

# Ἀέαιũñöùόç Ἀδῖεçêãðôéêπί ἸΎούι ἁέα ×ñÞόç ìà ôῖ FreeBSD

ἰάò óýíôῖῖò ἰäçãüò

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Ôῖ FreeBSD ἁβῖάé Ἰά éáôῖ÷ðñùῖΥῖ ἁἰδῖñéêÜ óýἰἰῖῖ ôῖò FreeBSD Foundation.  
Ἰé èΥἰἰἰéò lomega, Zip, éáé Jaz ἁβῖάé ἁβôḁ éáôῖ÷ðñùῖΥἰἰ ἁἰδῖñéêÜ óýἰἰῖῖḁ ἁἰδῖñéêÜ óýἰἰῖῖḁ ôçò  
lomega Corporation óðéò ÇῖῖῖΥἰἰḁ ḂῖῖῖḁḂḁò Þ/ḁḁé óḁ Üḁḁḁ ÷þñḁò.  
Ἰé èΥἰἰἰḁ Motif, OSF/1, éáé UNIX ἁβῖάé éáôῖ÷ðñùῖΥἰἰ ἁἰδῖñéêÜ óýἰἰῖῖḁ éáé Ἰé èΥἰἰἰḁ Þ ðñÜóḁḁ IT  
DialTone éáé The Open Group ἁβῖάé ἁἰδῖñéêÜ óýἰἰῖῖḁ ôῖò The Open Group óðéò ÇῖῖῖΥἰἰḁ ḂῖῖῖḁḂḁò  
ḁḁé óḁ Üḁḁḁ ÷þñḁò.  
ḂῖῖῖḁḂḁò ḁðῖ ḁḁḁ èΥἰἰἰḁ Þ ðñÜóḁḁ Ἰé ἰðῖḂḁò ÷ñçóéῖἰðῖῖῖῖḁ ḁðῖ ḁῖðḁ éḁḁḁḁḁḁḁḁḁḁḁ Ḃ ḁῖðḁ  
ðῖḁçòḁḁ ḁῖðḁ ḁḁḁ ἰḁ ḁḁḁḁḁḁḁḁ ḁῖðḁ éḁḁḁḁḁḁḁḁḁḁ ἁἰδῖñéêÜ óýἰἰῖῖḁ. ¼ðῖò ḁḁḁḁḁḁ  
ἁἰḁἰḁḁḁḁḁḁ ḁḁ ḁḁḁḁ ḁῖ éḁḁḁḁḁḁḁ ḁḁḁ ḁḁḁ ḁḁḁḁḁḁḁḁ ḁῖḁḁḁḁḁḁ ḁῖ ḁῖḁḁ ḁῖḁḁḁḁḁḁ ḁῖò FreeBSD ḁḁḁ  
ḁβῖάé ḁḁḁḁḁḁḁ ἰḁ ḁβῖάé ἁἰδῖñéêÜ óýἰἰῖῖḁ, éḁ ḁḁḁḁ Ἰḁ ḁðῖ ḁḁ ḁḁḁḁḁḁ: “TM” Þ “®”.

Ôῖ ḁḁḁḁḁ Ḃḁḁḁḁḁ ḁḁḁḁḁḁḁḁ ḁḁḁ ἰḁ èḁḁḁḁ ḁḁ ḁῖḁḁḁḁ (slices), èḁḁḁḁḁḁḁḁḁḁ (partition) éáé  
ἰḁḁḁḁḁḁḁḁḁḁ (format/ḁḁḁḁḁḁḁḁḁḁ) óḁḁḁḁḁḁḁ ḁḁḁḁḁḁḁ éáé ḁḁḁḁḁḁḁ ἰḂḁḁ ḁῖò ḁḁḁḁḁḁḁḁḁḁ ḁḁḁ ÷ñÞόç ἰḁ ḁῖ  
FreeBSD. Ôḁ ḁḁḁḁḁḁḁḁḁḁḁḁ ḁῖḁḁḁḁḁḁḁ ḁῖò FreeBSD 2.2 ḁḁḁḁ ḁῖḁḁḁḁḁḁ ḁῖḁḁḁḁḁḁḁḁ éáé óðḁḁ Üḁḁḁ  
ḁḁḁḁḁḁḁḁ. Ôῖ éḁḁḁḁ Ḃ ÷ḁḁ ḁῖḁḁḁḁḁḁḁ ḁḁḁ ḁçῖ Ḃḁḁḁḁ 4 ḁῖò FreeBSD.

## 1 Ἀḁḁḁḁḁḁḁ éáé Ἰñéóῖḁḁ

### 1.1 Ἀḁḁḁḁḁ

Ôῖ ἰḁ ḁḁḁḁḁḁḁḁ ḁḁḁḁḁḁḁ ἰḁ ḁḁḁḁḁ÷Ḃḁ ḁḁ Ḃḁ ḁḁḂḁḁ÷ḁῖ ḁḁḁḁḁḁ ḁβῖάé ÷ḁḁḁḁḁḁḁḁḁḁḁḁ ḁḁḁ Ḃḁḁḁḁḁḁ ḁḁḁ÷ḁḁḁḁḁḁḁ  
óðḁḁḁḁḁḁḁ. Ôῖ èḁḁḁḁ, ḁῖ èḁḁḁḁḁḁḁḁ éáé ç ḁḁḁḁḁḁḁ ḁḁḁḁḁ ḁḁḁḁḁḁḁ éḁḁḁḁḁḁḁ ḁḁḁḁḁ÷Ḃ éáé òḁḁḁḁ ḁḁḁḁḁḁ ḁῖḁḁḁḁ.  
ἰḁ ḁḁḁḁḁ èḁḁḁ ἰðῖḁḁḁ ἰḁ ḁḁḁḁḁḁḁḁ Ḃḁḁḁ ḁḁḁḁḁḁḁ ḁḁḁḁ ḁḁ ḁḁḁḁḁḁḁḁḁḁ. Ἀḁḁḁ ḁῖ Ḃḁḁḁḁḁ ḁḁḁḁḁḁḁ ḁḁ  
ḁḁḁḁḁḁḁḁḁ ἰḁ ḁḁḁḁḁḁḁḁḁ ç ḁḁḁḁḁḁḁḁḁ éáé ἰḁ ḁḁḁḁḁḁḁ÷èῖḂḁ ḁḁḁ÷ḁḁḁḁ. Ἀḁḁḁ÷ḁḁ, ḁḁḁḁḁḁḁḁ ḁḁḁḁ÷ḁḁḁḁḁ  
ḁḁḁḁḁḁḁḁḁ (èḁḁḁḁ ḁῖò sysinstall), óðḁḁ ḁḁḁḁḁḁḁḁ ḁḁḁḁḁḁḁ ḁῖò FreeBSD, Ḃ÷ḁḁḁ ḁḁḁḁḁḁḁḁ ḁçῖ ḁḁḁḁḁḁḁḁḁ.

ÔḁḂḁḁ÷ḁḁḁ ḁḁḁḁḁḁ ḁḁḁḁḁḁ (modes) ἰḁḁḁḁḁḁḁḁḁḁ:

- *δοιᾶδὸρ ἑαέδοιῶνᾱβᾱ* (*compatibility mode*): Ἀέαιῦνῶουϛ οἶῶ Ἀβῶεῖῶ ἡδὸᾶ ἰᾶ Ὡ ÷ ᾷ Ὡἰ Ὀβῖᾶῆᾶ οἶΠῖᾶοῦἰ (slice table) ἑᾶῆ ἰᾶ ἰδῖᾶᾦᾦ ἰᾶ ÷ ἡϙῶεῖῖδῖῆῆῆᾦᾦ ὈᾶᾦὩῆῆῆᾶ ᾶδῖὩ Ὡῆᾶ ἑᾶέδοῖῶᾦᾶῆὩ ὈῶῶῶΠῖᾶῶᾶ.
- *ᾶδῖῆᾶῆῶῶῆῆὩ ἑᾶέδοῖῶᾦᾱβᾱ* (*dedicated mode*), ἰᾶᾦῆὩ ὩᾦᾦὩ Ὡ Ὡᾶᾶῶᾶ ἑᾶῆ ᾶδῆῆβῖᾶῶἰᾶ ᾶδῖῆᾶῆῶῶῆῆὩ ἑᾶέδοῖῶᾦᾱβᾱ: Ἀέαιῦνῶουϛ ᾶῖῦῶ Ἀβῶεῖῶ ÷ ὠᾦᾦῶ Ὀβῖᾶῆᾶ partitions. Ἀῶῶῖ Ὡᾦᾶῆ ὀϙῖ ᾶῆᾶῆῆῆῶᾶ ὀϙῶ Ὤᾦῶῆᾶῶῶ Ἀβῶεῖῶ ᾶῶῆῖῦῶᾶᾦ ᾶῆὩ Ὡἰ ἰϙ-FreeBSD ἑᾶέδοῖῶᾦᾶῆὩ ὀῶῶῶῖᾶ Ὤῆᾶᾦῖῖ ἰᾶ ἰϙ ἰδῖᾶᾦᾦ ἰᾶ ᾶᾶ Ὡἰ Ἀβῶῆἰ. ϙ Ὡῆᾦᾶῶῶ ᾶδῆῆβῖᾶῶἰᾶ ᾶἰᾶὩᾦᾦᾶῶ ὀῶῖ ἑβῖᾶῶῖ Ὡῶ ὠῶῆ Ὡ ὀῶῶῶῖᾶ ἰδῖᾶᾦᾦ ἰᾶ ἰϙῖ ᾶἰᾶᾦᾦᾦᾦᾶῶ Ὡἰᾶ Ἀβῶῆἰ ἰᾦᾦῖᾦῖῆῖῖὩ Ὡἰ ἑᾶῶ ᾶῶῶῖ Ὡἰ Ὤᾦᾦῖ.

Όσοδο διαπερνούμενο διαπερφορέο ε αδιεξεάοοοεΠ εάεοιόναβα αβιάε ι αδιερεοαήιο οηυθιο ιά οόεαβ εάε ιά ÷ ηςοέηιθιεεαβ οά οθΰñ ÷ ιίφα οοοόΠιαόά, αουοί Υίαό εάεήγναεριο αβόεριο οοίΠευο θηηηβαάοάε ιυή αέα οι FreeBSD. θάνυει θιο ε οοιζαόΠ εάεοιόναβα αεάοάεβαεάε ιΨάεοόε αεάεάεοιόηάεεουόα (interoperability) ιά ιάεήιόεέΨο ααεάαόοΰοάεο, αβιάε θεί θρεΨθερεε.

ÐÝíá áðí ðçí áðééíáÐ ðíððíð éáéðíðíðíð ððÛí÷íðí ìÝíííéíé ððçðíðíðíð ðíð áðéíð. Ì ðíððíð ÷íçðéíðíéáð ðí  
 áíáééáíí ááéáðÛððáçð ðíð ððððíðíðíð /stand/sysinstall. Áðí ðí 2.1.7-RELEASE éáé íáðÛ ç sysinstall  
 áðéíðíéáð ðí ðððéíð ðíð áðéíðíð áðéáíáÐ áðéðíÝðáé ðçí áðíðéáíð áééáíáÐ ððí label (ðððéíð) éáé ððá ðíðíðá  
 (partitions) ðíð áðéíðíð. ÁðéðéÝíí ðáð áðéðíðÝðáé íá áðéçéáÝðáðá ðéð áééáÝð ìííí ððíð ððáéáðéíéÝíí áðéíð ÷íðíð  
 íá áðçíáÛéáé ðíðð ððéíéðíðíð. Ì ááÝðáííð ðíððíð áíáíé íá áéðáéÝðáðá áéÛíðíð áíðééÝð ìá ðí ÷Ýíé áðí ðçí áíáíð  
 áíðéíð ùð root. Áí áðééÝíðáð ðçí áðíééáððééÐ éáéðíðíðíð ÷íðéáíáð íá áéðáéÝðáðá ìííí 2-3 áíðééÝð áíð ìá ðí  
 sysinstall ðíÝðáé áíðééÝðáðá ééáÛéé ðáíáðÛíð.

## 1.2 Ĩnéóìïß

Ç áéá÷âßñéóç äßöêùí òôí UNIX® Ý÷áé äþóáé íÝá Ýííñé áá òðŸñ÷íõóáð ëÝíáéð. Ôí ðáñáéŸòù èáíéëüüáéí áíçääß òçí íñíëüäß ðíð ÷ñçóéíðíëíüíá òá áóòù òí èáßíáíí éáé òòí FreeBSD äáíééŸ (ðñíõóáðð).

- **οἰαῖαδῶ** εἰεότῶναβᾶ (compatibility mode):  $\zeta$  αἰαῖυηῶυο $\zeta$  οἷο Ἀβῶεῖο ῥῶα ῖα  $\dot{Y} \div \acute{\alpha}\epsilon \dot{Y}$  ῖα ῖα δῖαῖα οἰπᾶοῦῖ (slice table) εἰε ῖα ἰδῖηαβ ῖα  $\div$  η $\zeta$ οἰῖδῖε $\zeta$ εἰε δᾶη Ὑεε $\zeta$ εἰ ἰα Ὑεεἰ εἰεοῖῶηεεῖ ὀοοοπᾶῖα. Ἀῖοβεἰοῖ ο $\zeta$ ο δῖεεἰεοοεεπῶ εἰεοῖῶηεἰαδ.
- (ἄδῖεβῖαοῖα) δῖεεἰεοοεεπ εἰεοῖῶηεἰαβᾶ:  $\zeta$  αἰαῖυηῶυο $\zeta$  οἷο Ἀβῶεῖο εἰαδ ὀ $\dot{Y}$ οῖεῖῖ οηυδῖ ῥῶα ῖα ἰ $\zeta$ ῖ δᾶη $\dot{Y} \div \acute{\alpha}\epsilon$  δῖαῖα οἰ $\zeta$ ῖ Ὑοῦῖ (slice table). Ἀβῖαε δῖεῖ ἄ $\dot{Y}$ εῖ $\zeta$  αἰαῖεεἰαοῖα εἰε Ὑ ἰ Ἀβῶεῖο ἰδῖηαβ ῖα ἰ $\zeta$  ἄῖοεἰἄε οἰ ἰ $\zeta$ -FreeBSD εἰεοῖῶηεεῖ Ὑ ὀοοοπᾶῖα. Ἀῖοβεἰοῖ ο $\zeta$ ο οἰαῖαδῶ εἰεοῖῶηεἰαδ.
- Ἀβῶεῖο: Ἰε οεε $\zeta$ ηῖβ Ἀβῶεῖε, ὀα CDROM, ἰε ἰαῖ $\zeta$ οῖ-ἰδῖεε $\dot{Y}$ δ ὀοοεἰα $\dot{Y}$ δ εἰε ὀα ἰαεηῖ $\dot{Y}$ ἰαῖ ἰ $\dot{Y}$ ῶα Zip®/Jaz® Ἀβῖαε ἰἠεε $\dot{Y}$ δ ἰαδῖ οεο ὀοοεἰα $\dot{Y}$ δ ἰαεεεπῶ δῖεβεἰαοο $\zeta$ ο ἰαἠἠ $\dot{Y}$ ῖυῖ δῖο  $\div$  η $\zeta$ οἰῖδῖεῖ $\dot{Y}$ ῖαε ὀπᾶἠα.  $\zeta$  ἰαοεεπ ἠη  $\div$  π εἰεοῖῶηεἰαδ ἰοδῖ ὀυῖ ἰ $\dot{Y}$ οῦῖ δῖεβεἰαοο $\zeta$ ο ῖῖαδ π δᾶηεοὀυὀἠῖε Ἀβῶεῖε ἰε ἰδῖβῖε δᾶηεοὀ $\dot{Y}$ ῖῖαε ἰαδῖ ῖῖα ἰῖο $\dot{Y}$ η, ἠῖπ ἰεἰ εἰαὀεπ εῖεῖαὀε οἰ ῖῖα ἰῖῖδὙοε δὙῖυ ὀο $\zeta$ ῖ εὀοβῖα οἷο Ἀβῶεῖο εἰε αἰαἰ $\dot{Y}$ εἰ ἰαδῖ οἰ Ἀβῶεῖ π ἠ $\dot{Y}$ Ὑὀε αἰἠἠ $\dot{Y}$ ῖα οἰ ἰαοῖῖ. Οἰ ἠ $\dot{Y}$ Ὑοῖῖ Ἀβῖαὀε ἰα ἰαὀἰῖεπ εὙδῖεῖο ὀοοεῖ $\dot{Y} \div$  ἠἠεὀ $\zeta$ ηεοοεεῖ $\dot{Y}$  οἷο Ἀβῶεῖο (ἰἠἠ $\zeta$ οεεπ ηῖπ, ἰἠῖεεἰαοεεῖυ $\zeta$ ὀα, εεδ.) ἠῖπ οἰ εἰ $\dot{Y}$ ἰαὀῖα Ἀβῖαὀε ἰα “ἠῖβ  $\div$  ἰἠο $\zeta$ ” εἰεἰἠῖ ὀο $\zeta$ ῖ βἰεἰ ὀοοεεπ εἰεὙο $\zeta$ ὀα οἷο Ἀβῶεῖο.
- οἰπᾶ (slice): Ἰβᾶ δῖῖεἰεἰαβῖα $\zeta$  ἠῖυδ Ἀβῶεῖο. Ὀ $\dot{Y}$ ῖυῖῖ ἰα ὀα δῖυὀοδᾶ οῖῖ PC ἰδῖῖῖῖ ῖα ὀδ $\dot{Y}$ η  $\div$  ῖῖῖ ἰ $\dot{Y} \div$  ηε 4 οἰπᾶὀα ὀα ῖῖῖ Ἀβῶεῖ. Ὀἰ οἰπᾶὀα δῖὀὀεῖ $\dot{Y}$ ῖαε ἰδῖ ὀῖἰᾶ  $\div$  ἠἠῖῖὀδ ὀῖἠἠδ (sectors). Ὀδ $\dot{Y}$ η  $\div$  ἰε ῖῖἰ “δῖῖεἰεὀ οἰ $\zeta$ ῖ Ὑοῦῖ” (slice table) δῖο δᾶη $\dot{Y} \div \acute{\alpha}\epsilon$  δ $\zeta$ ε $\zeta$ ῖῖῖῖἠδ ἰεἰ ὀα οἰπᾶὀα εἰε  $\div$  η $\zeta$ οἰῖδῖεἰαὀεἰ ἰαδῖ οἰ BIOS εἰε ῖα ἠἠἠδ ἰαδῖ δῖ $\dot{Y}$  ἰδῖἠἠἠ ῖα ἰἠεεῖπὀεἰ οἰ ὀ $\dot{Y}$ ο $\zeta$ ῖἰ. Ἰ δῖῖεἰεὀ οἰ $\zeta$ ῖ Ὑοῦῖ ε $\dot{Y}$ ἠἠὀεἰ εἰε “δῖῖεἰεὀ εῖῖἠὀεῖπ” (partition table) ὀα ἰῖῖῖἠἠἠ DOS δῖο ὀοε $\dot{Y} \div$  ῖἠὀε ἰδῖ οἰ δῖυἠἠἠἠἠ fdisk.
- εῖῖ $\dot{Y}$ οε (partition): Ἰβᾶ δῖῖεἰεἰαβῖα $\zeta$  ἠῖυδ οἰπᾶὀῖδ. Ὀῖῖπῖδ  $\div$  η $\zeta$ οἰῖδῖεἰαὀεἰ ἰεἰ ἰἠῖῖῖ ὀοεδ δῖῖεἰεἰ $\dot{Y}$ ὀεδ ὀυῖ οἰ $\zeta$ ῖ Ὑοῦῖ (slices) οἷο Ἀβῶεῖο οἰῖ FreeBSD. ΕὙεἰ ὀ $\dot{Y}$ ο $\zeta$ ῖἰ ἠη  $\div$  Ἀῖῖῖ (filesystem) π ἠἠὀἠἠῖῖὀὀὀ ἠῖπῖδ (swap area) οἰῖ Ἀβῶεῖ ἠἠὀεἰὀεἰ ὀα ῖῖἠ εῖῖ $\dot{Y}$ οε. Ὀἰ εῖῖ $\dot{Y}$ οεἰ ὀοε $\dot{Y} \div$  ῖῖὀε ἰα οἰ ἠἠἠἠἠἠ disklabel.
- ὀῖῖἠδ (sector):  $\zeta$  ἰεῖῖῖὀἠ $\zeta$  δῖῖεἰεἰαβῖα $\zeta$  ἠῖυδ Ἀβῶεῖο. Ὀῖῖπῖδ  $\dot{Y} \div \acute{\alpha}\epsilon$  ἰ $\dot{Y}$ ἠἠῖδ 512 bytes.

### 1.3 Οçἰᾶßᾶ ðῖò ðñÝðᾶέ ἰᾶ ðñῖóÝἰᾶðᾶ ἑᾶέ ðᾶᾱßᾶð

ἈÞðᾶ ἰᾶᾱÛεç ðñῖῖ÷Þ òç Ἀέᾶἑἑᾶóßᾶ, ἰᾶ ἰᾶῖ εÛᾶᾶðᾶ ðᾶ ἰÝðᾶ ὁᾶð ἑᾶέ Ἀßἰᾶ εÛεῖð ἰðῖñᾶß ἰᾶ ἑᾶᾶóðñÝðᾶð ὁᾶ ðᾶñἑᾶ÷ῖἰᾶῖ ὤεῖῖ Ἀßóἑῖῖ ðῖò òðóðÞἰᾶðῖð.

*ðñῖóÝἰᾶð òἑ εÛἰᾶðᾶ.* Ἀßἰᾶ ðῖεý ἰᾶῖεῖῖ ἰᾶ ἑᾶᾶóðñÝðᾶð εÛεῖð Ἀßóἑῖ Ἀῖðἑᾶýῖῖðᾶ ἰᾶ ἈðÝð ðἑð ἈῖðῖεÝð. Ἀῖ ὤ÷ᾶð ἈῖðἑᾶῖḂð ἈἑÝᾶἰðᾶ ὁᾶ ἰçῖýἰᾶðᾶ ὁῖò ððñÞἰᾶ ἑᾶðÛ òç Ἀέᾶἑἑᾶóßᾶ Ἀἑἑßῖççð Ἀἑᾶ ἰᾶ Ἀñᾶßᾶ òç òῖòðÞ òðóἑᾶðÞ Ἀßóἑῖð.

ὈðóἑἑÛ ἰᾶῖ ὤ÷ἰᾶ ἑᾶἰßᾶ Ἀðἑýῖç Ἀἑᾶ æçῖἑÝð ðῖò ἰðῖñᾶß ἰᾶ ðñῖεççῖýῖ. Ç Ἀðἑýῖç Ἀßἰᾶ ἈἑἑÞ ὁᾶð!

### 1.4 Zip, Jazz, ἑᾶέ Ûἑἑᾶ Ἀðἑἑñῖýἰᾶῖ ἰÝóᾶ

Ἰἑ Ἀðἑἑñῖýἰᾶῖ Ἀßóἑῖ ἰðῖñῖýῖ ἰᾶ Ἀἑᾶἰñöùἑῖýῖ ὁᾶῖ ἑᾶῖῖἑῖß Ἀßóἑῖ. Ὀῖ òçἰᾶῖἑἑῖ Ἀßἰᾶ ἰᾶ Ἀßἰᾶ ὁῖᾶἰᾶ ὤῖð ἰ ῖᾶçᾶῖð ðῖò Ἀßóἑῖð ἑᾶðÛ òçῖ Ἀἑἑßῖççð ðῖò òðóðÞἰᾶðῖð ἑᾶέ ἰᾶ ἈἑóἑÝðᾶ ἰÝóᾶ Þðᾶ ἰᾶ ἰðῖñÝðᾶἑ ἰ ððñÞἰᾶð ἰᾶ Ἀᾶß òῖòðÛ òçῖ Ἀᾶῖἰᾶðñᾶ ðῖò Ἀßóἑῖð. ἘῖἑðÛἰᾶð òἑ εÝᾶἑ ç ἈῖðῖἑÞ dmesg Ἀἑᾶ ἰᾶ Ἀᾶßᾶ Ἀῖ ç òðóἑᾶðÞ Ἀßἰᾶ ὁçῖ ἑßóðᾶ. Ἀἑᾶ ðᾶñÛἈἑἑᾶῖ Ἀῖ ἰ ððñÞἰᾶð ἈñÛðᾶἑ:

Can't get the size

òῖðᾶ ἰᾶῖ òðÛñ÷ᾶἑ ἈἑóἑÝðᾶ ὁῖῖ ῖᾶçᾶῖ. Ἀῖ Ἀßἰᾶ Ἀððῖ ἑᾶ ðñÝðᾶἑ ἰᾶ ἈðᾶῖᾶἑἑῖÞðᾶðᾶ ὁῖ ἰç÷ ὤῖçἰᾶ ðñἑῖ ἈῖἑἑἰÛðᾶðᾶ ἰᾶ Ἀἑᾶἰñöùðᾶðᾶ òçῖ ἈἑóἑÝðᾶ.

## 2 Ἀἑᾶἰñöùðῖῖἰᾶðᾶ Ἀßóἑῖðᾶ Ἀἑᾶ ἈðῖἑἑᾶἑóðἑἑÞ ἑᾶἑðῖðñᾶßᾶ

### 2.1 ἈἑóᾶᾶῖᾱÞ

ἈððÞ ç ðᾶñÛἈñᾶðῖð ðᾶñἑᾶñÛðᾶἑ ðÞð ἰᾶ òðἑÛἰᾶðᾶ Ἀßóἑῖðð ἰῖῖῖ Ἀἑᾶ ὁῖ FreeBSD. Ἐðῖçἑᾶßᾶ ῖðἑ ἰἑ Ἀßóἑῖ ἈðῖἑἑᾶἑóðἑἑÞð ἑᾶἑðῖðñᾶßᾶð ἰᾶῖ ἰðῖñῖýῖ ἰᾶ Ἀἑᾶᾶᾶóðῖýῖ Ἀðῖ ὤἑᾶ ἑᾶἑðῖðñᾶἑἑÛ, ῖýðᾶ ἰᾶ εÛῖῖῖ boot.

### 2.2 ðÞð ἰᾶ òðἑÛἰᾶðᾶ Ἀßóἑῖðᾶ ἈðῖἑἑᾶἑóðἑἑÞð ἑᾶἑðῖðñᾶßᾶð ἰᾶ ὁῖ Sysinstall

To /stand/sysinstall, ὁῖ ðñῖᾶñᾶῖᾶ ἈἑᾶᾶðÛðᾶóçð ðῖò òðóðÞἰᾶðῖð, ὤ÷ᾶἑ Ἀðᾶἑðᾶἑᾶß ὁðἑð ðᾶἑᾶððᾶßᾶð ὁῖò Ἀἑᾶῖðᾶἑð Þðᾶ ἰᾶ Ἀðἑῖðῖἑᾶß òçῖ Ἀἑᾶἑἑᾶóßᾶ ÷ῖñἑóῖý ὁῖῖ Ἀßóἑῖῖ ἑᾶἑ ἰᾶ Ἀðᾶἑðᾶß ἑἑᾶῖðᾶñç ðñῖððÛἑᾶἑ. Ὀᾶ ðñῖᾶñÛἰᾶᾶᾶ fdisk ἑᾶἑ disklabel ðῖò òðÛñ÷ῖῖ ὁῖῖ sysinstall Ἀßἰᾶ Ἀñᾶðἑἑῖý ðᾶñἑᾶÛἑῖῖðð (GUI - Graphical User Interface) ἑᾶἑ ἰᾶἑÞῖῖῖ ὁῖ ἰðÝñᾶἰᾶ ὁῖò ἑῖðßἰᾶðῖð ὁῖῖ Ἀßóἑῖῖ. Ἀßἰᾶ ðñῖῖᾶÞð ἰ Ἀðἑῖῖðᾶñῖð ðñῖðῖð ἰᾶ ἑῖðᾶðᾶ Ἀßóἑῖðð Ἀðῖ òçῖ ὤἑᾶῖç 2.1.7 ἑᾶἑ ἰᾶðÛ ὁῖò FreeBSD.

1. ἸᾶἑἑῖÞðᾶ ὁῖ sysinstall Þð root ἈñÛῖῖῖðᾶð

```
# /stand/sysinstall
```

òçῖ ἈñᾶῖÞ ἈῖðῖἑÞ.

2. ἈðἑἑÝἰðᾶ Index.
3. ἈðἑἑÝἰðᾶ Partition.
4. ἈðἑἑÝἰðᾶ ὁῖ Ἀßóἑῖ ðῖò εÝἑᾶðᾶ ἰᾶ ἈἑᾶᾶðᾶóðÞðᾶðᾶ ÷ñçóἑῖῖðῖἑÞἰᾶð ὁᾶ ἈἑᾶÛἑᾶ ἑᾶἑ ἰᾶðÛ **SPACE**.

5. Ἀί εά ÷ ñçóéíðìéþóáðå üëí òí äßóëí ἁέά òí FreeBSD, ἄðéëÝíðå Ἀ.
6. Ἰüëéð óáo ñòðþóåé áí üíòüð èÝéåðå íá òí èÝíáðå áððü (Do you still want to do this) ἄðáíðþóåé Yes.
7. ἈðéëÝíðå Write.
8. Ἐά óáo äåÜëåé íéá ðñíäéäíðìþçόç ó÷äðéëÜ íå ôçí äåññåðþ óå ððÜñ÷ííóá óðóðþíáðå ἄðáíðþóåé Yes.
9. Ἰüëéð óáo ñòðþóåé áí èÝéåðå íá äåéáðóðþóåðå Ýíá boot loader, ἄðéëÝíðå None ἁέά íá ἄðüýäåðå ïðíéääþðíðå äéëääþ óòí Master Boot Record. Ç äåéáðÜóðáóç áñüð boot loader ÷ ñåÜæåðåé üüí óå éåéñýñéåð äåéáðóðÜóåð òí FreeBSD þ áí ó÷äåÜæåðå íá òíðñéåðþóåðå òí äßóëí óå èÜðñéí Üëëí íç÷Üíçá.
10. Ðáðþóåé **ENTER** óòí áíçíññüðéëü íþñíá ðñ èÝἁé “Wrote FDISK partition information out successfully”.
11. ἈðéëÝíðå Quit ἁέά íá äåäßðå áðü òí FDISK Editor éåé íåðÜ **ESCAPE** ἁέά íá ἄðéóðñÝðåðå óòí Index menu.
12. ἈðéëÝíðå Label áðü òí Index menu.
13. ἸñÜóðå òí äßóëí óáo üðüð èÝéåðå (äåþ ïñßæåðå óå partitions). Ἀí èÝéåðå üüí Ýíá partition ðáðþóåé òí c ἁέά íá äçíéíðñåðåðå òí partition. ἸåðÜ ἄðèð äå÷äåðåðå ðéð ðñíäðéëñÝð ἁέά óå ðñíéåéññéóíÝíá size, partition type Filesystem, éåé mountpoint (òí ïðíþí äåí ÷ ñçóéíðìéþåðå).
14. Ðáðþóåé w üëéð ðåäéþóåðå éåé ἄðéëðñþóåé ðéð äéëääÝð ἁέά íá óñíá÷ßåðå. Òí filesystem èå ðåñåóðåß áððüíáðå áðü ôçí áñíðèþ newfs äéðüð áí ἄðéëÝíðå òí áñðßåððí. (Ἀí äÜæåðå éåéñýññéí partition óáo óðíöÝññéé íá òí èÝíáðå!). Ἐά óáo äþóåé òí èÜëèð:

```
Error mounting /mnt/dev/ad2s1e on /mnt/blah : No such file or directory
```

Ἀññþóåé òí.

15. Ðáðþóåé óñíá÷ñíáíá òí **ESCAPE** ἁέά íá äåäßðå.

## 2.3 Ðüð íá ððéÜíåðå äßóëíðð ἄðñéëäéóðéèþð èåéðíðñåßåð ïÝóå áðü ôçí äñåíð áñíðèþí

ἈéðåéÝóðå ðéð ðåñåéÜðü áñíðèÝð áñéééåéóðþíóåð òí ad2 íå òí üññíá ôçð óðóéåððð òíð äßóëíð (ññÜððå dmesg íá äéÝññåðå áí äßíáé òüóðü).

```
# dd if=/dev/zero of=/dev/ad2 count=2
# disklabel /dev/ad2 | disklabel -B -R -r ad2 /dev/stdin
ἘÝéíðñå üüí Ýíá partition, ïðüðå ïðñíýíå íá ÷ ñçóéíðìéþóíðå òí èññÜðé 'c':
# newfs /dev/ad2c
```

Ἀí ÷ ñåÜæåðåé íá äéëÜíåðå òí disklabel ἁέά íá ÷ ñçóéíðìéþóåðå ðñééäðèÜ partitions (ἁέά ðåñÜäåéñå áí èÝéåðå swap) ðüðå èÜíå:

```
# dd if=/dev/zero of=/dev/ad2 count=2
# disklabel /dev/ad2 > /tmp/label
Ἀñßíðå òí disklabel ἁέά íá ðñíðéÝóåðå partitions:
# vi /tmp/label
# disklabel -B -R -r ad2 /tmp/label
äéðåéÝóðå ôçí áñíðèþ newfs óðå partitions üðüð ðñÝðåé
```

Ἰ äßóëíð óáo äßíáé Ýðñéñüð ðñüð ÷ ñþóç.

## 3 Ἀεάιιñöþííîáò ἁßóêîðð ἁέἁ óîîἁἁð Ëἁéôîñḡḡḡḡ

### 3.1 Ἀέóἁḡḡḡḡ

Ç ἁḡḡḡḡ ἁíðèþí ἁßἁé íἁí í ἁðèççêáðððð ðñððð ἁéἁ íἁ ððéÛíḡḡḡ ἁßóêîðð ἁðèççêáçóðéêþð Ëἁéôîñḡḡḡḡ ἁééÛ ἁßἁé ἁéé í ἁððèççêáððð ἁéἁ íἁ ððéÛíḡḡḡ óîîἁἁðýð ἁßóêîðð. Õí fdisk ἁðð ὁçí ἁḡḡḡḡ ἁíðèþí èÝἁé ðḡḡéóóúðḡḡḡ ἁíþḡἁéð ìἁéçíἁðéêþí ἁéἁ ðèççÝð ἁíþḡἁéð ó÷ḡðééÛ íἁ ðíí ðßíἁéἁ èñíἁðéþí, èÛðé ðíð ðñíḡἁíþð ἁḡí ÷ñḡéÛḡḡḡḡ íἁ ìÛéἁðḡ. Ἀé ἁððú ÷ñçóéíððèéþðḡḡ ðí sysinstall ἁéἁ íἁ ððéÛíḡḡḡ óîîἁἁðýð ἁßóêîðð ἁéèèðèþíðḡḡ ðéð ìἁçḡḡḡ ᰇḡḡḡḡḡ.

### 3.2 Ððð íἁ ððéÛíḡḡḡ ἁßóêîðð óîîἁἁðð Ëἁéôîñḡḡḡḡ íἁ ðí Sysinstall

1. Ìḡḡéíþðḡḡ ðí sysinstall þð root ḡḡÛíðḡḡḡ

```
# /stand/sysinstall
```

óðçí ḡḡḡḡḡ ἁíðèþí.

2. ἈðééÝíðḡ Index.
3. ἈðééÝíðḡ Partition.
4. ἈðééÝíðḡ ðí ἁßóêîðð èÝḡḡḡḡ íἁ ḡḡḡḡḡḡððḡḡḡ ÷ñçóéíððèéþíðḡḡ ᰇḡ ḡḡḡḡḡḡ ἁéἁ ìḡÛ **SPACE**.
5. Ἀí èἁ ÷ñçóéíððèéþðḡḡ ḡèí ðíí ἁßóêîð ἁéἁ ðí FreeBSD, ḡðééÝíðḡ A.
6. ¼ḡḡí ᰇḡð ççðçèḡḡ:

```
Do you want to do this with a true partition entry so as to remain
cooperative with any future possible operating systems on the
drive(s)?
```

(èÝḡḡḡḡ íἁ ðí èÛíḡḡḡ ἁððú íἁ ᰇḡḡḡḡḡḡḡ èñíÛðéἁ ἁéἁ íἁ ᰇḡḡḡḡḡḡ ᰇîîἁἁðú íἁ Ûḡḡḡ ḡḡéôîñḡḡḡḡ  
óððððḡἁḡḡ?) Ἀðḡḡḡḡḡḡ Yes.

7. ἈðééÝíðḡ Write.
8. ¼ḡḡí ᰇḡð ççðçèḡḡ íἁ ḡḡḡḡḡḡððḡḡḡ ðíí boot manager, ḡðééÝíðḡ None íἁ ðí **SPACE** ἁéἁ ìḡÛ **ENTER** ἁéἁ OK.
9. Quit (ḡḡḡḡḡḡ) ἁðð ðí FDISK Editor.
10. Èἁ ᰇḡð ñðððḡḡ èÛðé ó÷ḡðééú íἁ ðíí boot manager ðÛḡḡ, ḡðééÝíðḡ None íἁíÛ.
11. ἈðééÝíðḡ Label ἁðð ðí Index menu.
12. ÌññÛðḡḡ ðí ἁßóêîð ḡððð èÝḡḡḡḡ (ḡḡþ èἁ ìññðḡḡḡ ᰇḡ partitions). Ἀí èÝḡḡḡḡ ìḡñ Ýíἁ partition ἁðèþð ḡḡ÷èḡḡḡ ᰇéð ðñíḡðééíḡÝð ἁéἁ ᰇḡ ðñíḡḡḡḡḡḡÝíἁ size, partition type filesystem, ḡḡḡ mountpoint (ðí ìððí ḡḡí ÷ñçóéíððèéḡḡḡḡ).
13. Õí filesystem èἁ ᰇḡḡḡḡḡḡ ἁððḡḡḡḡ ἁðð ὁçí ἁíðèþḡ newfs ḡéðúð ḡí ḡðééÝíḡḡḡ ðí ḡíðḡḡḡ. Ἀí ḡÛḡḡḡḡ èἁéñýñḡḡḡ partition ᰇḡð óððÝñḡḡ íἁ ðí èÛíḡḡḡ! Èἁ ᰇḡð ἁþḡḡ ðí èÛèðð:

```
Error mounting /mnt/dev/ad2s1e on /mnt/blah : No such file or directory
```

Ἀḡḡḡḡḡ ðí.

14. Ðḡððḡḡḡ ᰇðíḡ÷ḡḡḡḡ ðí **ESCAPE** ἁéἁ íἁ ḡḡḡḡḡḡ.

Ἰ ᾱᐆóêῖð óᾱð ᾱᐆῖᾱέ Ὶòῖêῖð ðñῖð ÷ñᐆç.

## 4 ¶ēēᾱò ēᾱéòῖñᾱᐆᾱò ἰᾱ òῖð ᾱᐆóêῖð

### 4.1 ᐆñῖóēῚòῖῖᾱò swap.

Ἐᾱêᐆ Ὶῖᾱ óóòçῖᾱ ᾱðᾱêðᾱᐆῖᾱóᾱέ, ç ᾱῖῚᾱêç ᾱέᾱ ἰᾱᾱᾱῖῖᾱñῖ swap ᾱᐆῖᾱóᾱέ ῖēῖ ἑᾱέ ðēῖ ᾱðéóᾱêðéêᐆ. ᐆᾱñῖēῖ ðῖð òῖ ἰᾱ ðñῖóðᾱēᾱᐆ swap óᾱ Ὶῖᾱῖ ððῚñ ÷ῖῖᾱ ᾱᐆóêῖ ᾱᐆῖᾱέ ðññᾱñῚ ῖῖóēῖῖ, Ὶῖᾱð ἑᾱéῖῖῖᾱēῖð ᾱᐆóêῖð ἰðῖñᾱᐆ ἰᾱ ῖñῖῖðῖéçᾱᐆ Ὶóóé ᐆóðᾱ ἰᾱ ðᾱñéῚ ÷ᾱέ òῖ ᾱðéðēῚῖ swap ðῖð óᾱð ēᾱᐆðᾱέ.

Ἄέᾱ ἰᾱ ᐆñῖóēῚῖᾱò swap ἑᾱêᐆ ᾱῚᾱᾱò Ὶῖᾱ ᾱᐆóêῖ óῖῖ óóòçῖᾱ:

1. Ἐᾱêᐆ ēῖᾱᾱᾱò òῖ ᾱᐆóêῖ (partitioning) ᾱēῖῚῖᾱ òῖ disklabel ἑᾱέ ῖñᐆóðᾱ ÷ᐆñῖ ᾱέᾱ swap óῖῖ ēñῖῚᾱé (partition) ‘b’ ἑᾱέ ᾱῚᾱò ὀῖῖ ððῖῖῖῖ ÷ᐆñῖ óᾱ ēῚᾱῖῖ Ὶēῖῖ ēñῖῚᾱé, ð.÷. óῖῖ ‘a’ ᐆ óῖῖ ‘e’. Ὀῖ ἰῚᾱᾱèð ðῖð ᾱᐆῖᾱò ᾱᐆῖᾱέ óᾱ blocks òῖῖ 512 bytes.
2. Ὶᾱᾱῖ ēῚῖᾱò newfs óῖῖ ᾱᐆóêῖ, Ἰçῖ òῖ ēῚῖᾱò óῖῖ ēñῖῚᾱé ‘c’. Ἀῖðᾱᾱᾱ, ēῚῖᾱ òῖ ῖῖῖ óῖῖ ēñῖῚᾱé ðῖð ᾱᾱῖ ᾱᐆῖᾱέ swap.
3. ᐆñῖóēῚῖᾱò óῖῖ `/etc/fstab` òῖ ðᾱñᾱēῚᾱ:

```
/dev/ad0b                                none                swap                sw 0 0
```

ἈēῖῚῖᾱ òῖ `/dev/ad0b` óῖῖ ῖñῖᾱ òçð ἑᾱéῖῖῖᾱēᾱð óᾱð óðóēᾱðᐆ.

4. Ἄέᾱ ἰᾱ ᾱῖᾱñῖῖῖῖᾱòᾱ Ὶῖᾱᾱ òῖ ἰῚῖ swap ÷ñçóēῖῖῖῖᾱò ὀçῖ ᾱῖðῖᐆᐆ `swapon`

```
# swapon /dev/da0b
swapon:  added /dev/da0b as swap space
```

### 4.2 ἈῖóēᾱñῚῖῖῖᾱò ὀᾱ ðᾱñéᾱ ÷ῖῖᾱῖᾱ ᾱᐆóêῖῖ

Ἀðῖ òῖῖ: Renaud Waldura (<renaud@softway.com>)

Ἄέᾱ ἰᾱ ἰᾱðᾱēῖῖᾱòᾱ ᾱñ ÷ᾱᐆ ᾱðῖ òῖῖ ᾱñ ÷ēῖῖ óᾱð ᾱᐆóêῖ óᾱ Ὶῖᾱῖ ἑᾱéῖῖῖᾱēῖ, ēῚῖᾱ:

```
# mount /dev/ad2 /mnt
# pax -r -w -p e /usr/home /mnt
# umount /mnt
# rm -rf /usr/home/*
# mount /dev/ad2 /usr/home
```

### 4.3 ÖöéÛîôå åíùìÝíĩòò äßóêĩõò ìå ôĩ CCD

Áđĩ ôĩĩ: Stan Brown (<stanb@awod.com>)

Ìà òí Concatenated Disk Driver, Ð àèèèþò CCD, ìðíñáßòá íá Ý÷-àòá ðreerýò uùieréòð àßòéiròð àèèÛ íá òòìðñèòéÝñiróáé uò Ýíàð. Ç àéááééáòá éÝÝñáòáé òòá÷þrìáòóç (striping). Ìà òçí àðéèèèèçòç Ý÷-àòá éáéýòáñá àðiròáéÝíóíáá òóçí òá÷-ýòçòá àðáèäÞ ìèñÛÞèiróáé íé ááññáòÝð éáé íé áíááñþòáéð òóiròð àßòéiròð. ÁéááÛòòá òéð manual pages ccd(4) éáé ccdconfig(8) Ð òçí áñ÷èèÞ òáèßáá òiò CCD (<http://stampede.cs.berkeley.edu/ccd/>) áéá ðñéóóòíòáñð èððòñÝñéáð.

Ἀέα ία ὀñŸíāōā CCD ḑēŸíí āāí ÷ ñāēŸēāōōāā āēāēēū ḑōñŸíā. ĩā ḡçí āíōīēŸ ccdconfig, ōññōŸíāōāē ōí ēāōŸēēçēī  
 KLD āōōūīāōā āí ī ḑōñŸíāōā āāí Ÿ ÷ āē Ÿāç ḑōīōōŸñēíç āēā CCD.

Όά CCD όόεŨ÷ññόάε όά partitions όýđř 4.2BSD. Άí εŸεάόά íá ÷ñçόέíñđíεPόάόά üēř όñř äßóēř έάε đŨεē đñŸđάε íá όόεŨíñάόά Ÿíá íŸí partition. Άέά đánŨüάέäíá, ç ářđřεP **disklabel** -e đřññß íá äßíñáε:

```
#          size  offset  fstype  [fsize bsize bps/cpg]
c: 60074784      0    unused        0      0      0  # (Cyl.  0 - 59597)
```

Äär iðriñaðöa ía ÷ ñçöéúðriëÐaðöa öi partition  $c$  áéa CCD, äöüüíí áðíáé öýðíö *unused*. Áíððèäöä äçìèröñäÐööä Ýíá íÝí partition áéñéäðð Ðæíró iääÝèíöð äèÛ öýðrö 4.2BSD:

```
#          size      offset      fstype    [fsize bsize bps/cpg]
c: 60074784         0      unused         0         0         0 # (Cyl.    0 - 59597)
e: 60074784         0      4.2BSD         0         0         0 # (Cyl.    0 - 59597)
```

Ἄεά ἰά ἀγέρεῖτῶνάΠοάοά Ὑῖά ἰῤῥῖ CCD, ἀεοάεῤῥοά οεό δᾶᾤάεῤῥοῦ ἀφῶρεῤῥο. Δᾶᾤεᾤᾤῥοῖοι θῖο ἰά θᾤῖοεῤῥοάοᾤ ὠᾤᾤᾤ ᾤᾤοεῖοδ. Ἀθῖοᾤ ᾤεῤῥοᾤ οεό ὠᾤᾤᾤᾤῥοῦ ὑᾤῖο ÷ ᾤᾤᾤᾤᾤᾤᾤ. Ἐῖοῖεᾤᾤᾤᾤ ὑᾤε ἰε ᾤᾤᾤᾤᾤ ὠᾤῤῥᾤᾤ ἰά ᾤᾤᾤᾤ *uirere*.

```
# cd /dev ; sh MAKEDEV ccd0

# disklabel -r -w da0 auto
# disklabel -r -w da1 auto
# disklabel -r -w da2 auto

# disklabel -e da0
ᐃᑦᑦᑦᑦᑦᑦᑦᑦᑦᑦ ᐃᑦᑦᑦᑦᑦᑦ 4.2BSD
# disklabel -e da1
ᐃᑦᑦᑦᑦᑦᑦᑦᑦᑦᑦ ᐃᑦᑦᑦᑦᑦᑦ 4.2BSD
# disklabel -e da2
ᐃᑦᑦᑦᑦᑦᑦᑦᑦᑦᑦ ᐃᑦᑦᑦᑦᑦᑦ 4.2BSD

# ccdconfig ccd0 273 0 /dev/da0e /dev/da1e /dev/da2e

# newfs /dev/ccd0c
```

Ç öειΡ 273 αβίαι öι Υΰααεìò öìò stripe. Άβίαι ι ανέειυò öìυρ sectors (512 bytes ι έαεΰιάò) óα εΰεα block ααανΰιυρ öìò CCD. Έα ðñΥðαι ία αβίαι öìρεΰ ÷ έóóιρ 128 kB. έαι ααρ ðñΥðαι ία αβίαι άΰιαιç öìò 2.

Ôpñá ìďĩñáßôâ íá êÛíáôâ mount êáé íá ÷ñcôéiĩđiépóáôâ ôi CCD óáo ìÝòù ôcò óóóêãõPò /dev/ccd0c.

ἵά θεῦ ἀοῖάου ἐάε ἀὼΎέέοῖ ἀῖαέεάέοέεῦ ὀῖο CCD ἀῖῖάέ ὀῖ Vinum. Δᾶñέοόῦδᾶñᾶ ὀέçñῖῡῖñḂᾶ ὀῖῖ Vinum Project home page (<http://www.vinumvm.org/>).

