

11.12. Adding Swap Space

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Sometimes a system requires more swap space. This section describes two methods to increase swap space: adding swap to an existing partition or new hard drive, and creating a swap file on an existing partition.

For information on how to encrypt swap space, which options exist, and why it should be done, refer to [Section 17.13, “Encrypting Swap”](#).

11.12.1. Swap on a New Hard Drive or Existing Partition

Adding a new hard drive for swap gives better performance than using a partition on an existing drive. Setting up partitions and hard drives is explained in [Section 17.2, “Adding Disks”](#) while [Section 2.6.1, “Designing the Partition Layout”](#) discusses partition layouts and swap partition size considerations.

Use `swapon` to add a swap partition to the system. For example:

```
# swapon /dev/ada1s1b
```

Warning:

It is possible to use any partition not currently mounted, even if it already contains data. Using `swapon` on a partition that contains data will overwrite and destroy that data. Make sure that the partition to be added as swap is really the intended partition before running `swapon`.

To automatically add this swap partition on boot, add an entry to `/etc/fstab`:

```
/dev/ada1s1b none swap sw 0 0
```

See [fstab\(5\)](#) for an explanation of the entries in `/etc/fstab`. More information about `swapon` can be found in [swapon\(8\)](#).

11.12.2. Creating a Swap File

These examples create a 64M swap file called `/usr/swap0` instead of using a partition.

Using swap files requires that the module needed by `md(4)` has either been built into the kernel or has been loaded before swap is enabled. See [Chapter 8, *Configuring the FreeBSD Kernel*](#) for information about building a custom kernel.

Example 11.2. Creating a Swap File on FreeBSD 10. `X` and Later

1. Create the swap file:

```
# dd if=/dev/zero of=/usr/swap0 bs=1m count=64
```

2. Set the proper permissions on the new file:

```
# chmod 0600 /usr/swap0
```

3. Inform the system about the swap file by adding a line to `/etc/fstab` :

```
md99 none swap sw,file=/usr/swap0,late 0 0
```

The `md(4)` device `md99` is used, leaving lower device numbers available for interactive use.

4. Swap space will be added on system startup. To add swap space immediately, use `swapon(8)`:

```
# swapon -aL
```

Example 11.3. Creating a Swap File on FreeBSD 9. `X` and Earlier

1. Create the swap file, `/usr/swap0` :

```
# dd if=/dev/zero of=/usr/swap0 bs=1m count=64
```

2. Set the proper permissions on `/usr/swap0` :

```
# chmod 0600 /usr/swap0
```

3. Enable the swap file in `/etc/rc.conf` :

```
swapfile="/usr/swap0" # Set to name of swap file
```

4. Swap space will be added on system startup. To enable the swap file immediately, specify a free memory device. Refer to [Section 17.9, "Memory Disks"](#) for more information about memory devices.

```
# mdconfig -a -t vnode -f /usr/swap0 -u 0 && swapon /dev/md0
```

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