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#####, #####, #####  
#####  
#####  
#####  
#####

## 2. #####

##### 7.X, ##  
##### (#, #####, #####  
#####), ##  
##### 7.0  
#####

##### geom\_journal.ko #  
## (#####) #  
##### gjournal ##  
## /usr. ##### # /usr. #####  
(#. #####).

#####  
#####  
###, ##### (data provider), #  
##### (journal provider).  
#####  
#####  
#####  
##### gjournal  
#####

- ## /usr, ## /dev/ad0s1f, #####
- ## /dev/ad0s1g.

#####, ##### ## #####-  
#####

- ##### gjournal, ##### /dev/ad0s1f.journal, ##-  
##### /dev/ad0s1f #####, # /dev/ad0s1g # #####.  
#####

#####, ##### ##-  
#####, # ## #####. #####-  
###, ## ##### 1 ## #####  
##### /usr, # ## #####-  
### #####/##### (#####) #####  
#####. ### ##### ## #####  
##### ## ##, # ## #####



### #####

##### ##, ## #####, #####  
#####, ##### # #####-  
##### (## #####) #####-  
##### ## #####). ##-  
## ##### ##-  
#####, ## ## #####  
#####: ##### ##-  
##### # 30% #####, ##### ##-  
## ## ##### 1 ## ##, ##### ##-  
##### ##### 3.3 ##. (##### ##-  
### ## # 3.3 ####, #####)

### #####, #####, #####-  
#####(8).

## 3. #####, ##### ## #####

### 3.1. #####

##### ##-  
##### ## #####. #####, ##  
##### (## #####), #####  
##### ## #####: ##### ##-  
### /var, # ## ## /usr #####-  
## #####, ## ## ## # #####  
##### /usr.



#####

```
# #####
### #####: /usr # /var. #####
#####
```

#####

#####

#####

```
FreeBSD Disklabel Editor
Disk: ad0 Partition name: ad0s1 Free: 0 blocks (0MB)
Part Mount Size Newfs Part Mount Size Newfs
-----
ad0s1a / 512MB UFS2 Y
ad0s1b swap 478MB SWAP
ad0s1d /var 1263MB UFS2+S Y
ad0s1e /tmp 512MB UFS2+S Y
ad0s1f /usr 77103MB UFS2+S Y
ad0s1g swap 1024MB SWAP
ad0s1h swap 1024MB SWAP

The following commands are valid here (upper or lower case):
C = Create D = Delete M = Mount pt.
N = Newfs Opts Q = Finish S = Toggle SoftUpdates Z = Custom Newfs
T = Toggle Newfs U = Undo A = Auto Defaults R = Delete+Merge

Use F1 or ? to get more help, arrow keys to select.
```

#####

```
#####  
#####
```

```
##### 1. #####
```

#####	#####	#####
##0#1#	/###	##0#1#
##0#1#	/###	##0#1#

```
#####  
#####
```

### 3.2. #####

```
#####  
#####  
#####
```

```
#####
```

## 4. #####

### 4.1. ##### gjournal

```
#####  
#####
```

```
# shutdown now
```

```
#####  
#####
```

```
# umount -usr -/var
```

```
#####
```

```
# gjournal load
```

```
#####  
#####
```



```
#####  
#####
```



```
#####  
#####, ##  
#####!
```

```
# #####, ##### /boot/loader.conf: ##### #  
#####(8) #####
```

```
geom_journal_load="YES"
```

```
#####! #####. ##  
##### exit ##  
##### (#####). ##  
#####:
```

```
ad0: 76293MB XEC XE800JD-00HBC0 08.02D08 at ata0-master SATA150  
GEOM_JOURNAL: Journal 2948326772: ad0s1g contains journal.  
GEOM_JOURNAL: Journal 3193218002: ad0s1h contains journal.  
GEOM_JOURNAL: Journal 3193218002: ad0s1d contains data.  
GEOM_JOURNAL: Journal ad0s1d clean.  
GEOM_JOURNAL: Journal 2948326772: ad0s1f contains data.  
GEOM_JOURNAL: Journal ad0s1f clean.
```

```
#####  
#####:
```

```
GEOM_JOURNAL: Journal ad0s1d consistent.
```

```
## #####, ## #####(8) ##### #  
#####
```

#### 4.2. #####

```
#####,  
#####  
##### #  
## #####, ##  
##### /dev/ad1s1d. #####
```

```
# journal label ad1s1d
```

```
##### # 1 ##  
##### -s. ##### #  
##### (##### K, M ## G). ##### journal ##  
#####
```



```
#####  
#####
```

```
##### geom_journal_load, #####, #####-  
#####  
##### (##### #-  
#####).
```

```
# journal load
```

```
GEOM_JOURNAL: Journal 2948326772: ad0s1g contains journal.  
GEOM_JOURNAL: Journal 3193218002: ad0s1h contains journal.  
GEOM_JOURNAL: Journal 3193218002: ad0s1d contains data.  
GEOM_JOURNAL: Journal ad0s1d clean.  
GEOM_JOURNAL: Journal 2948326772: ad0s1f contains data.  
GEOM_JOURNAL: Journal ad0s1f clean.
```

```
# mount -a  
# exit  
(boot continues)
```

```
##### # geom_journal_load #####, ## ##### /etc/fstab. #####  
##### # ##### #-  
##### #-  
#####.
```

```
#- ##### # ##### # ##### # #####  
###: ##### # #####? 
```

```
#- #####. #####  
###: #####. ##### # #####  
#####
```

```
##### root # ##### # #####:
```

```
# shutdown now
```

```
#####:
```

```
# umount -/usr -/var
```

```
#####:
```

```
# journal sync
```

```
#####:
```

```
# journal stop ad0s1d.journal  
# journal stop ad0s1f.journal
```

```
#####:
```

### #####

```
# gjournal clear ad0s1d
# gjournal clear ad0s1f
# gjournal clear ad0s1g
# gjournal clear ad0s1h
```

#####

```
# tunefs --J disable --n enable ad0s1d
```

```
tunefs: gjournal cleared
tunefs: soft updates set
```

```
# tunefs --J disable --n enable ad0s1f
```

```
tunefs: gjournal cleared
tunefs: soft updates set
```

##### (#####)

```
# mount -o rw -/dev/ad0s1d -/var
```

```
# mount -o rw -/dev/ad0s1f -/usr
```

##### /etc/fstab # #####

/dev/ad0s1f	-/usr	ufs	rw	2	2
/dev/ad0s1d	-/var	ufs	rw	2	2

#####, #####, ##### geom\_journal, ## ##### /boot/loader.conf # #####.

## 6. ### #####

##### # #####, # ###  
#####, ## ### #####. #####, ## #####  
#####

- #####, #####.
- ##### # #####, #####  
<pid@FreeBSD.org> # #####(8).
- ##### # <ivoras@FreeBSD.org> # #####.
- #####(8) # #####(8).