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Subject: Re: [patch 0/8] unprivileged mount syscall  
Posted by [serue](#) on Mon, 09 Apr 2007 17:07:43 GMT

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Quoting Miklos Szeredi ([miklos@szeredi.hu](mailto:miklos@szeredi.hu)):

>>>>> One thing that is missing from this series is the ability to restrict  
>>>>> user mounts to private namespaces. The reason is that private  
>>>>> namespaces have still not gained the momentum and support needed for  
>>>>> painless user experience. So such a feature would not yet get enough  
>>>>> attention and testing. However adding such an optional restriction  
>>>>> can be done with minimal changes in the future, once private  
>>>>> namespaces have matured.

>>>>

>>>> I suspect the people who developed and maintain nsproxy would disagree ;)

>>>>

>>> Well, they better show me some working and simple-to-use userspace  
>>> code, because I've not seen anything like that related to mount  
>>> namespaces.

>>

>> If you mean to test/exploit them, see

>> <http://lxc.sourceforge.net/patches/2.6.20/2.6.20-lxc8/broken-out/tests/>

>>

>> Compile the ns\_exec.c program and do

>>

>> ns\_exec -m /bin/sh

>>

>> to get a shell in a new mounts namespace.

>

> Cool, thanks. This is a very nice utility for testing, but for the

> end user rather useless:

Well that depends on which end-user. Those wanting to create a vserver  
or checkpoint-restart job will want this, but clearly we have a long way  
to go for that upstream anyway.

> - user starts up a private namespace in a shell, mounts something

>

> - then opens app from menu, tries to access mount, but the mount is  
> not there

>

> - user unhappy

>

> BTW, looking at -mm unshare() on namespace is not privileged any more.

> Why is that? Or rather, what's the reason, that clone() is privileged

> and unshare() is not?

The check is still there - see kernel/nsproxy.c:unshare\_nsproxy\_namespaces().

> > > pam\_namespace.so is one example of a non-working, but probably-not-too-  
> > > hard-to-fix one.  
> >  
> > Non-working? I sure hope the one used for LSPP certification is  
> > working... As is the ugly version I wrote 18 mounts ago and use on my  
> > laptop.  
>  
> The one in pam-0.99.6.3-29.1 in opensuse-10.2 is totally broken. Are  
> you interested in the details? I can reproduce it, but forgot to note  
> down the details of the brokenness.

I don't know how far removed that is from the one being used by redhat,  
but assuming it's the same, then redhat-lspp@redhat.com will be  
very interested.

> > > I'm just saying this is not yet something that Joe Blow would just  
> > > enable by ticking a box in their desktop setup wizard, and it would  
> > > all work flawlessly thereafter. There's still a \_long\_ way towards  
> > > that, and mostly in userspace.  
> >  
> > I'm not sure there's a that long a way to go, but clearly we need to be  
> > showing users what they can do, or they'll never work their way towards  
> > there.  
>  
> There \_is\_ a long way to go. Random things that spring to my mind:  
>  
> - using /etc/mtab is broken with private namespaces, using  
> /proc/mounts is missing various functionality, that /etc/mtab has,  
> for example the "user" option, which this patchset adds

Agreed those need fixing.

> - need to set up mount propagation from global namespace to private  
> ones, mount(8) does not yet have options to configure propagation

Hmm, I guess I get lost using my own little systems, and just assumed  
that shared subtree functionality was making its way up into mount(8).  
Ram, have you been working on that?

> - user namespace setup: what if user has multiple sessions?  
>  
> 1) namespaces are shared? That's tricky because the session needs to  
> be a child of a namespace server, not of login. I'm not sure PAM  
> can handle this  
>  
> 2) or mounts are copied on login? That's not possible currently,  
> as there's no way to send a mount between namespaces. Also it's  
> tricky to make sure that new mounts are also shared

See toward the end of the 'shared subtrees' OLS paper from last year for a suggestion on how to let users effectively 'log in to' an existing private mounts ns.

> > For instance, as you say, a user admin gui with a checkmark and text  
> > boxes saying 'enter new namespace on login', 'create private /tmp',  
> > and 'create private dmccrypted /home' would be trivial right now.  
>  
> Trivial modulo the above slightly non-trivial exemptions ;)

Ok, so it can use some very non-trivial fine-tuning...

But I've been using the above - minus the trivial gui - for over a year without ever worrying about any of these short-comings.

> Miklos

-serge

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Subject: Re: [patch 0/8] unprivileged mount syscall  
Posted by [Miklos Szeredi](#) on Mon, 09 Apr 2007 20:10:41 GMT  
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> > The one in pam-0.99.6.3-29.1 in opensuse-10.2 is totally broken. Are  
> > you interested in the details? I can reproduce it, but forgot to note  
> > down the details of the brokenness.  
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> I don't know how far removed that is from the one being used by redhat,  
> but assuming it's the same, then redhat-lspp@redhat.com will be  
> very interested.

OK.

> > - user namespace setup: what if user has multiple sessions?  
> >  
> > 1) namespaces are shared? That's tricky because the session needs to  
> > be a child of a namespace server, not of login. I'm not sure PAM  
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> > 2) or mounts are copied on login? That's not possible currently,  
> > as there's no way to send a mount between namespaces. Also it's  
> > tricky to make sure that new mounts are also shared

>  
> See toward the end of the 'shared subtrees' OLS paper from last year for  
> a suggestion on how to let users effectively 'log in to' an existing  
> private mounts ns.

This?

1. create a new namespace
2. bind /share/\$USER to /share
3. for each pair (\$who, \$what) such that /share/\$USER/\$who/\$what exists, look in /share/\$who/allowed for "peer \$what \$USER" or "slave \$what \$USER". If the former is found, rbind /share/\$who/\$what on /share/\$USER/\$who/\$what; if the latter is found, do the same and follow with marking subtree under /share/\$USER/\$who/\$what as slave.
4. rbind /share/\$USER to /share
5. mark subtree under /share as private.
6. umount -l /share

Well, someone please explain using short words, because I don't understand at all.

Thanks,  
Miklos

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Subject: Re: [patch 0/8] unprivileged mount syscall  
Posted by [Ram Pai](#) on Tue, 10 Apr 2007 08:38:04 GMT  
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On Mon, 2007-04-09 at 22:10 +0200, Miklos Szeredi wrote:  
> > > The one in pam-0.99.6.3-29.1 in opensuse-10.2 is totally broken. Are  
> > > you interested in the details? I can reproduce it, but forgot to note  
> > > down the details of the brokenness.  
> >  
> > I don't know how far removed that is from the one being used by redhat,  
> > but assuming it's the same, then redhat-lspp@redhat.com will be  
> > very interested.  
>  
> OK.  
>

>>> - user namespace setup: what if user has multiple sessions?  
>>>  
>>> 1) namespaces are shared? That's tricky because the session needs to  
>>> be a child of a namespace server, not of login. I'm not sure PAM  
>>> can handle this  
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>>> 2) or mounts are copied on login? That's not possible currently,  
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>>> tricky to make sure that new mounts are also shared  
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>> See toward the end of the 'shared subtrees' OLS paper from last year for  
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> This?  
>  
> 1. create a new namespace  
> 2. bind /share/\$USER to /share  
> 3. for each pair (\$who, \$what) such that  
> /share/\$USER/\$who/\$what exists, look  
> in /share/\$who/allowed for "peer \$what  
> \$USER" or "slave \$what \$USER". If the  
> former is found, rbind /share/\$who/\$what  
> on /share/\$USER/\$who/\$what; if the  
> latter is found, do the same and  
> follow with marking subtree under  
> /share/\$USER/\$who/\$what as slave.  
> 4. rbind /share/\$USER to /share  
> 5. mark subtree under /share as private.  
> 6. umount -l /share  
>  
> Well, someone please explain using short words, because I don't  
> understand at all.

I am trying to re-construct Viro's thoughts. I think the steps outlined above; though not accurate, are still insightful.

The idea is -- there is one master namespace, which has under /share, a replica of the mount tree of namespaces belonging to all users.

for example if there are two users A and B, then in the master namespace under /share you will find /share/A and /share/B, each reflecting the mount tree for the namespaces belonging to user-A and user-B respectively.

Note: /share is a shared mount-tree, which means it can propagate mount events.

Everytime the user logs on the machine, a new namespace is created which is the clone of the master namespace. In this new namespace, the /share/\$user is made the root of the namespace. Also if other users have allowed part of their namespace available to this user, than those mounts are also brought under this namespace. And finally the entire tree under /share is unmounted.

Note, though multiple namespaces can exist simultaneously for the same user, the user is provided the illusion of per-process-namespace since all the namespaces look identical.

I am trying to rewrite the steps outlined above, which may or may not reflect Viro's thoughts, but certainly reflect my reconstruction of viro's thoughts.

1. clone the master namespace.

2. in the new namespace

```
move the tree under /share/$me to /
  for each ($user, $what, $how) {
    move /share/$user/$what to /$what
    if ($how == slave) {
      make the mount tree under /$what as slave
    }
  }
```

3. in the new namespace make the tree under /share as private and unmount /share

RP

>  
> Thanks,  
> Miklos

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Subject: Re: [patch 0/8] unprivileged mount syscall

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Posted by [Miklos Szeredi](#) on Wed, 11 Apr 2007 10:44:33 GMT

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```
> 1. clone the master namespace.  
>  
> 2. in the new namespace  
>  
> move the tree under /share/$me to /  
>   for each ($user, $what, $how) {  
>     move /share/$user/$what to /$what  
>   if ($how == slave) {  
>     make the mount tree under /$what as slave  
>   }  
> }  
>  
> 3. in the new namespace make the tree under  
>   /share as private and unmount /share
```

Thanks. I get the basic idea now: the namespace itself need not be shared between the sessions, it is enough if "share" propagation is set up between the different namespaces of a user.

I don't yet see either in your or Viro's description how the trees under /share/\$USER are initialized. I guess they are recursively bound from /, and are made slaves.

Miklos

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