

# 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 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 ùóĩĩð ãĩáéáóŸñĩíðáé ĩá ðãñŨãĩĩðĩ ðãñãĩãðñĩðĩéçĩŸĩãð áêäüóãéð òĩõ FreeBSD áéá áóùðãñééð ð ãĩðĩñééð ÷ñðóç éáé áĩŨððòĩç ðñĩũĩĩðùĩ.

## Ðßĩáéãð Ðãñéã ÷ñŸĩùĩ

1 Áéóáãũãð	1
2 Ç Äéããééãóßá Äçĩéĩðñãßáð ĩéãð çãĩóçð	2
3 ĩãóããèððéóç ôçò çãĩóçð	5
4 Äéãñð òùĩ Âêäüóãùĩ	8
5 Áðãéðãóéĩũòçóá	9
6 ĩãèßĩáðá ðĩõ Ðñãĩã áðũ ôçĩ çãĩóç 4.4 òĩõ FreeBSD	10
7 ĩãèñĩóééŸð ÊãðãðéŸĩáéð	10
8 Áð ÷ãñéóðßáð	11
9 ÁĩãðĩñŸð	11

## 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 áĩðĩðĩõ CVS[1] óá ùéĩðð, Ÿðóé þóðã ĩá ĩðĩñãß ùðĩéĩð èŸéãé ĩá áãé ĩçĩŸĩáðá log, áéãóĩñŸð (patches) ðĩõ Ÿ÷ĩðĩ óá äéŨöĩñã development branches, éáé Ũèãá ÷ãñãéðçñéóóééŨ ðĩõ äĩçéĩŸĩ ôçĩ áĩŨððòĩç, óá ĩðĩßá ðñĩéŸððĩðĩ áðũ ôçĩ ÷ñðóç áĩũð áððòçñĩŸ óðóðßĩáðĩð áéá÷ãßñéóçð èðãééá. Áðòù áðĩðŸéãóá éáé òĩĩ ðéĩ óçĩáĩóéèũ ðãñŨãĩĩðá Ÿéĩçð áéá Ÿĩá ĩããŨéĩ áñéèũ áðũ óáéáĩðĩŸ÷ĩð ðñĩãããĩãðéóóŸð áðũ ùéĩ òĩĩ èũóĩĩ óóĩ FreeBSD. Áßĩáé ðñĩóãĩŸð, 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 ðãñßðĩõ 300 Ũðñã Ÿ÷ĩðĩ ðñũóãáóç ĩá ãñŨðĩðĩ óóĩ CVS repository. Áðòĩß ĩé committers[6] áßĩáé ððãŸéðñĩé áéá òĩ ĩããáéŸðãñĩ ĩŸñĩò ôçò áĩŨððòĩçðð ðĩõ áßĩãðáé óóĩ FreeBSD. ĩéá

ēāiōñēēP-ĩŨäá[7] (core team) áðü äēāēāēñēĩŸĩōð ðñĩāñāĩāóēóðŸ ðēēŸāāóāē āēā íā ðāñŸ ÷ āē ēŨðĩēiō āēāiōð ēāēĩāPāçóc ēāē íēā ēāðāŸēðiōç ðōi óŸĩēi òuĩ committers.

Íē ðā ÷ Ÿóāōiē ñōēĩĩ āíŨððōiçð òiō FreeBSD āāĩ áðPñōĩ ēāē ðĩēŸ ÷ ñüĩĩ āēā òĩ íāēāēŨñēóĩā òiō ððððPĩāðiō āíŨððōiçð ðā íēā Ÿēāiōç íā ðĩēüðçðā ðiō íā āĩēāē íā ÷ ñçóēĩĩðĩēāBðāē āðñŸüð. Áēā íā ēðēāē āððü òĩ āēēēçĩā, ç āíŨððōiç āĩāðāē ðāððü ÷ ñĩĩā ðā āōĩ ðāñŨēēçēā ĩĩñðŨðēā. Ĩ ēŸñēið ēĩñüð āíŨððōiçð āĩāē Ĩ HEAD P trunk ðōi CVS repository íāð, āĩñóðüð ēāē ùð “FreeBSD-CURRENT”, P “-CURRENT” āĩ ðōĩðñēā.

Íāð ðēĩ ððāēāñüð ēĩñüð ðōĩðçñāēðāē, āĩñóðüð íā òĩ ũñĩā “FreeBSD-STABLE” P ðēĩ óŸiðñā “-STABLE”. Éāē íē āōĩ ēĩñĩĩ āĩāē āðĩēçāðĩŸĩē ðōi ēŸñēĩ CVS repository, ðçĩ Éāēēüñĩēā, ēāē āĩðēāñŨñĩōāē ĨŸü ð CVSup[2] ðā mirrors ðāĩōĩŸ ðōĩ ēüōĩ. Òi FreeBSD-CURRENT[8] āĩāē ç “ðñðç óāēñŨ” ðçð āíŨððōiçð òiō FreeBSD ēāēðð ðā āððü āēĩĩōāē ðñðā üēāð íē ēāēĩŸñēāð āēēāŸŸð. Òi FreeBSD-STABLE āĩāē Ĩ ēĩñüð āíŨððōiçð áðü òĩ Ĩĩēĩ ððēŨ ÷ ñĩĩōāē íē āēäüóāēð. Íē āēēāŸŸð āēóŸñ ÷ ĩĩōāē ðā āððü, òĩ āŸŸðāñ ēĩñü āíŨððōiçð, íā ðēĩ āñāü ñōēü, āōĩŸ ðñðā (óŸiñüĩā íā ðçĩ ðĩēðēēēP íāð) āĩēĩāóðĩŸĩ ðōi FreeBSD-CURRENT ēāē Ÿ ÷ ĩōĩ āĩāðāóðāē ðĩēŸ ēāēŨ.

ÉāðŨ ðçĩ ðāñēĩā ðiō Ĩāĩēāāāē āðü ðç íēā Ÿēāiōç ðçĩ āðüĩāĩç, ððēŨ ÷ ñĩĩōāē ēāēçĩāñēĩŨ snapshots áðü ðā Ĩç ÷ āĩPĩāðā ðçð ñŨāāð òiō FreeBSD ēāē āĩāē āēāēŸóēĩāð áðü òĩ āĩððçñāðçðP ftp://stable.FreeBSD.org/. Ç ĨāāŨēç āēāēāðēĩñüðçðā òuĩ āēðāēŸóēĩñ snapshots, ēāēðð ēāē ç ðŨðç ðçð ēĩēĩñüðçðāð òuĩ ÷ ñçóðĩ Ĩāð íā āĩçĩāñPñĩōĩ ðā Ĩç ÷ āĩPĩāðŨ òiðð Ĩā ðēð ðñüóðāðð -STABLE āēäüóāēð ĨŸü CVSup ēāē “make world”[8] āĩçēĩŸĩ íā ēñāðēŸðāē òĩ FreeBSD-STABLE ðā íēā ðĩēŸ āĩēüðēðç ēāðŨðāðç āēüĩā ēāē ðñēĩ āñ ÷ Bðāē Ĩ ēŸēēið òuĩ āēŸā ÷ ñĩ ðĩēüðçðāð āēñēāðð ðñēĩ áðü ðçĩ āēŨēāç íēāð Ÿēāiōçð òiō FreeBSD.

Óōĩā ÷ ðð ððŸēñĩōāē áðü òiðð ÷ ñPððāð Ĩāð āĩāñŸŸð ðñĩāēçĩŨðüĩ ēāē āēðPðāēð āēā ēāēĩŸñēā ÷ āñāēðçñēóðēēŨ, ēāðŨ ðç āēŨñēāēā òiō ēŸēēið ðçð ēŨēā Ÿēāiōçð. Íē āĩāñŸŸð ðñĩāēçĩŨðüĩ āēðŨāĩĩōāē ðçĩ āŨðç GNATS[9] ĨŸü ð e-mail, Ĩā ðçĩ āðāñĩāP send-pr(1), P ĨŸü ð òiō web-interface ðið ðāñŸ ÷ āðāē ðçĩ āēāŸēðiōç http://www.FreeBSD.org/send-pr.html. Áēðüð áðü ðēð āēŨñāð ēēððāð çēāēðñĩēēĩŸ ðā ÷ ðāññĩāēĩ ðā ēŸĩā ðā ðā ÷ íēēŨ ÷ āñāēðçñēóðēēŨ òiō FreeBSD ððŨñ ÷ āē ēāē ç ēēðā çēāēðñĩēēēP ēēðā ÄēŸā ÷ ĩō ēāē ÄĩāðŨēēðçð ðĩēüðçðāð òiō FreeBSD (http://lists.FreeBSD.org/mailman/listinfo/freebsd-qa), ç Ĩĩēĩā ðāñŸ ÷ āē Ÿĩā ðüñĩōĩ āēā ððāçðððāēð ð ÷ āðēēŨ Ĩā ðēð ēāððñŸñēāð ðçð “ĩñāŨñüçðð òuĩ āēäüóāü”.

Áēā íā āĩððçñāðçēĩŸĩ íē ðēĩ ðōĩðçñçðēēĩĩ ÷ ñPððāð Ĩāð, Ĩā Ÿēāiōç òiō FreeBSD 4.3 āñ ÷ Bðāĩā íā ÷ ñçóēĩĩðĩēŸĩā Ĩā ÷ ññēóðĩŸð ēĩñĩŸð āēäüóāü. Áðōĩē Ĩē ēĩñĩĩ āçĩēĩñāĩŸĩōāē ēēāĩ ðñēĩ ððēā ÷ ðāē ç ðāēēēP Ÿēāiōç. ĨāðŨ ðçĩ āĩāēĩñüðçð ðçð Ÿēāiōçð, Ĩüĩ ðĩēŸ ðçĩāĩðēēŸð āēēāŸŸð ēāē ðñĩðēPēāð ð ÷ āðēēŸð Ĩā ðçĩ āóðŨēāēā āēĩĩōāē ðōĩ ēĩñü ðçð Ÿēāiōçð. Áēðüð áðü ðçĩ āĩāðüðçðā āĩāŨēĩðçð ĨŸü CVS, āēðāēŸóēĩā patchkits ððēŨ ÷ ñĩĩōāē āēā íā ĨĩñĩŸĩ íā āĩāāēĩBōĩōĩ ðā ððððPĩāðŨ òiðð Ÿōĩē ÷ ñçóēĩĩðĩēŸĩ ðēð āēäüóāēð RELENG\_X\_Y.

Òĩ ÒĩPĩā 2 āĩçāāē Ĩā ēāððñŸñēāðð ðā āēŨñā ððŨāēā ðçð āēāēēāóBāð ðið āñBðēāðāē ðēðü áðü ēŨēā Ÿēāiōç, ĨŸ ÷ ñē ēāē ðā āPĩāðā ðið ĨāçāĩŸĩ ðçĩ ĨāðāēPððēðç ðið ððððPĩāðið ēāē òĩ ÒĩPĩā 3 āĩçāāē ðçĩ Bāēā ðç āēāēēāóBā ðçð ĨāðāēPððēðçð. Òĩ ÒĩPĩā 5 ðāñēāñŨñēā ðüð Ĩĩñāē íā āðāēðāēāē òĩ āāóēēü óŸóçĩā áðü ðñBðiðð ēāē òĩ ÒĩPĩā 6 ðāñēāñŨñēā ēŨðĩēā áðü ðā ðñŨāĩāðā ðið ĨŨēāĩā áðü ðçĩ āēāēēāóBā Ÿēāiōçð òið FreeBSD 4.4. ÓŸēið, òĩ ÒĩPĩā 7 ðāñĩððēŨēāē ēŨðĩēāð áðü ðēð ēāðāðēŸĩāēð ðið ēŸēiðĩā íā ðŨñāē ç āíŨððōiç ðōi ĨŸēēĩ.

## 2 Ç ÄēāēēēāóBā ÄçĩēĩññāBāð Ĩēāð ēāĩōçð

Íē ĨŸāð āēäüóāēð òið FreeBSD ððēŨ ÷ ñĩĩōāē áðü òĩ -STABLE ēĩñü āíŨððōiçð ðāñBðið ēŨēā ðŸóðāñāēð ĨPĩāð. Ç āēāēēēāóBā ðñĩāĩēĩāóBāð Ĩēāð Ÿēāiōçð ĨāēēĩŨāē ð ÷ āñüĩ 45 ĨŸñāð ðñēĩ ðçĩ āĩāĩāĩñāĩç çĩāññçĩBā Ÿēāiōçð, Ÿðāĩ Ĩ ððāŸēðñð āēäüóāü òið FreeBSD ððŸēĩāē Ÿĩā āñŨĩā ððēð ēēððāð òuĩ ðñĩāñāĩāðēóðPĩ āēā íā ððāĩēðĩBðāē ðōiðð ðñĩāñāĩāðēóðŸð Ÿðē Ÿ ÷ ĩōĩ 15 ĨŸñāð ēāēñü íā ēŨñĩōĩ Ÿðĩēāð āēēāŸŸð ēŸēið, ðñēĩ òĩ ðŨāüĩā òið ēPāēēā. ĨŸóā ðā āððü òĩ ēāēñü, ðĩēēĩB ðñĩāñāĩāðēóðŸð ēŨñĩōĩ íēā ðāēñŨ áðü āēēāŸŸð ðið Ÿ ÷ ĩōĩ Ĩāēĩāē ðēŸĩ āĩñóðŸð ùð “ĩāēāēāñBōĩāðā MFC”. Ĩ ũñüð MFC ðçĩāēĩāē “Merge From CURRENT” ēāē ðāñēāñŨñēā ðçĩ āēāēēēāóBā ðñĩōāñĩāBð

òĩō ēpāēēā iēāō āiēēiāōĩŸĩçð äēēāāpð áðũ òĩĩ -CURRENT ðāēñāiāōēēü ēĩñiũ áĩŪððōĩçð òōĩĩ òōāēāñiũ -STABLE ēĩñiũ.

## 2.1 ĩēāā ÷ iō ēpāēēā

ŌñēŪiōā çĩŸñāð ðñēĩ òçĩ áĩāĩāĩüĩāĩç çĩāññĩçĩā Ÿēāiōçð, ĩ ēpāēēāð òĩō repository áēóŸñ ÷ āōāē óā iēā ðāñbĩrāi “ēāēðōóŸñççð”. ĒāōŪ òç äēŪñēāēā āððð òçð ðāñēüāið, üēāð iē äēēāāŸð òōĩĩ -STABLE ēĩñiũ ðñŸðāē iā Ÿ ÷ iōĩ òçĩ Ÿāēñēóç òçð Release Engineering Team <re@FreeBSD.org>. Ĩē äēēāāŸð ðĩō āðēōñŸðñiōāē óā āððð òçĩ ðāñbĩrāi ðĩō āēāñēāb 15 çĩŸñāð ābĩāē:

- Äēĩñēpōāēð āĩüōðĩ ðñiāēçĩŪðüĩ.
- Äĩçĩāñpōāēð òðçĩ ðāēiçñbùóç.
- ÄēēāāŸð ò ÷ āðēēŸð iā òçĩ áóðŪēāēā.
- ĨēēñŸð äēēāāŸð òōĩōð iāçāĩŸð òðōēēāðĩ, üðũð ð ÷. ç ðñiōēðēç òüĩ IDs iŸüĩ òðōēāðĩ.
- Ĩðrēāāððĩōā Ūēēç äēēāāp ðēóðāŸāē ç ñŪāā áĩŪððōĩçð üðē ðñŸðāē iā ābĩāē, iā òĩ áĩāĩāĩüĩāĩ ðŪiōā ñbōēĩ.

ĨāōŪ òēð ðñpōāð 15 ĩŸñāð ēāēðōóŸñççð, òðēŪ ÷ iāðāē iēā āiēēiāōōēēp Ÿēāiōç āēā iā ÷ ñçōēĩðĩēçēāb óāĩ āiēēið òçð ðāēēēpð Ÿēāiōçð ēāē ĩ ēpāēēāð áēóŸñ ÷ āōāē óā iēā ðāñbĩrāi “ðāāpĩāōĩð”. ðēŸĩ ābĩāē ðrēŸ ðēĩ āŸōērēĩ iā ābĩiōĩ iŸāð äēēāāŸð òōĩ óŸóðçĩā, āēðũð ēē áĩ äēĩñēpñiōĩ ēŪðĩēĩ ðrēŸ òĩāāñi bugp ēŪðĩēĩ ðñüāēçĩā áóðŪēāēāð. ĒāōŪ òç äēŪñēāēā òĩō ðāāpĩāōĩð òĩō ēpāēēā, òĩðēŪ ÷ ēóðĩĩ ĩbā āiēēiāōōēēp Ÿēāiōç òðēŪ ÷ iāðāē ēŪēā āāāñŪāā, ĩŸ ÷ ñē iā ābĩāē Ÿōĩēiç ç òāēēēp Ÿēāiōç. Ōēð çĩŸñāð āēñēāpð ðñēĩ òçĩ ðāēēēp Ÿēāiōç, ç ñŪāā ðĩō ābĩāē òðāŸēðĩç āēā òēð āēāüōāēð ābĩāē óā òōĩā ÷ p āðēēĩēĩüĩbā iā òçĩ ñŪāā áóðŪēāēāð, òçĩ ñŪāā òōĩðpñççð òçð ðāēiçñbùóçð, ēāē òçĩ ñŪāā òōĩðpñççð òüĩ ports, āēā iā āāāāēüēĩŸĩ ðũð üēā òā āðāñābðçðā ēĩñŪðēā āēā iēā ðēpñç Ÿēāiōç ābĩāē āēāēŸōēĩā.

## 2.2 Ēbōóā ĀēŸā ÷ iō òçð Ōāēēēpð ēāiōçð

Ÿāðāĩ āñēāðŸð āiēēiāōōēēŸð āēāüōāēð Ÿ ÷ iōĩ ābĩāē āēāēŸōēĩāð, Ÿ ÷ iōĩ āiēēiāōōāb āðũ āñēāðü ēüōĩĩ ēāē üēā òā òĩāāñŪ ēŸĩāōā Ÿ ÷ iōĩ áĩāēēēāb, ç òāēēēp Ÿēāiōç ĩðĩñāb iā āñ ÷ bōāē.

### 2.2.1 Äçĩēĩñābā òĩō ēĩñiŸ ēāiōçð

Ÿðũð ðāñēāñŪøāiā òðçĩ áēóāāüāp, iē ēĩñiñb RELENG\_x\_y ābĩāē iēā ò ÷ āðēēŪ iŸā ðñiōēðēç òðçĩ ĩāēĩrēĩrēābā òüĩ āēāüōāpĩ iāð. Ōĩ ðñpōĩ āpĩā òðçĩ äçĩēĩñābā āðōĩŸ òĩō ēĩñiŸ ābĩāē iā āāāāēüēābðā üðē āĩōēāŸāðā iā òçĩ òāēāðōābā Ÿēāiōç òĩō ðçāābĩð ēpāēēā āðũ òĩĩ RELENG\_x ēĩñiũ āðũ òĩĩ iðĩbĩ ēā òðēŪiāðā òĩ iŸĩ ēĩñiũ.

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

Ōĩ āðüiāĩ āpĩā ābĩāē iā äçĩēĩñāpōāðā iēā āðēēŸðā (tag) òōĩ òçĩābĩ āēēbĩççð òĩō ēĩñiŸ, pōðā iā ĩðĩñābðā iā āābðā òēð āēāōĩñŸð iā òçĩ āñ ÷ p òĩō ēĩñiŸ āŸērēā òōĩ ĩŸēēĩ iā òĩ CVS:

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

Ēāē òüðā ĩðĩñābðā iā äçĩēĩñāpōāðā òĩ iŸĩ ēĩñiũ iā:

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

**Όχι!Βουό:** *λέ ἀδελήΥοἶδο RELENG\_\* ἀβιάε ἀἀόιἀδιΎϊὰδ ἀέα ÷ñΠόζ ἀδῦ οἶοδ CVS-meisters ἐάε ὀζι ἡῤῥᾶᾶ οὐῖ ἀἀῦοᾶῖ.*

Ἰ uniõ “*ἀδελφὸς*” ἀβιάς ι̃νι̃ε̃ρ̃α̃β̃α̃ ο̃ιο̃ CVS. Ὁ̃για̃βιάς Ἰ̃ιά ũm̃ã ο̃ιο̃ ἐ̃α̃ε̃ι̃ν̃β̃α̃ε̃ ι̃ε̃α̃ ο̃ο̃α̃ε̃α̃ε̃ν̃ε̃ι̃ Ἰ̃ι̃ς Ἰ̃ε̃α̃ι̃ο̃ς ο̃ιο̃ ἐ̃ρ̃α̃ε̃ε̃α̃ ο̃ο̃ι̃ ÷ nũĩ. × ñç̃õẽĩũd̃ĩẽp̃ĩõãõ ἀδελφὸς ο̃ο̃ι̃ δ̃ç̃ããb̃ĩ ἐ̃ρ̃α̃ε̃ε̃α̃ ãr̃ç̃ẽŨĩã ũd̃ĩẽĩ ũõẽŨĩãẽ ο̃ο̃ι̃ Ἰ̃Ỹẽẽĩ ãẽãũõãẽd̃ ο̃ιο̃ FreeBSD ἰ̃ã ãñb̃õẽãẽ ἐ̃ãẽ ἰ̃ã ÷ ñç̃õẽĩũd̃ĩẽãb̃ ãẽñẽãp̃õ ο̃ĩĩ B̃ãẽĩ ἐ̃ρ̃ãε̃ε̃ã ο̃ιο̃ ÷ ñç̃õẽĩũd̃ĩẽp̃ẽç̃ẽã ãẽã ο̃ẽd̃ ãδ̃b̃õç̃ĩãd̃ ãẽãũõãẽd̃ ο̃ç̃õ ἡ̃Ũããd̃ ο̃ĩõ FreeBSD.

### 2.2.2 ÁóîÛííîáò ôíí Áñéèü êäïóçò

Ἐνῆι ἰθαῖ ἅ ἀοέεΥόα, ἰαοάαεῦοοεοόαβ ἑαῖ ἀοιείαοόαβ ἅ οάεεβ Υέαιόρ, ὃνΥῖαῖ ἰά αβῖῖό ἁεῖάαΥό οόα ῥαῖαεῦοῦ  
 ἁῖ÷ἁβἁ ἁῖα ἰά ῥαῖεΥ÷ῖόῖ ὀῖῖ οῦοῦῦ ἁῖεῖῦ Υέαιόρὸ ἁῖα 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 äòãññĭãP **sysinstall** ðñÝðáé äðßòçð íá áíçíãñùèãß íä òĭí òùòòù áñéèùĭ òùĭ ports éáé òĭ ÷pñĭ òĭō äßòéĭō ðĭō äðáéòäßòáé áéá òçĭ ÓòèèĭãP òùĭ Ports. ÁòðÝð ĩé ðèçñĭòĭñßàð òðŬñ÷ĭòĭ óòĭ äñ÷ãßĭ  
src/release/sysinstall/dist.c.

Áōiŷ iēēēçñùēāß ç ðñīāōiēiāóāß òçð iŷáð āðßóçìçð Ýēāiōçð, ðñÝðāē íá áíçìāñþóāðā iāñēēŪ āñ÷āßā āēá íá áíçìāñþóāðā òiī ēüōiī āēá òç iŷá 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 Āçìēiōñāßā òuì Āōēēāðī òçð ēāiōçð

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

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

İē ððāŷēðñē òçð Ōāēiçñßuòçð ēāē òuì Ports āßiāē āðōiß ðiō ðñÝðāē íá āçìēiōñāþóiōi òēð āðēēÝðāð `RELEASE_4_8_0` óðā ēāðŪēēçēā āŷiōñā ðçāāßiō ēþāēēā.

İāñēēÝð òiñÝð, iðñāß íá ÷ñāēáððāß íá āßiōi ēŪðñēāð āēēāāÝð òāēāððāßā óðēāiß *iāðŪ* òçí òiðñēÝðçðç òuì āðēēāðþi. ĀāíēēŪ, āāi āßiāē āŷōēiēi íá āßiāē ēŪðē òÝōiēi áōiŷ òi CVS āðēōñÝðāē íá iāðāēēiþóāē ēŪðñēið òēð āðēēÝðāð iā āíōiēÝð ùððð `cvs tag -d tagname filename`. Āßiāē ðñēŷ óçìáíðēēü ùiðð áððÝð iē āēēāāÝð òçð òāēāððāßāð óðēāiþð íá óçìāēüēiŷi iā òēð óuóðÝð āðēēÝðāð āēá òçí óðāēāñēiŷiç Ýēāiōç. İē āðßóçìāð āēāuóāēð òiō FreeBSD ðñÝðāē íá āßiāē ðŪiðā āŷēiēi íá áíáðāñā÷ēiŷi. ŌiðēēÝð āēēāāÝð óði ðāñēāŪēēiī òiō iç÷āíēiŷi òuì āēāuóāuī āāi āðēōñÝðñiðāē.

## 3 İāðāāēþððēóç òçð ēāiōçð

İē “āēāuóāēð” òiō FreeBSD iðñiŷi íá iāðāāēüððēóðiŷi áðü iðñēiñāþðiðā Ý÷āē Ýiá ó÷āðēēŪ āñþāñi iç÷Ūiçìā ēāē ðñüóāáç óði repository òiō ðçāāßiō ēþāēēā. (¼ēiē Ý÷iōi áððß òç āðñiðüðçðā, áōiŷ ðāñÝ÷iōiā ðñüóāáç iŷóu āiþiðñiō CVS! Āāßðā òi Āā÷āēñßāēi òiō FreeBSD āēá ðāñēóóüðāñāð ēāððñÝñāēāð.) Ç iūiç āēāēēß āðāßðççç āßiāē íá ððŪñ÷āē ððñiððñēiç óðñi ððñþiá óáð āēá òçí óððēāðß `vn(4)`. (Ōðñ `-CURRENT`, áððß ç óððēāðß Ý÷āē áíðēēāðāóðāēāß áðü òçí iŷá óððēāðß āßóēið āáðēóŷiŷið òā iþiç `md(4)`.) Áí ç óððēāðß āāi āßiāē áíóüiāðüŷiç óðñi ððñþiá óáð, òüðā i ēāðŪēēçēið iāçāuð ēā òñðüñēāß áððüiāðā üðāí āēðāēāððāß ç áíðñēß `vnconfig(8)` ēāðŪ òç āēŪñēāēā òçð òŪóçð ðñēiñāððāð òiō iŷóñi āēēßiççð. ¼ēā ðā āñāāēāßā ðñi ÷ñāēŪāēñiðāē āēá íá iāðāāēüððßóāðā iēā Ýēāiōç āßiāē āēāēÝðēiā óā iññðß ðçāāßiō ēþāēēā óðñi ēāðŪēēiā `src/release`. ÁððŪ ðā āñāāēāßā Ý÷iōi ùð óēiðñi íá ðāñÝ÷iōi üðē ÷ñāēŪāēñiðāē āēá íá ÷ðßāēñiðāē iē āēāuóāēð òiō FreeBSD iā Ýiá óññāðß ēāē óðāēāñēiŷiñ òññðñi. İēā ðēþñçð Ýēāiōç iðñāß íá iāðāāēüððēóðāß ÷ñçōēiñðñēiþiðāð áððŪ ðā āñāāēāßā iā iēā ēāē iūñi áíðñēß, óðñðāñēēāiāññiŷiçð ēāē òçð āçìēiōñāßāð āíüð ISO āñ÷āßiō ēāðŪēēçēi āēá íá ēāāß óā CDROM, iē āēóēÝððāð āēēßiççð, ēāēþð ēāē i ēāðŪēēçēið āāēāðŪóðāçð iŷóu FTP. Áððß ç áíðñēß āßiāē òððēēß ç `make release`.

### 3.1 Ç āíðñēß `make release`

Āēā íá iāðāāēüððßóāðā āðēð÷þð iēā Ýēāiōç, ðñÝðāē ðñþðā íá ððŪñ÷iōi ðā ēāðŪēēçēā āñ÷āßā iŷóā óðñi ēāðŪēēiā `/usr/obj`. İðñāßðā íá ðā āçìēiōñāþóāðā āßðā iā òçí áíðñēß `make world` þ āðēŪ `make buildworld`. Āēā íá

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, ððíñáððá 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 ððíñáððá íá ÷ ñçóéíðíéçéäððá áéá íá áíðéáñÛððá òí CVS repository ðîõ FreeBSD ððí áéëü óáð ðíðéëü mirror.

Áí ðáñáëáßðáððá òçí áðééÝðá RELEASETAG, ðððá èá ìáðááëüðððéóðáß íéá ðëðñçð Ýêáîóç áðü òçí èíñðð ðîõ HEAD (áçë. ðîõ -CURRENT) èíññíý. Ìé áêüüóáéð ðîõ ððéÛ÷ñíðáé áðü áððüí ðñí èíññí, ððíðëüð áíáðÝññíðáé ðáí “-CURRENT snapshots”.

ÕðÛñ÷-íðí éáé ððééÝð Ûëëäð ìáðááëçðÝð ðîõ ððíññíý íá ÷ ñçóéíðíéçéçíý áéá íá ðáñáíáðñíðíéçéäððá òçí Ýêáîóç ðáð. Ìé ðéí ððééÝð áðü áððÝð ðéð ìáðááëçðÝð ðáñéáñÛñíðáé ðóçí èíñðð ðîõ áñ÷-áßíð src/release/Makefile. Ç áêñéáðð áíðíëð ðîõ ÷ ñçóéíðíéçéäð áéá íá ððéá÷-ðáß ç áðßóçð Ýêáîóç 4.7 ðîõ FreeBSD (x86 ðéáððüñíá) ððáí:

```
make release CHROOTDIR=/local3/release \
    BUILDNAME=4.7-RELEASE \
    CVSROOT=/host/cvs/usr/home/ncvs \
    RELEASETAG=RELENG_4_7_0_RELEASE
```

Õí Makefile ðîõ ÷ ñçóéíðíéçéäð áéá íá ìáðááëüðððáíðáé ìé áêüüóáéð ððíñáß íá ÷ ññéóðáß ðá áñéäðÛ ìá÷-ññéóðÛ ìáðáíý ðîõð áðíáðá.

- Äçíëíðñáß áñüð éáéáññý ðáñéáÛëëíððð ðá íéá ìá÷-ññéóðð éáñáñ÷-ßá éáðáëüüí ìá òçí áíðíëð “make installworld”.
- Áíáñüáß áðü òí CVS ìéáð éáéññéáð Ýêáîóçð ðîõ ðçááßíð èðáééá ðîõ ðððððíáððð, òçð ðáêñññüóçð éáé òñí ports ìÝðá ðóçí éáñáñ÷-ßá éáðáëüüí ìáðááëðððéóçð òçð Ýêáîóçð.
- Ñðéíðáéð òñí áñ÷-áßí ððñí éáðÛëíá /etc éáé /dev ìÝðá ððí ðáñéáÛëëí chroot.
- ÁéðÝéáóç òçð áíðíëðð chroot ìÝðá ðóçí éáñáñ÷-ßá éáðáëüüí ðîõ áðíéíÛððçéá, áéá íá ìçí ððíñáß òí áñüðáñéëü ðáñéáÛëëí íá áðçñáÛðáé òç ìáðááëðððéóçð òçð Ýêáîóçð.
- ÁéðÝéáóç òçð áíðíëðð make world ìÝðá ððí ðáñéáÛëëí chroot.
- Ìáðááëðððéóç òñí áêðáëÝóéíð ðîõ áßíáé ò÷-áðééÛ ìá òí óýóçíá Kerberos.
- Ìáðááëðððéóç ðîõ ððñðíá GENERIC.
- Äçíëíðñáß áñüð ðáéééñý éáðáëüüíð ððñí ððíßí èá ìáðááëüðððéóðíý éáé èá áðíèçéáððéñý ìé áêðáëÝóéíð ìñðÝð òñí ðáéééðí ðáéÝððí.
- Ìáðááëðððéóç éáé ááéáðÛððáóç òñí áñááéáßíð ðîõ ÷ ñáéÛáñíðáé áéá òçí ðñíáðíéíáððá òçð Ýêáîóçð éáé òç ìáðáðñíðð òçð ðáêñññüóçð áðü ðñí ðçááßíð èðáééá (SGML) ðá html éáé áñ÷-áßá éáéíÝñð ðîõ èá ððññáýñíð òçí Ýêáîóçð.
- Ìáðáðñíðð éáé ááéáðÛððáóç òçð ðáêñññüóçð (áá÷-áéñßáéá ÷ ñððóç, áéóáñüáééÛ éáßíáíá, óçíáéðáéð Ýêáîóçð, èßððáð ððíááðððçðáðð ðéééñý, èëð.)

- Îāóāāēpôôéóc òuĩ “ôõĩðēáõĩŸĩũĩ” (crunched) āēôāēŸóēĩũĩ ðĩō ēā ÷ ñçóēĩĩðĩēçēĩŸĩ óôēð āēóēŸôôāð āāēáðŪóóáócð.
- Āçĩēĩōñāā ōuĩ ðāēŸôuĩ ôçð āāēáðŪóóáócð ēāē òuĩ ðāēŸôuĩ ðçāāĩō ēpāēēā.
- Āçĩēĩōñāā ōuĩ ìŸóuĩ āēēĩçóçð ēāē ôçð āēóēŸôôāð “fixit”.
- Āçĩēĩōñāā ôçð ēāñāñ÷āð ēāóāēüũĩ āēā ôçĩ āāēáðŪóóáóc ìŸóuĩ FTP.
- (ðñĩāēñāôēēŪ) Āçĩēĩōñāā ōuĩ ISO āñ÷āāũĩ āēā ìŸóā CDROM/DVD media.

Āēā ðāñēóóüðāñāð ðēçñĩōĩñāð ó÷āôēēŪ ìā ôçĩ āēāēēāóāā āçĩēĩōñāāð ìēāð Ÿēāĩôçð, āāðā ôçĩ óāēāā ôāēĩçñāðôçð release(7).

### 3.2 Îāóāāēpôôéóc òuĩ XFree86

Ōĩ āñāóēēũ ðāñēāŪēēĩ **XFree86** āĩāē Ÿĩá óçĩāĩóēēũ ēñĩŪðē ēŪēā Ÿēāĩôçð āēā ðĩēēĩŸð ÷ ñpôóāð ðĩō ēŸēĩōĩ òĩ FreeBSD āēā óðāēĩŸð āñāóāð. ðñēĩ ôçĩ Ÿēāĩôç 4.6-RELEASE òĩ FreeBSD, ìē āððóçĩāð āēüüóāēð òĩō FreeBSD ÷ ñçóēĩĩðĩēĩŸóāĩ ôçĩ Ÿēāĩôç 3.x òuĩ **XFree86**. Ĭ ðēĩ āŸēĩēĩð ðñũðĩð ìā ìāóāēũðôðóāðā āôðŸð ôēð āēüüóāēð āĩāē ìā ÷ ñçóēĩĩðĩēĩŸóāĩ òĩ ðñũāñāĩā `src/release/scripts/X11/build_x.sh`. Áðũũ òĩ ðñũāñāĩā āðāēðāā ìā āĩāē pāç óçĩŸĩá óõĩ óŸóçĩŪ óāð òũũĩ òĩ ðāñēāŪēēĩ XFree86 üũĩ ēāē ç āēpôóā Tcl/Tk. ÎāðŪ ôçĩ ìāóāāēpôôéóc òuĩ ēāðŪēēçēũ X servers, òĩ ðñũāñāĩā ēā ðāēāðŪñāē üēā óā āñ÷āā ōā óðēēĩāŸð āñ÷āāũĩ ðĩō ðāñēĩŸĩāē ìā āñāē òĩ `sysinstall(8)` ìŸóā óõĩ ēāðŪēēĩā `XF86336` óõĩ ìŸóĩ āāēáðŪóóáócð.

Îāēēĩpĩóāð ìā ôçĩ Ÿēāĩôç 4.6-RELEASE òĩō FreeBSD, òĩ `sysinstall(8)` āāēāēéóðŪ ôçĩ Ÿēāĩôç 4.x òuĩ XFree86, óāĩ ēāñĩēēŪ ðāēŸóā. ÁððŪ ìðĩñāā ìā āĩāē āāðā óā ðāēŸóā ðĩō āçĩēĩŸñāçõā òĩ cluster òuĩ ports p ìðĩēāāðĩðā Ūēēā ðāēŸóā ðĩō Ÿ÷ĩōĩ āçĩēĩōñāçēāā āðũ Ÿĩā ports tree ìā ôçĩ ēāðŪēēçç āðēēŸóā.

**Óçĩāũüóc:** Āĩāē ðĩēŸ óçĩāĩóēēũ ìā áðāēñŸóāðā āðũ òĩ āñ÷āāĩ `/etc/make.conf` ìðĩēāóāpðĩðā òĩðēēŸð ñōēĩðóāēð Ÿ÷āðā ēŪĩāē. Āēā ðāñŪāāēāĩā, āāĩ āĩāē ēāēp ēāŸā ìā āēāĩŸĩāðā āēðāēŸóēĩā ðĩō Ÿ÷ĩōĩ ìāóāēũðôéóðāā óā ēŪðĩēĩ óðāēāēñēĩŸĩĩ óŸóçĩā ìā ìñēóĩŸĩç ôçĩ óēĩp ôçð ìāóāāēçðpð `CPUTYPE` āēā āāēðēóõĩðĩççç òuĩ āēðāēŸóēĩũĩ āēā ēŪðĩēĩ óðāēāēñēĩŸĩĩ āðāĩāñāóðp.

### 3.3 ðñĩāñŪĩāóā Ōñāũüĩ (“ports”)

Ç Óðēēĩāp òuĩ Ports òĩō FreeBSD (<http://www.FreeBSD.org/ports>) āĩāē ìēā óðēēĩāp ìā ðāñēóóüðāñā āðũ 20,000 ðñĩāñŪĩāóā āðũ òñāũüĩðð, ðĩō āĩāē āēāēŸóēĩā āēā FreeBSD. Ĭē Ports Management Team <[portmgr@FreeBSD.org](mailto:portmgr@FreeBSD.org)> āĩāē òðāŸððĩēē āēā ôçĩ óõĩðpñççç āĩũð āŸĩóñĩō āðũ ðçāāĩ ēpāēēā āēā óā ports, ðĩō ìðĩñāā ìā ÷ ñçóēĩĩðĩēçēāā āēā ìā āçĩēĩōñāçēĩŸĩĩ óā ðāēŸóā ìā óā ðñĩāñŪĩāóā ðĩō óðñāŸĩōĩ ôēð āððóçĩāð āēüüóāēð òĩō FreeBSD.

Ç āēāāēēāóāā óõĩðpñçççð ôçð óðēēĩāpð òuĩ ports āĩāē ēŪðē ðĩō āāĩ ìðĩñĩŸĩā ìā ēāēŸøĩðĩā āāp. ìā ìā÷ũñēóðũ Ūñēñĩ, ìā ððōēĩ Ç ÎñāŪtūóc ēāĩôçð òuĩ ðāēŸôuĩ ĒĩāēóĩēēŸĩ āðũ Ōñāũüĩðð ([./releng-packages/article.html](http://releng-packages/article.html)), ēāēŸððāē āðũ òĩ ēŸĩā.

### 3.4 Āñ÷āā ISO ôçð ēāĩôçð

Îāēēĩpĩóāð ìā ôçĩ Ÿēāĩôç 4.4 òĩō FreeBSD, ç ñŪāā ĀĩŪðððĩçð òĩō FreeBSD āðĩōŪóēóā ìā āēāĩŸĩāē ēāē óā ôŸóóāñā ISO āñ÷āā ðĩō ðñpóā ðĩōēĩŸóāĩ ìē āðāēñāāð *BSDi/Wind River Systems/FreeBSD Mall* óðēð “āððóçĩāð” āēāmŸð CDROM ðĩō Ÿēāĩāĩ. ĒŪēā Ÿĩā āðũ óā ôŸóóāñā ISO āñ÷āā ðñŸðāē ìā ðāñēŸ÷āē Ÿĩā āñ÷āāĩ `README.TXT` ðĩō

ðǎñéǎñÛöǎé óǎ ðǎñéǎ÷ùíǎíǎ òîð ǎßóêîð, êé Ýíǎ ǎñ÷ǎßí CDROM.INF ðîð ðǎñéÝ÷ǎé ìǎðǎ-ðêçñîðññǎð ǎéǎ íǎ ìðññǎß òîð ðñüǎñǎìǎ sysinstall(8) íǎ ǎéÝǎñǎé êéǎ íǎ ÷ñçóêîððíéðóǎé áðòü òîð ǎßóêîð, êǎêð òé Ýíǎ ǎñ÷ǎßí filename.txt ðîð ðǎñÝ÷ǎé ìéǎ êßóðǎ ǎñ÷ǎßüí òîð CDROM. Áðòð ç êßóðǎ ìðññǎß íǎ ǎçíêîðñǎçêǎß ðñéý áðêÛ, ùð ǎñðò:

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

Îé óðǎéǎêñéíÝíǎð áðǎéòðóǎéð ǎéǎ êÛêǎ Ýíǎ áðü áðòÛ óǎ CD ðǎñéǎñÛöîðíóǎé ðǎñǎéÛòü:

### 3.4.1 Áßóêîð 1

Î ðñðòðò ǎßóêîð ǎßíǎé ó÷ǎǎüí áðñééǎéóóéêÛ áðñòÝéǎóíǎ òçð ǎíòñêðð make release. Îé ìüíǎð ǎééǎǎÝð ðîð ðñÝðǎé íǎ ǎßñîðí óðñí êǎðÛêñǎñ disc1 ǎßíǎé ç ðññíóêðêç òîð êǎðÛêñǎñ tools, òùí XFree86, êéǎ üóí òîð ǎðíǎðüí ðǎñéóóüðǎññí ðǎéÝòüí ìðññíý íǎ ÷ñÝóñîðí óðí ǎßóêîð. Î êǎðÛêñǎñ tools ðǎñéÝ÷ǎé ǎñǎǎéǎßǎ ðîð áðéòñÝðñîðí óǎ ÷ñðóðǎð Ûêêñí êǎéòññǎéêñí óðóðçíÛòüí íǎ óðéÛññîðí óéð ǎéóéÝððǎð ǎéêßíçóçð. Áðòüð ì ðñðòðò ǎßóêîð ðñÝðǎé íǎ óðéÛ÷ǎðǎé bootable Ýðóé ðóðǎ íǎ ìðññíý íé ÷ñðóðǎð òùí ìñðÝñññí ððñéíǎéóðñí íǎ áðñòǎýǎñîðí òîð óðÛǎéí ǎçíêîðñǎßð òùí ǎéóéǎððñí ǎéêßíçóçð.

Áí ìéǎ ǎéǎññǎðéêð Ýêñîç òùí XFree86 êǎ ǎéǎíÝíǎðǎé ìǎ òçí Ýêñîç áðòð, ðñÝðǎé íǎ ǎçíǎññèêǎß òîð ðñüǎñǎìǎ sysinstall(8) ǎéǎ òçí íÝǎ òÝóç êéǎ íé ñǎçǎßð ǎǎéǎðÛóðǎóçð. Î ó÷ǎðéêüð êñǎéêǎð òðÛñ÷ǎé óðñí êǎðÛêñǎñ src/release/sysinstall òðñí -STABLE êññü ð óðñí êǎðÛêñǎñ src/usr.sbin/sysinstall òðñí -CURRENT êññü. ÓðǎéǎêñéíÝíǎ, óǎ ǎñ÷ǎßǎ dist.c, menus.c, êéǎ config.c êǎ ÷ñǎéǎóðǎß íǎ ǎçíǎññèéýí.

### 3.4.2 Áßóêîð 2

Î ǎǎýðǎññò ǎßóêîð ǎßíǎé áðßóçð áðñòÝéǎóíǎ òçð ǎíòñêðð make release êǎðÛ Ýíǎ ìǎǎÛêñí ìÝññò. Áðòüð ì ǎßóêîð ðǎñéÝ÷ǎé Ýíǎ “live filesystem” ðîð ìðññǎß íǎ ÷ñçóêîððíéçêǎß áðü òîð sysinstall(8) ǎéǎ íǎ ǎñǎðǎóóíýí ðññǎéðíǎðǎ óǎ ìéǎ ǎǎéǎðÛóðǎóç òîð FreeBSD. Êé áðòüð ì ǎßóêîð ðñÝðǎé íǎ ǎßíǎé bootable. Êǎ ðñÝðǎé áðßóçð íǎ ðǎñéÝ÷ǎé Ýíǎ óðíðéǎóíÝñí ǎíðßǎñǎñîð òîð CVS repository óðñí êǎðÛêñǎñ CVSROOT êéǎ ǎßǎìǎðǎ áðü ǎðññéêÛ ðññǎñÛñǎðǎ óðñí êǎðÛêñǎñ commerce.

### 3.4.3 Áßóêîð 3 êéǎ 4

Îé ððñéñéðñé ǎðí ǎßóêîð ðǎñéÝ÷ǎéí ǎðéðññüéǎðǎ ðǎéÝóǎ êñǎéóíéêñý ǎéǎ òîð FreeBSD. Óǎ ðǎéÝóǎ êǎ ðñÝðǎé íǎ ǎßíǎé ñǎǎñðñéçíÝíǎ, Ýðóé ðóðǎ êÛêǎ ðǎéÝðñí íǎ ǎßíǎé óðñí ðǎéí ǎßóêîð ìǎ üéǎ óǎ ðǎéÝóǎ áðü óǎ ñðíǎ ǎñǎñðÛóǎé ǎéǎ íǎ ǎǎéǎðǎóðǎéêǎß êéǎ íǎ òñÝíǎé. ðǎñéóóüðǎññð ðêçñîðññǎð ǎéǎ òçí ǎçíêîðñǎßǎ áðòðñí òùí ǎßóêñí ǎíǎóÝññíóǎé óðí Ûñêññ Ç ÎñäÛîùóç êǎñòçð òùí ðǎéÝòüí Êñǎéóíéêñý áðü Òñßðñòð (./releng-packages/article.html).

## 4 Áéǎíñð òùí Áêäüüóàùí

### 4.1 ÁñðççñǎðçðÝð FTP

¼ðǎí ç Ýêñîç ǎßíǎé Ýòñéç, Ý÷ǎé ǎñééíǎóðǎß ǎéðǎñðð, êéǎ Ý÷ǎé ðǎéǎðǎñéóðǎß ǎéǎ ǎéǎíñð, ì êýñéñò FTP ǎñðççñǎðçðð ðñÝðǎé íǎ ǎçíǎññèêǎß. Îé áðßóçñé ǎñðççñǎðçðÝð FTP òîð FreeBSD ǎßíǎé üéñ mirrors ǎññð êýñéñò ǎñðççñǎðçðð óðñí ñðíßí Ý÷ǎéí ðññóǎǎóç ìññí Ûêñé FTP ǎñðççñǎðçðÝð. Áðòüð ì ǎñðççñǎðçðð ǎßíǎé ǎññóðüð ùð ftp-master. ¼ðǎí ç Ýêñîç ǎßíǎé Ýòñéç, ðñÝðǎé íǎ ǎçíǎññèéýí óǎ ðǎñǎéÛòü ǎñ÷ǎßǎ óðñí ftp-master:





## 5.1 Äçĭēĩōñāā ĞñĩóáñĩĩóĩŸĩũĩ Äéóēāōōĩ Äēēβĩçóçð.

ĐĩēēŸð āēēāóáóōŨóāēð Ÿ÷ĩōĩ đĩēŸđēĩēāð áđāēðPóāēð đĩō ĩđĩñāā ĩā òç óāēñŨ òĩōð ĩā áđāēōĩŸĩ òçĩ đñĩōēPēç đñāēóóũđāñũĩ ĩāçāĩ P āñāāēāũĩ ÷ñPóðç òóēð āēóēŸððāð āāēāðŨóóāóçð. Ĩ “ĩđāēŨēēēĩō” òñũđĩō ĩā òĩ ēŨĩāðā áðòũ āβĩāē ĩā ēŨĩāðā òēð āēēāŸð óāð óōĩĩ ēāðŨēĩāĩ đĩō Ÿ÷āē āōĩēĩŨóāē ĩāðŨ òĩ òŸēĩð òçð ç āēāāēēāóāā make release:

- ĐāñŨóðā òā patches óāð P đñĩōēŸóðā òā āđēðēŸĩĩ āñ÷āā ĩŸóā óōĩĩ ēāðŨēĩāĩ chroot òçð Ÿēāĩóçð.
- `rm ${CHROOTDIR}/usr/obj/usr/src/release/release.[59]`
- ĩāðāēũððóðā đŨēē òĩ sysinstall(8), òĩ đññPĩā, P ũđĩēā Ũēēā đññāñŨñāðā Ÿ÷ĩōĩ āđçñāāóóāā áđũ òēð āēēāŸð óāð.
- `chroot ${CHROOTDIR} ./mk floppies`

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

ĀĩāēēāēðēēŨ, ĩđĩñāāðā ĩā ÷ñçóēĩđĩēPóāðā òĩ make target boot.flp, P ĩđĩñāāðā ĩā òñŸĩāðā áđāðēāāð òĩ script đĩō äçĭēĩōñāāā òā òóððĩāðā āñ÷āũĩ `src/release/scripts/doFS.sh`.

Ĩđĩñāāðā āđβóçð ĩā ēāñĩβóðāð þóðā āēēŸð óāð āēēāŸð ĩā đñāāóóĩŸĩ ĩā ĩññP patch óçĩ Ÿēāĩóç ùðũð ēā òōēŨ÷ĩāðāē, āβñĩðāð òēĩP óçĩ ĩāðāāēçðP `LOCAL_PATCH` ũðāĩ òñŸĩāðā òçĩ āĩðĩēP make release.

## 5.2 Đñĩñāñĩāĩāðβēĩĩóāð òĩ sysinstall

Ōĩ āñāāēāũĩ āāēāðŨóóāóçð ēāē ñŸēĩēóçð òĩō FreeBSD, òĩ sysinstall(8), ĩđĩñāā ĩā đñĩñāñĩāĩāðēóðāā āēā ĩā ēŨĩāē đēĩ āŸēĩēāð òēð áðññāðĩđĩēçĩŸĩāð āāēāðáóðŨóāēð òā đĩēēŨ ĩç÷āĩPĩāðā. Áðòũ òĩ ÷āñāēðçñēóðēēũ òĩō đññāñŨñāðĩō ĩđĩñāā ĩā ÷ñçóēĩđĩēçēāā òā òĩāðāóĩũ ĩā òĩ PXE[13] òçð Intel āēā ĩā ĩāēēĩPóāē ç āāēāðŨóóāóçð áđũ òĩ āβēðōĩ, P òā òĩāðāóĩũ ĩā đñĩóáñĩĩóĩŸĩāð āēóēŸððāð āēēβĩçóçð ēē Ÿĩā sysinstall script. ĩā đāñŨāāēāĩā áđũ òŸðĩēĩ sysinstall script ĩđĩñāāðā ĩā āñāāðā òđĩ āñ÷āũĩ `src/release/sysinstall/install.cfg`.

## 6 ĩāēPĩāðā òĩō ĐPñāĩā áđũ òçĩ êäĩóç 4.4 òĩō FreeBSD

Ç āēāāēēāóāā āðĩēĩāóāð òçð Ÿēāĩóçð 4.4 òĩō FreeBSD ĩāēβĩçóā āđβóçĩā òçĩ ĩç ÁðāĩŸóðĩō 2001. ĩāðŨ áđũ áððP òçĩ çĩāññĩçĩā, ũēāð ĩē āēēāŸð óōĩĩ ēĩñĩũ `RELENG_4` òĩō FreeBSD Ÿđñāðā ĩā Ÿ÷ĩōĩ Ÿāēñēóç áđũ òçĩ Release Engineering Team <re@FreeBSD.org>. Ç đññðç āĩēēĩāóðēēP Ÿēāĩóç āēā òçĩ āñ÷ēðāēðĩēēP x86 Ÿāēĩā āēāēŸóēĩç óóēð 16 ÁðāĩŸóðĩō, ēē āēĩēĩōēPēçēā áđũ 4 āēũĩā āĩēēĩāóðēēŸð āēāũóāēð đĩō ĩāPāçóāĩ òçĩ òāēēēP Ÿēāĩóç óóēð 18 òĩō ÓāððŸĩāñç. Ĩ òðāŸēðñð áóðŨēāēāð Ÿđāēĩā òçĩāĩðēēũ ñũēĩ ēāðŨ òçĩ āēŨñēāēā òçð òāēāððāāðā āāñŨāāð ēāēðð ēŨðĩēā đñĩāēPĩāðā áóðŨēāēāð āñŸēçēāĩ òā đññçāĩŸĩāĩāð, āĩēēĩāóðēēŸð āēāũóāēð. ÓññēēēŨ, đŨĩũ áđũ 500 email óðŨēēçēāĩ òçĩ Release Engineering Team <re@FreeBSD.org> òā āēŨóçĩā ĩēēñũðāñĩ áđũ Ÿĩā ĩPĩā.

Ç ēēĩēũðçðā òũĩ ÷ñçóðĩ ĩāð Ÿēāĩā óāũŸð ũðē ç áóðŨēāēā ēāē ç óðāēāñũðçðā ĩēāð Ÿēāĩóçð āāĩ ēŨ 'đñāðā ĩā ēððēŨēāðāē āēā ēāĩāũð āβāũð đññēāóĩāð P çĩāññĩçĩāð đĩō Ÿ÷ĩōĩ òāēāā óāĩ òðũ÷ĩē áđũ đñēĩ. Ōĩ FreeBSD Ÿ÷āē ĩāāāēPóāē āñāĩāðēēŨ ēāðŨ òç āēŨñēāēā òçð æũðð òĩō óāĩ óŸóçĩā, ēāē ç āĩŨāēç āēā óðāēāñēēĩŸĩç đĩēēðēēP ēāē ĩñāŨũĩóç āēā òçĩ äçĭēĩōñāā ĩŸũĩ āēāũóāũĩ āβĩāē đēŸĩĩ óāĩāñP đññēóóũđāñĩ áđũ đĩōŸ. ÁððP ç āĩŨāēç ēā āβĩāē āēũĩā đēĩ òçĩāĩðēēP ēāēðð òĩ FreeBSD ēā āñ÷āāē ĩā ĩāðāŸŸñāðāē òā ĩŸāð đēāðòũñĩāð.

## 7 ÎáëííîééÝò Êáóãðëýíóáèò

Ãßíáé æüðééðò óçíáóßáð ïé ðñáéðééÝò éáé ç ïñÃÛîóç òçð ñéááééáóßáð äçíëíðñáð òùí Æêüüóàùí íáð íá óðíáááßæííí ïá òçí óðíá÷ð ñð áðíáíüíáíç ÆÛóç òùí ÷ñçóðíí íáð. Ìá ÆÛóç áððð òç óéÝðç Æñááæüíáóðá ðéçñÛ Æéá íá ðáëíçñéðóíðíá òçí ñéááééáóßá ðñáááüñðò òùí Æêüüóàùí òîõ FreeBSD.

- *ÐáñÛëçççç áððÝéáóç* - ÌáñééÛ ïÝñç òçð ïáðááëðððéóçð ïéáð ÆáéáðÛóðáóçð ïðñíýí íá Æñíííí “ðñéý ðáñÛëçççá”. Óá ðéí ðñééÛ áðü ðá óðÛáéá Æßíáé I/O intensive, ïðüðá ç ýðáñíç ðñéçðí ððççðð-ðá÷-ýðçðáð Æßóèíí Æßíáé ðéí óçíáíðééð áðü òçíí ÷ñðç ðñéçðí Æðáíñááóðíí Æéá íá áðéðá÷ðñéáß éÛðüð ç ñéááééáóßá ðîð make release. Áí Æáóññáðééßß Æßóéíé ÷ñçóéííðñéççýíí Æéá ðíðíáðá òçð éáñáñ÷ð ðîð chroot(2) ðñáéáÛëçíðò, òüðá òí CVS checkout òùí éáðáéüüíí ports éáé doc ïðñáß íá Æßíáé ðáððü÷ñííá ïá òçí áñííð make world òðíí Ûëçí Æßóéí. ×ñçóéííðñéççýíí ïéá RAID éýóç (hardware ð software) ïðñáß íá ïáéðóáé ÆñáóðééÛ òñí óðñééü ÷ññíí ðîð ÷ñáéÛáðáé íá ïáðááüðððéóðáß ïéá ðéðñçð Ýéáñóç.
- *Ìáðááëðððéóç Æêüüóàùí Æéá ÆéáññáðééÝò áñ÷éðáðñééÝò* - ÈÝéáðá íá ïáðááüðððóáðá ïéá Ýéáñóç Æéá IA-64 ð Alpha óá éÛðñéíí x86 áðáíñááóðð? make TARGET=ia64 release.
- *ÃñééíÝð Æéá éÛç* - ×ñáéáæüíáóðá éáéýðáñá Æñááéáßá Æéá áððüíáðí Ýéáñ÷í ïñëüðçðáð óðí FreeBSD.
- *Ãñááéáßá ÆáéáðÛóðáóçð* - Òñ ðñüññáñÛ íáð Æéá òçí ÆáéáðÛóðáóç òîõ FreeBSD Ý÷áé ïáðáñÛóáé ðñí ðñéççýíí òñí áñáíñüíñí ÷ññíí æüðò òîõ. ÒðÛñ÷ííí Æéáññáð ïñÛáð ðîð ÆñáÛéííóáé Æéá íá ðéíðñéççýíí éÛðñéíí Ûëçí, ðéí ïñóÝññí ïç÷áíéðü ÆáéáðÛóðáóçð. Ìéá áðü ðéð ðéí ððñó÷ñáíáð, Æßíáé ç ïñÛáá libh[5] ðîð óðí÷áýáé òçí ðéíðñéççýíí áñüð Ýñððñí, ïÝñò ðñüðñò ðáéáðáñßóíáðñò éñáéóíéçýíí éáé áñüð GUI ðññáñÛñáðñò ÆáéáðÛóðáóçð.

## 8 Æð÷áñéóðßáð

Èá ðéáéá íá áð÷áñéóððóü òñí Jordan Hubbard, ðîð ïñó Ýáñóá òçí ððéáéñßá íá ðÛññ éÛðñéá áðü òçí áðéýíç òçð Ýéáñóçð 4.4 ðîð FreeBSD, éáçð éáé Æéá ïéç òçí ÆñéáéÛ ðîð Ý÷áé éÛñáé Æáð éáé ÷ññíéá Æéá íá Æßíáé òí FreeBSD áððü ðîð Æßíáé óðñáñá. ÒððééÛ, ç Ýéáñóç Æáñ éá ðóáí ðñóÝ Æðñáðñí íá ïéñéççññéáß ÷ññßð ïéç òçí ó÷áðééð ïá òçí Ýéáñóç ÆñéáéÛ 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> éáé ïéñé ïé ððñéñéðñé ðñó áð÷ñéýíóáé ïá òçí áñÛððñíç ðîð FreeBSD. ÈÝèü áðßóçð íá áð÷áñéóððóü ðñðò Rodney Grimes <rgrimes@FreeBSD.org>, Poul-Henning Kamp <phk@FreeBSD.org>, éáé ïéñðò ðñðò Ûëçíðð ðñó ÆñáÛóççéáí Æéá íá ððéÛñííí ðá Æñááéáßá Æéá ðéð Æêüüóáéð óðéð ðñðóáð ïÝñáð òçð äçíëíðñáð ðñó FreeBSD. Áððü òñ Ûñéñí Ý÷áé áðçñááóðáß áðü éáßíáíá ó÷áðééÛ ïá òçí ïñÃÛîóç òùí Æêüüóàùí áðü òñ CSRG[14], òçí ïñÛáá ðñó NetBSD[11], éáé òçí ðññóðáóç Æéá ïéá ñéááééáóßá ïñÃÛîóçð òùí Æêüüóàùí ðñó 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>)