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## Solaris ZFS Administration Guide

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### ▼ How to Replace a Disk in the ZFS Root Pool

You might need to replace a disk in the root pool for the following reasons:

- The root pool is too small and you want to replace it with a larger disk
- The root pool disk is failing. In a non-redundant pool, if the disk is failing so that the system won't boot, you'll need to boot from an alternate media, such as a CD or the network, before you replace the root pool disk.

In a mirrored root pool configuration, you might be able to attempt a disk replacement without having to boot from alternate media. You can replace a failed disk by using the `zpool replace` command or if you have an additional disk, you can use the `zpool attach` command. See the steps below for an example of attaching an additional disk and detaching a root pool disk.

Some hardware requires that you offline and unconfigure a disk before attempting the `zpool replace` operation to replace a failed disk. For example:

```
# zpool offline rpool c1t0d0s0
# cfdadm -c unconfigure c1::dsk/c1t0d0
<Physically remove failed disk c1t0d0>
<Physically insert replacement disk c1t0d0>
# cfdadm -c configure c1::dsk/c1t0d0
# zpool replace rpool c1t0d0s0
# zpool online rpool c1t0d0s0
# zpool status rpool
<Let disk resilver before installing the boot blocks>
SPARC# installboot -F zfs /usr/platform/`uname -i`/lib/fs/zfs/bootblk /dev/rdisk/c1t0d0s0
x86# installgrub /boot/grub/stage1 /boot/grub/stage2 /dev/rdisk/c1t9d0s0
```

On some hardware, you do not have to online or reconfigure the replacement disk after it is inserted.

Identify the boot device pathnames of the current and new disk so that you can test booting from the replacement disk and also manually boot from the existing disk, if necessary, if the replacement disk fails. In the example below, the current root pool disk ( `c1t10d0s0` ) is:

```
/pci@8,700000/pci@3/scsi@5/sd@a,0
```

In the example below, the replacement boot disk is ( `c1t9d0s0` ):

```
/pci@8,700000/pci@3/scsi@5/sd@9,0
```

1. Physically connect the replacement disk.
2. Confirm that the replacement (new) disk has an SMI label and a slice 0.

For information about relabeling a disk that is intended for the root pool, see the following site:

[http://www.solarisinternals.com/wiki/index.php/ZFS\\_Troubleshooting\\_Guide](http://www.solarisinternals.com/wiki/index.php/ZFS_Troubleshooting_Guide)

3. Attach the new disk to the root pool.

For example:

```
# zpool attach rpool c1t10d0s0 c1t9d0s0
```

4. Confirm the root pool status.

For example:

```
# zpool status rpool
pool: rpool
state: ONLINE
status: One or more devices is currently being resilvered.  The pool will
        continue to function, possibly in a degraded state.
action: Wait for the resilver to complete.
scrub: resilver in progress, 25.47% done, 0h4m to go
config:

    NAME                STATE          READ WRITE CKSUM
    rpool                ONLINE        0     0     0
      mirror             ONLINE        0     0     0
        ct110d0s0        ONLINE        0     0     0
        ct19d0s0        ONLINE        0     0     0

errors: No known data errors
```

5. After the resilvering is complete, apply the boot blocks to the new disk.

For example:

On a SPARC based system:

```
# installboot -F zfs /usr/platform/`uname -i`/lib/fs/zfs/bootblk /dev/rdisk/ct19d0s0
```

On an x86 based system:

```
# installgrub /boot/grub/stage1 /boot/grub/stage2 /dev/rdisk/ct19d0s0
```

6. Verify that you can boot from the new disk.

For example, on a SPARC based system:

```
ok boot /pci@8,700000/pci@3/scsi@5/sd@9,0
```

7. If the system boots from the new disk, detach the old disk.

For example:

```
# zpool detach rpool ct110d0s0
```

8. Set up the system to boot automatically from the new disk, either by using the `eeprom` command, the `setenv` command from the SPARC boot PROM, or reconfigure the PC BIOS.

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**Next:** [How to Create Root Pool Snapshots](#)

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