Android Telnet Connectivity

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December 13, 2011

Overview

- Limitations
- Mac Terminal & Windows Putty
- Three (3) Sample Uses

Android Telnet Limitations

- Each emulator instance runs behind a virtual router, but the emulated device doesn't have access to a physical network.
- Communication with the emulated device may be blocked by a firewall program running on your machine.
- Communication with the emulated device may be blocked by another (physical) firewall/router to which your machine is connected.
- Emulator usually only accessed on the localhost, with the exception of redirection

Telnet Comparison

Mac OS X

- Applications > Utilities > Terminal

Windows

- telnet is *NOT* available in Windows 7

  Therefore, best to download putty

Putty "raw" TCP connections

- Sometimes it can be useful to connect directly to one of these services and speak the protocol ‘by hand’, by typing protocol commands and watching the responses.
- Although the telnet program provides this functionality, the protocol being used is not really Telnet. There is no actual protocol at all: the bytes sent down the connection are exactly the ones you type, and the bytes shown on the screen are exactly the ones sent by the server.
- telnet will attempt to detect or guess whether the service it is talking to is a real Telnet service or not; PuTTY prefers to be told for certain.
- In order to make a debugging connection to a service of this type, you simply select the fourth protocol name, ‘Raw’, from the ‘Protocol’ buttons in the ‘Session’ configuration panel. You can then enter a host name and a port number, and make the connection.

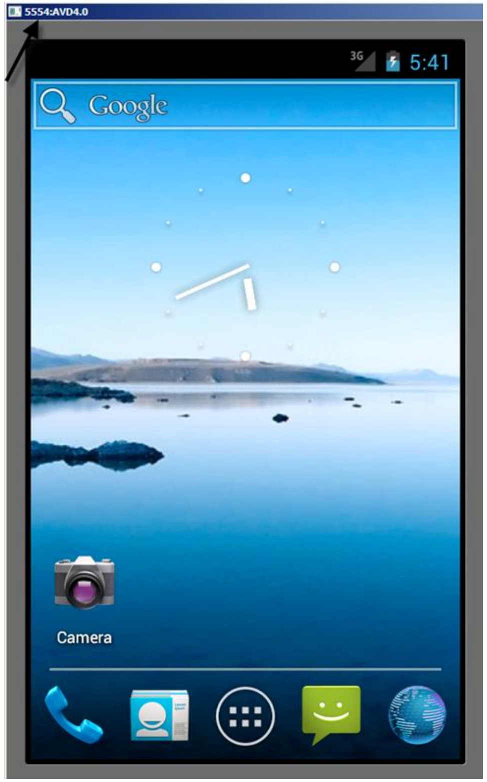
Which Telnet Port?

From Command Line:

```
C:\>adb devices
List of devices attached
emulator-5554   device
emulator-5556   device
```

The emulator listens for connections on ports 5554-5587 and accepts connections only from localhost.

From Emulator:



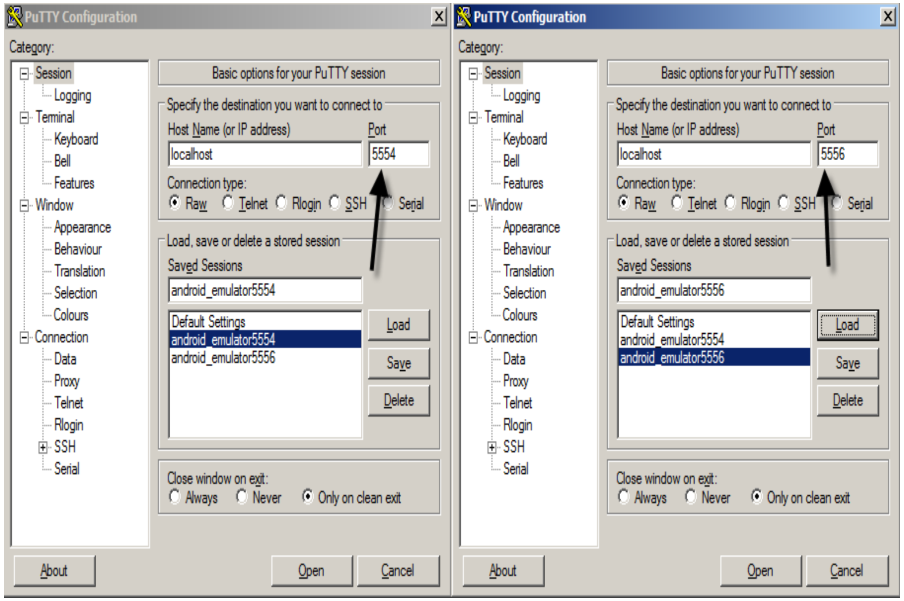
Telnet Access: Mac vs Putty

Mac Command Line:

$ telnet localhost <port>

```
$ telnet localhost 5554
```

Putty:



PuTTY Configuration

Basic options for your PuTTY session

Specify the destination you want to connect to

Host Name (or IP address): localhost

Port: 5554

Connection type: ● Raw ○ Telnet ○ Rlogin ○ SSH ○ Serial

Load, save or delete a stored session

Saved Sessions: android_emulator5554

Default Settings
android_emulator5554
android_emulator5556

Close window on exit: ○ Always ○ Never ● Only on clean exit

PuTTY Configuration

Basic options for your PuTTY session

Specify the destination you want to connect to

Host Name (or IP address): localhost

Port: 5556

Connection type: ● Raw ○ Telnet ○ Rlogin ○ SSH ○ Serial

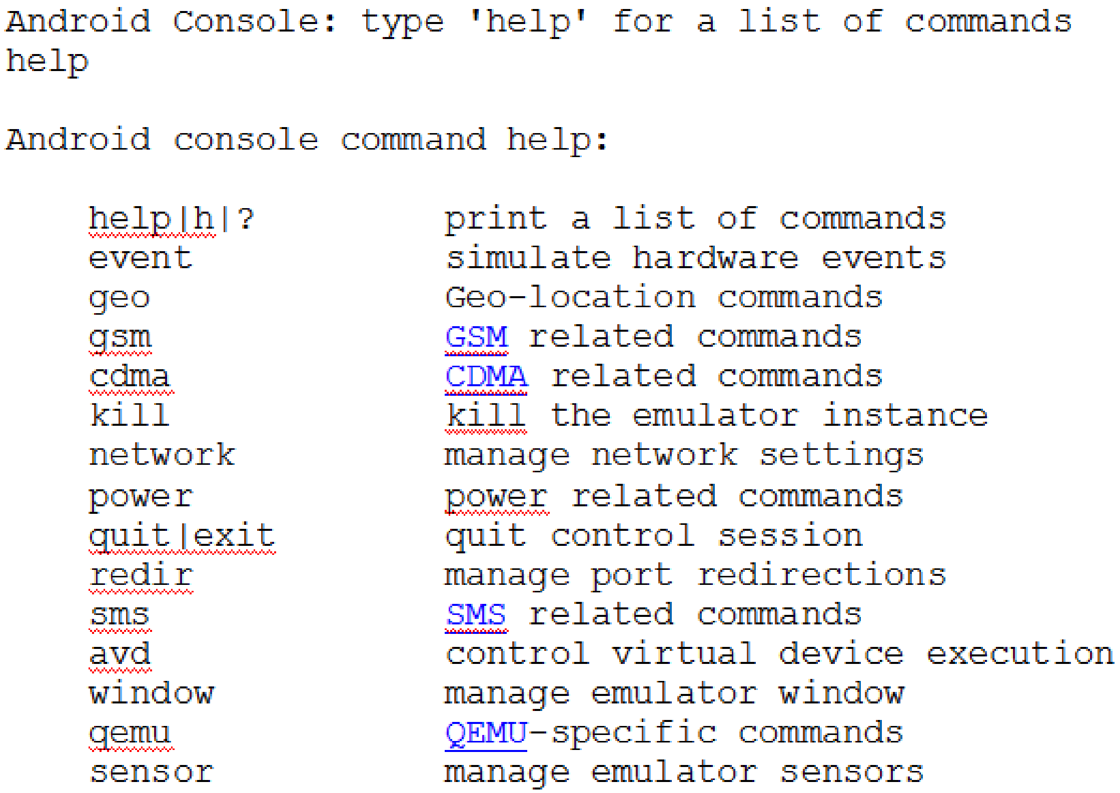
Load, save or delete a stored session

Saved Sessions: android_emulator5556

Default Settings
android_emulator5554
android_emulator5556

Close window on exit: ○ Always ○ Never ● Only on clean exit

Commands Available Via Telnet



```
Android Console: type 'help' for a list of commands
help

Android console command help:

    help|h|?         print a list of commands
    event            simulate hardware events
    geo              Geo-location commands
    gsm              GSM related commands
    cdma             CDMA related commands
    kill             kill the emulator instance
    network          manage network settings
    power            power related commands
    quit|exit        quit control session
    redir            manage port redirections
    sms              SMS related commands
    avd              control virtual device execution
    window           manage emulator window
    qemu             QEMU-specific commands
    sensor           manage emulator sensors
```

GPS

```
help geo
```

allows you to change Geo-related settings, or to send GPS NMEA sentences

available sub-commands:

```
   geo nmea     send an GPS NMEA sentence
   geo fix      send a simple GPS fix
```

For example, to set my current location to 7 East 12th Street:

```
geo fix 40.734576 -73.993748
```

Redirection

```
help redir
```

allows you to add, list and remove UDP and/or PORT redirection from the host to the device

as an example, 'redir tcp:5000:6000' will route any packet sent to the host's TCP port 5000 to TCP port 6000 of the emulated device

available sub-commands:

```
  redir list       list current redirections
  redir add      add new redirection
  redir del      remove existing redirection
```

`# telnet 10.1.1.1 5000` -> port 6000 of emulator devices

Power

Use the power command to control the simulated power state of the emulator instance.

```
power <display|ac|status|present|health|capacity>
```

The event command supports the subcommands listed in the table below.

Subcommand	Description
display	Display battery and charger state.
ac <on|off>	Set AC charging state to on or off.
status <unknown|charging|discharging| not-charging|full>	Change battery status as specified.
present <true|false>	Set battery presence state.
health <unknown|good|overheat|dead|overvoltage|failure>	Set battery health state.
power health <percent>	Set remaining battery capacity state (0-100).

BusyBox

Busybox is a set of Unix utilities (command line) that can be installed into the Android Emulator to supplement those that comes with the Emulator.

http://www.busybox.net/

```
# adb shell
```

Sample Utilities: ps, ls, find, netstat, passwd, ping

References

- **Official Android:**

  http://developer.android.com/guide/developing/devices/emulator.html

- **Putty Website:**

  http://www.chiark.greenend.org.uk/~sgtatham/putty/

  http://the.earth.li/~sgtatham/putty/0.60/htmldoc/Chapter3.html#using-rawprot