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Why does ping need setuid permission? [duplicate]

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[root owned program with setuid bit on](#) (1 answer)

Closed 3 years ago.



1

I'm looking at a handful of files on my system with setuid permission on my system, by running:



```
sudo find / -perm -4000
```

I noticed that `/bin/ping` shows up on the list.

Can anyone explain why ping requires setuid permission?

ping

setuid

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asked Jul 30 '17 at 16:54



Philip Kirkbride

7,176

14

73

141

Answered here in 2012 at unix.stackexchange.com/questions/51874 . – JdeBP Jul 30 '17 at 16:59

1 Answer

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In order for `ping` to work it needs to be able to create a *raw* network socket. This is typically a privileged action.

On a modern Linux system this *can* be granted with "capabilities"

eg on CentOS 7:

```
$ ls -l /bin/ping
-rwxr-xr-x 1 root root 62088 Nov  7  2016 /bin/ping*
```

```
$ getcap /bin/ping
/bin/ping = cap_net_admin,cap_net_raw+p
```

On Debian 9.1 (Stretch):

```
$ getcap /bin/ping
/bin/ping = cap_net_raw+ep
```

Capabilities are a newer way of performing a more fine-grained form of privilege escalation without granting the whole of "root" that's granted with `setuid` programs.

Without capabilities then `ping` will need to be `setuid root`, in order to create the raw network socket.

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answered Jul 30 '17 at 17:13



Stephen Harris

34.7k 4 70 99