.TH SET\_TAG 2 03/01/2020 set\_tag "System Call"

.SH NAME

set\_tag - system call that changes the tag of a process

.SH SYNOPSIS

set\_tag(int pid, int new\_tag)

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syscall(336, int pid, int new\_tag)

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pid - integer process id of target process

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new\_tag - an uint32\_t tag value to be updated in the target process

.SH DESCRIPTION

set\_tag is a system call that attempts to change the tag of the process identified by pid to the new tag value new\_tag.

The project guidelines are what decides whether the tag change will occur.

If all conditions are met the old tag value will return the updated new tag value, else if any conditions were to fail then it would return -1.

These conditions are as such:

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3) A process running as the superuser may read and write the tag of any process (all 32 bits of it, but it still cannot set the MSB to 1).

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4) A user process has read-only access to the tag of any process.

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5) A user process may decrease its own level, but not increase it.

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6) A user process may reset a bit in its tag's bitmap to zero but not set a bit.

.SH ERRORS

For any errors, a condition were to fail which it then would return -1.

Such cases include but not limited too:

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a) Inputting an invalid pid or new\_tag will return -1 and not run the system call.

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b) Attempting to a set a process with a new\_tag that has the MSB set.

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c) Attempting set the tag of a process other than the current process self while not a superuser.

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d) Attempting to set a bit in the current process self while not a superuser, excludes the LSBs conditions.

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e) Attempting to increase its own level.

.SH NOTES

There are several contradictions within the guideline. The ruling outcome is as given:

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a) When the doc says "The MSB shall be set to 0 always" it means that if new\_tag has a MSB of 1, you should return -1 and not set the tag.

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b) Setting a bit means changing it to 1. Resetting a bit mean changing it to 0.

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c) 4-6 Only affects the current process (itself) and not any other process.

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d) 3 references the Superuser (sudo) status of the current process, not the target process.

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e) 4 can be override when applying 5-6 on the current process.

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f) 6 can be override when applying a decrement on the user's tag level (ex. 2 (0b10) to 1 (0b01)).

.SH SEE ALSO

set\_tag(3), retrieve\_set\_tag\_params(3), interpret\_set\_tag\_result(3)

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