



Linux Ubuntu 26.04 Manual Pages on command 'su.1'

\$ man su.1

SU(1) User Commands SU(1)

NAME

su - run a command with substitute user and group ID

SYNOPSIS

su [options] [-] [user [argument...]]

DESCRIPTION

su allows commands to be run with a substitute user and group ID.

When called with no user specified, su defaults to running an interactive shell as root.

When user is specified, additional arguments can be supplied, in which case they are passed to the shell.

For backward compatibility, su defaults to not change the current directory and to only set the environment variables HOME and SHELL (plus USER and LOGNAME if the target user is not root). It is recommended to always use the --login option (instead of its shortcut -) to avoid side effects caused by mixing environments.

This version of su uses PAM for authentication, account and session management. Some configuration options found in other su implementations, such as support for a wheel group, have to be configured via PAM.

su is mostly designed for unprivileged users, the recommended solution for privileged users (e.g., scripts executed by root) is to use non-set-user-ID command runuser(1) that does not require authentication and provides separate PAM configuration. If the PAM session is not required at all then the recommended solution is to use command setpriv(1).

Note that su in all cases uses PAM (pam_getenvlist(3)) to do the final environment modification. Command-line options such as --login and --preserve-environment affect the

environment before it is modified by PAM.

Since version 2.38 su resets process resource limits RLIMIT_NICE, RLIMIT_RTPRIO, RLIMIT_FSIZE, RLIMIT_AS and RLIMIT_NOFILE.

OPTIONS

-c, --command command

Pass command to the shell with the -c option.

-f, --fast

Pass -f to the shell, which may or may not be useful, depending on the shell.

-g, --group group

Specify the primary group. This option is available to the root user only.

-G, --supp-group group

Specify a supplementary group. This option is available to the root user only. The first specified supplementary group is also used as a primary group if the option --group is not specified.

-, -l, --login

Start the shell as a login shell with an environment similar to a real login.

Note that on systemd-based systems, a new session may be defined as a real entry point to the system. However, su does not create a real session (by PAM) from this point of view. You need to use tools like systemd-run or machinectl to initiate a complete, real session.

su does:

? clears all the environment variables except TERM and variables specified by

--whitelist-environment

? initializes the environment variables HOME, SHELL, USER, LOGNAME, and PATH

? changes to the target user's home directory

? sets argv[0] of the shell to '-' in order to make the shell a login shell

-m, -p, --preserve-environment

Preserve the entire environment, i.e., do not set HOME, SHELL, USER or LOGNAME. This option is ignored if the option --login is specified.

-P, --pty

Create a pseudo-terminal for the session. The independent terminal provides better security as the user does not share a terminal with the original session. This can be used to avoid TIOCSTI ioctl terminal injection and other security attacks against

terminal file descriptors. The entire session can also be moved to the background (e.g., `su --pty - user -c application &`). If the pseudo-terminal is enabled, then `su` works as a proxy between the sessions (sync stdin and stdout).

This feature is mostly designed for interactive sessions. If the standard input is not a terminal, but for example a pipe (e.g., `echo "date" | su --pty`), then the `ECHO` flag for the pseudo-terminal is disabled to avoid messy output.

`-s, --shell shell`

Run the specified shell instead of the default. If the target user has a restricted shell (i.e., not listed in `/etc/shells`), the `--shell` option and the `SHELL` environment variables are ignored unless the calling user is root.

The shell to run is selected according to the following rules, in order:

- ? the shell specified with `--shell`
- ? the shell specified in the environment variable `SHELL`, if the `--preserve-environment` option is used
- ? the shell listed in the `passwd` entry of the target user
- ? `/bin/sh`

`--session-command=command`

Same as `-c`, but do not create a new session. (Discouraged.)

`-T, --no-pty`

Do not create a pseudo-terminal, opposite of `--pty` and `-P`. Note that running without a pseudo-terminal opens the security risk of privilege escalation through `TIOCSTI/TIOCLINUX ioctl` command injection.

`-w, --whitelist-environment list`

Don't reset the environment variables specified in the comma-separated list when clearing the environment for `--login`. The whitelist is ignored for the environment variables `HOME`, `SHELL`, `USER`, `LOGNAME`, and `PATH`.

`-h, --help`

Display help text and exit.

`-V, --version`

Display version and exit.

SIGNALS

Upon receiving either `SIGINT`, `SIGQUIT` or `SIGTERM`, `su` terminates its child and afterwards terminates itself with the received signal. The child is terminated by `SIGTERM`, after

unsuccessful attempt and 2 seconds of delay the child is killed by SIGKILL.

CONFIG FILES

su reads the `/etc/default/su` and `/etc/login.defs` configuration files. The following configuration items are relevant for su:

FAIL_DELAY (number)

Delay in seconds in case of an authentication failure. The number must be a non-negative integer.

ENV_PATH (string)

Defines the PATH environment variable for a regular user. The default value is `/usr/local/bin:/bin:/usr/bin`.

ENV_ROOTPATH (string), ENV_SUPATH (string)

Defines the PATH environment variable for root. ENV_SUPATH takes precedence. The default value is `/usr/local/sbin:/usr/local/bin:/sbin:/bin:/usr/sbin:/usr/bin`.

ALWAYS_SET_PATH (boolean)

If set to yes and `--login` and `--preserve-environment` were not specified su initializes PATH.

The environment variable PATH may be different on systems where `/bin` and `/sbin` are merged into `/usr`; this variable is also affected by the `--login` command-line option and the PAM system setting (e.g., `pam_env(8)`).

EXIT STATUS

su normally returns the exit status of the command it executed. If the command was killed by a signal, su returns the number of the signal plus 128.

Exit status generated by su itself:

1

Generic error before executing the requested command

126

The requested command could not be executed

127

The requested command was not found

FILES

`/etc/pam.d/su`

default PAM configuration file

`/etc/pam.d/su-l`

PAM configuration file if --login is specified

/etc/default/su

command specific logindef config file

/etc/login.defs

global logindef config file

NOTES

For security reasons, su always logs failed log-in attempts to the btmp file, but it does not write to the lastlog file at all. This solution can be used to control su behavior by PAM configuration. If you want to use the pam_lastlog(8) module to print warning message about failed log-in attempts then pam_lastlog(8) has to be configured to update the lastlog file as well. For example by:

session required pam_lastlog.so nowtmp

HISTORY

This su command was derived from coreutils' su, which was based on an implementation by David MacKenzie. The util-linux version has been refactored by Karel Zak.

SEE ALSO

setpriv(1), login.defs(5), shells(5), pam(8), runuser(1)

REPORTING BUGS

For bug reports, use the issue tracker <<https://github.com/util-linux/util-linux/issues>>.

AVAILABILITY

The su command is part of the util-linux package which can be downloaded from Linux Kernel Archive <<https://www.kernel.org/pub/linux/utils/util-linux/>>.

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