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Subject: ip tunnel in VPS: ioctl: No such device  
Posted by [demark](#) on Thu, 13 Jul 2006 12:25:46 GMT  
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hello,

i have the following problem: i need to create a tunnel within a VPS node, like this:

```
ip tunnel add test mode sit remote 1.2.3.4 local 4.3.2.1 dev eth0
```

however, i'm getting an error:

```
ioctl: No such device
```

so, is there a way to permit ip tunnels within a VPS?

thanks for any input, it's much appreciated here.

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Subject: Re: ip tunnel in VPS: ioctl: No such device  
Posted by [aistis](#) on Thu, 13 Jul 2006 15:19:56 GMT  
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i believe this should help: VPN via the TUN/TAP device

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Subject: Re: ip tunnel in VPS: ioctl: No such device  
Posted by [demark](#) on Fri, 14 Jul 2006 10:17:29 GMT  
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sorry, this does not help. i'm not looking for tun/tap, and i don't want to run proprietary solutions like openvpn.

i'm rather looking for ip-over-ip tunnels which are created by iproute and installed into the kernel. like i said, "ip tunnel add"

seems like this is something that's not supported or not documented?!

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Subject: Re: ip tunnel in VPS: ioctl: No such device  
Posted by [dev](#) on Sat, 15 Jul 2006 10:58:05 GMT  
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openvpn is not proprietary imho. it is open  
ip tunneling is not ON by default in kernel.  
it is not virtualized so for safety turned off.

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feel free to recompile the kernel with tunneling and give it a try.

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Subject: Re: ip tunnel in VPS: ioctl: No such device  
Posted by [demark](#) on Sat, 15 Jul 2006 23:35:00 GMT  
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i'm running 2.6.16-026test014.4-smp (rpm downloaded from [openvz.org](#)). tunneling is actually compiled in - on the hardware node, i have no problems running the "ip tunnel add" command.

i looked at kernel config and there's no obvious option which controls virtualization of tunnels? or did i miss something?

my guess is that openvz doesn't support creating the tunnel device inside a VE ...

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Subject: Re: ip tunnel in VPS: ioctl: No such device  
Posted by [dim](#) on Mon, 17 Jul 2006 07:57:03 GMT  
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Did you try to create tunnel device on hardware node and moving it to VE after?

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Subject: Re: ip tunnel in VPS: ioctl: No such device  
Posted by [demark](#) on Tue, 18 Jul 2006 12:05:53 GMT  
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i thought of that, but there doesn't seem to be an actual interface node if you make a tunnel with "ip tunnel add" ... i already searched /dev for that

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Subject: Re: ip tunnel in VPS: ioctl: No such device  
Posted by [aistis](#) on Tue, 18 Jul 2006 14:42:58 GMT  
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maybe --netdev\_add will help?

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Subject: Re: ip tunnel in VPS: ioctl: No such device  
Posted by [l4ndy74](#) on Tue, 17 Oct 2006 18:13:59 GMT  
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i have the same problem it's possible add the ipv6 tunnel in the node and moving it in to the VE?!?!?

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Subject: Re: ip tunnel in VPS: ioctl: No such device  
Posted by [duswil](#) on Sat, 08 Sep 2007 21:55:25 GMT  
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I have the exact same problem. Did anyone ever find a solution? I really don't want to define the tunnel on the HN.

Thanks!

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Subject: Re: ip tunnel in VPS: ioctl: No such device  
Posted by [emkravts](#) on Thu, 13 Sep 2007 09:27:55 GMT  
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Hello.

There are 3 types of tunnels supported by kernel:

ipip (tunl0, tunl1 etc. logical devices) - ipv4 over ipv4 tunnels  
sit (sit0, sit1 etc. logical devices) - ipv6 over ipv4 tunnels  
gre (gre0, gre1 etc. logical devices) - ipv4 over ipv4 tunnels

Till this moment listed devices are not virtualized in OpenVZ. The only way to setup a tunnel between VE and some node was to grant the network device (for example eth0) from HN to particular VE and then setup the tunnel using granted device. But seems it was not the best solution. Because any VE should have an opportunity to setup tunnel. So I have virtualized ipip module that provides such an opportunity for ipv4 over ipv4 tunnels.

Attached patch does the following:

- 1) struct `ve_ipip_tunnels` containing global variables for virtualization introduced. Global variables are: pointer to per-ve tunneling `net_device`, storages of tunnels and per-ve lock.
- 2) Pointer to struct `ve_ipip_tunnels` added to struct `ve`. Related `ve_***` variables defined, functions in `net/ipv4/ipip.c` that use global variables updated. Corresponding start/stop functions that allocate `ve_ipip_tunnels` struct, per-ve net tunneling devices and initialize them introduced.
- 3) Hook `ipip_ve_hook`, initialized by start/stop functions introduced. Hook functions are to be called from `do_env_create->ve_hook_iterate_init` during start ve and `env_cleanup->ve_hook_iterate_fini` on stop ve.
- 4) Feature `NETIF_F_VIRTUAL` is set to `dev->features` during `net_device` initialization to make possible per-ve tunneling `net_device` creation.
- 5) Check for capabilities updated in `ipip_tunnel_ioctl`: check for `CAP_VE_NET_ADMIN` is added on tunnels adding and deleting. This is necessary for enabling tunneling device's `ioctl` within VEs.

After applying the patch to 2.6.18-028stab039 OpenVZ kernel, building and rebooting into updated kernel we can carry out some testing how ipip tunnels work. Assume we have 2 VEs (VE 895 and VE 910) running on HN and we are setting up tunnel between them:

On HN:

```
# modprobe ipip
# vzctl start 895
# vzctl start 910
# vzlist
  VEID   NPROC STATUS IP_ADDR   HOSTNAME
  895    5 running 10.0.43.25 -
  910    5 running 10.0.98.102 -
# vzctl enter 895
```

Within 895:

```
895 # ip tunnel show
tunl0: ip/ip remote any local any ttl inherit nopmtudisc
895 # ip tunnel add tunl1 mode ipip remote 10.0.98.102 local 10.0.43.25 dev venet0
895 # ip tunnel show
tunl0: ip/ip remote any local any ttl inherit nopmtudisc
tunl1: ip/ip remote 10.0.98.102 local 10.0.43.25 dev venet0 ttl inherit
895 # ip addr add 10.0.98.103/28 dev tunl1
895 # ip link set tunl1 up
895 # ip link set tunl1 mtu 1500
895 # ifconfig
lo      Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        inet6 addr: ::1/128 Scope:Host
        UP LOOPBACK RUNNING MTU:16436 Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
        TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:0
        RX bytes:0 (0.0 b) TX bytes:0 (0.0 b)

tunl1   Link encap:IPIP Tunnel HWaddr
        inet addr:10.0.98.103 P-t-P:10.0.98.103 Mask:255.255.255.240
        UP POINTOPOINT RUNNING NOARP MTU:1500 Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
        TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:0
        RX bytes:0 (0.0 b) TX bytes:0 (0.0 b)

venet0  Link encap:UNSPEC HWaddr 00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00
        inet addr:127.0.0.1 P-t-P:127.0.0.1 Bcast:0.0.0.0 Mask:255.255.255.255
        UP BROADCAST POINTOPOINT RUNNING NOARP MTU:1500 Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
        TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:0
        RX bytes:0 (0.0 b) TX bytes:0 (0.0 b)

venet0:0 Link encap:UNSPEC HWaddr 00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00
```

```
inet addr:10.0.43.25 P-t-P:10.0.43.25 Bcast:10.0.43.25 Mask:255.255.255.255
UP BROADCAST POINTOPOINT RUNNING NOARP MTU:1500 Metric:1
```

```
895 # exit
```

```
# vzctl enter 910
```

```
Within 910:
```

```
910 # ip tunnel show
```

```
tunl0: ip/ip remote any local any ttl inherit nopmtudisc
```

```
910 # ip tunnel add tunl1 mode ipip remote 10.0.98.102 local 10.0.43.25 dev venet0
```

```
910 # ip tunnel show
```

```
tunl0: ip/ip remote any local any ttl inherit nopmtudisc
```

```
tunl1: ip/ip remote 10.0.98.102 local 10.0.43.25 dev venet0 ttl inherit
```

```
910 # ip addr add 10.0.98.103/28 dev tunl1
```

```
910 # ip link set tunl1 up
```

```
910 # ip link set tunl1 mtu 1500
```

```
910 # ifconfig
```

```
lo Link encap:Local Loopback
```

```
inet addr:127.0.0.1 Mask:255.0.0.0
```

```
inet6 addr: ::1/128 Scope:Host
```

```
UP LOOPBACK RUNNING MTU:16436 Metric:1
```

```
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
```

```
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
```

```
collisions:0 txqueuelen:0
```

```
RX bytes:0 (0.0 b) TX bytes:0 (0.0 b)
```

```
tunl1 Link encap:IPIP Tunnel HWaddr
```

```
inet addr:10.0.98.103 P-t-P:10.0.98.103 Mask:255.255.255.240
```

```
UP POINTOPOINT RUNNING NOARP MTU:1500 Metric:1
```

```
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
```

```
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
```

```
collisions:0 txqueuelen:0
```

```
RX bytes:0 (0.0 b) TX bytes:0 (0.0 b)
```

```
venet0 Link encap:UNSPEC HWaddr 00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00
```

```
inet addr:127.0.0.1 P-t-P:127.0.0.1 Bcast:0.0.0.0 Mask:255.255.255.255
```

```
UP BROADCAST POINTOPOINT RUNNING NOARP MTU:1500 Metric:1
```

```
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
```

```
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
```

```
collisions:0 txqueuelen:0
```

```
RX bytes:0 (0.0 b) TX bytes:0 (0.0 b)
```

```
venet0:0 Link encap:UNSPEC HWaddr 00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00
```

```
inet addr:10.0.43.25 P-t-P:10.0.43.25 Bcast:10.0.43.25 Mask:255.255.255.255
```

```
UP BROADCAST POINTOPOINT RUNNING NOARP MTU:1500 Metric:1
```

```
Ping 895 through tunl1:
```

```
910 # ping 10.0.98.103
```

```
PING 10.0.98.103 (10.0.98.103) 56(84) bytes of data.
```

64 bytes from 10.0.98.103: icmp\_seq=1 ttl=64 time=0.043 ms  
64 bytes from 10.0.98.103: icmp\_seq=2 ttl=64 time=0.036 ms  
64 bytes from 10.0.98.103: icmp\_seq=3 ttl=64 time=0.035 ms  
64 bytes from 10.0.98.103: icmp\_seq=4 ttl=64 time=0.034 ms

--- 10.0.98.103 ping statistics ---

4 packets transmitted, 4 received, 0% packet loss, time 3001ms

rtt min/avg/max/mdev = 0.034/0.037/0.043/0.003 ms

910 #

Works. Patch can be successfully applied also to 2.6.18-rhel5-042 kernel. The same test passes.

Could you please apply the patch and carry out some more testing for ipip tunnels. Thanks.

I suppose the next step is virtualization sit.

## File Attachments

1) [diff-ipip-tunnel-virtualization-20070913](#), downloaded 1199 times

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Subject: Re: ip tunnel in VPS: ioctl: No such device

Posted by [duswil](#) on Thu, 13 Sep 2007 12:55:50 GMT

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I'm looking to make a sit tunnel to provide an IPv6 tunnel via IPv4. It sounds like this patch doesn't provide that. Please confirm my interpretation. Thanks!

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Subject: Re: ip tunnel in VPS: ioctl: No such device

Posted by [emkravts](#) on Thu, 13 Sep 2007 12:59:45 GMT

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Yes, this is ipip. Virtualization of sit what I am working on this very moment.

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Subject: Re: ip tunnel in VPS: ioctl: No such device

Posted by [duswil](#) on Thu, 13 Sep 2007 13:04:43 GMT

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Thank you. Having the ability to have a sit tunnel in a VPS will be extremely helpful.

On each of my servers, my VPSes have their own bridge and network apart from the HN's network and are connected to other VPS bridges by way of OpenVPN. This is all managed by a VPS on each server called "Gateway". It also manages my incoming IPv4 filtering. I am wanting "Gateway" to provide the IPv6 tunnels (and filtering) as well. Your work will allow this to happen.

Thanks!

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Subject: Re: ip tunnel in VPS: ioctl: No such device  
Posted by [emkravts](#) on Fri, 14 Sep 2007 10:55:21 GMT  
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Hello. Attached patch diff-sit-tunnel-virtualization-20070913 virtualizes sit device. Now it is possible to create per-ve sets of sit tunnels. Created tunnels can be tested in the same way as described above for ipip. The difference is valid ipv6 address should be assigned to sit devices. And ping6 should be used instead of ping.

### File Attachments

1) [diff-sit-tunnel-virtualization-20070913](#), downloaded 1036 times

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Subject: Re: ip tunnel in VPS: ioctl: No such device//found a solution!  
Posted by [LucienLu](#) on Mon, 22 Feb 2010 13:59:57 GMT  
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Hi guys,

I've written a tiny program to enable TunnelBroker(6to4) on OpenVZ kernel which compiled without ipv6-over-ip tunnel. It uses the TUN/TAP device.

Detail is at

<http://code.google.com/p/tb-tun/>

I'm now using that tunnel. See the performance at

<http://www.lostriver.net/linux-userspace-6to4-tun/>

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