

## strongSwan - Bug #2420

### Android client split-tunnelling does not work on some devices

05.09.2017 12:12 - Ivan Churkin

<b>Status:</b>	Closed	<b>Start date:</b>	
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Tobias Brunner	<b>Estimated time:</b>	0.00 hour
<b>Category:</b>	android	<b>Resolution:</b>	Fixed
<b>Target version:</b>	5.6.1		
<b>Affected version:</b>	5.6.0		
<b>Description</b>			
Android client versions 1.9.2 and 1.9.3 affected			
Phone: Xiaomi Mi 4i (ferrari) MIUI: 8.1.7.0 Stable SDK: 5.0.2			
IKE_v2, certificate authentication			
1) Excluding any network by mask like 192.168.0.0/24 causes VPN start failure			
...			
<pre>[IKE] installing DNS server 8.8.8.8 [IKE] installing DNS server 8.8.4.4 [IKE] installing new virtual IP 10.127.0.148 [IKE] CHILD_SA android{2} established with SPIs b5e9b9df_i c9c735e0_o and TS 10.127.0.148/32 === 0 .0.0.0/0 [DMN] setting up TUN device for CHILD_SA android{2} [LIB] builder: failed to build TUN device [DMN] failed to setup TUN device</pre>			
2) Per-app VPN does not work - all traffic routed to VPN (Nothing interesting in the log)			
<pre>[IKE] installing DNS server 8.8.8.8 [IKE] installing DNS server 8.8.4.4 [IKE] installing new virtual IP 10.127.0.165 [IKE] CHILD_SA android{5} established with SPIs 49a5a4e6_i c0210e5f_o and TS 10.127.0.165/32 === 0 .0.0.0/0 [DMN] setting up TUN device for CHILD_SA android{5} [DMN] successfully created TUN device [IKE] received AUTH_LIFETIME of 10165s, scheduling reauthentication in 9565s [IKE] peer supports MOBIKE</pre>			

#### Associated revisions

##### Revision 66b7a088 - 18.09.2017 11:00 - Tobias Brunner

android: Ignore IllegalArgumentException for multicast addresses

Some Android versions seem to reject routes that use multicast addresses.

Fixes #2420.

#### History

##### #1 - 06.09.2017 16:51 - Tobias Brunner

- Status changed from New to Feedback

What do you expect us to do about this? Or is this just an informative posting for other users of these defective devices/systems?

##### #2 - 06.09.2017 19:54 - Ivan Churkin

Mainly of course its just an information that it happens sometimes. I'm sure that its not the only device with the problem and it's not easy to realise for user why VPN is not working.

Probably its possible to detect somehow that VPN cannot be split on device and to disable UI.

### #3 - 07.09.2017 08:52 - Tobias Brunner

Probably its possible to detect somehow that VPN cannot be split on device and to disable UI.

I don't think so.

In the first case a possible reason for the failure is that you'll end up with lots of routes via TUN device, which might be a problem for some systems (one for every subnet except the excluded one, i.e. in your example routes to these 24 subnets: 0.0.0.0/1,128.0.0.0/2,192.0.0.0/9,192.128.0.0/11,192.160.0.0/13,192.168.1.0/24,192.168.2.0/23,192.168.4.0/22,192.168.8.0/21,192.168.16.0/20,192.168.32.0/19,192.168.64.0/18,192.168.128.0/17,192.169.0.0/16,192.170.0.0/15,192.172.0.0/14,192.176.0.0/12,192.192.0.0/10,193.0.0.0/8,194.0.0.0/7,196.0.0.0/6,200.0.0.0/5,208.0.0.0/4,224.0.0.0/3). We can't know that beforehand and there is also no feedback other than what you see in the log (i.e. the creation of the TUN device failed, we don't get any feedback why - there might be additional errors logged in the system log, though, which you can access via adb logcat).

In the second case we really have no indication that anything is wrong. The `addAllowedApplication/addDisallowedApplication` methods on [VpnService.Builder](#) are available since Android 5/API level 21 and they don't provide any feedback. And here the installation of the TUN device apparently does not fail. So there really is no way to detect that anything is wrong.

### #4 - 08.09.2017 18:41 - Ivan Churkin

There is an error in the system log if subnet excluded.

```
I/charon ( 6722): 16[DMN] setting up TUN device for CHILD_SA android{7}
W/System.err( 6722): java.lang.IllegalArgumentException: Bad LinkAddress params /224.0.0.0/3
W/System.err( 6722):     at android.net.LinkAddress.init(LinkAddress.java:104)
W/System.err( 6722):     at android.net.LinkAddress.<init>(LinkAddress.java:124)
W/System.err( 6722):     at android.net.LinkAddress.<init>(LinkAddress.java:135)
W/System.err( 6722):     at android.net.VpnService$Builder.addRoute(VpnService.java:436)
W/System.err( 6722):     at org.strongswan.android.logic.CharonVpnService$BuilderCache.applyData(CharonVpnService.java:937)
W/System.err( 6722):     at org.strongswan.android.logic.CharonVpnService$BuilderAdapter.establish(CharonVpnService.java:770)
I/charon ( 6722): 16[LIB] builder: failed to build TUN device
```

### #5 - 11.09.2017 19:19 - Tobias Brunner

There is an error in the system log if subnet excluded.

Thanks. Looks like it doesn't like that 224.0.0.0 is a multicast address. I guess we can catch that exception for this particular case. I did so in the *2420-android-multicast* branch. It's interesting that this apparently was changed with newer Android versions (at least with Android 7.1.1 I can't reproduce it).

### #6 - 14.09.2017 14:07 - Ivan Churkin

Yep, I don't have any problems with my Xiaomi Mi4 with MIUI built on Android 6.0.1  
Maybe it's better to expect that any call to `VpnService$Builder.addRoute` may fails.

### #7 - 14.09.2017 16:50 - Tobias Brunner

Maybe it's better to expect that any call to `VpnService$Builder.addRoute` may fails.

It should not fail, so I'd rather know if it does for some reason.

### #8 - 18.09.2017 11:03 - Tobias Brunner

- *Tracker changed from Issue to Bug*
- *Status changed from Feedback to Closed*
- *Assignee set to Tobias Brunner*
- *Target version set to 5.6.1*
- *Resolution set to Fixed*