

Ç ĩñãŨíùóç ôùí Âêäüóâùí ôĩõ FreeBSD

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\$FreeBSD: release/8.4.0/el_GR.ISO8859-7/articles/releng/article.xml 39632

2012-10-01 11:56:00Z gabor \$

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2012-10-01 11:56:00Z gabor \$

Άδου οĩ Ũñēñĩ ðañēāñŨōāē ôçĩ áíôēíāðþðēóç ēāē ĩñãŨíùóç ôçð ñŨāāð áíŨððôĩçð ôĩõ FreeBSD, ùóĩí áöĩñŨ óôçĩ ðñĩāðĩēíāóßā ðĩēĩðēēþĩ āēäüóâùí ôĩõ Êāēðĩõñāēēĩý Óðóðßíāðĩõ FreeBSD. Âĩçāāß ĩā ēāððñŨñāēā ôçĩ ĩāēĩāĩēĩāßā ðĩõ ÷ñçóēĩĩðĩēāßðāē āēā ðēð āðßóçĩāð āēäüóāēð ôĩõ FreeBSD ēāē ðañēāñŨōāē óā āñāāēāßā ðĩõ āßíāē āēāēÝóēíā óā ùóĩõð āíāēāóŨñĩíóāē ĩā ðañŨāĩĩĩ ðañāĩāðñĩðĩēçĩÝĩāð āēäüóāēð ôĩõ FreeBSD āēā āóùðāñēēß ð āĩðĩñēēß ÷ñßóç ēāē áíŨððôĩç ðñĩũĩĩóðũĩ.

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1 Âēóāāũāß

Ç áíŨððôĩç ôĩõ FreeBSD āßíāē ĩēā ðĩēý āĩē÷ðß āēāāēēāóßā. Ôĩ FreeBSD áðĩðāēāßðāē áðũ óðĩāēóōĩñÝð ÷ēēēŨāũĩ āĩēñþðũĩ áðũ ùēĩ ôĩĩ ēũóĩĩ. Ç ñŨāā ôĩõ FreeBSD ðañŨŨ÷āē ðñũóāāóç ĩÝóũ āĩþĩðĩĩõ CVS[1] óā ùēĩõð, Ýðóē þóðā ĩā ĩðĩñāß ùðĩēĩð ēÝēāē ĩā āāē ĩçýĩāóā log, āēāōĩñŨð (patches) ðĩõ Ý÷ĩĩĩ óā āēŨōĩñā development branches, ēāē Ũēēā ÷āñāēðçñēóðēēŨ ðĩõ āĩçēĩýĩ ôçĩ áíŨððôĩç, óā ĩðĩßā ðñĩēýððĩĩĩ áðũ ôçĩ ÷ñßóç āĩũð áððóçñĩý óðóðßíāðĩõ āēā÷āßñēóçð ēþāēēā. Áðũ ðñĩõÝēāóā ēāē ôĩĩ ðēĩ ôçĩāíóēēũ ðañŨāĩĩĩā Ýēĩçð āēā Ýĩā ĩāāŨēĩ āñēēĩũ áðũ óāēāĩðĩý÷ĩõð ðñĩāñāĩĩāóēóðÝð áðũ ùēĩ ôĩĩ ēũóĩĩ óōĩ FreeBSD. Âßíāē ðñĩóāĩÝð, āÝāāēā, ðũð ðĩēý óýĩðñā ēā āß÷ā āßíāē āĩóāēþð ÷āĩðēēß ç ēāðŨóðāóç āĩ āß÷āĩ ùēĩē, áðũ ùēĩ ôĩĩ ēũóĩĩ, ðñũóāāóç ĩā āñŨðĩĩĩ óðĩĩ ēþāēēā. Âē' áððũ, ĩũĩĩ

ιέα “ἀδελῶται Ἰτς” νῦν ἀδὺ οἰκονομῶν 300 Ὑπὸν Ἰτς ἰοῖ δὲν οὐαῶαός ιά ἀνῶιοῖ οῶι CVS repository. Ἀδελῶ ιέ *committers*[6] ἀβιῶα ὀδᾶγῶνιῶι ἁῶα οῖ ιαᾶᾶᾶᾶᾶᾶν ιῶνι οῶδ αῖῶῶῶῶῶῶ δῖο ἀβιᾶῶᾶ οῶι FreeBSD. Ιῶα *εἰδιῶνῶῶ*-νῦν[7] (core team) ἀδὺ ἁῶαῶῶῶῶῶῶ δὲν ιᾶνᾶιᾶῶῶῶῶ ἁῶῶᾶᾶῶᾶ ἁῶα ιά δᾶνῶ-ᾶῶ ἑῶῶῶῶ ἁβῶῶῶ ἑᾶῶᾶᾶῶῶ ἑᾶῶ ιῶ ἑᾶῶᾶῶῶῶ οῶι ὀῶῶῶ οῦι committers.

Ίε όα÷ýόάοίε ηόειηβ άίΰδδοίçό όίό FreeBSD άάί άόβήόί έάέ δίεý ÷ññί άέα όί ίάέάέΰñέόίά όίό όόόόβίάόίό άίΰδδοίçό όά ίέα Ύέάίόç ίά δίέυόçόά δίό ίά άίβέάέ ίά ÷ñçέόίόδίέάβόάέ άόñΎύό. Άέα ίά έόέάβ άόόü όί άέέέçίά, ç άίΰδδοίç άβίάόάέ όάόόü÷ññίά όά άόί όάνΰέέçέά ίññδΰόέα. Ί έýñέίό έίññüό άίΰδδοίçό άβίάέ í **HEAD** þ **trunk** όόί CVS repository ίάό, άίύόόüό έάέ üό “FreeBSD-CURRENT”, þ “-CURRENT” άί όόίόñβά.

Jáο δέι οόάεανύο έιηνύο οόίογνάβόάε, άνυοόύο ιά οί υμνά “FreeBSD-STABLE” η δέι ούύοηά “-STABLE”. Έάε ιέ άοί έιηνύβ άβίάε άδύεçεάοιΥήιέ οόί έύήέι CVS repository, οόçί Έάέέουνήέα, έάε άίόέανÜοήίόάε ιΥόο **CVSup**[2] οά mirrors άάίόιΥ οόήι έυοίι. Üο FreeBSD-CURRENT[8] άβίάε ç “δñòç οάέñÜ” οçò άίÜδòçìç οίò FreeBSD έάέòò οά άòóυ άβήήόάε δñòá υέάò ιέ έάέήήνέάò áέέάáÝò. Üο FreeBSD-STABLE άβίάε ι έιηνύο άίÜδòçìç άδύ οήι ιδύβι οόέÜ÷ήήόάε ιέ άεαυοάέò. Ιέ áέέάáÝò άέóÝñ÷ήήόάε οά άòóυι, οήι άáyοάñι έιηνύ άίÜδòçìç, ιά δέι άñαυ ηέέιυ, άοίΥ δñòá (óýιούήά ιά οçί δύέέóέέη ιάò) άύέέάοόίΥι οόί FreeBSD-CURRENT έάέ Ý÷ήι άήάόάόάβ δύέΥ έάέÜ.

[illegible]

Όρία÷þð óóÝεῖνῖοάε αἰὺ οἰοῶ ÷ñþóðáð ἰαῶ ἀάῖοῖνÝð ðñἰαεçἰÛοῖρ ἑάε ἀεὸþῶάεð ἁέα ἑάεῖνῖνέα ÷ ἁñáεðçñεὸόεέÛ, ἑάοÛ òç ἁέÛñεάέα οἰῶ εýεεῖῖο òçð εÛεἶἶ Ἰέἱἁῖοçð. Ἰέ ἀάῖοῖνÝð ðñἰαεçἰÛοῖρ ἀεὸÛἁῖῖῶάε ὀçἰ ἁÛòç **GNATS**[9] ἰÝῶῖ e-mail, ἰἶ ὀçἰ ἁῶἁñἰἱἁþ send-pr(1), þ ἰÝῶῖ οἰῶ web-interface ḡῖῖ ḡἁñÝ ÷ ἁῶάε ὀçἰ ἁέἱἱέðῖῖῖç <http://www.FreeBSD.org/send-pr.html>. Ἄεῶῶð ἁḡῖ ὀεῶ ἁέÛῖοῖñἁð εḡῶῶḡḡ çḡἁεῶññἰεéῖῖ ὀἁ÷ὀἁññἁḡῖῖ ἰἶ εÝἱἶ ὀἁ ὀἁ÷ἰεέÛ ÷ ἁñáεðçñεὸόεέÛ οἰῶ FreeBSD ὀḡÛñ ÷ ἁέ ἑάε ç εḡῶῶἶ FreeBSD Quality Assurance mailing list (<http://lists.FreeBSD.org/mailman/listinfo/freebsd-qa>), ç ἰḡἰḡἶ ḡἁñÝ ÷ ἁέ Ἰἱἶ ὀῖñἰῖῖ ἁέα ὀἁæçðþῶάεð ὀ÷ἁὀεέÛ ἰἶ ὀεῶ εἱḡḡñÝñἁεἱḡ ὀçð “ἰñἶἸῖῖῖῖῖ ὀῖῖ ἁεἱῶὀἁῖῖ”.

[illegible][illegible]

2 Ç Äéääéêáóßá Åçïéïõñãßáo ìéàò êäïóçò

Ié iYáo áëäúóáëð ðíð FreeBSD ðöëÜ ÷ ðíðáë áðú ðíð -STABLE éíñíú áíÜððöíçð ðáñððíð ëÜëá ëÝóóáñáëð íðíáð. Ç
 áëááëëáóáá ðñíáðíëíáóáð íëáð Ýëáíçð ðáëëíÜáë ó ÷ ááúí 45 iYñáð ðñëí ççí áíáíáííáíë çíáññíçíáá Ýëáíçð, úðáí í
 ððáýëðñíð áëäúóáíð ðíð FreeBSD óðÝëíáë Ýíá áñÜñíá óðéð ëðóðáð ðíð ðñíáñáíáðëóðñí áëá íá ððáíëðíðóáë óðíðð
 ðñíáñáíáðëóðÝð úðë Ý ÷ íðí 15 iYñáð ëáëñú íá ëÜñíð úðíëáð áëëáÝð ëÝëíðí, ðñëí ðí ðÜáñíá ðíð ëðáëëá. ÍÝóá óá

áòòü òĩĩ éáénü, ðĩēēĩß ðñĩāñāñĩáòéóóŸò ēŪĩĩōĩ ĩéá óáēñŪ áðü áēēááŸò ðĩō Ÿ ÷ ĩōĩ ĩāßĩáē ðēŸĩĩ āñüóóŸò ùò “ĩāēáēāñßōĩáóá MFC”. Ī ũñĩō MFC óçĩāßĩáē “Merge From CURRENT” éáē ðāñēāñŪōāē óçĩ áēááēēáóßā ðñĩóāñĩĩāßò òĩō ēßāēēá ĩéáò āĩēēĩáóĩŸĩçò áēēáāßò áðü òĩĩ -CURRENT ðāñēāñĩáóēēü ēĩñĩü áñŪðòōĩçò óòĩĩ óóāēāñü -STABLE ēĩñĩü.

2.1 ĩāā ÷ ĩō ēßāēēá

ŌñēŪĩóá çĩŸñāð ðñēĩ óçĩ áĩāĩāñĩāĩç çĩāññçĩßā Ÿēāĩōçò, ĩ ēßāēēáð òĩō repository áéóŸñ ÷ āðáē óā ĩéá ðāñßĩāĩ “ēáēóóóŸñçòçò”. ÉáòŪ óç āēŪñēāēá áòðßò òçò ðāñēüāĩō, ũēāð ĩē áēēááŸò óòĩĩ -STABLE ēĩñĩü ðñŸðāē ĩá Ÿ ÷ ĩōĩ óçĩ Ÿāēñēóç òçò ĩñŪāā ĪñāŪtūoçò òuĩ Āēäüoäüĩ <re@FreeBSD.org>. Īē áēēááŸò ðĩō áðēóñŸðĩĩóáē óā áòðß òçĩ ðāñßĩāĩ ðĩō áēāñēāß 15 çĩŸñāð āßĩáē:

- Āēĩñēßóāēð āñüóóßĩ ðñĩāēçĩŪðuĩ.
- Āĩçĩāñßóāēð óóçĩ ðāēĩçñßüóç.
- ĀēēááŸò ó ÷ āðēēŸò ĩā óçĩ áóðŪēāēá.
- ĪēēñŸò áēēááŸò óòĩōð ĩāçāĩŸò ðòóēāðßĩ, ũðüð ð. ÷. ç ðñĩóēßēç òuĩ IDs ĩŸüĩ óóóēāðßĩ.
- Īðĩēāāßðĩōā Ūēēç áēēáāß ðēóóāŸāē ç ĩñŪāā áñŪðòōĩçò ũóē ðñŸðāē ĩá āßĩáē, ĩā òĩ áĩāĩāñĩāñĩ ðŪĩóā ñßóēĩ.

ĪāòŪ ðēò ðñßóāð 15 ĩŸñāð ēáēóóóŸñçòçò, òðēŪ ÷ ĩāðáē ĩéá āĩēēĩáóóēēß Ÿēāĩōç áēá ĩá ÷ ñçóēĩĩðĩēçēāß óāĩ āĩēēĩß òçò ðāēēēßò Ÿēāĩōçò éáē ĩ ēßāēēáð áéóŸñ ÷ āðáē óā ĩéá ðāñßĩāĩ “ðāāßĩāĩōĩō”. ðēŸĩĩ āßĩáē ðĩēŸ ðēĩ āŸóēĩēĩ ĩá āßĩĩōĩ ĩŸāð áēēááŸò óòĩ āŸóóçĩā, āēòüð ēē áĩ āēĩñēßñĩōĩ ēŪðĩēĩ ðĩēŸ óĩāāñü bugß ēŪðĩēĩ ðñüāēçĩā áóóŪēāēáð. ÉáòŪ óç āēŪñēāēá òĩō ðāāßĩāĩð òĩō ēßāēēá, òĩōēŪ ÷ éóòĩĩ ĩßā āĩēēĩáóóēēß Ÿēāĩōç òðēŪ ÷ ĩāðáē ēŪēā āāāñŪāā, ĩŸ ÷ ñē ĩá āßĩáē Ÿóĩēĩç ç ðāēēēß Ÿēāĩōç. Ōēò çĩŸñāð áēñēāßò ðñēĩ óçĩ ðāēēēß Ÿēāĩōç, ç ĩñŪāā ðĩō āßĩáē òðāŸēòĩç áēá ðēò āēäüoäēð āßĩáē óā óòĩā ÷ ð āðēēĩēñĩßā ĩā óçĩ ĩñŪāā áóðŪēāēáð, óçĩ ĩñŪāā óòĩōßñçòçò òçò ðāēĩçñßüóçò, éáē óçĩ ĩñŪāā óòĩōßñçòçò òuĩ ports, áēá ĩá āāāāēüēĩŸĩ ðüð ũēā óā áðāñāßòçòā ēñĩŪðēá áēá ĩéá ðēßñç Ÿēāĩōç āßĩáē áēáēŸóēĩā.

2.2 Ēßóóā ĀēŸā ÷ ĩō òçò Ōāēēēßò ēāĩōçò

¼óāĩ āñēāðŸò āĩēēĩáóóēēŸò āēäüoäēð Ÿ ÷ ĩōĩ āßĩáē áēáēŸóēĩāð, Ÿ ÷ ĩōĩ āĩēēĩáóóāß áðü āñēāðü ēüóĩĩ éáē ũēá óā óĩāāñŪ ēŸĩāóā Ÿ ÷ ĩōĩ áĩāēðēāß, ç ðāēēēß Ÿēāĩōç ĩðñāß ĩá āñ ÷ ðóāē.

2.2.1 Āçĩēĩōñāßā òĩō ēĩñĩŸ ēāĩōçò

¼ðüð ðāñēāñŪøāĩā óóçĩ áéóáāñāß, ĩē ēĩñĩĩß RELENG_X_Y āßĩáē ĩéá ó ÷ āðēēŪ ĩŸā ðñĩóēßēç óóçĩ ĩāēĩāĩēĩāßā òuĩ āēäüoäßĩ ĩāð. Ōĩ ðñßōĩ āßĩā óóçĩ āçĩēĩōñāßā áóòĩŸ òĩō ēĩñĩŸ āßĩáē ĩá āāāāēüēāßòā ũóē āĩōēāŸāðā ĩā óçĩ ðāēāðóāßā Ÿēāĩōç òĩō ðçāāßĩō ēßāēēá áðü òĩĩ RELENG_X ēĩñĩü áðü òĩĩ ĩðĩßĩ ēā òðēŪĩāðā òĩ ĩŸĩ ēĩñĩü.

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

Ōĩ áðüñāñ āßĩā āßĩáē ĩá āçĩēĩōñāßóāðā ĩéá áðēēŸðā (tag) óòĩ óçĩāßĩ āēēßĩçòçò òĩō ēĩñĩŸ, ðóóā ĩá ĩðñāßòā ĩá āāßòā ðēò áēáóĩñŸò ĩā óçĩ āñ ÷ ð òĩō ēĩñĩŸ āŸēĩēā óòĩ ĩŸēēĩ ĩā òĩ CVS:

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

Éáē òüðā ĩðñāßòā ĩá āçĩēĩōñāßóāðā òĩ ĩŸĩ ēĩñĩü ĩā:

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

Όçìáβùòç: *Íē ādōēēÝōāð ^{RELENG_} * āβíáē āāóíāðīÝíāð āēá ÷ ñΠόç áðũ ôĩðð CVS-meisters ēáē ôçí ñŪāā ôũí āēāũðāũí.*

Ἰ uniõ “*ἀόεεΥόα*” ἀβίαέ ι̃ι̃ι̃ι̃ε̃α̃β̃α̃ ο̃ι̃ο̃ CVS. Ὁ̃ϋ̃α̃β̃ία̃έ̃ Ὑ̃ί̃α̃ ũm̃ã ο̃ι̃ο̃ ε̃α̃ε̃ι̃ñβ̃α̃α̃ε̃ ι̃ε̃α̃ ο̃α̃ε̃α̃ε̃ñε̃ι̃Ὑ̃ί̃ϋ̃ Ὑ̃ε̃ãĩõς̃ ο̃ι̃ο̃ ε̃p̃ãẽẽã ο̃õĩ ÷ ñũĩĩ. × ñϋ̃õẽĩĩd̃ĩẽp̃ĩõãõ ἀο̃ε̃ε̃Υ̃õãõ ο̃õĩĩ d̃ϋ̃ããb̃ĩ ε̃p̃ãẽẽã ãr̃ϋ̃ẽŨĩã ũd̃ĩẽĩĩ õõẽŨĩãẽ ο̃õĩ ĩὙ̃ẽẽĩĩ ãẽãũõãẽd̃ ο̃ĩõ FreeBSD ĩã ãñβ̃õẽãẽ ε̃ãẽ ĩã ÷ ñϋ̃õẽĩĩd̃ĩẽãb̃ ãẽñẽãp̃õ d̃ĩĩ β̃ãẽĩ ε̃p̃ãẽẽã ο̃ĩõ ÷ ñϋ̃õẽĩĩd̃ĩẽp̃ẽϋ̃ẽã ãẽã ο̃ẽd̃ ãd̃β̃õϋ̃ĩãd̃ ãẽãũõãẽd̃ ο̃ϋ̃õ ḥ̃Ũããd̃ ο̃ĩõ FreeBSD.

2.2.2 ÁõîÛííîáò ôíí Áñéeìü êäíóçò

Ἐνεί ἰθαί ϣ ἀοέεΥόα, ἰαοάαεουοέοοάβ εάε ἀοίεἰαοόαβ ϣ οάεεβ Υέαιόρ, ὃνΥθαί ἰά αβἰἰόρ αέεαΥό οόα ὀαἵαεῸου
 ἁἡ÷ἁβἁ ἁεἁ ἰά ὀἁἡΥ÷ἰόἰ οἰἰ οἰοόἰ ἁἡεἰἰ Υέαιόρὀ ἁεἁ οἰ FreeBSD:

- doc/en_US.ISO8859-1/books/handbook/mirrors/chapter.xml
- doc/en_US.ISO8859-1/books/porters-handbook/book.xml
- doc/share/xml/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/xml/release.dsl
- src/release/doc/share/examples/Makefile.relnotesng
- src/release/doc/share/xml/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.xml
- www/en/cgi/ports.cgi
- ports/Tools/scripts/release/config

[illegible]

- `src/release/doc/en_US.ISO8859-1/relnotes/common/new.xml`
- `src/release/doc/en_US.ISO8859-1/errata/article.xml`

Ç äöäññīāP **sysinstall** ðñÝðäē äðßöçð íá áíçíāññēāß íā òñí òùòóù āñēēìù òùí ports éáē òī ÷pñī òīō āßöēīō ðīō
 äðäēòāßöáē áēá òçí ÓöēēīāP òùí Ports. ÁöðÝð íē ðēçñīvññßāð òðÛñ÷īōí óóī āñ÷āßī
 src/release/sysinstall/dist.c.

Áōiŷ iēēēçñùēāß ç ðñiāōiēiāóßá ôçð iŷáð āðßóçìçð Ýēäiōçð, ðñÝðāē íá áíçìāñþóāðā iāñēēŪ āñ÷āßá āēá íá áíçìāñþóāðā òiī ēüōiī āēá ôç iŷá Ýēäiōç òiō FreeBSD.

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

2.2.3 Āçìēiōñāßá òuì Āōēēāði ôçð ēäiōçð

¼ðāí ç ðāēēēß Ýēäiōç āßiāē Ýōiēiç, ç ðāñāēŪðū āíōiēß ēā āçìēiōñāþóāē ôçí āðēēÝðā `RELENG_4_8_0_RELEASE`.

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

İē ððāŷēðñē ôçð Ōāēiçñßuôçð ēāē òuì Ports āßiāē āðōiß ðiō ðñÝðāē íá āçìēiōñāþóiōi ðēð āðēēÝðāð `RELEASE_4_8_0` óðā ēāðŪēēçēā āŷiōñā ðçāāßiō ēþāēēā.

İāñēēÝð òiñÝð, iðñiāß íá ÷ñāēáððāß íá āßiōi ēŪðñēāð āēēāāÝð ðāēāððāßá óðēāiß *iāðŪ* ôçí òiðñēÝðçðç òuì āðēēāðþi. ĀāíēēŪ, āāi āßiāē āŷōēiēi íá āßiāē ēŪðē ôÝōiēi āōiŷ òi CVS āðēōñÝðāē íá iāðāēēiþóāē ēŪðñēið ðēð āðēēÝðāð iā āíōiēÝð ùððð `cvs tag -d tagname filename`. Āßiāē ðñēŷ óçìáíðēēü ùiðð āððÝð iē āēēāāÝð ôçð ðāēāððāßāð óðēāiþð íá óçìāēüēiŷi iā ðēð óuóðÝð āðēēÝðāð āēá ôçí óðāēāñēiŷiç Ýēäiōç. İē āðßóçìāð āēāüóāēð òiō FreeBSD ðñÝðāē íá āßiāē ðŪiðā āŷēiēi íá áíáðāñā÷ēiŷi. ŌiðēēÝð āēēāāÝð óði ðāñēāŪēēiī òiō iç÷āíēiŷi òuì āēāüóäüi āāi āðēōñÝðñiðāē.

3 İāðāāēþððēóç ôçð ēäiōçð

İē “āēāüóāēð” òiō FreeBSD iðñiŷi íá iāðāāēüððēóðiŷi āðü iðñēiñāþðiðā Ý÷āē Ýiá ó÷āðēēŪ āñþāñi iç÷Ūiçìā ēāē ðñüóāáç óði repository òiō ðçāāßiō ēþāēēā. (¼ēiē Ý÷iōi āððß ôç āðñāðüðçðā, āōiŷ ðāñÝ÷iōiā ðñüóāáç iŷōü āiþiðñiō CVS! Āāßðā òi Āā÷āēñßāēi òiō FreeBSD āēā ðāñēóóüðāñāð ēāððñÝñāēāð.) Ç iüiç āēāēēß āðāßðççç āßiāē íá ððŪñ÷āē ððñiððñēiç óðñi ððñþiā óāð āēá ôçí óððēāðß `vn(4)`. (Ōðñ `-CURRENT`, āððß ç óððēāðß Ý÷āē āíðēēāðāóāēāß āðü ôçí iŷá óððēāðß āßóēið āāóēóŷiŷiñ òā iþiç `md(4)`.) Áí ç óððēāðß āāi āßiāē āíōñiāðñiŷiç óðñi ððñþiā óāð, ðñðā i ēāðŪēēçēið iāçāüð ēā òñðñēāß āðñiñāðā üðāí āēðāēāððāß ç āíðñēß `vnconfig(8)` ēāðŪ ôç āēŪñēāēā ôçð òŪçðð ðñēiñāððā òiō iŷiōi āēēßiççð. ¼ēā ðā āñāāēāßā ðiō ÷ñāēŪāēñiðāē āēá íá iāðāāēüððßóāðā iēā Ýēäiōç āßiāē āēāēÝðēiā óā iññðß ðçāāßiō ēþāēēā óðñi ēāðŪēiñāi `src/release`. ĀððŪ ðā āñāāēāßā Ý÷iōi ùð óēiðñi íá ðāñÝ÷iōi üðē ÷ñāēŪāēñiðāē āēá íá ðßāēñiðāē iē āēāüóāēð òiō FreeBSD iā Ýiá óñiñāðß ēāē óðāēāñēiŷiñ òññðñi. İēā ðēþñçð Ýēäiōç iðñiāß íá iāðāāēüððēóðāß ÷ñçōēiñðñēiþiðāð āððŪ ðā āñāāēāßā iā iēā ēāē iüñi āíðñēß, óðñðāñēēāñiññiŷiçð ēāē ôçð āçìēiōñāþāð āñüð ISO āñ÷āßiō ēāðŪēēçēi āēá íá ēāāß óā CDROM, iē āēóēÝððāð āēēßiççð, ēāēþð ēāē i ēāðŪēēçēið āāēāðŪóðāçð iŷōü FTP. Āððß ç āíðñēß āßiāē òððēēß ç `make release`.

3.1 Ç āíðñēß `make release`

Āēā íá iāðāāēüððßóāðā āðēðð÷þð iēā Ýēäiōç, ðñÝðāē ðñþðā íá ððŪñ÷iōi ðā ēāðŪēēçēā āñ÷āßā iŷiá óðñi ēāðŪēiñāi `/usr/obj`. İðñiāßðā íá ðā āçìēiōñāþóāðā āßðā iā ôçí āíðñēß `make world` þ āðēŪ `make buildworld`. Āēā íá

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

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

Áí ááí Ý÷-áðá ðáç ðñüóááóç óá èÛðíéí ðíðéëü CVS repository ìá òñí èðáééá ðîõ FreeBSD, ìðíáßðá ðÛíóá íá òðéÛíáðá 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, óðí áñ÷-áßí /usr/share/examples/cvsup/cvs-supfile, òí ìðíßí ìðíáßðá íá ÷ ñçóéíðíéçéáßðá áéá íá áíðéáñÛðáðá òí CVS repository ðîõ FreeBSD óðí áéëü óáð ðíðéëü mirror.

Áí ðáñáëáßðáðá òçí áðééÝðá RELEASETAG, òððá èá ìáðááëüðððéóðáß íéá ðëðñçð Ýêáîóç áðü òçí èíñðð ðîõ HEAD (áçë. ðîõ -CURRENT) èíññíý. Ìé áêüüóáéð ðîõ òðéÛ÷-ñíðáé áðü áððüí òñí èíññü, óðíðëüð áíáðÝññíðáé óáí “-CURRENT snapshots”.

ÕðÛñ÷-íðí éáé ðíëéÝð Ûëëáð ìáðááëçðÝð ðîõ ìðíñíý íá ÷ ñçóéíðíéçééý íáé íá ðáñáíáðñíðíéçéáßðá òçí Ýêáîóç óáð. Ìé ðéí ðíëéÝð áðü áððÝð ðéð ìáðááëçðÝð ðáñéáñÛñíðáé óóçí èíñðð ðîõ áñ÷-áßíð src/release/Makefile. Ç áêñéáðð áíðíëð ðîõ ÷ ñçóéíðíéçéáß áéá íá òðéá÷-ðáß ç áðßóçí 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 ÷ ñçóéíðíéçéáßðáé áéá íá ìáðááëüðððáíðáé ìé áêüüóáéð ìðíáß íá ÷ ùñéóðáß óá áñéáðÛ 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 óððððíáððð, òçð ðáêñññüóçð éáé òñí ports ìÝóá óóçí éáñáñ÷-ßá éáðáëüüí ìáðááëðððéóçð òçð Ýêáîóçð.
- Ñðëíðáéð òñí áñ÷-áßí óðñí éáðÛëíá /etc éáé /dev ìÝóá óðí ðáñéáÛëëí chroot.
- ÁéðÝéáóç òçð áíðíëðð chroot ìÝóá óóçí éáñáñ÷-ßá éáðáëüüí ðîõ áðíéíÛóðçéá, áéá íá ìçí ìðíáß òí áñüðáñéëü ðáñéáÛëëí íá áðçñáÛóáé òç ìáðááëðððéóçð òçð Ýêáîóçð.
- ÁéðÝéáóç òçð áíðíëðð make world ìÝóá óðí ðáñéáÛëëí chroot.
- Ìáðááëðððéóç òñí áêðáëÝóéíð ðîõ áßíáé ó÷-áðééÛ ìá òí óýóðçíá Kerberos.
- Ìáðááëðððéóç ðîõ ððñðíá GENERIC.
- Äçíëíðñáß áñüð òáéééíý éáðáëüüíð óðñí ìðíßí èá ìáðááëüðððéóðíý éáé èá áðíèçéáððéíý ìé áêðáëÝóéíð ìñðÝð òñí òáéééðí ðáéÝðð.
- Ìáðááëðððéóç éáé ááéáðÛóðáóç òñí áñááéáßíð ðîõ ÷ ñáéÛáíðáé áéá òçí ðñíáðíéíáðá òçð Ýêáîóçð éáé òç ìáðáðñíðð òçð ðáêñññüóçð áðü òñí ðçááßíð èðáééá (SGML) óá html éáé áñ÷-áßá éáéíÝñð ðîõ èá óðñíáýíðí òçí Ýêáîóçð.
- Ìáðáðñíðð éáé ááéáðÛóðáóç òçð ðáêñññüóçð (áá÷-áéñßáéá ÷ ñððóç, áéóáñüáééÛ éáßíáíá, óçíáëðáéð Ýêáîóçð, èßðáð ððíááðððçðáðð ðéééíý, èëð.)

- ĩāóāāēpôóéóc òuĩ “òõĩðēáõĩŸĩũĩ” (crunched) āēðāēŸóēĩũĩ ðĩō ēá ÷ ñçóēĩĩðĩēçēĩŸĩ óóēð āēóēŸôðāð āāēáðŨóóáócð.
- Āçĩēĩōñāβá òuĩ ðāēŸòuĩ òçð āāēáðŨóóáócð ēáē òuĩ ðāēŸòuĩ ðçāāβĩō ēpāēēá.
- Āçĩēĩōñāβá òuĩ ĩŸóuĩ āēēβĩçóçð ēáē òçð āēóēŸôðāð “fixit”.
- Āçĩēĩōñāβá òçð ēāñāñ÷βāð ēáðāēüũĩ āēá òçĩ āāēáðŨóóáóc ĩŸóũ FTP.
- (ðñĩíáēñāôēēŸ) Āçĩēĩōñāβá òuĩ ISO āñ÷āβũĩ āēá ĩŸóá CDROM/DVD media.

Āēá ðāñēóóũðāñāð ðēçñĩōĩñβāð ó÷āðēēŸ ĩā òçĩ āēáāēēáóβá āçĩēĩōñāβāð ĩēáð Ÿēāĩóçð, āāβôā òçĩ óāēβāā òāēĩçñβũóçð release(7).

3.2 ĩāóāāēpôóéóc òuĩ XFree86

Ōĩ āñáóēēũ ðāñēáŨēēĩ **XFree86** āβĩáē Ÿĩá óçĩáĩóēēũ ēñĩŨðē ēŨēā Ÿēāĩóçð āēá ðĩēēĩŸð ÷ ñβóðāð ðĩō ēŸēĩōĩ òĩ FreeBSD āēá óðāēĩŸð āñāáóβāð. ðñēĩ òçĩ Ÿēāĩóç 4.6-RELEASE òĩō FreeBSD, ĩē āðβóçĩāð āēüüóāēð òĩō FreeBSD ÷ ñçóēĩĩðĩēŸóáĩ òçĩ Ÿēāĩóç 3.x òuĩ **XFree86**. Ĩ ðēĩ āŸēĩēĩð ðñũðĩð ĩá ĩāóāāēũðôðóðāðā áððŸð òēð āēüüóāēð āβĩáē ĩá ÷ ñçóēĩĩðĩēŸóáĩ òĩ ðñũāñāĩā `src/release/scripts/X11/build_x.sh`. Áððũ òĩ ðñũāñāĩā áðāēðāβ ĩá āβĩáē ðāç óççĩŸĩá òĩ óŸóççĩŸ óáð òũĩ òĩ ðāñēáŨēēĩ XFree86 ũĩĩ ēáē ç āēpóóá Tcl/Tk. ĩāðŨ òçĩ ĩāóāāēpôóéóc òuĩ ēáðŨēēçēũ X servers, òĩ ðñũāñāĩā ēá ðāēāðŨñāē ũēā óá āñ÷āβā óá óðēēĩāŸð āñ÷āβũĩ ðĩō ðāñēĩŸĩāē ĩá āñāē òĩ `sysinstall(8)` ĩŸóá óõĩĩ ēáðŨēĩāĩ `XF86336` óõĩ ĩŸóĩ āāēáðŨóóáócð.

ĩāēēĩpĩóáð ĩā òçĩ Ÿēāĩóç 4.6-RELEASE òĩō FreeBSD, òĩ `sysinstall(8)` āāēāēéóðŨ òçĩ Ÿēāĩóç 4.x òuĩ XFree86, óáĩ ēāñĩēēŨ ðāēŸóá. ÁððŨ ĩðĩñāβ ĩá āβĩáē āβôā óá ðāēŸóá ðĩō āçĩēĩŸñāçóā òĩ cluster òuĩ ports ð ĩðĩēāāðĩðā Ũēēā ðāēŸóá ðĩō Ÿ÷ĩōĩ āçĩēĩōñāçēāβ áðũ Ÿĩá ports tree ĩā òçĩ ēáðŨēēçç āðēēŸóá.

Óçĩāβũóç: Āβĩáē ðĩēŸ óçĩáĩóēēũ ĩá áðāēñŸóðāðā áðũ òĩ āñ÷āβĩ `/etc/make.conf` ĩðĩēáóāðĩðĩā òĩðēēŸð ñòēĩβóāēð Ÿ÷āðā ēŨĩāē. Āēá ðāñŨāāēāĩā, āāĩ āβĩáē ēāēp ēāŸā ĩá āēáĩŸĩāðā āēðāēŸóēĩā ðĩō Ÿ÷ĩōĩ ĩāóāāēũðôóéóðāβ óá ēŨðĩēĩ óðāēāēñēĩŸĩĩ óŸóççĩā ĩā ĩñēóĩŸĩç òçĩ óēĩp òçð ĩāóāāēçððð `CPUTYPE` āēá āāēðēóõĩðĩβçóç òuĩ āēðāēŸóēĩũĩ āēá ēŨðĩēĩ óðāēāēñēĩŸĩĩ áðāĩāñāáóðp.

3.3 ðñĩāñŨĩĩáðā Ōñβòuĩ (“ports”)

Ç Óðēēĩāp òuĩ Ports òĩō FreeBSD (<http://www.FreeBSD.org/ports>) āβĩáē ĩēá óðēēĩāp ĩā ðāñēóóũðāñā áðũ 24,000 ðñĩāñŨĩĩáðā áðũ òñβòĩðð, ðĩō āβĩáē āēáēŸóēĩā āēá FreeBSD. ĩē ĩŨāā Āēá÷āβñēóçð òuĩ Ports `<portmgr@FreeBSD.org>` āβĩáē òðāŸððĩēē āēá òçĩ óõĩðpñçóç āĩũð āŸĩóñĩō áðũ ðçāāβĩ ēpāēēá āēá óá ports, ðĩō ĩðĩñāβ ĩá ÷ ñçóēĩĩðĩēçēāβ āēá ĩá āçĩēĩōñāçēĩŸĩĩ óá ðāēŸóá ĩā óá ðñĩāñŨĩĩáðā ðĩō óðñāŸĩōĩ òēð āðβóçĩāð āēüüóāēð òĩō FreeBSD.

Ç āēáāēēáóβā óõĩðpñçóçð òçð óðēēĩāpð òuĩ ports āβĩáē ēŨðē ðĩō āāĩ ĩðĩñĩŸĩā ĩá ēāēŸøĩðĩā āāp. ĩá ĩā÷ũñēóðũ Ũñēñĩ, ĩā òβòēĩ Ç ĨñāŨtūóc ēāĩóçð òuĩ ðāēŸòuĩ ĒĩāēóĩēēŸ áðũ Ōñβòĩðð ([./releng-packages/article.html](http://releng-packages/article.html)), ēāēŸðāē áððũ òĩ ēŸĩā.

3.4 Āñ÷āβā ISO òçð ēāĩóçð

ĩāēēĩpĩóáð ĩā òçĩ Ÿēāĩóç 4.4 òĩō FreeBSD, ç ĩŨāā ĀĩŨðððĩçð òĩō FreeBSD áðĩōŨóēóā ĩá āēáĩŸĩāē ēáē óá òŸóóāñā ISO āñ÷āβā ðĩō ðñpóá ðĩōēĩŸóáĩ ĩē áðāēñāβāð *BSDi/Wind River Systems/FreeBSD Mall* óðēð “āðβóçĩāð” āēāmŸð CDROM ðĩō Ÿēáĩáĩ. ēŨēā Ÿĩá áðũ óá òŸóóāñā ISO āñ÷āβā ðñŸðāē ĩá ðāñēŸ÷āē Ÿĩá āñ÷āβĩ `README.TXT` ðĩō

ðǻñéǻñŨóǻé óǻ ðǻñéǻ ÷ ùǻǻǻ òĩō ǻßóèĩō, êé Ýǻǻ ǻñ ÷ ǻßĩ CDROM.INF ðĩō ðǻñéÝ ÷ ǻé ïǻóǻ-ðéçñĩōĩñßǻð ǻéǻ íǻ ïðĩñǻß òĩ ðñüǻñǻǻǻ sysinstall(8) íǻ ǻéÝǻǻǻ éǻé íǻ ÷ ñçóéĩðĩéßóǻé ǻóòü òĩ ǻßóèĩ, éǻèð òé Ýǻǻ ǻñ ÷ ǻßĩ filename.txt ðĩō ðǻñÝ ÷ ǻé íéǻ èßóóǻ ǻñ ÷ ǻßüĩ òĩō CDROM. Áóðß ç èßóóǻ ïðĩñǻß íǻ ǻçĩéĩñǻçèǻß ðĩéý ǻðéŨ, ùò ǻĩßð:

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

Íé óðǻéǻèñéĩÝǻð ǻðǻéóßóǻéð ǻéǻ èŨèǻ Ýǻǻ ǻðü ǻóòŨ óǻ CD ðǻñéǻñŨĩĩóǻé ðǻñǻéŨòü:

3.4.1 Ǻßóèĩò 1

Í ðñðòĩð ǻßóèĩð ǻßǻéé ó ÷ ǻǻüĩ ǻðĩééǻéóóééŨ ǻðĩðÝéǻóĩǻ òçð ǻĩóĩéßð make release. Íé ïüǻð ǻééǻǻÝð ðĩō ðñÝðǻé íǻ ǻßĩĩĩ òóĩĩ éǻóŨéĩǻĩ disc1 ǻßǻéé ç ðñĩóèßéç òĩō éǻóŨéĩǻĩò tools, òüĩ XFree86, éǻé üóĩ òĩ ǻóĩǻóüĩ ðǻñéóóüðǻñüĩ ðǻéÝòüĩ ïðĩñĩý íǻ ÷ ùñÝóĩĩ òóĩ ǻßóèĩ. Í éǻóŨéĩǻĩò tools ðǻñéÝ ÷ ǻé ǻñǻǻéǻǻá ðĩō ǻðéòñÝðĩĩ óǻ ÷ ñßóóǻð Ũééüĩ éǻéòĩñǻéèßĩ óóóòçĩŨòüĩ íǻ òóéŨĩĩĩ òéð ǻéóéÝóóǻð ǻéèßĩçóçð. Áóòüð ò ðñðòĩð ǻßóèĩð ðñÝðǻé íǻ òóéŨ ÷ íǻóǻé bootable Ýóóé ðóóǻ íǻ ïðĩñĩý íé ÷ ñßóóǻð òüĩ ïüðÝñüĩ òðĩéĩǻéóóßĩ íǻ ǻðĩòǻýǻĩ òĩ óóŨǻéĩ ǻçĩéĩñǻßǻð òüĩ ǻéóéǻóóßĩ ǻéèßĩçóçð.

Ǻĩ íéǻ ǻéǻóĩñǻðéèß Ýéǻĩóç òüĩ XFree86 éǻ ǻéǻĩÝǻóǻé ïǻ òçĩ Ýéǻĩóç ǻóòß, ðñÝðǻé íǻ ǻçĩǻñüèǻß òĩ ðñüǻñǻǻǻ sysinstall(8) ǻéǻ òçĩ íÝǻ èÝóç éǻé íé ïǻçǻßǻð ǻǻéǻóŨóóǻóçð. Í ó ÷ ǻðééüð èßǻééǻð òðŨñ ÷ ǻé óóĩĩ éǻóŨéĩǻĩ src/release/sysinstall òóĩĩ -STABLE èĩñü ð óóĩĩ éǻóŨéĩǻĩ src/usr.sbin/sysinstall òóĩĩ -CURRENT èĩñü. ÓóǻéǻèñéĩÝǻǻ, óǻ ǻñ ÷ ǻßǻ dist.c, menus.c, éǻé config.c éǻ ÷ ñǻéǻóóǻß íǻ ǻçĩǻñüèĩýĩ.

3.4.2 Ǻßóèĩò 2

Í ǻǻýðǻñĩð ǻßóèĩð ǻßǻéé ǻðßóçð ǻðĩðÝéǻóĩǻ òçð ǻĩóĩéßð make release éǻóŨ Ýǻǻ ïǻǻŨéĩ ïÝñĩð. Áóòüð ò ǻßóèĩð ðǻñéÝ ÷ ǻé Ýǻǻ “live filesystem” ðĩō ïðĩñǻß íǻ ÷ ñçóéĩĩðĩéçèǻß ǻðü òĩ sysinstall(8) ǻéǻ íǻ ǻĩǻóǻóóĩýĩ ðñĩǻéßĩǻóǻ óǻ íéǻ ǻǻéǻóŨóóǻóç òĩō FreeBSD. Èé ǻóòüð ò ǻßóèĩð ðñÝðǻé íǻ ǻßǻéé bootable. Èǻ ðñÝðǻé ǻðßóçð íǻ ðǻñéÝ ÷ ǻé Ýǻǻ óóĩðéǻóĩÝĩĩ ǻĩóßǻñǻóĩ òĩō CVS repository óóĩĩ éǻóŨéĩǻĩ CVSROOT éǻé ǻǻßǻĩǻóǻ ǻðü ǻĩðĩñééŨ ðñĩǻñŨĩǻóǻ óóĩĩ éǻóŨéĩǻĩ commerce.

3.4.3 Ǻßóèĩé 3 éǻé 4

Íé òðüéĩéðĩé ǻòĩ ǻßóèĩé ðǻñéÝ ÷ òĩĩ ǻðéðñüóéǻóǻ ðǻéÝóǻ éĩǻéóĩééĩý ǻéǻ òĩ FreeBSD. Óǻ ðǻéÝóǻ éǻ ðñÝðǻé íǻ ǻßǻé ñǻǻĩðĩéçĩÝǻǻ, Ýóóé ðóóǻ èŨèǻ ðǻéÝòĩ íǻ ǻßǻéé óóĩĩ ðǻéĩ ǻßóèĩ ïǻ üéǻ óǻ ðǻéÝóǻ ǻðü óǻ òðĩßǻ ǻĩǻñðŨóǻé ǻéǻ íǻ ǻǻéǻóóóǻéǻ éǻé íǻ òñÝĩǻé. ðǻñéóóüðǻñǻð ðéçñĩōĩñßǻð ǻéǻ òçĩ ǻçĩéĩñǻßǻ ǻóòßĩ òüĩ ǻßóèüĩ ǻĩǻóÝñĩĩóǻé óóĩĩ Ũñèñĩ Ç ÎñǻŨñóç éǻĩóçð òüĩ ðǻéÝòüĩ Éĩǻéóĩééĩý ǻðü Òñßòĩòð (../releng-packages/article.html).

4 Ǻéǻĩñß òüĩ Áêüüóǻùĩ

4.1 ǺĩððçñǻðçðÝò FTP

¼óǻĩ ç Ýéǻĩóç ǻßǻéé Ýóĩéĩç, Ý ÷ ǻé ǻĩééĩǻóóǻß ǻéóǻĩßð, éǻé Ý ÷ ǻé ðǻéǻóǻñéóóǻß ǻéǻ ǻéǻĩñß, ò éýñéĩð FTP ǻĩððçñǻðçðð ðñÝðǻé íǻ ǻçĩǻñüèǻß. Íé ǻðßóçĩé ǻĩððçñǻðçðÝò FTP òĩō FreeBSD ǻßǻéé üéé mirrors ǻĩüð éýñéĩð ǻĩððçñǻðçðß óóĩĩ òðĩßĩ Ý ÷ òĩĩ ðñüóǻǻóç ïüĩ Ũéééé FTP ǻĩððçñǻðçðÝò. Áóòüð ò ǻĩððçñǻðçðð ǻßǻéé ǻĩüóóüð ùò ftp-master. ¼óǻĩ ç Ýéǻĩóç ǻßǻéé Ýóĩéĩç, ðñÝðǻé íǻ ǻçĩǻñüèĩýĩ óǻ ðǻñǻéŨòü ǻñ ÷ ǻßǻ óóĩĩ ftp-master:

5.1 Äçĭēĩōñāßá ÐñĩóáñĩĩóĭÝĩuĭ Āéóēāōōpĭ Āēēßĭçóçð.

ÐĩēēÝð āēēāóáóōŨóāēð Ý÷ĩōĭ ðĩēýðēĩēāð áðāēðPóāēð ðĩō ĩðĩñāß ĩā òç óāēñŨ ðĩōð ĩá áðāēðĩýĭ òçĭ ðñĩōēPēç ðñāēóóóūðāñĭ ĩāçāpĭ P āñāāēāßĩ ÷ñPóçç òóēð āēóēÝððāð āāēāðŨóóáçðð. Ĩ “ĩðāēŨēēēĩð” òñũðĩð ĩá òĩ ēŨĩāðā áððũ āßĩāē ĩá ēŨĩāðā òēð āēēāāÝð óāð òñĩ ēāðŨēĩāĩ ðĩō Ý÷āē āðĩēĩŨóāē ĩāðŨ òĩ òÝēĩð òçð ç āēāāēēāóßá make release:

- ÐāñŨóðā òā patches óāð P ðñĩōēÝóðā òā āðēðēÝĩĩ āñ÷āßā ĩÝóā òñĩ ēāðŨēĩāĩ chroot òçð Ýēāĩóçð.
- `rm ${CHROOTDIR}/usr/obj/usr/src/release/release.[59]`
- ĩāðāāēũððóðā ðŨēē òĩ sysinstall(8), òĩ ðñPĩā, P ũðĩēā Ũēēā ðñĩāñŨñāðā Ý÷ĩōĭ āðçñāāóðāß áðũ òēð āēēāāÝð óāð.
- `chroot ${CHROOTDIR} ./mk floppies`

Ĩē ĩÝāð āēóēÝððāð āāēāðŨóóáçðð ēā äçĭēĩōñāçēĩýĭ òñĩ ēāðŨēĩāĩ \${CHROOTDIR}/R/stage/floppies.

ĀĩāēēāēðēēŨ, ĩðĩñāßðā ĩá ÷ñçóēĩðĩēPóāðā òĩ make target boot.flp, P ĩðĩñāßðā ĩá òñÝĩāðā áðāðēāßāð òĩ script ðĩō äçĭēĩōñāßāß òā òðððPĩāðā āñ÷āßĩ src/release/scripts/doFS.sh.

Ĩðĩñāßðā āðßçðð ĩá ēāñĩßðāðā þóðā āēēÝð óāð āēēāāÝð ĩá ðñāāóóĩýĭ ĩā ĩññðP patch òçĭ Ýēāĩóç ũðũð ēā òēēŨ÷ĩāðāē, āßñĩðāð òēĭP òçĭ ĩāðāāēçðP LOCAL_PATCH ũðāĩ òñÝĩāðā òçĭ āĩðĩēP make release.

5.2 Ðñĩāñāĩāðßæĩĩóāð òĩ sysinstall

Ŗĩ āñāāēāßĩ āāēāðŨóóáçðð ēāē ñýēĩóçðð òĩō FreeBSD, òĩ sysinstall(8), ĩðĩñāß ĩá ðñĩāñāĩāðēóðāß āēā ĩá ēŨĩāē ðēĩ āýēĩēāð òēð áðññāðĩðĩēçĭÝĩāð āāēāóáóōŨóāēð òā ðĩēēŨ ĩç÷āĩPĩāðā. Áððũ òĩ ÷āñāēðçñēóðēēũ òĩō ðñĩāñŨñāðĩð ĩðĩñāß ĩá ÷ñçóēĩðĩēçēāß òā òñĩāðāóĩũ ĩā òĩ PXE[13] òçð Intel āēā ĩá ĩāēēĩPóāē ç āāēāðŨóóáçðð áðũ òĩ āßēððĩ, P òā òñĩāðāóĩũ ĩā ðñĩóáñĩĩóĭÝĩāð āēóēÝððāð āēēßĭçóçðð ēē Ýĩā sysinstall script. ĩá ðāñŨāāēāĩā áðũ òÝðĩēĩ sysinstall script ĩðĩñāßðā ĩá āñāßðā òðĩ āñ÷āßĩ src/release/sysinstall/install.cfg.

6 ĩāēPĩāðā ðĩō ÐPñāĩā áðũ òçĭ êäĩóç 4.4 òĩō FreeBSD

Ç āēāāēēāóßā āðĩēĩāðāð òçð Ýēāĩóçð 4.4 òĩō FreeBSD ĩāēßĭçðā āðßçĭā òçĭ ĩç Áðāĩýóðĩð 2001. ĩāðŨ áðũ áððP òçĭ çĭāññçĩßā, ũēāð ĩē āēēāāÝð òñĩ ēĩñĩũ RELENG_4 òĩō FreeBSD Ýðñāðā ĩá Ý÷ĩōĭ Ýāēñēóç áðũ òçĭ ĨŨāā ĨñāŨñóçð òñĭ Āēäüóäñĭ <re@FreeBSD.org>. Ç ðñPðç āĩēēĩāóðēēP Ýēāĩóç āēā òçĭ āñ÷ēðāēðĩēēP x86 Ýāēĩā āēāēÝóēĩç òóēð 16 Áðāĩýóðĩð, ēē āēĩēĩðēPēçēā áðũ 4 āēũĩā āĩēēĩāóðēēÝð āēäũóāēð ðĩō ĩāPāçóāĩ òçĭ òāēēēP Ýēāĩóç òóēð 18 òĩō ÓāððÝĩāñç. Ĩ òðāýēðñð áóðŨēāēāð Ýðāēĩā òçĭāĩðēēũ ñũēĩ ēāðŨ òçĭ āēŨñēāēā òçð òāēāððāßāð āāāñŨāāð ēāēþð ēŨðĩēā ðñĩāēPĩāðā áóðŨēāēāð āñÝēçēāĩ òā ðñĩçāĩýĩāĩāð, āĩēēĩāóðēēÝð āēäũóāēð. ÓññēēēŨ, ðŨĩũ áðũ 500 email òðŨēēçēāĩ òçĭ ĨŨāā ĨñāŨñóçð òñĭ Āēäüóäñĭ <re@FreeBSD.org> òā āēŨóçĭā ĩēēñũðāñĩ áðũ Ýĩā ĩPĩā.

Ç ēēĩēũðçðā òñĭ ÷ñçóðP ĩāð Ýēāĩā óāðÝð ũðē ç áóðŨēāēā ēāē ç óðāēāñũðçðā ĩēāð Ýēāĩóçð āāĩ ēŨ 'ðñāðā ĩá ēððēŨæāðāē āēā ēāĩāĩũð āßāĩðð ðñĩēāóĩßāð P çĭāññçĩßāð ðĩō Ý÷ĩōĭ òāēāß óāĩ òðũ÷ĩē áðũ ðñēĩ. Ŗĩ FreeBSD Ý÷āē ĩāāāēþóāē āñāĩāðēēŨ ēāðŨ òç āēŨñēāēā òçð æũPð òĩō óāĩ óýóçĭā, ēāē ç āĩŨāēç āēā óðāēāñēēĩÝĩç ðĩēēðēēP ēāē ĩñāŨñóçð āēā òçĭ äçĭēĩōñāßā ĩÝũĩ āēäũóäñĭ āßĩāē ðēÝĩĩ óāĩāñP ðñāēóóóūðāñĩ áðũ ðĩōÝ. ÁððP ç āĩŨāēç ēā āßĩāē āēũĩā ðēĩ çĭāĩðēēP ēāēþð òĩ FreeBSD ēā āñ÷āßāē ĩá ĩāðāýŨñāðāē òā ĩÝāð ðēāððũñĩāð.

7 ÎäëïïôëéÝò Êáôáðëýíóáëò

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

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

8 Æ÷áñéóóßáð

Èá ðëáëá íá áð÷áñéóððóù ðñí Jordan Hubbard, ðîð ïñó Ýäüóá òçí ððëáëñßá íá ðÛññ ëÛðíëá áðü òçí áðëýíç òçð Ýëáíóçð 4.4 ðîð FreeBSD, éáëðð éáë áëá ïëç òçí ðñëáëéÛ ðîð Ý÷áë ëÛíáë áðð éáë ÷ññíéá áëá íá áßíáë ðñí FreeBSD áððü ðîð áßíáë óðíáñá. ÕðëéÛ, ç Ýëáíóç ááí éá ðóáí ðñóÝ áðíáðñí íá ïñíëçññëáß ÷ññßð ïëç òçí ó÷áðëëð ïá òçí Ýëáíóç ðñëáëéÛ ðîð Ýéáíáí ïé Satoshi Asami <asami@FreeBSD.org>, Steve Price <steve@FreeBSD.org>, Bruce A. Mah <bmah@FreeBSD.org>, Nik Clayton <nik@FreeBSD.org>, David O’Brien <obrien@FreeBSD.org>, Kris Kennaway <kris@FreeBSD.org>, John Baldwin <jhb@FreeBSD.org> éáë ïñíë ïé ððñíëéðñé ðîð áð÷ññíýíóáë ïá òçí áñÛððñíç ðîð FreeBSD. ÈÝëü áðßóçð íá áð÷áñéóððóù ðñðð Rodney Grimes <rgrimes@FreeBSD.org>, Poul-Henning Kamp <phk@FreeBSD.org>, éáë ïñíðð ðñðð Ûëëíðð ðñó ðñáÛóççáí áëá íá ððëÛñííí ðá ðñááëáßá áëá ðëð ðëüüóáëð ððëð ðñððáð ïÝñáð òçð äçíëíðñáð ðñó FreeBSD. Áððü ðñ Ûñëñí Ý÷áë áðçñááóðáß áðü éáßíáíá ó÷áðëëÛ ïá òçí ïñÃÛîóç òùí Æëüüóàùí áðü ðñ CSRG[14], òçí ïñÛá ðñó NetBSD[11], éáë òçí ðññóðáóç áëá ïéá ðëááëéáóßá ïñÃÛîóçð òùí Æëüüóàùí 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
- [7] FreeBSD Core-Team http://www.FreeBSD.org/doc/en_US.ISO8859-1/articles/contributors/staff-core.html
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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>)