Frequently Asked Questions

Question

$ 0 9 ; > 2 0 O A 8 A B 5 < 0 ZFS

Answer

7 O B >   > B A N 4 0   8 G C B L 4 > 1 0 2 ; 5 = >. 2 ? 8 A 0 = > ? @ > A > ; O @ 8 A, = > D @ O B > 6 5 C < 5 5 B 8 A ? > ; L 7 > 2 0 B L M B > B B 8 ? D A, 0 < = 5 > = 4 > A B 0 ; A O 2 VPS.

 0 < 5 B 8 ;, G B > = 0 % 0 1 @ 5 < = > 3 > A B 0 B 5 9 ? @ > ZFS. 2 > B, @ 5 H 8 ; = 0 ? 8 A 0 B L : @ 0 B : > 5 @ C : > 2 > 4 A B 2 >, : 0 : 6 5 M B > 9 ZFS ? > ; L 7 > 2 0 B L A O.   : 0 G 5 A B 2 5 ! 1 C 4 C @ 0 A A < 0 B @ 8 2 0 B L Solaris, B. :. ZFS 8 7 = 0 G 0 ; L = > @ 0 7 @ 0 1 0 B K 2 0 ; 0 A L 4 ; O ! > ; O @ K 4 0 8 ? > 7 = 0 : > < 8 ; A O A ZFS O 8 < 5 = = > B 0 <. > = 8 < 0 N, G B > < 0 ; > C : > 3 > A B > 8 B Open Solaris = 0 4 5 A : B > ? 5, 0 0 4 < 8 = 8 A B @ 0 B > @ K Solaris 8 B 0 : 4 > ; 6 = K M B > 7 = 0 B L. > < > 6 5 B : > < C 8 ? @ 8 3 > 4 8 B A O.

 ; O = 0 G 0 ; 0, G B > 6 5 B 0 : > 5 ZFS 8 2 G 5 < 5 5 ? @ 5 8 < C I 5 A B 2 0 ? 5 @ 5 4 A C I 5 A B 2 C N I 8 < 8 D 0 9 ; > 2 K < 8 A 8 A B 5 < 0 < 8. @ 8 2 5 4 C ; 8 H L : @ 0 B : 8 9 A ? 8 A > : ? ; N A > 2 ZFS.

 ZFS O 2 ; O 5 B A O 128 1 8 B = > 9 D 0 9 ; > 2 > 9 A 8 A B 5 < > 9. 0 : A 8 < 0 ; L = K 9 @ 0 7 < 5 @ ? C ; 0   16 M : 7 0 1 0 9 B (18 < ; = " 5 @ 0 1 0 9 B) 0 : A 8 < 0 ; L = > 5 : > ; 8 G 5 A B 2 > D 0 9 ; > 2 2 > 4 = > < ? C ; 5 20 E1012 .
 ZFS O 2 ; O 5 B A O self-healing A 8 A B 5 < > 9. ZFS 8 A ? > ; L 7 C 5 B 256- 1 8 B = K 9 : > = B @ > ; L = K 5 A C < < K 4 ; O ? @ > 2 5 @ : 8 4 0 = = K E.
  > 7 2 > ; O 5 B 4 > 1 0 2 ; O B L ? C ; K 8 ; 8 6 5 = 0 @ 0 I 8 2 0 B L 5 < > A B L ? C ; 0 1 5 7 > A B 0 = > 2 : 8 A 8 A B 5 < K 8 ; 8 6 5 ? @ 8 ; > 6 5 = 8 9
  G 5 = L 3 8 1 : 0 O > @ 3 0 = 8 7 0 F 8 O RAID' > 2.

 5 < > 3 > B 5 @ < 8 = > ; > 3 8 8

 checksum   > = B @ > ; L = 0 O A C < < 0. 256- @ 0 7 @ O 4 = K 9 E 5 H- : > 4 4 0 = = K E 2 1 ; > : 5 D 0 9 ; > 2 > 9 A 8 A B 5 < K.
 clone   ; > =. $ 0 9 ; > 2 0 O A 8 A B 5 < 0, 8 A E > 4 = > 5 A > 4 5 @ 6 8 < > 5 : > B > @ > 9 8 4 5 = B 8 G = > A > 4 5 @ 6 8 < > < C A = 0 ? H > B 0.
 snapshot   ! = 8 < > :. 1 @ 0 7 D 0 9 ; > 2 > 9 A 8 A B 5 < K 8 ; 8 B > < 0 2 > ? @ 5 4 5 ; 5 = = K 9 < > < 5 = B 2 @ 5 < 5 = 8, 4 A B C ? = K 9 B > ; L > 4 ; O G B 5 = 8 O.
 dataset   0 1 > @ 4 0 = = K E. 1 I 5 5 = 0 7 2 0 = 8 5 A ; 5 4 C N I 8 E > 1 J 5 : B > 2 ZFS: : ; > = > 2, D 0 9 ; > 2 K E A 8 A B 5 <, A = 8 < : > 2 8 8 B > < > 2.
  0 6 4 K 9 = 0 1 > @ 4 0 = = K E 8 4 5 = B 8 D 8 F 8 @ C 5 B A O ? > C = 8 : 0 ; L = > < C

8 < 5 = 8 2 ? @ > A B @ 0 = A B 25 8 < 5 = ZFS.   0 1 > @ K 4 0 = = K E
> ? @ 5 4 5 ; O N B A O A ? > < > I L N A ; 5 4 C N I 5 3 > D > @ < 0 B 0 : ? C ;/ ? C B L[
@ A = 8 < > :]
  pool   C ;. > 3 8 G 5 A : 0 O 3 @ C ? ? 0 C A B @ > 9 A B 2, > ? 8 A K 2 0 N I 0 O
@ 0 7 < 5 I 5 = 85 8 D 8 7 8 G 5 A : 85 E 0 @ 0 : B 5 @ 8 A B 8 : 8 4 > A B C ? = > 3 >
? @ > A B @ 0 = A B 2 0 4 ; E @ 0 = 5 = 8 O 4 0 = = K E.   7 ? C ; 1 5 @ 5 B A O
? @ > A B @ 0 = A B 2 > 4 ; O = 0 1 > @ > 2 4 0 = = K E.
  volume   " > <. 0 1 > @ 4 0 = = K E, 8 A ? > ; L 7 C 5 < K 9 4 ; O
M < C ; 8 @ > 2 0 = 8 O D 8 7 8 G 5 A : : > 3 > C A B @ > 9 A B 2 0.   0 ? @ 8 < 5 @, < > 6 = >
A > 7 4 0 B L B > < ZFS 2 : 0 G 5 A B 25 C A B @ > 9 A B 2 0 ? > 4 : 0 G : 8.

! > 1 A B 2 5 = = > @ C : > 2 4 A B 2 >

  Solaris @ 0 1 > B 0 A ZFS 8 4 5 B 2 > A = > 2 = > < G 5 @ 5 7 2 : < > 0 = 4 K. - B > zpool 8 zfs.

zpool   @ 0 1 > B 0 A ? C ; 0 < 8.   E A > 7 4 0 = 85, 8 7 < 5 = 5 = 85, C 4 0 ; 5 = 85 8
B. 4.

zfs   @ 0 1 > B 0 A A 0 < > 9 D 0 9 ; > 2 > 9 A 8 A B 5 < > 9.

  B 0 :, 8 7 G 5 3 > 6 5 < > 6 = > A > 7 4 0 B L ? C ; ? 0 8 7 G 5 3 > 6 5 C 3 > 4 = >. B
D 0 9 ; > 2 ? > 4 4 @ C 3 > 9 D A, 4 > 4 8 A : > 2 2 4 8 A : > 2 > < < 0 A A 8 2 5.

  @ 8 < 5 @ K A > 7 4 0 = 8 O ? C ; 0 MyPool

! > 7 4 0 = 85 ? C ; 0 8 7 D 0 9 ; > 2 /zfs1/disk01 8 /zfs1/disk02 A > 7 4 0 = = K E
: > < 0 4 > 9 mkfile
zpool create MyPool /zfs1/disk01 /zfs1/disk02

! > 7 4 0 = 85 ? C ; 0 8 A ? > ; L 7 C O > 1 K G = K 9 A ; 0 9 A
zpool create MyPool c1t0d0s0

! > 7 4 0 = 85 ? C ; 0 c 7 5 @ : 0 ; 8 @ > 2 0 = 85 < 8 8 A ? > ; L 7 > 2 0 = 85 < spare
4 8 A : > 2.
zpool create MyPool mirror c1t0d0 c2t0d0 mirror c1t0d1 c2t0d1
zpool create MyPool mirror c1t0d0 c2t0d0 spare c3t0d0

! ? 8 A > : 20 H 8 E ? C ; > 2 8 8 E A B 0 B C A < > 6 = > ? > A < > B @ 5 B L A
? > < > I L N : > < 0 4 0
zpool list
NAME SIZE USED AVAIL CAP HEALTH ALTROOT
MyPool 191M 94K 191M 0% ONLINE -

zpool status -v

pool: MyPool
state: ONLINE
scrub: none requested
config:

NAME STATE READ WRITE CKSUM
MyPool ONLINE 0 0 0
/disk1 ONLINE 0 0 0
/disk2 ONLINE 0 0 0

! B 0 B C A K < > 3 C B 1 K B L A ; 5 4 C N I 8 5

  DEGRADED   4 8 = 8 ; 8 = 5 A : > ; L : > C A B @ > 9 A B 2 0 2 5 @ E = 5 3 >
C @ > 2 = O = 0 E > 4 O B A O 2 = 5 @ 0 1 > G 5 < A > A B > O = 8 8, B. ∴ 1 K ; 8
> B : ; N G 5 = K. > 4 0 ; L = 5 9 H 5 5 D C = : F 8 > = 8 @ > 2 0 = 8 5
2 > 7 < > 6 = >.
  FAULTED   4 8 = 8 ; 8 = 5 A : > ; L : > C A B @ > 9 A B 2 0 2 5 @ E = 5 3 > C @ > 2 = O
= 0 E > 4 O B A O 2 A > A B > O = 8 8 FAULT. 0 ; L = 5 9 H 5 5
D C = : F 8 > = 8 @ > 2 0 = 8 5 = 5 2 > 7 < > 6 = >.
  OFFLINE   C ; 1 K ; > B : ; N G 5 = : > < 0 = 4 > 9 «zpool offline ».
  ONLINE   C ; = 0 E > 4 8 B A O 2 A > A B > O = 8 8 ONLINE 8 = > @ < 0 ; L = >
D C = : F 8 > = 8 @ C 5 B.
  REMOVED   # A B @ > 9 A B 2 > (C ;) 1 K ; > D 8 7 8 G 5 A : 8 C 4 0 ; 5 = > ? @ 8
@ 0 1 > B N I 5 9 A 8 A B 5 < 5.
  UNAVAIL   # A B @ > 9 A B 2 > (C ;) = 5 4 > A B C ? = >.

  7 < 5 = 5 = 8 5 ? C ; 0 MyPool

> 1 0 2 ; 5 = 8 5 8 C 4 0 ; 5 = 8 5 M ; 5 < 5 = B 2 (4 8 A : > 2) 8 7 ? C ; 0, = 5
8 A ? > ; L 7 C N I 5 3 > 7 5 @ : 0 ; 8 @ > 2 0 = 8 5 > A C I 5 A B 2 ; O 5 B A O A
? > < > I L N : > < 0 4:
zpool add MyPool /zfs1/disk3
zpool remove MyPool /disk3

> 1 0 2 ; 5 = 8 5 8 C 4 0 ; 5 = 8 5 M ; 5 < 5 = B 2 (4 8 A : > 2) 8 7 ? C ; 0, c
7 5 @ : 0 ; 8 @ > 2 0 = 8 5v > A C I 5 A B 2 ; O 5 B A O A ? > < > I L N : > < 0 4:
zpool attach MyPool /disk1 /disk3
zpool detach MyPool /disk1 /disk3

2 > 4 M ; 5 < 5 = B 0 2 A > A B > O = 8 5 offline A = 5 2 > 7 < > 6 = > A B L N
G B 5 = 8 O/ 7 0 ? 8 A 8 4 > 2 2 > 4 0 2 A > A B > O = 8 5 online (8 A ? > ; L 7 C O : ; N G -t
< > 6 = > 2 2 5 A B 8 M ; 5 < 5 = B 2 A > A B > O = 8 5 offline B > ; L : > 4 > @ 5 1 C B 0)
zpool offline MyPool /disk1

0 : M B > > B > 1 @ 0 7 8 B A O = 0   C ; 5 2 F 5 ; > <:

```
zpool status -v
pool: myzfs
state: DEGRADED
status: One or more devices has been taken offline by the administrator.
Sufficient replicas exist for the pool to continue functioning
in a degraded state.
action: Online the device using 'zpool online' or replace the device
with 'zpool replace'.
scrub: resilver completed with 0 errors on Tue Sep 11 13:39:25 2007
config:

NAME STATE READ WRITE CKSUM
myzfs DEGRADED 0 0 0
mirror DEGRADED 0 0 0
/disk1 OFFLINE 0 0 0
/disk2 ONLINE 0 0 0
```

\#   > 1 @ 0 B = > online

```
zpool online MyPool /disk1
```

\# 0 < 5 = 0 > 4 = > 3 > M ; 5 < 5 = B 0 ? C ; 0 = 0 4 @ C 3 > 9

```
zpool replace MyPool /disk1 /disk3
```

! > 7 4 0 = 8 5 8 @ 0 1 > B 0 A D 0 9 ; > 2 > 9 A 8 A B 5 < > 9

\# ! > 7 4 0 5 < D 0 9 ; > 2 C N A 8 A B 5 < C

```
zfs create MyPool/systemname
```

> ? F 8 5 9 - > < K < > 6 5 < 2 K 1 @ 0 B L B > G : C < > = B 8 @ > 2 0 = 8 O,
> B ; 8 G = C N > B /MyPool/systemname

\# 5 7 5 @ 2 8 @ C 5 < < 5 A B > ? > 4 A 2 > N D 0 9 ; > 2 C N A 8 A B 5 < C

```
zfs set reservation=20m MyPool/systemname
```

\# \# A B 0 = 0 2 ; 8 2 0 5 < : 2 > B C 4 ; O 2 0 H 5 9 D 0 9 ; > 2 > 9 A 8 A B 5 < K,
: > B > @ C N = 5 A < > 6 5 B 5 ? @ 5 2 K A 8 B L

```
zfs set quota=20m MyPool/systemname
```

\# : ; N G 0 5 < : > < ? @ 5 A A 8 N.

```
zfs set compression=on MyPool/systemname
```

\# 0 A H 0 @ 8 2 0 5 < = 0 H C D 0 9 ; > 2 C N A 8 A B 5 < C.

```
zfs set sharenfs=on MyPool/systemname  2 NFS
zfs set sharesmb=on MyPool/systemname  2 SMB
```

_____

! = 8 < 0 5 < A = 0 ? H > B

zfs snapshot MyPool/systemname@hostname

" 0 : : 0 : A = 0 ? H > B   M B > ? @ > A B > A = 8 < > : A 8 A B 5 < K 2 4 0 = = K 9
 < > < 5 = B, B > 8 = > > 3 4 0 A B > 8 B A > 7 4 0 2 0 B L : ; > = 0.

zfs clone MyPool/systemname@hostnameyPool/systemname2

4 0 ; O 5 < D 0 9 ; > 2 C N A 8 A B 5 < C.   A ; 8 A C I 5 A B 2 C N B D 0 9 ; > 2 K 5
 A 8 A B 5 < K- = 0 A ; 5 4 = 8 : 8, = 0 4 > 8 A ? > ; L 7 > 2 0 B L : ; N G -f

zfs destroy MyPool/systemname

 0 : 2 8 4 8 B 5, = 8 G 5 3 > A ; > 6 = > 3 > A ZFS = 0 = 0 G 0 ; L > < M B 0 ? 5 = 5 B.
 G 5 = L 8 > G 5 = L 3 8 1 : 0 O H B C : 0.

_____

zfs snapshot storage/home@08-30-08

 0 < 5 B L B 5, G B > A = 8 < > : (snapshot) 7 0 E 2 0 B 8 B @ 5 0 ; L = C N D 0 9 ; > 2 C N
A 8 A B 5 < C, 0 = 5 4 > < 0 H = 8 9 : 0 B 0 ; > 3 8 ; 8 D 0 9 ;. ! 8 < 2 > ; ; @ > B 4 5 ; O 5 B
8 < O D 0 9 ; > 2 > 9 A 8 A B 5 < K 8 ; 8 8 < O B > 0 > B 8 < 5 = 8 A = 8 < : 0.   > 3 4 0
2 > 7 = 8 : = 5 B = 5 > 1 E > 4 8 < > A B L 2 > A A B 0 = > 2 8 B L
? > ; L 7 > 2 0 B 5 ; L A : 8 5 4 > < 0 H = 8 5 : 0 B 0 ; > 3 8, 2 K ? > ; = 8 B 5
A ; 5 4 C N I C N : > < 0 = 4 C:

zfs rollback storage/home@08-30-08

' B > 1 K ? > ; C G 8 B L A ? 8 A > : 8 < 5 N I 8 E A O 2 = 0 ; 8 G 8 8 A = 8 < : > 2,
2 K ? > ; = 8 B 5 : > < 0 = 4 C ls 2 : 0 B 0 ; > 3 5 .zfs/snapshot.   0 ? @ 8 < 5 @, G B > 1 K
C 2 8 4 5 B L A 4 5 ; 0 = = K 9 @ 0 = 5 5 A = 8 < > :, 2 K ? > ; = 8 B 5 A ; 5 4 C N I C N
: > < 0 = 4 C:

ls /storage/home/.zfs/snapshot

_____

! = 0 ? H > B K, : ; > = K 8 @ 5 ? ; 8 : 8 2 ZFS on Linux

 5 @ 5 2 > 4:   ; 5 : A 5 9 $ 5 4 > @ G C :

 > H 0 3 > 2 > 5 @ C : > 2 > 4 A B 2 > ? > @ 0 1 > B 5 A > A = 0 ? H > B 0 < 8,
: ; > = 0 < 8 @ 5 ? ; 8 : 0 < 8 ZFS   A 0 < K < 8 > > I = K < 5 Q D C = : F 8 O < 8.

! > 4 5 @ 6 0 = 8 5
! = 0 ? H > B K ZFS: > 1 7 > @

! = 0 ? H > B   < > > 5 = B 0 ; L = 0 O : > ? 8 O D 0 9 ; > 2 > 9 A 8 A B 5 < K 8 ; 8

B > < 0, = 5 B @ 5 1 C N I 0 O 4 > ? > ; = 8 B 5 ; L = > 3 > < 5 A B 0 2 ? C ; 5 ZFS.
8 A : > 2 > 5 ? @ > A B @ 0 = A B 2 > B @ 5 1 C 5 B A O B > ; L : > 4 ; O 7 0 ? 8 A 8
8 7 < 5 = Q = = K E 1 ; > : > 2 : 7 0 ? 8 A K 2 0 N B A O B > ; L : > @ 0 7 ; 8 G 8 O
< 5 6 4 C B 5 : C I 8 < = 0 1 > @ > < 4 0 = = K E 8 ? @ 5 4 K 4 C I 9 5 3 >
2 5 @ A 8 9.

" 8 ? 8 G = K 9 ? @ 8 < 5 @ 8 A ? > ; L 7 > 2 0 = 8 O A = 0 ? H > B 0 1 K A B @ > 5
? > ; C G 5 8 5 @ 5 7 5 @ 2 = > 9 : > ? 8 8 D 0 9 ; > 2 > 9 A 8 A B 5 < K 7 5 @ 5 4
2 K ? > ; ; = 5 = 8 5 < @ 8 A : > 2 0 = = K E 4 5 9 A B 2 8 9 2 @ > 4 5 C A B 0 = > 2 : 8
= > 2 > 3 > A > D B 0 8 ; 8 > 1 = > 2 ; 5 = 8 O A 8 A B 5 < K.
! > 7 4 0 = 8 5 8 C 4 0 ; 5 = 8 5 A = 0 ? H > B > 2

! = 8 < : 8 B > < > 2 = 0 ? @ O < C N = 5 4 > A B C ? = K, = > 8 E < > 6 = >
: ; > = 8 @ > 2 0 B L, 1 M : 0 ? 8 B L 8 2 > A A B 0 = 0 2 ; 8 2 0 B L. ; O A > 7 4 0 = 8 O 8
C 4 0 ; 5 8 O A = 0 ? H > B > 2 8 A ? > ; L 7 C N B A O : > < 0 = 4 K zfs snapshot 8 zfs destroy

! > 7 4 0 Q < ? C ; A 8 < 5 = 5 < datapool:

```
# zpool create datapool mirror /dev/sdb /dev/sdc
# zpool list
NAME     SIZE ALLOC  FREE EXPANDSZ FRAG  CAP DEDUP HEALTH ALTROOT
datapool 1.98G 65K 1.98G     -  0%   0% 1.00x ONLINE -
```

< 5 O ? C ; A 8 < 5 = 5 < datapool, = 0 4 > A > 7 4 0 B L D 0 9 ; > 2 C N A 8 A B 5 < C ZFS
4 ; O < > 4 5 ; 8 @ > 2 0 = 8 O D C = : F 8 9 A = 0 ? H > B 0:

```
# zfs create datapool/docs -o mountpoint=/docs
# zfs list -r datapool
NAME        USED AVAIL REFER MOUNTPOINT
datapool    93.5K 1.92G  19K /datapool
datapool/docs  19K 1.92G  19K /docs
```

; O A > 7 4 0 = 8 O A = 0 ? H > B 0 8 A ? > ; L 7 C 5 B A O : > < 0 = 4 0 zfs snapshot A
C : 0 7 0 = 8 5 < 8 < 5 = 8 ? C ; 8 8 < 5 = A = 0 ? H > B 0. < O A = 0 ? H > B 0
4 > ; 6 = > 2 K 3 ; O 4 5 B L B 0 ::

```
filesystem@snapname
```

8 ; 8

```
volume@snapname
```

" > 5 A B L:

```
# zfs snapshot datapool/docs@version1
# zfs list -t snapshot
NAME            USED  AVAIL  REFER  MOUNTPOINT
```

datapool/docs@version1   0   - 19.5K -

" 5 ? 5 @ L A = 0 ? H > B datapool/docs A > 7 4 0 =.

 ; O C 4 0 ; 5 = 8 O A = 0 ? H > B 0 8 A ? > ; L 7 C 5 B A O : > < 0 = 4 0 zfs destroy:

```
# zfs destroy datapool/docs@version1
# zfs list -t snapshot
no datasets available
```

 B : 0 B A = 0 ? H > B 0

 ; O < > 4 5 ; 8 @ > 2 0 = 8 O ? @ > F 5 A A 0 = C 6 = > A > 7 4 0 B L B 5 A B > 2 K 9
D 0 9 ; 2 : 0 B 0 ; > 3 5 /docs:

```
# echo "version 1" > /docs/data.txt
# cat /docs/data.txt
version 1
```

 0 B 5 <:

```
# zfs snapshot datapool/docs@version1
# zfs list -t snapshot
NAME                USED  AVAIL  REFER  MOUNTPOINT
datapool/docs@version1    9K    - 19.5K -
```

" 5 ? 5 @ L 8 7 < 5 = 8 < A > 4 5 @ 6 8 < > 5 D 0 9 ; 0 data.txt:

```
# echo "version 2" > /docs/data.txt
# cat /docs/data.txt
version 2
```

 B 5 ? 5 @ L < > 6 = > 2 5 @ = C B L D 0 9 ; > 2 C N A 8 A B 5 < C 2 B >
A > A B > O = 8 5, 2 : > B > @ > < > = 0 1 K ; 0 2 < > < 5 = B A > 7 4 0 = 8 O
? @ 5 4 K 4 C I 5 9 : > ? 8 8:

```
# zfs list -t snapshot
NAME                USED  AVAIL  REFER  MOUNTPOINT
datapool/docs@version1  9.50K    - 19.5K -
# zfs rollback datapool/docs@version1
# cat /docs/data.txt
version 1
```

 7 2 K 2 > 4 0 ? > A ; 5 4 = 5 9 : > < 0 4 K < > 6 = > 2 8 4 5 B L, G B >
A > 4 5 @ 6 8 < > 5 D 0 9 ; 0 data.txt A B 0 ; > ? @ 5 6 = 8 < (B > 5 A B L
A > > B 2 5 B A B 2 C 5 B 2 5 @ A 8 8 1).

; O ? 5 @ 5 8 < 5 = > 2 0 = 8 O A = 0 ? H > B 0 < > 6 = > 8 A ? > ; L 7 > 2 0 B L
: > < 0 = 4 C zfs rename:

```
# zfs rename datapool/docs@version1 datapool/docs@version2
# zfs list -t snapshot
NAME                USED  AVAIL  REFER  MOUNTPOINT
datapool/docs@version2 9.50K    - 19.5K -
```

@ 8 < 5 G 0 = 8 5: = 0 1 > @ 4 0 = = K E = 5 ; L 7 O C 4 0 ; 8 B L, 5 A ; 8
A C I 5 A B 2 C N B 5 3 > A = 0 ? H > B K. > M B > < > 6 = > A 4 5 ; 0 B L,
8 A ? > ; L 7 C O > ? F 8 N -r. " > 5 A B L B 0 : = 5 ? > ; C G 8 B A O:

```
# zfs destroy datapool/docs
cannot destroy 'datapool/docs': filesystem has children
use '-r' to destroy the following datasets:
datapool/docs@version2
```

? > ; C G 8 B A O B 0 ::

```
# zfs destroy -r datapool/docs
# zfs list -t snapshot
no datasets available
```

; > = K ZFS: > 1 7 > @

; > =   M B > B > < 8 ; 8 D 0 9 ; > 2 0 O A 8 A B 5 < 0, 4 > A B C ? = K 5 4 ; O
7 0 ? 8 A 8, A > 4 5 @ 6 8 < > 5 : > B > @ K E A > 2 ? 0 4 0 5 B A = 0 1 > @ > <
4 0 = = K E, 8 7 : > B > @ K E > = 8 1 K ; 8 A > 7 4 0 = K.
! > 7 4 0 = 8 5 8 C 4 0 ; 5 = 8 5 : ; > = > 2

; > = < > 6 = > A > 7 4 0 B L B > ; L : > 8 7 A = 0 ? H > B 0, 8 A = 0 ? H > B
= 5 ; L 7 O C 4 0 ; 8 B L, ? > : 0 = 5 C 4 0 ; Q = 5 3 > : ; > =. ; O A > 7 4 0 = 8 O
: ; > = 0 8 A ? > ; L 7 C 5 B A O : > < 0 = 4 0 zfs clone.

! > 7 4 0 = 8 5 D 0 9 ; > 2 > 9 A 8 A B 5 < K:

```
# zfs create datapool/docs -o mountpoint=/docs
# zfs list -r datapool
NAME          USED  AVAIL  REFER  MOUNTPOINT
datapool      93.5K  1.92G   19K  /datapool
datapool/docs   19K  1.92G   19K  /docs
```

! > 7 4 0 = 8 5 5 Q : > = B 5 = B 0:

```
# mkdir /docs/folder{1..5}
# ls /docs/
folder1  folder2  folder3  folder4  folder5
```

! > 7 4 0 = 8 5 A = 0 ? H > B 0:

```
# zfs snapshot datapool/docs@today
# zfs list -t snapshot
NAME                USED AVAIL REFER MOUNTPOINT
datapool/docs@today    0    -   19K -
```

! > 7 4 0 = 8 5 : ; > = 0 A = 0 ? H > B 0 datapool/docs@today:

```
# zfs clone datapool/docs@today datapool/pict
# zfs list
NAME           USED  AVAIL  REFER  MOUNTPOINT
datapool       166K  1.92G   19K  /datapool
datapool/docs   19K  1.92G   19K  /docs
datapool/pict    1K  1.92G   19K  /datapool/pict
```

 @ > F 5 A A : ; > = 8 @ > 2 0 = 8 O 7 0 : > = G 5 =, A = 0 ? H > B datapool/docs@today 1 K ;
: ; > = 8 @ > 2 0 = 2 datapool/pict.   @ > 2 5 @ : 0 ? > : 0 7 K 2 0 5 B, G B >
A > 4 5 @ 6 8 < > 5 8 E > 4 8 = 0 : > 2 >:

```
# ls /datapool/pict
folder1  folder2  folder3  folder4  folder5
```

 > A ; 5 : ; > = 8 @ > 2 0 = 8 O A = 0 ? H > B 0 53 > = 5 ; L 7 O C 4 0 ; 8 B L, ? > : 0
= 5 C 4 0 ; Q = : ; > =:

```
# zfs destroy datapool/docs@today
cannot destroy 'datapool/docs@today': snapshot has dependent clones
use '-R' to destroy the following datasets:
datapool/pict
```

 # 4 0 ; 5 = 8 5 : ; > = 0:

```
# zfs destroy datapool/pict
```

 " 5 ? 5 @ L, = 0 : > = 5 F, < > 6 = > C 4 0 ; 8 B L A = 0 ? H > B:

```
# zfs destroy datapool/docs@today
# zfs list -t snapshot
no datasets available
```

 5 ? ; 8 : 8 ZFS: > 1 7 > @

 5 ? ; 8 : 0 F 8 O ZFS > A = > 2 0 = 0 = 0 A = 0 ? H > B 0 E, : > B > @ K 5 < > 6 = >
A > 7 4 0 2 0 B L 2 ; N 1 > 5 2 @ 5 < O 8 2 ; N 1 > < : > ; 8 G 5 A B 2 5.
 > A B > O = = > A > 7 4 0 2 0 O, ? 5 @ 5 < 5 I 0 O 8 2 > A A B 0 = 0 2 ; 8 2 0 O
A = 0 ? H > B K, < > 6 = > > 15 A ? 5 G 8 B L A 8 = E @ > = 8 7 0 F 8 N < 5 6 4 C

> 4 = > 9 8 ; 8 = 5 A : > ; L : 8 < 8 < 0 H 8 = 0 < 8. ZFS ? @ 5 4 > A B 0 2 ; O 5 B
2 A B @ > 5 = = C N D C = : F 8 N A 5 @ 8 0 ; 8 7 0 F 8 8, : > B > @ 0 O < > 6 5 B
> B ? @ 0 2 ; O B L ? > B > : > 2 > 5 ? @ 5 4 A B 0 2 ; 5 = 8 5 4 0 = = K E = 0
A B 0 = 4 0 @ B = K 9 2 K 2 > 4.
 > = D 8 3 C @ 8 @ > 2 0 = 8 5 @ 5 ? ; 8 :

  M B > < @ 0 7 4 5 ; 5 O E > G C ? > : 0 7 0 B L 2 0 <, : 0 : @ 5 ? ; 8 F 8 @ > 2 0 B L
= 0 1 > @ 4 0 = = K E 8 7 datapool 2 backuppool.   > < > 6 = > = 5 B > ; L : >
E @ 0 = 8 B L 4 0 = = K 5 > 4 = > 3 > ? C ; 0 2 4 @ C 3 > < ; > : 0 ; L = > < ? C ; 5,
= > 8 > B ? @ 0 2 ; O B L ? > A 5 B 8 2 4 @ C 3 C N A 8 A B 5 < C. ; O @ 5 ? ; 8 : 0 F 8 8
4 0 = = K E 8 A ? > ; L 7 C N B A O : > < 0 = 4 K zfs send 8 zfs receive.

! > 7 4 0 = 8 5 = > 2 > 3 > ? C ; 0 A 8 < 5 = 5 < backuppool:

```
# zpool create backuppool mirror sde sdf
# zpool list
NAME       SIZE ALLOC  FREE EXPANDSZ  FRAG  CAP DEDUP  HEALTH ALTROOT
backuppool 1.98G   50K 1.98G      -   0%    0% 1.00x ONLINE -
datapool   1.98G  568K 1.98G      -   0%    0% 1.00x ONLINE -
```

  @ > 2 5 @ : 0 A B 0 B C A 0 ? C ; > 2:

```
# zpool status
 pool: datapool
state: ONLINE
 scan: none requested
config:

    NAME       STATE    READ WRITE CKSUM
    datapool   ONLINE    0    0    0
     mirror-0  ONLINE    0    0    0
       sdb     ONLINE    0    0    0
       sdc     ONLINE    0    0    0

errors: No known data errors

 pool: backuppool
state: ONLINE
 scan: none requested
config:

    NAME        STATE    READ WRITE CKSUM
    backuppool  ONLINE    0    0    0
     mirror-0   ONLINE    0    0    0
       sde      ONLINE    0    0    0
       sdf      ONLINE    0    0    0
```

errors: No known data errors

! > 7 4 0 = 8 5 = 0 1 > @ 0 4 0 = = K E 4 ; O @ 5 ? ; 8 : 0 F 8 8:

```
# zfs snapshot datapool/docs@today
# zfs list -t snapshot
NAME              USED  AVAIL  REFER  MOUNTPOINT
datapool/docs@today    0    -   19K -
# ls /docs/
folder1  folder2  folder3  folder4  folder5
```

0 A B 0 ; > 2 @ 5 < O @ 5 ? ; 8 : 0 F 8 8:

```
# zfs send datapool/docs@today | zfs receive backuppool/backup
# zfs list
NAME              USED  AVAIL  REFER  MOUNTPOINT
backuppool         83K 1.92G   19K  /backuppool
backuppool/backup  19K 1.92G   19K  /backuppool/backup
datapool          527K 1.92G   19K  /datapool
datapool/docs      19K 1.92G   19K  /docs
```

@ > 2 5 @ : 0 @ 5 7 C ; L B 0 B 0:

```
# ls /backuppool/backup
folder1  folder2  folder3  folder4  folder5
```

0 1 > @ 4 0 = = K E datapool/docs@today C A ? 5 H = > @ 5 ? ; 8 F 8 @ > 2 0 = 2
backuppool/backup.

5 ? ; 8 F 8 @ > 2 0 = 8 5 = 0 1 > @ 0 4 0 = = K E = 0 4 @ C 3 C N < 0 H 8 = C
2 K ? > ; = O 5 B A O B 0::

```
# zfs send datapool/docs@today | ssh otherserver zfs recv backuppool/backup
```

> B > 2 >.
0 : ; N G 5 = 8 5

! = 0 ? H > B K, : B > = K 8 @ 5 ? ; 8 C 8   A 0 < K 5 < > I = K 5 D C = : F 8 8 ZFS.
! = 0 ? H > B K 8 A ? > ; L 7 C N B A O 4 ; O ? 5 @ 8 > 4 8 G 5 A : > 3 > A > 7 4 0 = 8 O
: > ? 8 9 D 0 9 ; > 2 K E A 8 A B 5 <, : ; > = K   4 ; O A > 7 4 0 = 8 O
4 C 1 ; 8 @ C N I 8 E = 0 1 > @ > 2 4 0 = = K E, @ 5 ? ; 8 : 8   4 ; O ? 5 @ 5 > A 0
= 0 1 > @ 0 4 0 = = K E 8 7 > 4 = > 3 > ? C ; 0 4 0 = = K E 2 4 @ C 3 > 9 = 0 B > 9 6 5
< 0 H 8 = 5, 8 ; 8 4 ; O ? 5 @ 5 > A 0 < 5 6 4 C < 0 H 8 = 0 < 8.

Details

Info Monday 17 July 2017 - 04:27:52 by vampyr

Vampyr`s House!