝð ùð “íáèáèèáñðíáðá MFC”. Í ùíòí MFC óçíáðíáè “Merge From CURRENT” èáè ðáñèáñÜðáè òçí áèáèèèáóðá ðñíóáñííáðð

òtō ēpāēēā iēāō āiēēiāōiŸiç òēēāāpō āðū òiī -CURRENT ðāēñāiāōēēü ēiñiū āiŪðōōiç òōiī òōāēāñü -STABLE ēiñiū.

2.1 Ğāā÷iō Ēpāēēā

ŌñēŪiōā çìŸñāð ðñēi òçì áíáíāiūiāiç çìāññçìā Ÿēāiōçð, i ēpāēēāð òiō repository áēóŸñ÷āōāē óā iēā ðāñβtāi “ēāēōōōŸñçōçð”. ĒāōŪ òç āēŪñēāēā āōðpō òçð ðāñēüāiō, üēāð iē āēēāāŸð òōiī -STABLE ēiñiū ðñŸðāē iā Ÿ÷iōi òçì Ÿāēñēōç òçð Release Engineering Team <re@FreeBSD.org>. Īē āēēāāŸð ðiō āðēōñŸðñiōāē óā āōðp òçì ðāñβtāi ðiō āēāñēāβ 15 çìŸñāð āβiāē:

- Āēiñēpōāēð āñüōðpī ðñiāēçìŪðuī.
- Āiçìāñpōāēð òōçì òāēiçñβùōç.
- ĀēēāāŸð ò÷āōēēŸð iā òçì áōōŪēāēā.
- ĪēēñŸð āēēāāŸð òōiōð iāçāiŸð òōōēāðpī, üðuð ð÷. ç ðñiōēðēç òuī IDs iŸüi òōōēāðpī.
- Īðtēāāβðtōā Ūēēç āēēāāβ ðēóōāŸāē ç ñŪāā āiŪðōōiçð üōē ðñŸðāē iā āβiāē, iā òi áíáíāiūiāi ðŪiōā ñβōēi.

ĪāōŪ òēð ðñpōāð 15 iŸñāð ēāēōōōŸñçōçð, òōēŪ÷iāōāē iēā *āiēēiāōōēēp Ÿēāiōç* āēā iā ÷ñçōēiñðtēçēāβ óāi āiēēiβ òçð òāēēēpð Ÿēāiōçð ēāē i ēpāēēāð áēóŸñ÷āōāē óā iēā ðāñβtāi “ðāāpñāōið”. ðēŸiī āβiāē ðtēŸ ðēi āŸōētēi iā āβñiōi iŸāð āēēāāŸð òōi óŸōçìā, āēōuð ēē āi āēiñēpñiōi ēŪðtēi ðtēŸ òñāññ bugp ēŪðtēi ðñuāēçiā áōōŪēāēāð. ĒāōŪ òç āēŪñēāēā òiō ðāāpñāōið òiō ēpāēēā, òiōēŪ÷ēóōiī iβā āiēēiāōōēēp Ÿēāiōç òōēŪ÷iāōāē ēŪēā āāññŪāā, iŸ÷ñē iā āβiāē Ÿōiēiç ç òāēēēp Ÿēāiōç. Ōēð çìŸñāð āēñēāpð ðñēi òçì òāēēēp Ÿēāiōç, ç ñŪāā ðiō āβiāē òðāŸēðiç āēā òēð āēāüōāēð āβiāē óā òōiā÷p āðēēiēñiūiā iā òçì ñŪāā áōōŪēāēāð, òçì ñŪāā òōiðpñçōçð òçð òāēiçñβùōçð, ēāē òçì ñŪāā òōiðpñçōçð òuī ports, āēā iā āāāāēüēiŸi ðuð üēā òā āðāñāβðçōā ēññŪōēā āēā iēā ðēpñç Ÿēāiōç āβiāē āēāēŸōēiā.

2.2 Ēβōōā ĀēŸā÷iō òçð Ōāēēēpð ēāiōçð

¼ðuāi āñēāðŸð āiēēiāōōēēŸð āēāüōāēð Ÿ÷iōi āβiāē āēāēŸōēiāð, Ÿ÷iōi āiēēiāōōāβ āðū āñēāðü ēüōiī ēāē üēā òā òñāññŪ ēŸiāōā Ÿ÷iōi áíāēōēāβ, ç òāēēēp Ÿēāiōç iðññāβ iā āñ÷βōāē.

2.2.1 Āçtēiōñāβā òiō ĒiñiŸ ēāiōçð

¼ðuð ðāñēāñŪøāiā òōçì āēóāāüāp, iē ēiñiñβ RELENG_x_y āβiāē iēā ò÷āōēēŪ iŸā ðñiōēðēç òōçì iāētātēiāβā òuī āēāüōāpī iāð. Ōi ðñpōi āpñā òōçì āçtēiōñāβā āðōiŸ òiō ēiñiŸ āβiāē iā āāāāēüēāβōā üōē āiōēāŸāðā iā òçì òāēāðōāβā Ÿēāiōç òiō ðçāāβiō ēpāēēā āðū òiī RELENG_x ēiñiū *āðū òiī iðññi* ēā òōēŪiāðā òi iŸi ēiñiū.

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

Ōi āðññāñi āpñā āβiāē iā āçtēiōñāβōāðā iēā *āðēēŸðā* (tag) òōi òçìāβi āēēβiççōçð òiō ēiñiŸ, pōðā iā iðññāβōā iā āāβōā òēð āēāññŸð iā òçì āñ÷p òiō ēiñiŸ āŸētēā òōi iŸēēiī iā òi CVS:

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

Ēāē òuðā iðññāβōā iā āçtēiōñāβōāðā òi iŸi ēiñiū iā:

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

Όχιὰβὺός: *Ἰέ ἀθεέῃ Ὑδαῶ RELENG_* ἀβιάε ἀἀόιἀδὶ Ὑῖἀδ ἀέά ÷ ἡΠόϋ ἀδῦ οἰῶδ CVS-meisters ἐάε ὄϋι ἡῪἀά οὐῖ ἀἀῶδῶῖ.*

Ἰ uniõ “*ἀδελφὸς*” ἀβιάς ι̃νι̃ε̃ρ̃α̃β̃α̃ οἷο̃ CVS. Ὁ̃για̃βιάς Ἰ̃ιά ũm̃ã οἷο̃ ἐ̃α̃ε̃ι̃ν̃β̃α̃ε̃ ι̃ε̃α̃ ο̃α̃ε̃α̃ε̃ν̃ε̃ι̃ Ἰ̃γ̃ς Ἰ̃ε̃α̃ι̃ο̃ς οἷο̃ ἐ̃ρ̃α̃ε̃α̃ ο̃ο̃ι̃ ÷ nũĩ. × ñç̃õẽĩĩd̃ĩẽp̃ĩõãõ ἀδελφὸς ο̃ο̃ι̃ δ̃ç̃ãb̃ĩ ἐ̃ρ̃α̃ε̃α̃ ãr̃ç̃ẽŨĩã ũd̃ĩẽĩ õõẽŨĩãẽ ο̃ο̃ι̃ Ἰ̃Ỹẽẽĩ ãẽãũõãẽd̃ οἷο̃ FreeBSD ἰ̃ã ãñb̃õẽãẽ ἐ̃ãẽ ἰ̃ã ÷ ñç̃õẽĩĩd̃ĩẽãb̃ ãẽñẽãp̃õ οἷĩ B̃ãẽĩ ἐ̃ρ̃α̃ε̃ã οἷο̃ ÷ ñç̃õẽĩĩd̃ĩẽp̃ẽç̃ẽã ãẽã õẽd̃ ãd̃b̃õç̃ĩãd̃ ãẽãũõãẽd̃ ο̃ç̃õ ἡ̃Ũããd̃ οἷο̃ FreeBSD.

2.2.2 ÁóîÛííîáò ôíí Áñéèü êäïóçò

Ἐνῆι ἰθαῖ ἡ ἀοέεΥόα, ἰαοάαεουοοεοοάβ ἑαῖ ἀοιείαοοάβ ἡ οάεεῆβ Υἑαῖορ, ὃνΥθαῖ ἰά αῆῖῖοῖ αἑῖαῖΥο οοά ὃαῖαῖῆῆου
 ἂῖ÷ἂβἂ ἑῖἂ ἰά ὃἂῖῆΥ÷ῖοῖ ὀῖῖ οῖῆῆου ἂῖῆῆῆῆ Υἑαῖορὀ ἑῖἂ ὀῖ 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

[illegible]

- `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 āðáēöāßöáē áēá öçí ÖöēēīāP öñí Ports. ÁöðÝð íē ðēçñīöññāð öðÜñ÷īōí öóī āñ÷āßī
src/release/sysinstall/dist.c.

[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 Äçïéĩõñãßá ôùí Âôéêâôþí ôçò êäïóçò

1/40áí ç ôãëêêP Ýêäiôç åbíáé Ýôieîç, ç ðãñáéÛòù áíôieîP èá äçieiõñãPóáé ôçí åôéêÝôá RELENG_4_8_0_RELEASE.

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

RELEASE_4_8_0 óóá éáôÜëëçä äÝíóná ðçāáβíø èþäééä.

ΙάναεΎδ οινΎδ, ιδιναβ ίά ÷ ναεάοοαβ ίά αβιτωι εΎδιεάδ αεεάαΎδ οάεαδoαβa οόεαιb ιαδoΎ ογι οδιεΎδoγoς ουι
 αοεεαοπι. ΆαρεεΎ, ααρ αβίαε άyoετει ίά αβίαε εΎδε οΎοτει αοιγ οι CVS αδεονΎδαε ίά ιαοαεειbοαε εΎδιειο οεδ
 αοεεΎοαο ίά ιαδιεΎδ uδuo cvs tag -d tagname filename. Άβίαε διεΎ ογιαδιεου uδuo αδoΎδε ιε αεεάαΎδ ογo
 οάεαδoαβaο οόεαιbο ίά ογιαεουει ίά οεδ ουoοΎδ αοεεΎοαο αεα ογι οοαεαεειΎιγ Ύεατογ. Ιε αδbογiαο αεαυoαεδ οιω
 FreeBSD οηΎδαε ίά αβίαε δΎiοα άγερει ίά αιαδαña÷ει. ΟιδεεΎδ αεεάαΎδ οοι δαηεαΎεεει οιω ιγ÷αρεεΎ ουι
 αεαυoαui ααρ αδεονΎδιoαε.

3 àâãäåæç èé êëìíîï

Ιε "ææuðæð" ðï FreeBSD ðïññíí íá ðæðææuððæððíí áðu ðïññííáððïðæ Ý÷æ Ýíá ð÷æðæÛ æñðáññ ìç÷Úíçíæ ææ ðñuðææðç ððï repository ðïð ðçææðïð èðæèæ. (¼æíæ Ý÷÷ïí æððð ðç æðíáðuðçðá, æðíý ðáñÝ÷÷ïíæ ðñuðææðç ìÝðu æíðïíïð CVS! Åæðæ ðï Åæ÷æñðæèï ðïð FreeBSD ææá ðáñéðóuðæñæð èæððñÝñæèæð.) Ç ìüç æææèð æðáððçðç æðíæ íá ððÛñ÷æ ððïðððñéíç ððñ ððñðíá ðæð ææá ðçí ðððèæðð vn(4). (Ððï -CURRENT, æððð ç ðððèæðð Ý÷÷æ æíðèææðæðææð áðu ðçí ðíÝá ðððèæðð æððèïð æáðéóíÝñð ðá ðíðç md(4).) Áí ç ðððèæðð æá æðíæ æíuðíæðuðÝýç ððñ ððñðíá ðæð, ðuðæ ì ææðÛèèèð ðæçæðu èá ðñðuðæð æððuðæð uðáí æèðæææððæð ç æíðñèð vnconfig(8) ææðÛ ðç æèÛñææá ðçð ðÛðçð æðñíæððæð ðïð ìÝðïð æèèðíçðçð. ¼æá ðá æñæææðá ðïð ÷ñæÛæñðææ ææá íá ðæðææuðððððæð ìæá Ýèæðç æðíæ æææÝðéíá ðá ðñðð ðçææðïð èðæèæ ððñ èæðÛèèï src/release. ÁððÛ ðá æñæææðá Ý÷÷ïí ùð ðèíðu íá ðáñÝ÷÷ïí uðè ÷ñæÛææðææ ææá íá ÷ðæñðæð ìè æææuðæð ðïð FreeBSD ìá Ýíá ðñíæðð ææð ðæææñèèÝÝñ ðñuðï. ìæá ðèðñçð Ýèæðç ððñæð íá ðæðææuððæððæð ÷ñçðèñðñèðæð æððÛ ðá æñæææðá ìá ìæá ææ ìññ æíðñèð, ððððæñèèæíæíñÝýçð ææð ðçð æçíèíðñæð æíuð ISO æñ÷æðïð ææðÛèèèè ææá íá èææð ðá CDROM, ìè æèðæÝððæð æèèðíçðçð, èæèð ææ ì ææðÛèèèèð ææææðÛðæðçð ìÝðu FTP. Áððð ç æíðñèð æðíæ ðððèèð ç make release.

3.1 CMake make release

Ἄέα ἰά ἰάόάαῦῶῶῶῶῶῶῶ ἄῑῑῑῑ÷ῖῑ ἰέα Ἰέαῖῑῑ, ὄñÝῑῑῑ ὄñῖῑῑ ἰά ὄῑῑñ÷ῖῑ ὀά ῑῑῑῑῑῑῑῑ ἁñ÷ῑῑ ἰÝῑῑ ὀῑῑ ῑῑῑῑῑῑ
 /usr/obj. Ἰῑñῑῑῑ ἰῑ ὀῑ ἁῑῑῑῑῑῑῑῑ ἁῑῑ ἰῑ ὀῑ ἰῑῑῑῑῑῑῑ make world ῑ ἁῑῑῑῑῑῑῑῑ make buildworld. Ἄέα ἰῑ

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

- CHROOTDIR - Ì éáðÛëíáðð ðîõ èá ÷ ñçóéíðíéçéäð óáí ðáñéáÛëëí chroot áéá üëç òçí ìáðááëðððéóç òçð Ýêáîóçð.
- BUILDNAME - Õî üñíá òçð Ýêáîóçð ðîõ èá ìáðááëüðððáððá.
- CVSROOT - Ì éáðÛëíáðð ðóñí ìðíßí áñßóéáðáé òí CVS repository.
- RELEASETAG - Ç áðééÝðá CVS ðîõ áíóéóðíé÷-áß óóçí Ýêáîóç òçí ìðíßá èÝéäðá íá ìáðááëüðððáððá.

Áí ááí Ý÷-áðá ðáç ðñüóááóç óá èÛðíéí ðíðéëü CVS repository ìá ðñí èðáééá ðîõ FreeBSD, ìðíáððá ðÛíóá íá ððéÛíáððá òí áéëü óáð ðíðéëü CVS mirror ìá òí CVSup (http://www.FreeBSD.org/doc/en_US.ISO8859-1/books/handbook/synching.html#CVSUP). ÕðÛñ÷-áé Ýíá supfile, 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 ðáñáëáßððá 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 òñí èíñü, óóíðëüð áíáðÝñíðáé óáí “-CURRENT snapshots”.

ÕðÛñ÷-íóí éáé ðíééÝð Ûëëäð ìáðááëçðÝð ðîõ ìðíñíý íá ÷ ñçóéíðíéçéçý íáé íá ðáñáíáðñíðíéçéçéäð òçí Ýêáîóç óáð. Ìé ðéí ðíééÝð áðü áððÝð ðéð ìáðááëçðÝð ðáñéáñÛñíðáé óóçí èíñðð ðîõ áñ÷-áßíð src/release/Makefile. Ç áêñéáðð áíðíë ðîõ ÷ ñçóéíðíéçéçéäð áéá íá ððéá÷-ðáß ç áðßóçð 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 óá áñéäðÛ ìá÷-ùñéóðÛ ìáðáíý ðîõð áðíáðá.

- Äçíëíðñáß áñüð éáéáñíý ðáñéáÛëëíððð óá íéá ìá÷-ùñéóðð éáñáñ÷-ßá éáðáëüüí ìá òçí áíðíëð “make installworld”.
- Áíáñüáß áðü òí CVS ìéáð éáéñýñéáð Ýêáîóçð ðîõ ðçááßíð èðáééá ðîõ ðððððíáððð, òçð ðáêñññüóçð éáé òñí ports ìÝóá óóçí éáñáñ÷-ßá éáðáëüüí ìáðááëðððéóçð òçð Ýêáîóçð.
- Ñðéíðáéð òñí áñ÷-áßíð ðóñí éáðÛëíáðð /etc éáé /dev ìÝóá ðóí ðáñéáÛëëí chroot.
- ÁéðÝéáóç òçð áíðíëðð chroot ìÝóá óóçí éáñáñ÷-ßá éáðáëüüí ðîõ áðíéíÛððçéá, áéá íá ìçí ìðíáß òí áñüðáñéëü ðáñéáÛëëí íá áðçñáÛðáé òç ìáðááëðððéóçð òçð Ýêáîóçð.
- ÁéðÝéáóç òçð áíðíëððð make world ìÝóá ðóí ðáñéáÛëëí chroot.
- Ìáðááëðððéóç òñí áêðáëÝóéíð ðîõ áßíáé ó÷-áðééÛ ìá òí óýóóçíá Kerberos.
- Ìáðááëðððéóç ðîõ ððñðíá GENERIC.
- Äçíëíðñáß áñüð ðáéééçý éáðáëüüíð ðóñí ìðíßí èá ìáðááëüðððéóðíý éáé èá áðíèçéáððéçý ìé áêðáëÝóéíðð ìñðÝð òñí ðáéééçí ðáéÝðð.
- Ìáðááëðððéóç éáé ááéáðÛóðáóç òñí áñááéáßíð ðîõ ÷ ñáéÛáñíðáé áéá òçí ðñíáðíéíáððá òçð Ýêáîóçð éáé òç ìáðáðñíðð òçð ðáêñññüóçð áðü òñí ðçááßíð èðáééá (SGML) óá html éáé áñ÷-áßá éáéíÝñð ðîõ èá ðóñíáñýíðí òçí Ýêáîóçð.
- Ìáðáðñíðð éáé ááéáðÛóðáóç òçð ðáêñññüóçð (áá÷-áéñßáéá ÷ ñðóðç, áéóáñüáééÛ éáßíáíá, óçíáëðáéð Ýêáîóçð, èßððáð ððíááðððçðáðð ðéééçý, èèð.)

- Îāóāāēpôóéóc òuĩ “òõĩðēáõĩŸĩũĩ” (crunched) āēðāēŸóēĩũĩ ðĩō ēā ÷ ñçóēĩĩðĩēçēĩŸĩ óóēð āēóēŸôðāð āāēáðŪóóáócð.
- Āçĩēĩōñāβā òuĩ ðāēŸóuĩ òçð āāēáðŪóóáócð ēāē òuĩ ðāēŸóuĩ ðçāāβĩō ēpāēēā.
- Āçĩēĩōñāβā òuĩ ìŸóuĩ āēēβĩçóçð ēāē òçð āēóēŸôðāð “fixit”.
- Āçĩēĩōñāβā òçð ēāñāñ÷βāð ēáðāēüũĩ āēā òçĩ āāēáðŪóóáóc ìŸóuĩ FTP.
- (ðñĩíēñāôēēŪ) Āçĩēĩōñāβā òuĩ ISO āñ÷āβũĩ āēā ìŸóā CDROM/DVD media.

Āēā ðāñēóóüðāñāð ðēçñĩōĩñβāð ó÷āðēēŪ ìā òçĩ āēāēēāóβā āçĩēĩōñāβāð ìēāð Ÿēāĩóçð, āāβôā òçĩ óāēβāā ôāēĩçñβũóçð release(7).

3.2 Îāóāāēpôóéóc òuĩ XFree86

Ôĩ āñāóēēü ðāñēāŪēēĩ **XFree86** āβĩāē Ÿĩā óçĩāĩóēēü ēñĩŪðē ēŪēā Ÿēāĩóçð āēā ðĩēēĩŸð ÷ ñβóðāð ðĩō ēŸēĩōĩ òĩ FreeBSD āēā óðāēĩŸð āñāóáð. ðñēĩ òçĩ Ÿēāĩóç 4.6-RELEASE òĩō FreeBSD, ìē āðβóçĩāð āēüüóāēð òĩō FreeBSD ÷ ñçóēĩĩðĩēŸĩóāĩ òçĩ Ÿēāĩóç 3.x òuĩ **XFree86**. Ĭ ðēĩ āŸēĩēĩð ðñũðĩð ìā ìāóāēüððóβôāð āóðŸð òēð āēüüóāēð āβĩāē ìā ÷ ñçóēĩĩðĩēŸĩóāĩ òĩ ðñũāñāĩā `src/release/scripts/X11/build_x.sh`. Áðõü òĩ ðñũāñāĩā āðāēðāβ ìā āβĩāē ðāç óççĩŸĩā óõĩ óŸóççĩŪ óáð õüõĩ òĩ ðāñēāŪēēĩ XFree86 üõĩ ēāē ç āēpóóā Tcl/Tk. ÎāðŪ òçĩ ìāóāāēpôóéóc òuĩ ēáðŪēēçēũĩ X servers, òĩ ðñũāñāĩā ēā ðāēāðŪñāē üēā óā āñ÷āβā óā óðēēĩāŸð āñ÷āβũĩ ðĩō ðāñēĩŸĩāē ìā āñāē òĩ `sysinstall(8)` ìŸóā óõĩ ēáðŪēēĩāĩ `XF86336` óõĩ ìŸóĩ āāēáðŪóóáócð.

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

Óçĩāβũóç: Āβĩāē ðĩēŸ óçĩāĩóēēü ìā áðāēñŸóðāð āðũ òĩ āñ÷āβĩ `/etc/make.conf` ìðĩēāóāððĩôā òĩðēēŸð ñõēĩβóāēð Ÿ÷āðā ēŪĩāē. Āēā ðāñŪāāēāĩā, āāĩ āβĩāē ēāēp ēāŸā ìā āēāĩŸĩāðā āēðāēŸóēĩā ðĩō Ÿ÷ĩōĩ ìāóāāēüððóéóðāβ óā ēŪðĩēĩ óðāēāēñēĩŸĩĩ óŸóðçĩā ìā ìñēóĩŸĩç òçĩ óēĩp òçð ìāóāāēçððð `CPUTYPE` āēā āāēðēóõĩðĩβçóç òuĩ āēðāēŸóēĩũĩ āēā ēŪðĩēĩ óðāēāēñēĩŸĩĩ āðāĩāñāáóðp.

3.3 ðñĩāñŪĩĩāóā Őñβôũĩ (“ports”)

Ç Óðēēĩāp òuĩ Ports òĩō FreeBSD (<http://www.FreeBSD.org/ports>) āβĩāē ìēā óðēēĩāp ìā ðāñēóóüðāñā āðũ 23,000 ðñĩāñŪĩĩāóā āðũ òñβôĩðð, ðĩō āβĩāē āēāēŸóēĩā āēā FreeBSD. Ĭē Ports Management Team <portmgr@FreeBSD.org> āβĩāē òðāŸððĩēē āēā òçĩ óõĩðpñçóç āĩũð āŸĩóñĩō āðũ ðçāāβĩ ēpāēēā āēā óā ports, ðĩō ìðĩñāβ ìā ÷ ñçóēĩĩðĩēçēāβ āēā ìā āçĩēĩōñāçēĩŸĩĩ óā ðāēŸóā ìā óā ðñĩāñŪĩĩāóā ðĩō óðñāŸĩōĩ òēð āðβóçĩāð āēüüóāēð òĩō FreeBSD.

Ç āēāāēēāóβā óõĩðpñçóçð òçð óðēēĩāpð òuĩ ports āβĩāē ēŪðē ðĩō āāĩ ìðĩñĩŸĩā ìā ēāēŸøĩðĩā āāp. Ĭā ìā÷ũñēóðũ Ūñēñĩ, ìā òβôēĩ Ç ÎñāŪtūóc ēāĩóçð òuĩ ðāēŸóuĩ ĒĩāēóĩēēŸĩ āðũ Őñβôĩðð ([./releng-packages/article.html](http://releng-packages/article.html)), ēāēŸððāē āðõü òĩ ēŸĩā.

3.4 Āñ÷āβā ISO òçð ēāĩóçð

Îāēēĩpĩóáð ìā òçĩ Ÿēāĩóç 4.4 òĩō FreeBSD, ç ñŪāā ĀĩŪðððĩçð òĩō FreeBSD āðĩōŪóēóā ìā āēāĩŸĩāē ēāē óā òŸóóāñā ISO āñ÷āβā ðĩō ðñpóā ðĩōēĩŸóāĩ ìē āðāēñāβāð *BSDi/Wind River Systems/FreeBSD Mall* óðēð “āðβóçĩāð” āēāmŸð CDROM ðĩō Ÿēāĩāĩ. ĒŪēā Ÿĩā āðũ óā òŸóóāñā 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
```

Ìé óðǎéǎêñéíÝíǎð áðǎéòßóǎéð ǎéǎ êÛèǎ Ýíǎ áðü áðòÛ òǎ CD ðǎñéǎñÛîîíóǎé ðǎñǎéÛòü:

3.4.1 Áßóêîõ 1

Ì ðñðòîð ǎßóêîõ ǎßíǎé ó÷ǎǎüí áðîééǎéóóééÛ áðîðÝéǎóíǎ òçð ǎíóîéßð make release. Ìé ìüíǎð ǎééǎǎÝð ðîõ ðñÝðǎé íǎ ǎßñîí óóñí êǎðÛéñǎí disc1 ǎßíǎé ç ðññíóèßê ðîõ êǎðÛéñǎí tools, òüí XFree86, êǎé üóí òî ǎóíǎóüí ðǎñéóóüðǎññí ðǎéÝòüí ìðññíý íǎ ÷ñÝóíóí óóí ǎßóêî. Ì êǎðÛéñǎí tools ðǎñéÝ÷ǎé ǎñǎǎéǎßǎ ðîõ áðéòñÝðîí óǎ ÷ñßóðǎð Ûéèüí êǎéðîññǎéêñí óðóðçíÛòüí íǎ òðéÛñîí òéð ǎéóéÝððǎð ǎéêßíçóçð. Áðòüð ì ðñðòîð ǎßóêîõ ðñÝðǎé íǎ òðéÛ÷ǎðǎé bootable Ýðóé ðóðǎ íǎ ìðññíý ìé ÷ñßóðǎð òüí ìüðÝññüí ððîéñǎéóðñí íǎ áðîðǎýǎñîí òî óðÛǎéí ǎçìéîññǎð òüí ǎéóéǎððñí ǎéêßíçóçð.

Áí ìéǎ ǎéǎóññǎðéêß Ýéǎñóç òüí XFree86 èǎ ǎéǎíÝíǎðǎé ìǎ òçí Ýéǎñóç áðòß, ðñÝðǎé íǎ ǎçìǎññèǎß òî ðñüǎñǎìǎ sysinstall(8) ǎéǎ òçí íÝǎ èÝóç êǎé ìé ñǎçǎßǎð ǎǎéǎðÛóðǎóçð. Ì ó÷ǎðéèüð êñǎééǎð òðÛñ÷ǎé óóñí êǎðÛéñǎí src/release/sysinstall óóñí -STABLE èññü ð óóñí êǎðÛéñǎí src/usr.sbin/sysinstall óóñí -CURRENT èññü. ÓðǎéǎêñéíÝíǎ, òǎ ǎñ÷ǎßǎ dist.c, menus.c, êǎé config.c èǎ ÷ñǎéǎóðǎß íǎ ǎçìǎññèýíý.

3.4.2 Áßóêîõ 2

Ì ǎǎýðǎññð ǎßóêîõ ǎßíǎé áðßóçð áðîðÝéǎóíǎ 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. Èé áðòüð ì ǎßóêîõ ðñÝðǎé íǎ ǎßíǎé bootable. Èǎ ðñÝðǎé áðßóçð íǎ ðǎñéÝ÷ǎé Ýíǎ óóíðéǎóíÝñí ǎíóßǎñǎóñ òîõ CVS repository óóñí êǎðÛéñǎí CVSROOT êǎé ǎßǎìǎðǎ áðü ǎðññééÛ ðññǎñÛñǎðǎ óóñí êǎðÛéñǎí commerce.

3.4.3 Áßóêîõ 3 êǎé 4

Ìé òðüéñéðîé ǎðí ǎßóêîõ ðǎñéÝ÷ǎéí áðéðññüéǎðǎ ðǎéÝóǎ éñǎéóíééý ǎéǎ òî FreeBSD. Óǎ ðǎéÝóǎ èǎ ðñÝðǎé íǎ ǎßíǎé ñǎǎñðîéçíÝíǎ, Ýðóé ðóðǎ êÛèǎ ðǎéÝòí íǎ ǎßíǎé óóñí ðǎéí ǎßóêî ìǎ üéǎ óǎ ðǎéÝóǎ áðü óǎ ñðßǎ ǎñǎñðÛóǎé ǎéǎ íǎ ǎǎéǎðǎóðǎéǎß êǎé íǎ òñÝíǎé. ðǎñéóóüðǎññð ðêçñîîññßǎð ǎéǎ òçí ǎçìéîññǎßǎ áðòñí òüí ǎßóêüí ǎíǎóÝññíóǎé óóñí Ûñèññ Ç ÎñǎÛîùόç êǎñóçð òüí ðǎéÝòüí Éñǎéóíééý áðü Òñßðîðð (../releng-packages/article.html).

4 Áéǎññß òüí Áêäüüóàùí

4.1 ÁñðççñǎðçðÝð FTP

¼ðǎí ç Ýéǎñóç ǎßíǎé Ýóíéíç, Ý÷ǎé ǎñééíǎóðǎß ǎéðǎñðð, êǎé Ý÷ǎé ðǎéǎðǎñéóðǎß ǎéǎ ǎéǎññß, ì éýñéñð FTP ǎñðççñǎðçðð ðñÝðǎé íǎ ǎçìǎññèǎß. Ìé áðßóçñéé ǎñðççñǎðçðÝð FTP òîõ FreeBSD ǎßíǎé üéñé mirrors ǎññð éýñéñð ǎñðççñǎðçðð óóñí ñðßí Ý÷ǎéí ðññóǎǎóç ìüñ Ûééñé FTP ǎñðççñǎðçðÝð. Áðòüð ì ǎñðççñǎðçðð ǎßíǎé ǎññóðüð ùð ftp-master. ¼ðǎí ç Ýéǎñóç ǎßíǎé Ýóíéíç, ðñÝðǎé íǎ ǎçìǎññèýíý òǎ ðǎñǎéÛòü ǎñ÷ǎßǎ óóñí ftp-master:

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

λέα ἀδῆP web οἰαῖβᾶᾶ ὄϊο ὃᾶῖῖÉY ÷ ᾶέ ᾶᾶβῆοᾶᾶ οᾶ ᾶέUοῖῖῖῖῖῖ οῖῖᾶῖᾶῖῖῖῖῖ FTP ῆᾶᾶῖῖῖῖῖῖῖ ᾶῆᾶ ὀῖῖ ὀῖῖY ÷ ῖῖᾶᾶ Yῆᾶῖᾶῖᾶ ὀῖῖ FreeBSD.

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

Ἰ ἐὰν Ὑπεράνω ἀδῶ ὅτι ἰδίῳ ἰδιῳγῇ ἰὰ ἀβήτοι ἀαεάοάοόῦοάοό ἰΥόυ FTP, ὑδῶ ὅτι Ὑ ÷ αε ὀηῖαοῖεῖ Ὑοάε ς ἀίοῖεP 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 êáôÛëîäí .../.../.../tools.

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

```

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

```

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

Ôá áñ÷åßá ISO.

Ἄεά ḁāñēōōūōāñāð ðēçñīrōīñßāo ó÷âôéëÛ īā ôçī īñāÛñùôç ôūī mirror æéáññòð FTP ôīø FreeBSD, ḁāñæéäēþ äåßôå ôī Ûñēñī ÖöèÛ÷ñīôåð Ýíá FreeBSD mirror (/./hubs/).

Ιδιόηα ία δ'Υηάε αηέαοΎο ηηαο αδύ οςί οόέαηδ θιρ έα αίςηαήηεαβ ι ftp-master ιΎ÷ηέ ία αίςηαήηεήήι οόςί δεαέιθςόβα οίρδ οά θηηοίρ αδεδΎαίρ FTP mirror ια οςί ιΎά Ύέαίρς. ΆδεαΎεεαοάε ιε οδāήεοήε Ύέαίρςδ ία οοίάήηςήήι ια οςί ϑέαεοήήεβ έβοόά ούι mirror sites οίρ FreeBSD (http://lists.FreeBSD.org/mailman/listinfo/freebsd-hubs) θήέι αίάέιέήροίρ οςί αάίέβ άέαάοέιυδςόά οςδ ιΎάδ Ύέαίρςδ οοίρδ αίρδςήαδςόΎδ FTP.

4.2 Àáæéêþ Áíáðáñáũùãþ ôúi CD-ROM

Ἐὰ σοὶ δὲ ὅτι οὐκ ἐστὶν νόμος ὁμοίων· Ὅμοιοι τοῦτο ἀπὸ τοῦ ὅτι οἱ ISO ἀπὸ τοῦ FreeBSD πρὸς τὴν εὐχρηστικὴν αἰτίαν
ἀποφασίζουσιν, ἀλλὰ ἡ ὁμοιότης αὐτῶν καὶ τῆς διευκόλυνσης αὐτῶν ἀποδεικνύεται.

5 Åăăêôáóéìüôçôá

[illegible]

5.1 ĀçîēîōñāāĀ ĐñîóáñîîóíŸíuî ĀéóēāôôĀ ĀēēĬîççò.

ĐîēēŸò āāēāóáóôŪóāēò Ÿ÷îŕî đîēýđēîēāò áđāēôĀóāēò đîŕ îđîñāĬ íā ôç óāēñŪ òîŕò íā áđāēôîŸí ôçî đñîŕôēĬēç đāñéóóúôāñuî îāçāĬ Ā āñāāēāĬuî ÷ñĀóôç óôēò āéóēŸôôāò āāēāôŪóóáóçò. Ĭ “îđāēŪēēēîŕ” òñuđîŕ íā òî ēŪíāôā áôôu āĬíāē íā ēŪíāôā ôēò āēēāāŸò óāò óôîŕ ēāôŪēîāî đîŕ Ÿ÷āē āôîēîŪóāē îāôŪ òî ôŸēîŕ ôçò ç āēāāēēāóĀā make release:

- ĐāñŪóôā óā patches óāò Ā đñîŕôēŸôôā óā āđēđēŸîí āñ÷āĀ íŸóā óôîŕ ēāôŪēîāî chroot ôçò Ÿēāîŕçò.
- `rm ${CHROOTDIR}/usr/obj/usr/src/release/release.[59]`
- Îāôāēüôôôôôā đŪēē òî sysinstall(8), òî đñĀĬíā, Ā üđîēā Ūēēā đñîāñŪîāôā Ÿ÷îŕî āđçñāāóôāā áđu ôēò āēēāāŸò óāò.
- `chroot ${CHROOTDIR} ./mk floppies`

Ĭē îŸāò āéóēŸôôāò āāēāôŪóóáóçò ēā āçîēîōñāçēîŸí óôîŕ ēāôŪēîāî \${CHROOTDIR}/R/stage/floppies.

ĀíāēēāēôēēŪ, îđîñāĬôā íā ÷ñçóēîîđîēĀóāôā òî make target boot.flp, Ā îđîñāĬôā íā òñŸíāôā áđāôēāĬāò òî script òî āçîēîōñāāĬ óā óôôôĬíāôā āñ÷āĬuî src/release/scripts/doFS.sh.

ÎđîñāĬôā āđĬóçò íā ēāñîĬôāôā Āóôā āēēŸò óāò āēēāāŸò íā đāñāóôîŸí îā ïñôĀ patch óôçî Ÿēāîŕç üđuò ēā ôôēŪ÷îāôāē, āĬñîŕôāò ôēĬĀ óôçî îāôāāēçôĀ LOCAL_PATCH üôāí òñŸíāôā ôçî āîŕîēĀ make release.

5.2 ĐñîāñāîîāôĬæîîôāò òî sysinstall

Ōî āñāāēāĬî āāēāôŪóóáóçò ēāē ñŸēîŕçò đîŕ FreeBSD, òî sysinstall(8), îđîñāĬ íā đñîāñāîîāôēóôāā āēā íā ēŪíāē đēî āŸēîēāò ôēò áôôñîāôîđîēçîŸíāò āāēāóáóôŪóāēò óā đîēēŪ ìç÷āĬíāôā. Áôôu òî ÷āñāēôçñēóôēēu òîŕ đñîāñŪîîāôîŕ îđîñāĬ íā ÷ñçóēîîđîēçēāĬ óā óôîŕāôāóîu îā òî PXE[13] ôçò Intel āēā íā îāēēîĀóāē ç āāēāôŪóóáóçò áđu òî āĬēôôî, Ā óā óôîŕāôāóîu îā đñîóáñîîŕîŸíāò āéóēŸôôāò āēēĬîççò ēē Ÿíā sysinstall script. íā đāñŪāāēāîā áđu ôŸôîēî sysinstall script îđîñāĬôā íā āñāĬôā óôî āñ÷āĬî src/release/sysinstall/install.cfg.

6 ÎāēĬíāôā òîŕ ĐĀñāîā áđu ôçî êäîŕç 4.4 òîŕ FreeBSD

Ç āēāāēēāóĀā āôîēîāôĬāò ôçò Ÿēāîŕçò 4.4 òîŕ FreeBSD îāēĬîççā āđĬôçîā ôçî Ĭç ÁôāîŸóôîŕ 2001. ÎāôŪ áđu áôôĀ ôçî çîāññîçîĬā, üēāò îē āēēāāŸò óôîŕ ēîñîü RELENG_4 òîŕ FreeBSD Ÿđñāđā íā Ÿ÷îŕî Ÿāēñēóç áđu ôçî Release Engineering Team <re@FreeBSD.org>. Ç đñĀôç āîēēîāóôēēĀ Ÿēāîŕç āēā ôçî āñ÷ēôāēôîŕēēĀ x86 Ÿāēíā āēāēŸóēîç óôēò 16 ÁôāîŸóôîŕ, ēē āēîŕîŕēĬēçēā áđu 4 āēüîā āîēēîāóôēēŸò āēāüóāēò đîŕ îāĬāçóāí ôçî ôāēēēĀ Ÿēāîŕç óôēò 18 òîŕ ÓāđôŸîāñç. Ĭ ôđāŸēôñô áóôŪēāēāò Ÿđāēíā ôçîāîŕēēü ñuēî ēāôŪ ôçî āēŪñēāēā ôçò ôāēāôôāĬāò āāāñŪāāò ēāēĀô ēŪđîēā đñîāēĬíāôā áóôŪēāēāò āñŸēçēāí óā đñîçāîŸîāîāò, āîēēîāóôēēŸò āēāüóāēò. ÓôñîēēēŪ, đŪîü áđu 500 email óôŪēēçēāí ôçî Release Engineering Team <re@FreeBSD.org> óā āēŪóôçîā îēēñüôāñî áđu Ÿíā îĬíā.

Ç ēîēîŸüôçôā òùî ÷ñçóôĬ íāò Ÿēāíā óāôŸò üôē ç áóôŪēāēā ēāē ç óôāēāñüôçôā îēāò Ÿēāîŕçò āāî ēŪ 'đñāđā íā ēôôēŪæāôāē āēā ēāíāüô āĬāŕôð đñîēāóîĬāò Ā çîāññîçîĬāò đîŕ Ÿ÷îŕî ôāēāĬ óāí óôü÷îē áđu đñēí. Ōî FreeBSD Ÿ÷āē îāāāēĀóāē āñāîāôēēŪ ēāôŪ ôç āēŪñēāēā ôçò æüĀò òîŕ óāí óŸóôçîā, ēāē ç áíŪāēç āēā óôāēāēñēîŸîç đîēēôēēĀ ēāē îñāŸîŸüŕç āēā ôçî āçîēîōñāāā îŸüî āēāüóāüî āĬíāē đēŸîŸí óāíāñĀ đāñéóóúôāñî áđu đîŕŸ. ÁôôĀ ç áíŪāēç ēā āĬíāē āēüîā đēî ôçîāîŕēēĀ ēāēĀò òî FreeBSD ēā āñ÷āôāē íā îāôāóŸñāôāē óā îŸāò đēāóôüñîāò.

7 ÌǎëëĩíôéeêÝò Êáôǎõèýíóǎéo

[illegible]

- *ḐānÜëëççç äêðÝëäðç -* ÎāneeÜ IÝñç ðçð ïäðäâêðððéçð ïëäð äêäëðÜððäðçð ïðññï ïä äßññï “ðñëḑ ḑānÜëëççä”. Ôä ðëï ðñëÜ äðü ðä ððÜäëä äßïäë I/O intensive, ïðüðä ç ýðāññç ðñëêð ððçêððððð÷ýðçðäð äßðëüï äßïäë ðëï ðçïäïðëêð äðü ðçñ ÷ñÞðç ðñëêð äðāññāñäððð ãëä ïä äðéðä÷ðñëäß êÜððð ç äëääëëäðßä ðñï make release. Áï äëäðññäðëêëß äßðëëë ÷ñçðëïðñëçëýñ äëä ðñÞïäð ðçð éāññ÷÷ßäð ðñï chroot(2) ḑāñëäÜëëññððð, ðñðä ðñ CVS checkout ðñï éäðäëüäññ ports éäë ððç ïðññäß ïä äßïäë äðððð÷ñññ ïä ðçñ äñðñëÞ make world ðñï Üëëï äßðëï. ÷ñçðëïðñëêðððð ïëä RAID ëýðç (hardware Þ software) ïðññäß ïä ïäêððäë āñäððëêÜ ðñï ðññëëëü ÷ñññ ðñï ÷ñäëÜäðäë ïä ïäðäëüððéçððäß ïëä ðêÞñçð Ýëäñç.
- *Îäðäâêðððéçç äêüññäññ äëä äëäðññäðëëÝð āñ÷éðäêðññëÝð -* ÈÝëäðä ïä ïäðäëüððððäðä ïëä Ýëäñç äëä IA-64 Þ Alpha ðä êÜðñëññ x86 äðāñññāñäððÞ make TARGET=ia64 release.
- *ÄñëëÝð äëä vÜëç -* ÷ñäëäæññäððä éäëýðāññ āññäëäßä äëä äððññäðñ Ýëäñ÷ñ ïññüðçðäð ðñï FreeBSD.
- *Āñääëäßä ĀäëäðÜððäðçðð -* Ôñ ðññāñññÜ ïäð äëä ðçñ äêäëðÜððäðçð ðñï FreeBSD Ý÷äë ïäðññÜðäë ðññ ðñëëý ðññ äññññññññ ÷ñññ æððð ðñï. ÔðÜñ÷ññ äêÜðññäð ïññäð ðñï āññÜäññðäë äëä ïä ðëñðñëÞðñññ êÜðñëññ Üëëï, ðëï ïññÜñññ ïç÷äñëññ äêäëðÜððäðçðð. ïëä äðü ðéð ðëï ðññ÷÷ñññäð, äßïäë ç ïññäß libh[5] ðñï ðññ÷÷ññäë ðççñ ðëñðñßççð äññð Ýñððññ, ïÝññ ðñññðñ ðäëäðāññðñäñðñ ðñëäñëëëý éäë äññð GUI ðññññññññññ äêäëðÜððäðçðð.

8 Ã÷áñéóôßàò

Εὰ Πεᾶέα ἰά ἀο÷ἀνεόόΠουὸ οῖν Jordan Hubbard, θῖο ἱιὸ Ὡαυόα ὀγί ἀδεᾶένΒἈ ἰά δῦΝὺ ἐὔΘιεᾶ αἴϋ ὀγί ἀδῆγίς ὀδυ Ὡεᾶιόσδ 4.4 οῖο FreeBSD, εᾶεῖδ εᾶέ ᾶέᾶ ὑεç ὀγί ᾶιρεᾶέὔ θῖο Ὡ÷ᾶε ἐὔἰᾶε ᾶᾶρ εᾶέ ÷νῡἰεᾶ ᾶέᾶ ἰά ᾶβἰᾶέ οῖ FreeBSD ἀόου θῖο ᾶβἰᾶέ οᐅᑭᾶᾶ. Ὤοóεéὔ, ç Ὡεᾶιός ᾶᾶρ εᾶ Πόᾶί θῖο Ὡ ᾶοἰᾶούἰ ἰά ἱεῖἱεçνῡεᾶβ ÷νῡῖδ ὑεç ὀγί ó÷ᾶόéᐅ ἰᾶ ὀγί Ὡεᾶιός ᾶιρεᾶέὔ θῖο Ὡεᾶἰᾶ 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 <o'brien@FreeBSD.org>, Kris Kennaway <kris@FreeBSD.org>, John Baldwin <jhb@FreeBSD.org> εᾶέ ὑεῖῖε ἱέ ὀδῡἱεῖἱθῖε θῖο ἀó÷ἱεῖγἰόᾶέ ἰᾶ ὀγί ᾶῖὔፊδῖῖθῖ θῖο FreeBSD. ÈὔÈὔ ᾶፊΒᓄᓄ ἰᾶ ἀο÷ἀνεόόΠουὸ οῖοδ Rodney Grimes <rgrimes@FreeBSD.org>, Poul-Henning Kamp <phk@FreeBSD.org>, εᾶέ ὑεῖῖᓄ οῖῖᓄ Ὡεῖῖᓄ θῖο ᾶᾶᾶὔᓄᓄεᾶί ᾶέᾶ ἰᾶ ὀᓄéὔἡῖῖ ὀᾶ ᾶᾦᾶεᾶᾶᾶ ᾶέᾶ ὀᓄᓄ ᾶεᾶῡᓄᾶᓄ ὀᓄᓄᓄ ስᾦΠᓄᓄ ἰᗎᾦᾦᓄ ὀδυ ᾶçἱeῖῖᾦᾶᾦᓄ οῖο FreeBSD. Ἀόου οἰ Ὡᾦᾦᾦ Ὡ÷ᾶε ᾶፊçᾦᾶᓄᓄᓄᾶ ᾶፊῡ εᾶᾦᾦᾶỲ ó÷ᾶᓄᾶỲ ἰᾶ ὀγί ἡᾦᾦᾦῡᓄᓄ ὀῡỲ ᾶεᾶῡᓄᾶỲ ᾶፊῡ οῖ CSR[14], ὀγί ἡὔᾶᾶ οῖᓄ NetBSD[11], εᾶέ ὀγί ስᾦῡᓄᓄᓄ ᾶέᾶ ἱεᾶ ᾶεᾶᾶεᾶᓄᾶ ἡᾦᾦᾦῡᓄᓄᓄ ὀῡỲ ᾶεᾶῡᓄᾶỲ οῖᓄ 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
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- [12] John Baldwin's FreeBSD Release Engineering Proposal <http://people.FreeBSD.org/~jhb/docs/releng.txt>
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- [14] Marshall Kirk McKusick, Michael J. Karels, and Keith Bostic: *The Release Engineering of 4.3BSD*
(<http://docs.FreeBSD.org/44doc/papers/releng.html>)