

# 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 \$

Áðòù òĩ Ũñèñĩ ðãñéãñŨöáé ôçĩ áĩòéĩãððéóç éáé ĩñãŨíùóç ôçò ñŨãáð áĩŨððòĩç òĩõ FreeBSD, ùóĩĩ áðĩñŨ óôçĩ ðñĩãðòĩéĩáóßá ðĩéĩðééðĩ äêäüóãùĩ òĩõ ÊäéðĩðñäéçŸ Óðóðßĩáðĩð FreeBSD. Áĩçããß ĩã äãððñŸñäéá ôçĩ ĩãèĩäĩèĩãßá ðĩõ ÷ñçóéĩðĩéĩãßóáé äéá ðéð äðßóçĩãð äêäüóãéð òĩõ FreeBSD éáé ðãñéãñŨöáé óá ãñãáéãßá ðĩõ äßĩáé äéáéŸóéĩá óá ùóĩðð áĩáéáðŸñĩóáé ĩá ðãñŨĩĩðĩ ðãñãĩãðñĩðĩéçĩŸĩãð äêäüóãéð òĩõ FreeBSD äéá áóùðãñéèèè ð ãĩðĩñéèè ÷ñðóç éáé áĩŨððòĩç ðñĩũĩĩðùĩ.

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## 1 Áéóáãũãð

Ç áĩŨððòĩç òĩõ FreeBSD äßĩáé ĩéá ðĩéçĩ áñé÷ðð äéãäééãóßá. Òĩ FreeBSD áðĩðãéãßóáé äðũ óóĩãéóóĩñŸð ÷éééŨãũĩ áĩèñðùĩ äðũ ùéĩ òĩĩ èũóĩĩ. Ç ñŨãá òĩõ FreeBSD ðãñŸ ÷äé ðñũóãáóç ĩŸóũ áĩðĩðĩð CVS[1] óá ùéĩðð, Ÿðóé þóðã ĩá ĩðĩñãß ùðĩéĩð èŸéäé ĩá ääé ĩçĩçĩáðá log, äéãðĩñŸð (patches) ðĩõ Ÿ÷ĩðĩ óá äéŨöĩñã development branches, éáé Ũéëã ÷ãñãéðçñéóóééŨ ðĩõ äĩçèçĩçĩ ôçĩ áĩŨððòĩç, óá ĩðĩßá ðñĩéçððĩðĩ äðũ ôçĩ ÷ñðóç áĩũð áðððçñĩç óðóðßĩáðĩð äéã÷ãßñéóçð èðäééá. Áðòù áðĩðŸéãóá éáé òĩĩ ðéĩ óçĩáĩóéèũ ðãñŨĩĩðá Ÿéĩçð äéá Ÿĩá ĩããŨéĩ äñéèũ äðũ óáéáĩðĩç÷ĩð ðñĩãñãĩĩáðéóðŸð äðũ ùéĩ òĩĩ èũóĩĩ óóĩ FreeBSD. Áßĩáé ðñĩðáĩŸð, äŸãáéá, ðùð ðĩéçĩ óçĩðñã éã äß÷ã äßĩáé áĩðãèèð ÷ãĩðéèè ç éãðŨóðáóç áĩ äß÷ãĩ ùéĩé, äðũ ùéĩ òĩĩ èũóĩĩ, ðñũóãáóç ĩá ãñŨðĩðĩ óóĩ èðäééá. Äé’ áðòù, ĩũĩ ĩéá “ãðééããĩŸĩç” ñŨãá äðũ ðãñßðĩð 300 Ũðñã Ÿ÷ĩðĩ ðñũóãáóç ĩá ãñŨðĩðĩ óóĩ CVS repository. Áðòĩß ĩé committers[6] äßĩáé ððãçéðñĩé äéá òĩ ĩããáéçðãñĩ ĩŸñĩð ôçò áĩŨððòĩçðð ðĩõ äßĩãðáé óóĩ FreeBSD. ĩéá

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Ίε οά÷ýðάοίε ηόειηβ άίΰððσίçð οίò FreeBSD άάί άòßíοί έάέ ðíεý ÷ ηύíí άέά οί ίάέάέΰñέοίά οίò όóόóßíάοίð άίΰððσίçð όά ίέά Ύέαιόç ίά ðίέυόçόά ðíò ίά άίβæάέ ίά ÷ ηçέοίίðίέάßόάέ άòñΎύð. Άέά ίά έðέåß άόòυ οί άβέέçíá, ç άίΰððσίç άßíάόάέ όάόòυ÷ ηίíá όά άοί ðάνΰέέçέά ίίíðΰόέά. Ί έýñέíð έίíñυð άίΰððσίçð άßíάέ í **HEAD** þ *trunk* όόί CVS repository ίάð, άίυόóòυð έάέ υò “FreeBSD-CURRENT”, þ “-CURRENT” άί όóίòñßά.

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Ἄεά íá áñòðçñáðòçείγí íé ðεí ðοιòçñçðέεíβ ÷ ñÞòðáð íáð, íá Ἰέαίòç ðñ FreeBsd 4.3 áñ÷βóáíá íá ÷ ñçòçείñðíεíγíá íá÷÷ñέóóγíò εíñíγý ðεáυóáυí. Ἀðòíβ íé εíñíβ áçíεíñáγíóáε εβáí ðñβí ððέá÷ðáβ ç ðáέέεβ Ἰέαίòç. ÍáðÜ ðçí áíáεíβñυòç ðçð Ἰέαίòçð, íυñ ðíεγ óçíáíðέéÝð áεéááÝð εáε ðñíòεÞεáð ó÷áðέéÝð íá ðçí áóðÜεάá áβñíóáε ððíí εíñíυ ðçð Ἰέαίòçð. Ἀέυòð áðυ ðçí áñíáðυðçðá áíááÜείεòçð íÝóυ CVS, áðáεÝóεíá patchkits ððéÜ÷ñíóáε áεá íá ðíñíγí íá áíáááεíβóíòí ðá ððððÞíáðÜ ðíðð υóίε ÷ ñçòçείñðíεíγí ðéð ðεáυóáéð *RELENG\_X\_Y*.

Οι ΌιΠια 2 αϊçããß íà åãððñŸñæãð ðã æÛöïñã ððÛæã ðçð ææãææãðßãð ðï ãñßöæãðæ ðßóù æðu èÛæ Ýæãïç, ìŸ ÷ ñé ææ ðã æΠιαðã ðï ðãçãŸŸ ðçðŸ ìãðãæððöéç ðï ððððΠιαðïð ææ ðï ÒïΠια 3 αϊçããß ðçŸ Βæã ðç ææãææãðßã ðçð ìãðãæððöéçð. Òï ÒïΠια 5 ðãñæãÛöæ ðùð ðŸñãß íã ððæðæãß ðï æãóæù óŸðçŸã æðu ðñßïðð ææ ðï ÒïΠια 6 ðãñæãÛöæ èÛðŸæ æðu ðã ðñÛãðã ðï ìÛæì æðu ðçŸ ææãææãðßã Ýæãïçð ðï FreeBSD 4.4. ÕŸæð, ðï ÒïΠια 7 ðãñïðöæÛææ èÛðŸæð æðu ðöð æãðæðŸŸãðð ðï èŸæŸïã íã ðÛñæ ç æŸÛððŸç ððï ìŸæŸŸ.

2 Ç Äéääéêáóßá Äçïéïõñãßáo ìéáò êäïóçò

Ίε ϊΎαο αεαυοάοδ οΐο FreeBSD οοεΰ÷ ρΐοάε αδϋ οΐϊ -STABLE εΐνϋ αΐΰδδοΐοδ δαΐβδϋο εΰεα οΎϋοάναοδ ϊΐΐαδ. Ϙ αεαεεεαοβα δΐναΐοεΐαοβαδ ιεάο Ύεαΐοδ ϊαεεΐΰαε ο÷ ααϋ 45 ϊΎναδ δΐεϊ οϘϊ αΐαΐαϋαΐϘ ϘαΐΐΐϘϊβα Ύεαΐοδ, υοαϊ ϊ οδΎγεοΐοδ αεαυοαϋ οΐο FreeBSD οοΎεΐαε Ύΐα αΐΰαα οοεδ εβοαδ οαϊ δΐναΐαααοεοοϋρ αεα ϊα οδΐρεοϊοαε οοϋοδ δΐναΐαααοεοοΎδ υοε Ύ÷ ϊοϊ 15 ϊΎναδ εαεϋ ϊα εΰϋοϊ υδΐεαδ αεεααΎδ οΎεϋοϊ, δΐε οϊ δΰαααα οΐο εραεεα. ΊΎοα οα αοοϋ οΐϊ εαεϋ, δΐεεϊ δΐναΐαααοεοοΎδ εΰϋοϊ ιεα οαεϋΰ αδϋ αεεααΎδ δϋο Ύ÷ ϊοϊ ιαβΐαε δεΎϋ ρϋυοοΎδ υο “ϊαεαεαΐβοαοα MFC”. Ί υϋϋο MFC οϘαβΐαε “Merge From CURRENT” εαε δαΐεαΐΰοαε οϘϊ αεαεεεαοβα δΐναΐαααοδ

òĩō ēpāēēā iēāō äīēēiāōĩŸĩçð äēēāāpð áðü òĩĩ -CURRENT ðāēñāiāóēēü ēīñiü áĩŪððōĩçð óðĩĩ óðāēāñü -STABLE ēīñiü.

## 2.1 Ğāā÷iō Ēpāēēā

ŌñēŪiōā çĩŸñāð ðñēĩ òçĩ áĩāĩāĩüiāĩç çĩāññĩçĩā Ÿēāiōçð, ĩ ēpāēēāð òĩō repository áēóŸñ÷āðāē óā iēā ðāñbĩrāĩ “ēāēðóóŸñçóçð”. ĒāōŪ òç äēŪñēāēā áðððð òçð ðāñēüāið, üēāð iē äēēāāŸð óðĩĩ -STABLE ēīñiü ðñŸðāē iā Ÿ÷iōĩ òçĩ Ÿāēñēóç òçð Release Engineering Team <re@FreeBSD.org>. Ĩē äēēāāŸð ðĩō āðēōñŸðĩiōāē óā áððð òçĩ ðāñbĩrāĩ ðĩō äēāñēāb 15 çĩŸñāð ābĩāē:

- Äēīñēpóāēð āĩüóðĩĩ ðñĩāēçĩŪðüĩ.
- Äĩçĩāñpóāēð óðçĩ ðāēĩçñbùóç.
- ÄēēāāŸð ó÷āðēēŸð iā òçĩ áóðŪēāēā.
- ĨēēñŸð äēēāāŸð óðĩið ïāçāĩŸð óðōēāðĩ, üðüð ð÷. ç ðñĩōēðēç òüĩ IDs iŸüĩ óðōēāðĩ.
- Ĩðĩēāāððĩōā Ūēēç äēēāāp ðēóðāŸāē ç ñŪāā áĩŪððōĩçð üðē ðñŸðāē iā ābĩāē, iā òĩ áĩāĩāĩüiāĩ ðŪiōā ñbōēĩ.

ĨāōŪ òēð ðñpóāð 15 ĩŸñāð ēāēðóóŸñçóçð, òðēŪ÷iāðāē iēā äīēēiāóóēēp Ÿēāiōç āēā iā ÷ñçóēĩðĩēçēāb óāĩ äīēēĩp òçð ðāēēēpð Ÿēāiōçð ēāē ĩ ēpāēēāð áēóŸñ÷āðāē óā iēā ðāñbĩrāĩ “ðāāpĩāðĩð”. ðēŸĩĩ ābĩāē ðĩēŸ ðēĩ āŸóēĩēĩ iā ābĩiōĩ iŸāð äēēāāŸð óðĩ óŸóðçĩā, āēðüð ēē áĩ äēīñēpñĩiōĩ ēŪðĩēĩ ðĩēŸ òĩāāñü bugp ēŪðĩēĩ ðñüāēçĩā áóðŪēāēāð. ĒāōŪ òç äēŪñēāēā òĩō ðāāpĩāðĩð òĩō ēpāēēā, òĩōēŪ÷ēóðĩĩ ĩbā äīēēiāóóēēp Ÿēāiōç òðēŪ÷iāðāē ēŪēā āāāñŪāā, ĩŸ÷ñē iā ābĩāē Ÿōĩēĩç ç ðāēēēp Ÿēāiōç. Ōēð çĩŸñāð äēñēāpð ðñēĩ òçĩ ðāēēēp Ÿēāiōç, ç ñŪāā ðĩō ābĩāē òðāŸēðĩç āēā òēð āēāüóāēð ābĩāē óā óðĩā÷p āðēēĩēĩüĩbā iā òçĩ ñŪāā áóðŪēāēāð, òçĩ ñŪāā óðĩðpñçóçð òçð ðāēĩçñbùóçð, ēāē òçĩ ñŪāā óðĩðpñçóçð òüĩ ports, āēā iā āāāāēüēĩŸĩ ðüð üēā óā āðāñābðçðā ēīñŪðēā āēā iēā ðēpñç Ÿēāiōç ābĩāē āēāēŸóēĩā.

## 2.2 Ēbóóā ĀēŸā÷iō òçð Ōāēēēpð ēāiōçð

Ÿðāĩ āñēāðŸð äīēēiāóóēēŸð āēāüóāēð Ÿ÷iōĩ ābĩāē āēāēŸóēĩāð, Ÿ÷iōĩ äīēēiāóóðāb áðü āñēāðü ēüóĩĩ ēāē üēā óā òĩāāñŪ ēŸĩāóā Ÿ÷iōĩ áĩāēōēāb, ç ðāēēēp Ÿēāiōç ĩðĩñāb iā āñ÷bóāē.

### 2.2.1 Äçĩēĩñābā òĩō ēīñiĩŸ ēāiōçð

Ÿðüð ðāñēāñŪøāĩ òççĩ áēóāāüāp, ĩē ēīñiĩb RELENG\_x\_y ābĩāē iēā ó÷āðēēŪ iŸā ðñĩōēðēç óðçĩ ĩāēĩāēĩābā òüĩ āēāüóāĩ iāð. Ōĩ ðñpðĩ āpĩā òççĩ äçĩēĩñābā áðōĩŸ òĩō ēīñiĩŸ ābĩāē iā āāāāēüēābðā üðē āĩōēāŸāðā iā òçĩ ðāēāðóābā Ÿēāiōç òĩō ðçāābĩð ēpāēēā áðü òĩĩ RELENG\_x ēīñiü áðü òĩĩ iðĩbĩ ēā òðēŪiāðā òĩ iŸĩ ēīñiü.

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

Ōĩ āðüiāĩ āpĩā ābĩāē iā äçĩēĩñāpóāðā iēā āðēēŸðā (tag) óðĩ óçĩābĩ āēēbĩçóçð òĩō ēīñiĩŸ, póðā iā ĩðĩñābðā iā āābðā òēð āēāöĩñŸð iā òçĩ āñ÷p òĩō ēīñiĩŸ āŸēĩēā óðĩ ĩŸēēĩ iā òĩ CVS:

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

Ēāē òüðā ĩðĩñābðā iā äçĩēĩñāpóāðā òĩ iŸĩ ēīñiü 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 “*ἀόεεΥόα*” ἀβίαέ ι̃ι̃ι̃ι̃ε̃α̃β̃α̃ ο̃ι̃ο̃ CVS. Ὁ̃ϋ̃α̃β̃ι̃α̃έ̃ Ὑ̃ι̃α̃ ũm̃ã ο̃ι̃ο̃ ε̃α̃ε̃ι̃ñβ̃α̃ε̃ ι̃ε̃α̃ ο̃α̃ε̃α̃ε̃ñε̃ι̃Υ̃ι̃ϋ̃ Ὑ̃ε̃ãĩõς ο̃ι̃ο̃ ε̃p̃ãẽẽã ο̃õĩ ÷ ñũĩĩ. × ñϋ̃õẽĩĩõĩẽp̃ĩõãõ ἀõẽẽΥ̃õãõ ο̃õĩĩ δ̃ϋ̃ããb̃ĩ ε̃p̃ãẽẽã ãr̃ϋ̃ẽŨĩã ũõĩẽĩĩ õõẽŨĩãẽ ο̃õĩ ĩΥ̃ẽẽĩĩ ãẽãũõãẽd ο̃ĩõ FreeBSD ĩã ãñβ̃õẽãẽ ε̃ãẽ ĩã ÷ ñϋ̃õẽĩĩõĩẽãb̃ ãẽñẽãp̃õ õĩĩ β̃ãẽĩ ε̃p̃ãẽẽã ο̃ĩõ ÷ ñϋ̃õẽĩĩõĩẽp̃ẽϋ̃ẽã ãẽã õẽd ãδ̃β̃õϋ̃ĩãd ãẽãũõãẽd ο̃ϋ̃õ ḥ̃Ũããd ο̃ĩõ FreeBSD.

### 2.2.2 ÁóïÛííîáò ôíí Áñéèü êäïóçò

Ἐνῆι ἰθαῖ ἡ ἀοέεΥόα, ἰαοάαεουοοεοοάβ ἑαῖ ἀοιείαοοάβ ἡ οάεεῒβ Υέαιόρ, ὃνΥθαῖ ἰά ἀβῖῖό ἡεῖάαΥό οοά ὃαῖάεῒου  
 ἀῖ÷άβ ἡεῖ ἰά ὃαῖεΥ÷ῖό ὃῖ ὅουοῒ ἀῖεῖῒ Υέαιόρὃ ἡεῖ ὃῖ 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 äðäēöāßöáē áēá öçí ÖöēēīāP öñí Ports. ÁöðÝð íē ðēçñīöññāð öðÜñ÷īōí öóī āñ÷āßī  
src/release/sysinstall/dist.c.

Áoīŷ iēēēçñùēāß ç ðñīāōīēīāóāß ôçð iŷáð āðßôçīçð Ýēāiōçð, ðñÝðāē íā áīçīāñþóāðā iāñēēŪ āñ÷āßā āēā íā áīçīāñþóāðā ôīī ēüōīī āēā ôç iŷá Ýēāiōç ôiō 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 Āçīēīōñāßā òuī Āōēēāðī ôçð ēāiōçð

¼ðāí ç ðāēēēß Ýēāiōç āßīāē Ýōīēīç, ç ðāñāēŪðū āīōīēß ēā āçīēīōñāþóāē ôçī āōēēÝðā `RELENG_4_8_0_RELEASE`.

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

İē ððāŷēðñē ôçð Ōāēīçñßüôçð ēāē òuī Ports āßīāē āðōīß ðiō ðñÝðāē íā āçīēīōñāþóīōī ðēð āōēēÝðāð `RELEASE_4_8_0` óðā ēāðŪēēçēā āŷīōñā ðçāāßiō ēþāēēā.

İāñēēÝð òīñÝð, iðñāß íā ÷ñāēāóðāß íā āßñōī ēŪðīēāð āēēāāÝð ðāēāððāßā óðēāīß *iāðŪ* ôçī ôīðīēÝðççç òuī āōēēāðī. ĀāīēēŪ, āāī āßīāē āŷōēīēī íā āßīāē ēŪðē ôÝōīēī áoīŷ ôī CVS āðēðñÝðāē íā iāðāēēīþóāē ēŪðīēið ðēð āōēēÝðāð iā āīōīēÝð ùððð `cvs tag -d tagname filename`. Āßīāē ðīēŷ óçīāíðēēü ùiðð áððÝð iē āēēāāÝð ôçð ðāēāððāßāð óðēāīþð íā óçīāēüēīŷ iā ðēð óuóðÝð āōēēÝðāð āēā ôçī óðāēāēñēīŷīç Ýēāiōç. İē āðßôçīāð āēāüóāēð ôiō FreeBSD ðñÝðāē íā āßīāē ðŪiðā āŷēīēī íā āíāðāñā÷ēīŷī. ŌīðēēÝð āēēāāÝð óðī ðāñēāŪēēēī ôiō iç÷āīēīŷ òuī āēāüóäüī āāī āðēðñÝðīðāē.

## 3 İāðāāēþððēóç ôçð ēāiōçð

İē “āēāüóāēð” ôiō FreeBSD iðñīŷī íā iāðāāēüððēóðīŷī áðü iðīēīñāþðīðā Ý÷āē Ýíā ó÷āōēēŪ āñþāñī iç÷Ūīçīā ēāē ðñüóāāóç óðī repository ôiō ðçāāßiō ēþāēēā. (¼ēīē Ý÷iōī áððß ôç āōīāðüðçðā, áoīŷ ðāñÝ÷iōiā ðñüóāāóç iŷóü āīþiðīō CVS! Āāßðā ôī Āā÷āēñßāēī ôiō FreeBSD āēā ðāñēóóüðāñāð ēāððñÝñāēāð.) Ç iūīç āēāēēß āðāßôççç āßīāē íā ððŪñ÷āē ððīððñēīç óðīī ððñþīā óāð āēā ôçī óððēāðß `vn(4)`. (Ōðī `-CURRENT`, áððß ç óððēāðß Ý÷āē āíðēēāðāóðāēāß áðü ôçī iŷá óððēāðß āßôēið āāóēōīŷñō óā iīþīç `md(4)`.) Áí ç óððēāðß āāī āßīāē āíóüiāðüŷīç óðīī ððñþīā óāð, ðüðā i ēāðŪēēçēīð iāçāüð ēā òñðüñēāß āððüiāðā üðāí āēðāēāóðāß ç āíðēēß `vnconfig(8)` ēāðŪ ôç āēŪñēāēā ôçð òŪôçð ðōīēīāóßāð ôiō iŷóīð āēēßīçççð. ¼ēā óā āñāāēāßā ðiō ÷ñāēŪæñiðāē āēā íā iāðāāēüððßóāðā iēā Ýēāiōç āßīāē āēāēÝóēīā óā iññðß ðçāāßiō ēþāēēā óðīī ēāðŪēēēī `src/release`. ÁððŪ óā āñāāēāßā Ý÷iōī üð óēīðü íā ðāñÝ÷iōī üðē ÷ñāēŪæñiðāē āēā íā ÷ðæñiðāē iē āēāüóāēð ôiō FreeBSD iā Ýíā óōīāðß ēāē óðāēāēñēīŷñ òñüðī. İēā ðēþñçð Ýēāiōç iðñāß íā iāðāāēüððēóðāß ÷ñçōēīðīēþīðāð áððŪ óā āñāāēāßā iā iēā ēāē iūñī āíðēēß, óðīðāñēēāiāññŷīçð ēāē ôçð āçīēīōñāßāð āñüð ISO āñ÷āßiō ēāðŪēēçēī āēā íā ēāāß óā CDROM, iē āēóēÝððāð āēēßīçççð, ēāēþð ēāē i ēāðŪēēçēīð āāēāðŪóðāóçð iŷóü FTP. Áððß ç āíðēēß āßīāē òððēēß ç `make release`.

### 3.1 Ç āíðēēß `make release`

Āēā íā iāðāāēüððßóāðā āðēð÷þð iēā Ýēāiōç, ðñÝðāē ðñþðā íā ððŪñ÷iōī óā ēāðŪēēçēā āñ÷āßā iŷóā óðīī ēāðŪēēēī `/usr/obj`. İðñāßðā íā óā āçīēīōñāþóāðā āßðā iā ôçī āíðēēß `make world` þ āðēŪ `make buildworld`. Āēā íā

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 óðñí 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 òñí èðáééá ðîõ FreeBSD, ìðíáððá ðÛíóá íá òðéÛíáððá 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, óðí áñ÷-áßí /usr/share/examples/cvsup/cvs-supfile, òí ìðíßí ìðíáððá íá ÷ ñçóéíðíéçéäð áéá íá áíðéáñÛððá òí CVS repository ðîõ FreeBSD óðí áéëü óáð ðíðéëü mirror.

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

ÕðÛñ÷-íðí éáé ðíéëÝð Ûëëäð ìáðááëçðÝð ðîõ ìðíñíí íá ÷ ñçóéíðíéçéçíí áéá íá ðáñáíáðñíðíéçéäððá òçí Ýêáîóç óáð. Ìé ðéí ðíéëÝð áðü áððÝð ðéð ìáðááëçðÝð ðáñéáñÛñíðáé óóçí èíñðð ðîõ áñ÷-áßíð src/release/Makefile. Ç áêñéáðð áíðíëð ðîõ ÷ ñçóéíðíéçéçéä 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 ÷ ñçóéíðíéçéäð áéá íá ìáðááëüðððáíðáé ìé áêüüóáéð ìðíáß íá ÷ ùñéóðáß óá áñéäðÛ ìá÷-ùñéóðÛ ìáðáíý ðîõð áðíáðá.

- Äçíëíðñáß áñüð éáéáññí ðáñéáÛëëíððð óá íéá ìá÷-ùñéóðð éáñáñ÷-ßá éáðáëüüí ìá òçí áíðíëð “make installworld”.
- Áíáñüáß áðü òí CVS ìéáð éáéññéáð 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 áðíéíÛóðçéä, 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 ðáéééñí éáðáëüüíð óðñí ìðíßí èá ìáðááëüðððéóðííí éáé èá áðíèçéäððéñíí ìé áêðáëÝóéíð ìñðÝð òñí ðáéééðí 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 óðñíáññíðí òçí Ýêáîóçð.
- Ìáðáðñíðð éáé ááéáðÛóðáóç òçð ðáêñññüóçð (áá÷-áéñßáéá ÷ ñððóç, áéóáñüáééÛ éáßíáíá, óçíáéðáéð Ýêáîóçð, èßððáð óðíááðððçðáðð ðéééñí, èëð.)

- Ἰἀὸἀἔῑῖῑῑῑῑ ὁὐὶ “ῑῑῑῑῑῑῑῑῑῑ” (crunched) ἁῑῑῑῑῑῑῑῑ ῑῑῑ ῑῑ ÷ ῑῑῑῑῑῑῑῑῑῑῑῑ ῑῑῑῑ ἁῑῑῑῑῑῑῑῑ ἁῑῑῑῑῑῑῑῑῑῑῑῑ.
- Ἀῑῑῑῑῑῑῑῑῑ ὁὐὶ ῑῑῑῑῑῑ ὑῑῑ ἁῑῑῑῑῑῑῑῑῑῑῑ ῑῑῑ ὁὐὶ ῑῑῑῑῑῑ ῑῑῑῑῑῑ ῑῑῑῑῑῑ.
- Ἀῑῑῑῑῑῑῑῑῑ ὁὐὶ ῑῑῑῑῑ ἁῑῑῑῑῑῑῑ ῑῑῑ ὑῑῑ ἁῑῑῑῑῑῑῑῑῑ “fixit”.
- Ἀῑῑῑῑῑῑῑῑῑ ὑῑῑ ῑῑῑῑῑ ÷ ῑῑῑ ῑῑῑῑῑῑῑῑ ἁῑῑ ὑῑῑ ἁῑῑῑῑῑῑῑῑῑῑ ῑῑῑῑῑ FTP.
- (ῑῑῑῑῑῑῑῑῑῑῑῑ) Ἀῑῑῑῑῑῑῑῑῑ ὁὐὶ ISO ἁῑ ÷ ἁῑῑῑ ἁῑῑ ῑῑῑῑῑ CDROM/DVD media.

Ἄέα δᾱνερόουόᾱᾱᾱ δῆçᾱᾱᾱᾱᾱ ὁ ÷ ᾱόέέῤῥ ἰᾱ ὁçῖ ᾱέαᾱέαᾱόβᾱ ᾱçῖέῖᾱᾱᾱ ἰέαό ῤῇᾱᾱόçð, ᾱᾱᾱᾱ ὁçῖ ὁᾱῇᾱᾱ ὁᾱῇᾱᾱᾱᾱᾱᾱᾱ release(7).

### 3.2 Installing XFree86

Οι αναορέου δανέαΰεερί **XFree86** άβιάε Υία ογίαφοέου ένιΰόε εΰεά Υέαιροδ άεά δρεϊγδ ÷ nΠόόάο διό εΰεϊοί οι FreeBSD άεά οόάειργδ άναάόόάο. Δνείρ ογί Υέαιροδ 4.6-RELEASE οίρ FreeBSD, ιε άδβόγιάο άέαιυόάέο οίρ FreeBSD ÷ ηγέοίιδιεϊγύοάί ογί Υέαιροδ 3.x ούι **XFree86**. Ι δέι άγέρεϊο όνιΰιό ιά ιάόάέυοόδβόάόά άοόΥό όέο άέαιυόάέο άβιάε ιά ÷ ηγέοίιδιεϊΠόάόά οί δνιΰάηάιά src/release/scripts/X11/build\_x.sh. Άόου οί δνιΰάηάιά άδάέοάβ ιά άβιάε Παγ όογίΥία οόι ογύογίΰ όάο όυοί οί δανέαΰεερί XFree86 υοί έάε ç άεΠόόά Tcl/Tk. Ιάόΰ όγί ιάόάάεΠόόέογ όυί έάόΰεέγέυι X servers, οί δνιΰάηάιά έά δάέάόΰηάε υέά όά άη÷άβ άά όόέεϊάΥό άη÷άβιι διό δανέιΥίάε ιά άηάε οί sysinstall(8) ιΥόά όόιι έάόΰεϊάι XF86336 όόι ιΥόί άάέάόΰόόάόγδ.

Îâêîþñîáð ìà òçì Ýêäîç 4.6-RELEASE òñ FreeBSD, òì sysinstall(8) ââêâêéóðÛ òçì Ýêäîç 4.x òùì XFree86, óáí êâñíêÛ ðâêÝðá. ÁððÛ ìðññâ ìá âñâé âñðá ðá ðâêÝðá ðñ ìçìéýññçðá òì cluster òùì ports Þ ìðñââÞðñðá Ûêêâ ðâêÝðá ðñ Ý÷ìðì ìçìèðñâçêâ ððü Ýìá ports tree ìà òçì êâðÛêêçç ððêêÝðá.

**ΌγιαΒυός:** Άβιάς διέγ όγιαίοέου ίά άόάέγΥόαά άδύ οί άν· άβί /etc/make.conf τῶεάάπδῶά οῖόέγδ  
 ηέοιόάέό Υ· άάά εΥιάέ. Άέα άάηΥάάάίά, άάί άβιάς έάέπ έάΥά ίά άέάίΥίάά άέάέγΥόέά διῶ Υ· τῶί  
 ίάάάέουόόέόάβ όά εΥῶίέί όάάάέηέίΥίί όύόόγια ίά ηέέόίΥίς όγι όέιπ όςό ίάάάέςόπδ CPUTYPE άέα  
 άέέέόέόίτῶβςός όύί άέάέγΥόέίύί άέα εΥῶίέί όάάάέηέίΥίί άάάίηάάόόπ.

### 3.3 ÐñĩãñÛìáôá Ôñßôùí (“ports”)

Ο όμορφος ούρις Ports οἷο FreeBSD (<http://www.FreeBSD.org/ports>) ἀβιάς ιέα οἰομορφία ιὰ ὁμομορφία αἰὼν 20,000  
 ὁμομορφία αἰὼν ὁμομορφία, οἷο ἀβιάς ἀεὶ ὁμομορφία ἀεὶ FreeBSD. Ἰέ Ports Management Team  
[portmgr@FreeBSD.org](mailto:portmgr@FreeBSD.org) ἀβιάς ὁμομορφία ἀεὶ ὁμομορφία αἰὼν ὁμομορφία αἰὼν 20,000 αἰὼν ὁμομορφία ἀεὶ ὁμομορφία αἰὼν  
 ὁμομορφία ιὰ ὁμομορφία ἀεὶ ἀεὶ ὁμομορφία αἰὼν ὁμομορφία αἰὼν ὁμομορφία αἰὼν ὁμομορφία αἰὼν ὁμομορφία αἰὼν  
 FreeBSD.

Ç áéááéâáóáá óóíóâñçóçó òçó óóëëãðò òúi ports ááíáé êÛóé ðíó áái ìðñíñíá íá éáéýøíòíá áâð. íá íá÷÷ñéóóú Ûñèñí, ìá òâòëí Ç ÌñãÛíúóç,êáíóçó òúi ÐáéÝòúi Èíáéóíééý áðú Õñâòíòð (./releng-packages/article.html), éáéýððáé áóòú òí èÝíá.

### 3.4 Áñ÷ãßá ISO ôçò êäïóçò

Îăēēīīīōāō îă ôçī Ÿēăīōç 4.4 ôīō FreeBSD, ç ÏÛăă ÁŮÛôôīçô ôīō FreeBSD áðīŮŮōōă îă âēăŸīăē ēăē ôă ôŸōōăñă ISO ân÷ăăă ðīō ðñīōă ðīōēŸīōăī îē âôăēñăăăō *BSDi/Wind River Systems/FreeBSD Mall* ôôēô “ăðôçīăô” âēăñŸô CDROM ðīō Ÿēăīăī. ÊŮēă Ÿīă áðŮ ôă ôŸōōăñă ISO ân÷ăăă ðñŸðăē îă ðăñēŸ÷ăē Ÿīă ân÷ăăī README.TXT ðīō

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

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

Íé óðǎéǎêñéíÝíǎð áðǎéòßóǎéð ǎéǎ êÛêǎ Ýíǎ áðü áðòÛ òǎ CD ðǎñéǎñÛîîíóǎé ðǎñǎéÛòü:

### 3.4.1 Áßóêîõ 1

Í ðñðòîð ǎßóêîõ ǎßíǎé ó÷ǎǎüí áðîééǎéóóéêÛ áðîðÝéǎóíǎ òçð ǎíóîéßð make release. Íé ìüíǎð ǎééǎǎÝð ðîõ ðñÝðǎé íǎ ǎßñîí óóñí êáðÛêîñ disc1 ǎßíǎé ç ðññíóèßê ðîõ êáðÛêîñ tools, òüí XFree86, êéǎ üóî òî ǎóíǎóüí ðǎñéóóüðǎññí ðǎéÝòüí ìðññíý íǎ ÷ñÝóîí óóñí ǎßóêî. Í êáðÛêîñ tools ðǎñéÝ÷ǎé ǎñǎǎéǎßá ðîõ áðéòñÝðîí óǎ ÷ñßóðǎ Ûéèüí êǎéòîñǎéêñí óðóðçíÛòüí íǎ òðéÛñîí òéð ǎéóéÝððǎð ǎéêßíçóçð. Áðòüð ì ðñðòîð ǎßóêîõ ðñÝðǎé íǎ òðéÛ÷ǎðǎé bootable Ýðóé ðóðǎ íǎ ìðññíý íé ÷ñßóðǎð òüí ìüðÝññüí ððîéíǎéóðñí íǎ áðîðǎýǎñîí òî óðÛǎéí ǎçîéîñǎßáð òüí ǎéóéǎððñí ǎéêßíçóçð.

Áí íéǎ ǎéǎóñǎðéêß Ýéǎñóç òüí XFree86 êǎ ǎéǎíÝíǎðǎé ìǎ òçí Ýéǎñóç áðòß, ðñÝðǎé íǎ ǎçîññüèǎß òî ðñüǎñǎìǎ sysinstall(8) ǎéǎ òçí íÝǎ òÝóç êéǎ íé ñǎçǎßáð ǎǎéǎðÛóðǎóçð. Í ó÷ǎðéèüð êñǎééǎð òðÛñ÷ǎé óóñí êáðÛêîñ src/release/sysinstall óóñí -STABLE êññüß ð óóñí êáðÛêîñ src/usr.sbin/sysinstall óóñí -CURRENT êññüß. ÓðǎéǎêñéíÝíǎ, òǎ ǎñ÷ǎßǎ dist.c, menus.c, êéǎ config.c êǎ ÷ñǎéǎóðǎß íǎ ǎçîññüèíýí.

### 3.4.2 Áßóêîõ 2

Í ǎǎýðǎññð ǎßóêîõ ǎßíǎé áðßóçð áðîðÝéǎóíǎ òçð ǎíóîéßð make release êáðÛ Ýíǎ ìǎǎÛéí ìÝññð. Áðòüð ì ǎßóêîõ ðǎñéÝ÷ǎé Ýíǎ “live filesystem” ðîõ ìðññǎß íǎ ÷ñçóêîîðîéçêǎß áðü òî sysinstall(8) ǎéǎ íǎ ǎñǎðǎóóíýí ðññǎéßíǎðǎ óǎ íéǎ ǎǎéǎðÛóðǎóç òîõ FreeBSD. Êé áðòüð ì ǎßóêîõ ðñÝðǎé íǎ ǎßíǎé bootable. Êǎ ðñÝðǎé áðßóçð íǎ ðǎñéÝ÷ǎé Ýíǎ óóñíðéǎóíÝñí ǎíóßǎñǎóñ òîõ CVS repository óóñí êáðÛêîñ CVSROOT êéǎ ǎßǎìǎðǎ áðü ǎðññéêÛ ðññǎñÛñǎðǎ óóñí êáðÛêîñ commerce.

### 3.4.3 Áßóêîõ 3 êéǎ 4

Íé òðüéîéðîé ǎðñí ǎßóêîõ ðǎñéÝ÷ǎéí áðéðññüèǎðǎ ðǎéÝóǎ êñǎéóíééý ǎéǎ òî FreeBSD. Óǎ ðǎéÝóǎ êǎ ðñÝðǎé íǎ ǎßíǎé ñǎǎñðîéçíÝíǎ, Ýðóé ðóðǎ êÛêǎ ðǎéÝðñí íǎ ǎßíǎé óóñí ðǎéí ǎßóêî ìǎ üéǎ óǎ ðǎéÝóǎ áðü óǎ ñðñǎ ǎñǎñðÛóǎé ǎéǎ íǎ ǎǎéǎðǎóðǎéǎß êéǎ íǎ òñÝíǎé. ðǎñéóóüðǎññð ðêçñîîññßǎð ǎéǎ òçí ǎçîéîñǎßá áðòñí òüí ǎßóêüí ǎíǎóÝññíóǎé óóñí Ûñèññ Ç ÎñãÛîùόç êǎñóçð òüí ðǎéÝòüí Êñǎéóíééý áðü Òñßðîðð (../releng-packages/article.html).

## 4 Áéǎññß òüí Áêäüüóàùí

### 4.1 ÁñðççñǎðçðÝð FTP

¼ðǎí ç Ýéǎñóç ǎßíǎé Ýóîéíç, Ý÷ǎé ǎñééíǎóðǎß ǎéðǎñðð, êéǎ Ý÷ǎé ðǎéǎðǎñéóðǎß ǎéǎ ǎéǎññß, ì éýñéîð FTP ǎñðççñǎðçðð ðñÝðǎé íǎ ǎçîññüèǎß. Íé áðßóçñéé ǎñðççñǎðçðÝð FTP òîõ FreeBSD ǎßíǎé üéî mirrors ǎñüð éýñéîð ǎñðççñǎðçðð óóñí ñðññí Ý÷ǎéí ðññóǎǎóç ìüñ Ûééîé FTP ǎñðççñǎðçðÝð. Áðòüð ì ǎñðççñǎðçðð ǎßíǎé ǎñüðüð ùð ftp-master. ¼ðǎí ç Ýéǎñóç ǎßíǎé Ýóîéíç, ðñÝðǎé íǎ ǎçîññüèíýí òǎ ðǎñǎéÛòü ǎñ÷ǎßǎ óóñí ftp-master:



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

Ἰέα ἀδὲP web οἶθεBάα θῖτο δᾱνέY ÷ ᾰε ᾱᾱβεθᾱο ὀᾱ ᾷεÜöĩñῖτο ὄçɪáíðéēýð FTP éáóáëüāῖto ᾱέα ὁçɪ ὈñY ÷ ῖoóá Yéäiíoç öiῖ FreeBSD.

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

I éadóUeräidö ádu öir iðirBi iðinryí íá äBñröi ääéäóáóóÜöáéö iYóu FTP, üðüö öir Y÷äé ðñiäöieiÜöáé ç áföieP 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.

Ἀέα ᾄναε66ουδᾱῆῃδ̂ δεçñïröĩῇḅao ó÷âðéēŬ ia ôçĩ īṇāŬfùoç ôũĩ mirror áeáñḡḃð FTP öĩø FreeBSD, ᾄṇáeáēḡ ääḃôâ öĩ Ũñēñ ÖðeŬ÷fīŭôad Ýía FreeBSD mirror (/./hubs/).

[illegible]

#### 4.2 Àáæéêþ Áíáðáñáũùãþ ôúi CD-ROM

Ἐὰ σοὶ δὲ ἔχῃ νῦν ἐὰν ὀρίῃ: Ὅτι ἀνὰ τὴν ἑαυτοῦ ἰσοφύειν αἰσθάνεται τὸν FreeBSD ὅτι ἐὔδοκός ἐστι τοῦ ἰδίου καὶ ἐὔχρηστος ἰατρὸς ἀνὰ τὴν αἰσθάνειν, ἐὰν ἰῶν ἀνὰ τὴν ἑαυτοῦ ἰσοφύειν τὸν ἰδίου καὶ ἐὔχρηστος.

5 Åăăêôáóéìüôçôá

[illegible]

## 5.1 ĀçîēîōñāāĀ ĐñîóáñîîóíŸíuî ĀéóēāôôĀ ĀēēĬîççò.

ĐîēēŸ ãāēāóáóôŨóāēò Ÿ÷îŕî đîēýđēîēāò áđāēôĀóāēò đîŕ îđîñāĬ íā ôç óāēñŨ òîŕò íā áđāēôîŸí ôçî đñîóēĬēç đāñéóóúôāñuî îāçāĬ Ā āñāāēāĬuî ÷ñĀóôç óôēò āéóēŸôôāò āāēāôŨóóáóçò. Ĭ “îđāēŨēēēîŕ” òñuđîŕ íā òî ēŨíāôā áôôu āĬíāē íā ēŨíāôā ôēò āēēāāŸò óāò óôîŕ ēāôŨēîāî đîŕ Ÿ÷āē āôîēîŨóāē îāôŨ òî ôŸēîŕ ôçò ç āēāāēēāóĀā make release:

- ĐāñŨóôā óā patches óāò Ā đñîóēŸóôā óā āđēđēŸîí āñ÷āĀ íŸóā óôîŕ ēāôŨēîāî chroot ôçò Ÿēāîŕçò.
- `rm ${CHROOTDIR}/usr/obj/usr/src/release/release.[59]`
- ÎāôāēüôôĀóôā đŨēē òî sysinstall(8), òî đñĀĬíā, Ā üđîēā Ũēēā đñîāñŨîāóā Ÿ÷îŕî āđçñāāóôāĬ áđü ôēò āēēāāŸò óāò.
- `chroot ${CHROOTDIR} ./mk floppies`

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

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

ÎđîñāĬôā āđĀóçò íā ēāñîĬóāôā Āóôā āēēŸò óāò āēēāāŸò íā đāñāóôîŸí îā ïñôĀ patch óôçî Ÿēāîŕç üđüò ēā ôôēŨ÷îāóāē, āĬñîŕôāò ôēĬĀ óôçî îāôāāēçôĀ LOCAL\_PATCH üôāí òñŸíāôā ôçî āîŕîēĀ make release.

## 5.2 ĐñîāñāîîāôĬæîîóāò òî sysinstall

Œî āñāāēāĬî āāēāôŨóóáóçò ēāē ñŸēîŕçò đîŕ FreeBSD, òî sysinstall(8), îđîñāĬ íā đñîāñāîîāôēóôāĬ āēā íā ēŨíāē đēî āŸēîēāò ôēò áôôñîāôîđîēçîŸíāò āāēāóáóôŨóāēò óā đîēēŨ ìç÷āĬíāóā. Áôôu òî ÷āñāēôçñēóôēēu òîŕ đñîāñŨîîāôîŕ îđîñāĬ íā ÷ñçóēîîđîēçēāĬ óā óôŕîāôáóîu îā òî PXE[13] ôçò Intel āēā íā îāēēĬĀóāē ç āāēāôŨóóáóçò áđü òî āĬēôôî, Ā óā óôŕîāôáóîu îā đñîóáñîŕîŸíāò āéóēŸôôāò āēēĬîççò ēē Ÿíā sysinstall script. íā đāñŨāāēāîā áđü ôŸôîēî sysinstall script îđîñāĬôā íā āñāĬôā óôî āñ÷āĬî src/release/sysinstall/install.cfg.

## 6 ÎāēĬíāóā òîŕ ĐĀñāîā áđü ôçî êäîŕç 4.4 òîŕ FreeBSD

Ç āēāāēēāóĀā āôîēîāôĬāò ôçò Ÿēāîŕçò 4.4 òîŕ FreeBSD îāēĬîççā āđĬóçîā ôçî Ĭç ÁôāîŸóôîŕ 2001. ÎāôŨ áđü áôôĀ ôçî çîāññîçîā, üēāò îē āēēāāŸò óôîŕ ēîñîü RELENG\_4 òîŕ FreeBSD Ÿđñāđā íā Ÿ÷îŕî Ÿāēñēóç áđü ôçî Release Engineering Team <re@FreeBSD.org>. Ç đñĀôç āîēēîāóôēēĀ Ÿēāîŕç āēā ôçî āñ÷ēôāēôîŕēēĀ x86 Ÿāēíā āēāēŸóēîç óôēò 16 ÁôāîŸóôîŕ, ēē āēîēîŕēĬēçēā áđü 4 āēüîā āîēēîāóôēēŸò āēāüóāēò đîŕ îāĬāçóāí ôçîŕ ôāēēēĀ Ÿēāîŕç óôēò 18 òîŕ ÓāđôŸîāñç. Ĭ ôđāŸēôñô áóôŨēāēāò Ÿđāēíā ôçîāíŕôēēü ñuēî ēāôŨ ôçî āēŨñēāēā ôçò ôāēāôôāĬāò āāāñŨāāò ēāēĀô ēŨđîēā đñîāēĬíāóā áóôŨēāēāò āñŸēçēāí óā đñîçāîŸîāîāò, āîēēîāóôēēŸò āēāüóāēò. ÓôñîēēēŨ, đŨîŸ áđü 500 email óôŨēēçēāí ôçîŕ Release Engineering Team <re@FreeBSD.org> óā āēŨóôçîā îēēñüôāñî áđü Ÿíā îĬíā.

Ç ēîēîŸüôçôā òùî ÷ñçóôĬ íāò Ÿēāíā óāôŸò üôē ç áóôŨēāēā ēāē ç óôāēāñüôçôā îēāò Ÿēāîŕçò āāî ēŨ 'đñāđā íā ēôôēŨæāóāē āēā ēāíāŸüò āĬāŕôð đñîēāóîĬāò Ā çîāññîçîāò đîŕ Ÿ÷îŕî ôāēāĬ óāí óôü÷îē áđü đñēí. Œî FreeBSD Ÿ÷āē îāāāēĀóāē āñāîāôēēŨ ēāôŨ ôç āēŨñēāēā ôçò æüĀò òîŕ óāí óŸóóçîā, ēāē ç áŸŨāēç āēā óôāēāēñēîŸîç đîēēôēēĀ ēāē îñāŸîŸüôç āēā ôçî āçîēîōñāāĬ îŸüŕ āēāüóāùî āĬíāē đēŸîŸí óāíāñĀ đāñéóóúôāñî áđü đîŕŸ. ÁôôĀ ç áŸŨāēç ēā āĬíāē āēüîā đēî ôçîāíŕôēēĀ ēāēĀò òî FreeBSD ēā āñ÷āĬāē íā îāôāóŸñāôāē óā îŸāò đēāóôüñîāò.

7 ìàëëïíôéeêÝò Êáôãõèýíóãéò

[illegible]

- [illegible]

8 Å ÷ á ñ é ó ô ß à ò

[illegible]

## 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>)