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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'swapon.2' command

$ man swapon.2

SWAPON(2) Linux Programmer's Manual SWAPON(2)

NAME

swapon, swapoff - start/stop swapping to file/device

SYNOPSIS

#include <unistd.h>

#include <sys/swap.h>

int swapon(const char *path, int swapflags);

int swapoff(const char *path);

DESCRIPTION

swapon() sets the swap area to the file or block device specified by path. swapoff() stops swapping to the file or block device specified by path.

If the SWAP_FLAG_PREFER flag is specified in the swapon() swapflags ar? gument, the new swap area will have a higher priority than default. The priority is encoded within swapflags as:

(prio << SWAP_FLAG_PRIO_SHIFT) & SWAP_FLAG_PRIO_MASK

If the SWAP_FLAG_DISCARD flag is specified in the swapon() swapflags argument, freed swap pages will be discarded before they are reused, if the swap device supports the discard or trim operation. (This may im? prove performance on some Solid State Devices, but often it does not.) See also NOTES.

These functions may be used only by a privileged process (one having the CAP_SYS_ADMIN capability).

Priority

Each swap area has a priority, either high or low. The default prior? ity is low. Within the low-priority areas, newer areas are even lower priority than older areas.

All priorities set with swapflags are high-priority, higher than de? fault. They may have any nonnegative value chosen by the caller. Higher numbers mean higher priority.

Swap pages are allocated from areas in priority order, highest priority first. For areas with different priorities, a higher-priority area is exhausted before using a lower-priority area. If two or more areas have the same priority, and it is the highest priority available, pages are allocated on a round-robin basis between them.

As of Linux 1.3.6, the kernel usually follows these rules, but there are exceptions.

RETURN VALUE

On success, zero is returned. On error, -1 is returned, and errno is set appropriately.

ERRORS

EBUSY (for swapon()) The specified path is already being used as a swap area.

EINVAL The file path exists, but refers neither to a regular file nor to a block device;

EINVAL (swapon()) The indicated path does not contain a valid swap sig? nature or resides on an in-memory filesystem such as tmpfs(5).

EINVAL (since Linux 3.4)
(swapon()) An invalid flag value was specified in swapflags.

EINVAL (swapoff()) path is not currently a swap area.

ENFILE The system-wide limit on the total number of open files has been reached.

ENOENT The file path does not exist.

ENOMEM The system has insufficient memory to start swapping.

EPERM The caller does not have the CAP_SYS_ADMIN capability. Alterna? tively, the maximum number of swap files are already in use; see

NOTES below.

CONFORMING TO

These functions are Linux-specific and should not be used in programs intended to be portable. The second swapflags argument was introduced in Linux 1.3.2.

NOTES

The partition or path must be prepared with mkswap(8).

There is an upper limit on the number of swap files that may be used, defined by the kernel constant MAX_SWAPFILES. Before kernel 2.4.10, MAX_SWAPFILES has the value 8; since kernel 2.4.10, it has the value 32. Since kernel 2.6.18, the limit is decreased by 2 (thus: 30) if the kernel is built with the CONFIG_MIGRATION option (which reserves two swap table entries for the page migration features of mbind(2) and mi? grate_pages(2)). Since kernel 2.6.32, the limit is further decreased by 1 if the kernel is built with the CONFIG_MEMORY_FAILURE option.

Discard of swap pages was introduced in kernel 2.6.29, then made condi? tional on the SWAP_FLAG_DISCARD flag in kernel 2.6.36, which still dis? cards the entire swap area when swapon() is called, even if that flag bit is not set.

SEE ALSO

mkswap(8), swapoff(8), swapon(8)

COLOPHON

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