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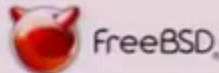
setuid(2), setgid(2), setgroups(2)



changes user's credentials

({real,effective,saved} {user,group} ID and groups)

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P_SUGID



restricts various signals and process debuggability

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hacks vs namespaces

	setrid(x)	chroot(x)	P_SUGID	setrlimit(x)
Process IDs	X	X	?	X
File paths	?	V	X	?
NFS file handles	V	X	X	X
Filesystem IDs	V	X	X	X
Sysctl MIB	?	X	?	X
System V IPC	X	X	X	X
POSIX IPC	?	X	X	V
System clocks	V	X	X	X
Jails	?	X	X	X
CPU sets	X	X	X	X
Routing tables	X	X	X	X
Protocol address	X	?	X	V



V



Casper

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WHEEL
SYSTEMS



FreeBSD®

sandboxing wc(1) 1/3

```
@@ -44,2 +44,3 @@
+#include <sys/capability.h>
#include <sys/param.h>
#include <sys/stat.h>
@@ -50,6 +53,7 @@
#include <errno.h>
#include <fcntl.h>
#include <locale.h>
+#include <fileargs.h>
#include <stdint.h>
#include <stdio.h>
#include <stdlib.h>
@@ -61,6 +65,7 @@
static uintmax_t tlinect, twordct, tcharct, tlongline;
static int doline, doword, dochar, domulti, dolongline;
static volatile sig_atomic_t siginfo;
+struct fileargs* fa;
```



Problem with the current Casper model

- different routing table
- different cpu set
- different `/dev/std{in,out,err}` and `/dev/fd/*`

```
$ diff -du <(cat a) <(cat b)
```

```
--- /dev/fd/11
```

```
+++ /dev/fd/13
```

- different process group and tty
- harder to audit/ktrace





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