

COM Port 4 Android



Manual CP4A

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1.0	First release	2011-05-11

Introduction

COM Port 4 Android (CP4A) is a serial communications utility, which combines network and local **real or virtual serial port** functions into one.

In today's economy, faster and better access to information can mean the difference between success and failure. The **CP4A** server provide a quick, simple and cost-effective way to bring the advantages of data accessibility and remote management to equipment not currently connected to a network.

Our approach to network-enabling devices is transparent to your attached devices and software. So, you won't need to change the way you work, and there's no need to develop special software to take advantage of Ethernet networking.

Using a method called serial tunneling, the **CP4A** encapsulates serial data into packets and transports it over Ethernet.

The included redirection software extends the functionality of your COM port-based Windows® applications and any Android device.

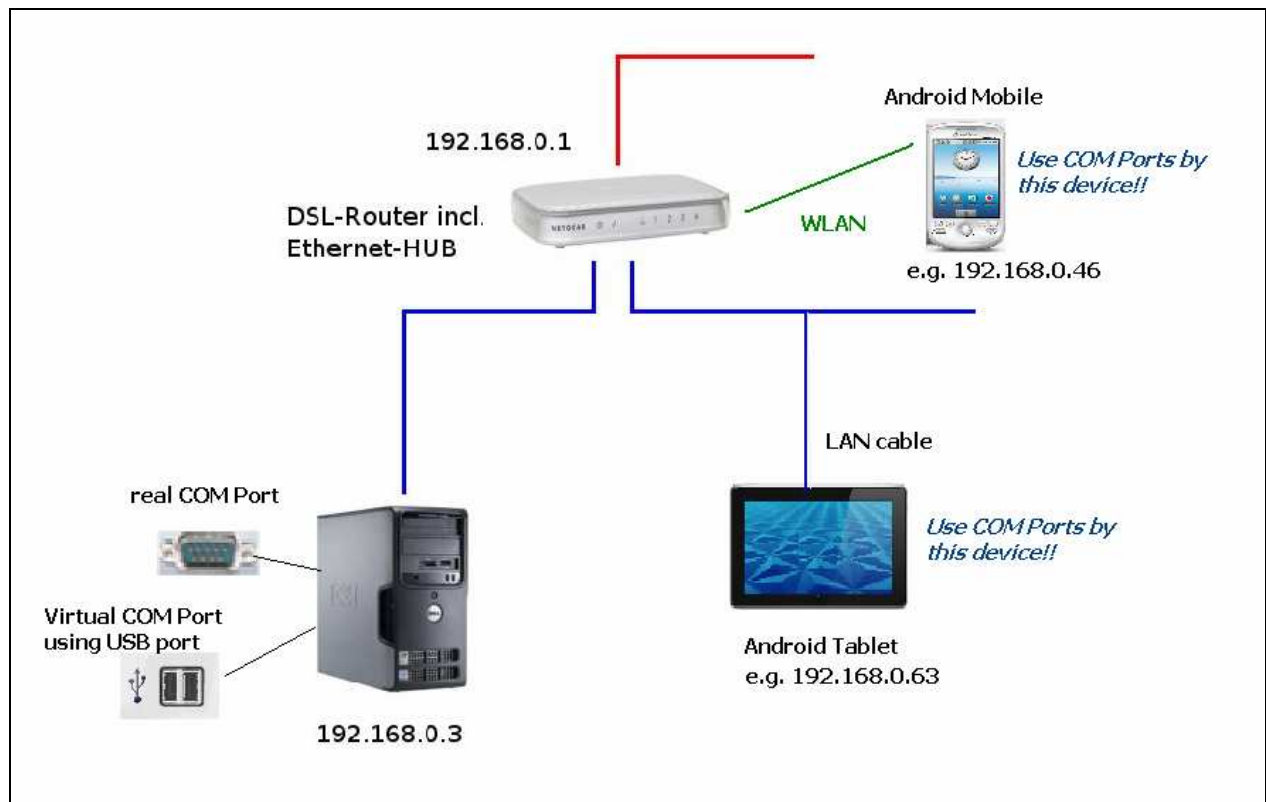
CP4A has especially been developed for interconnecting Android (2.2. or higher) devices with remotely located COM ports. Since most Android phones and Tablet-PC do not dispose serial interfaces, this utility allows you to share up to 32 serial port devices over any TCP/IP network. It effectively turns the computer into a low-cost network access server, so that a Android device connected to.

For running CP4A on an Android device, you need to download the application file **CP4A.apk** from the Android Market.

The serial port is becoming scarce on some computers/motherboards and certainly has not featured on most laptops for some time. Therefore the use of USB to RS232 connectors has become quite popular.

For that you may connect a RS232 interface via a local USB port and virtual COM port driver. **CP4A** server will even forward such signals to Android devices provided these devices are connected via LAN or WLAN.

Topology of CP4A



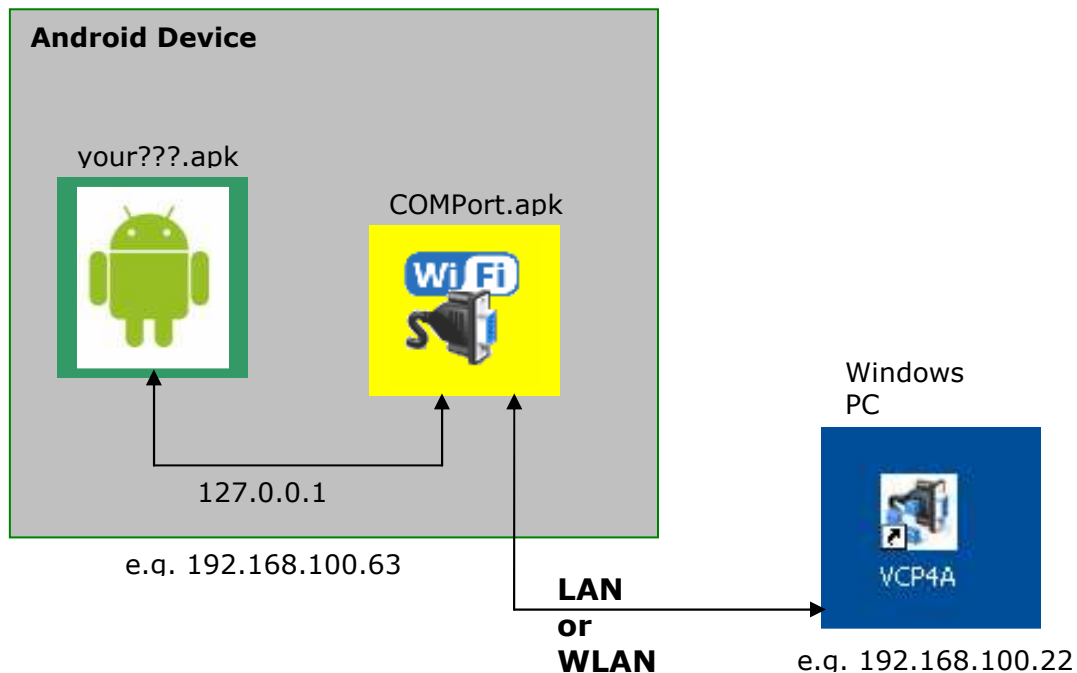
How does COMPort.apk work?

This Android widget is both a client and a server. Whenever this app has been started by user, it periodically tries to connect to the server located on the remote Windows PC. In this case it acts as a client.

On the other side, any individual Android application (usually a piece of software, which you have designed and programmed on Android OS) may connect to this application via a local network connection (a connection which uses the IP address 127.0.0.1 is always local).

The CP4A.apk provides a set of command strings (ASCII strings) which could be used to write data to and read data from the PC's COM port, provided this port has been previously initialized and connected.

Within your Android application, you must first setup a valid client socket connection using IP address **127.0.0.1** and port **7777** (you may assign any other port number via the CP4A menu tab "Preferences").



Note:

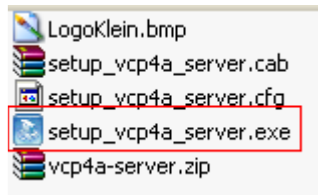
Android device may have access to real or **virtual** COM ports of a remotely located PC provided that:

1. The android device is a members of a local network (connected via cable or WiFi)
2. The android device is members of the same domain
3. The android device has "CP4A.akp" successfully installed
4. The PC device has "CP4A-Server.exe" successfully installed
5. It is highly probable that you cannot connect any App (as offered by Android market) to CP4A.apk unless this App supports certain commands and sequences. If you are an Android programmer, it is quite simple and fast, to share COM ports of a PC with your Android tablet or mobile!

To start a session it doesn't matter if you start first **CP4A-server.exe** located on the Windows PC or **CP4A.apk** on your Android. For a valid session you have to make sure that both applications are running prior of connecting you individual application to CP4A.apk.

Installation on Windows®

- Run "**setup_vcp4a_server**" from installation package



- After installation a icon should be placed on your desktop
- Double click on that icon which starts the server on your PC
- Consider that you don't have to configure anything since the server automatically scans all COM ports (real existing hardware ports as well as virtual COM ports)

Run server in echoed mode

If your PC keeps at least one (virtual or hardware) COM port, but there is no RS232/USB device connected to it, you may test your client-server-installation by setting the CP4A-server into "echoed mode". Every message (ASCII String) sent to the server will be echoed back to the CP4A client which is running on an Android device.



Observe COM streaming

You may furthermore watch all data sent and received by CP4A gateway by clicking on menu button Monitor.



Setup CP4A Server

Please refer to file "**setport.txt**" which is used by the server to setup port number and reception timeout. This file is located inside the installation folder and can be edited by notepad or any other text editor.

Open file and modify:

1. item = port number (e.g. 7777)
2. item = reception timeout in milliseconds (e.g. 1000 = 1 sec.)

You don't need to change the port number unless this number is refused by your firewall. For a fast and simple test, switch off your firewall and use default port 7777.

In accordance with your serial (RS232) protocol (which is most likely a proprietary ASCII stream) you might change the reception timeout (2. parameter). If the device connected to a COM port needs to transfer long ASCII streams, you should increase this parameter.

Virtual COM ports

As already mentioned in this manual, **CP4A** even supports virtual COM ports. Since a virtual COM port appears to **CP4A** as it would be real hardware port, there are no constraints to be taken into account.

The great advantage of using virtual ports is the fact, that you may use the USB port of your computer to send and receive data to your Android.

On the market there are many of products providing a "USB-to-COM" interface. After installing the appropriate driver software the USB interface appears as a "real" COM port.

Examples:



Cable adapter providing a USB to RS232 interface for less than € 7



Scope including RS232 and a virtual COM driver

Trouble shooting

The CP4A-server software needs a pre-installed and registered OCX control. This driver will be usually registered during package installation. If this fails and if you get any socket errors issued by Windows, try this:

Copy "cswskax6.ocx" - which is a part of the zipped installation package - to your system folder (typically windows\system32\.. for XP), open a command box (cmd) and type in:

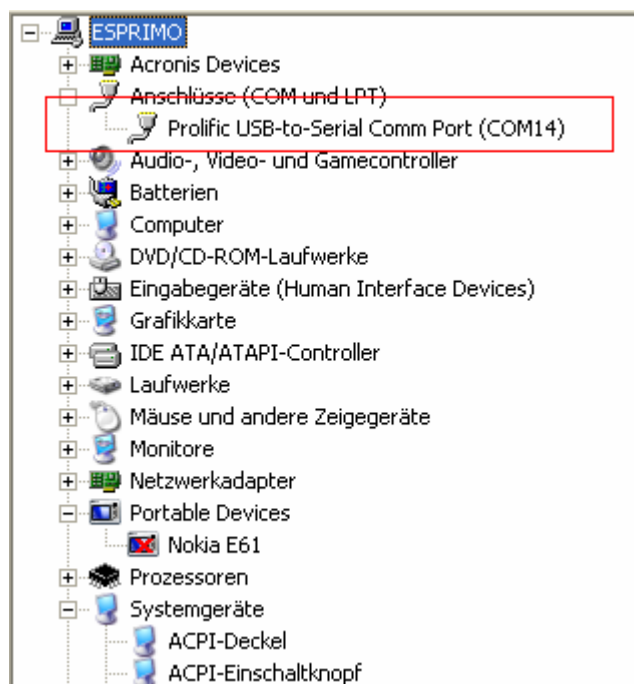
regsvr32 cswskax6.ocx

If you cannot connect to the COM server on your PC make sure:

- You have chosen a valid port number on both sides (PC and Android)
- Your Android got the IP address of the PC where vcp4a-server.exe is running
- Your firewall accepts the configured port number
- Both devices must be in same domain (there is no way to access CP4A via Internet!)
- Make sure vcp4a-server.exe is running

If you cannot connect to the COM port (real or virtual):

- Make sure that you have successfully installed driver for virtual COM port
- Check COM ports via device manager



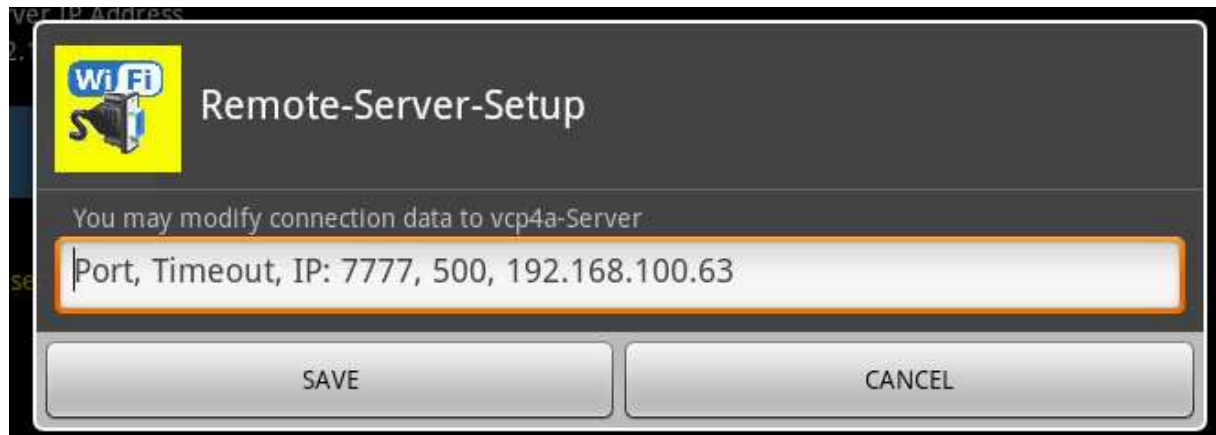
Set Port Number

On your Android device click on the "CP4A" icon to open the app's graphical user interface (GUI).

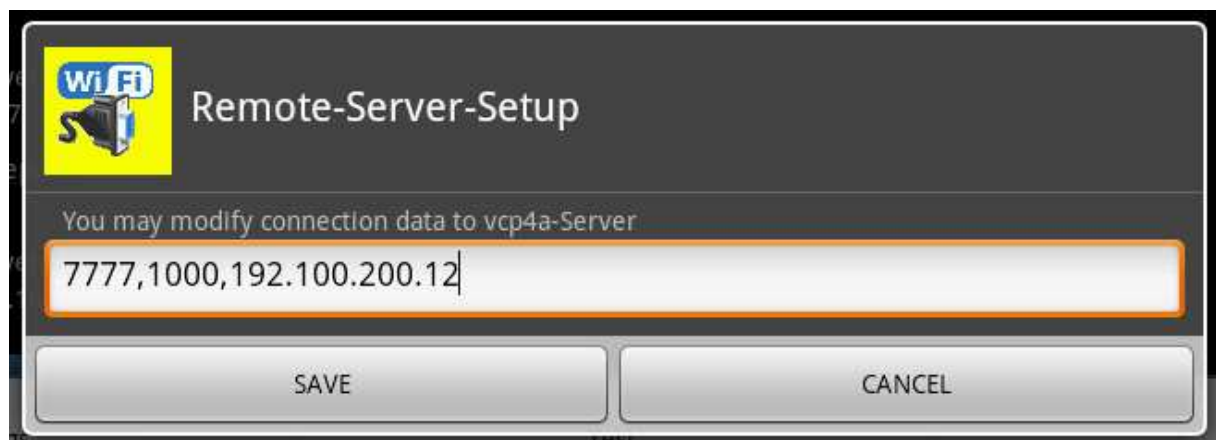
Type menu button and Select "Settings"

Configure: port number, reception timeout, IP address of your Windows PC

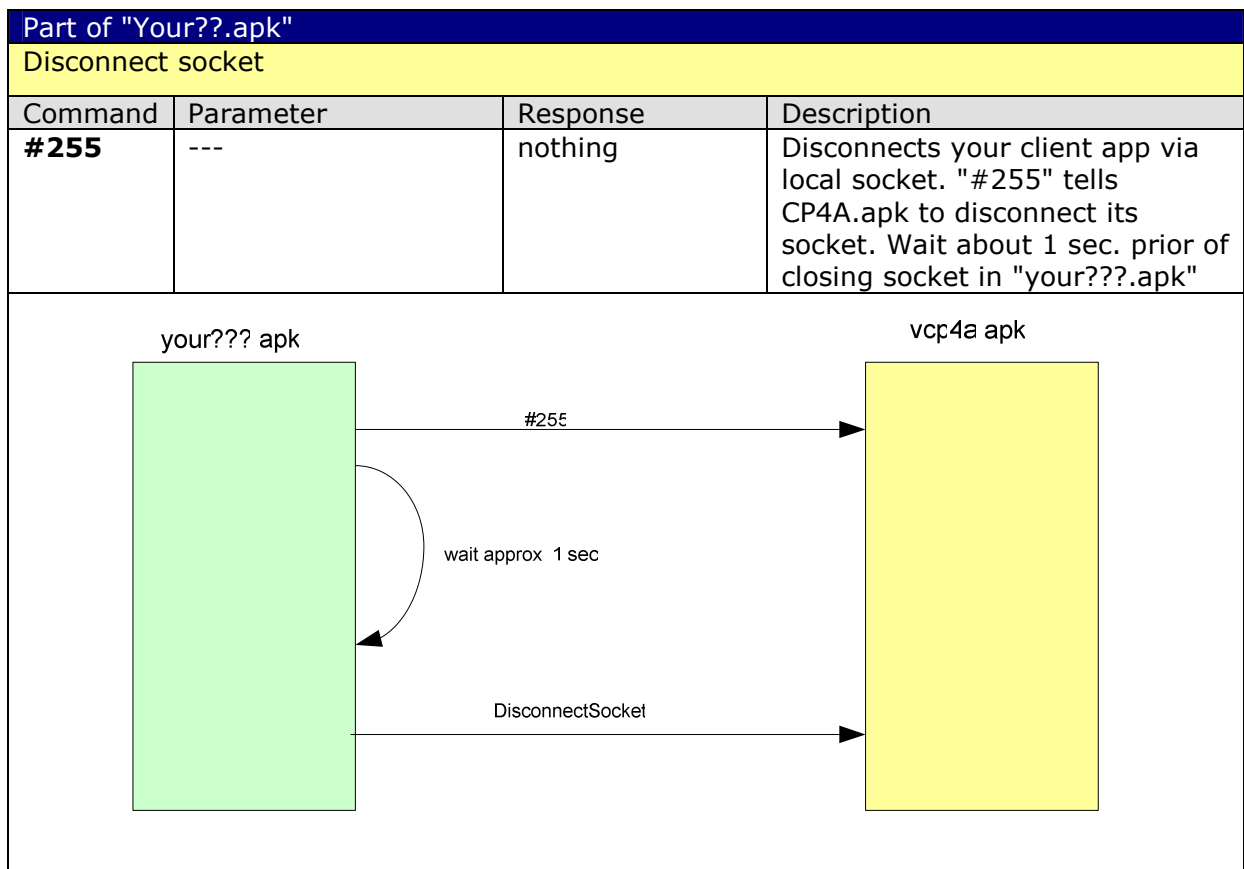
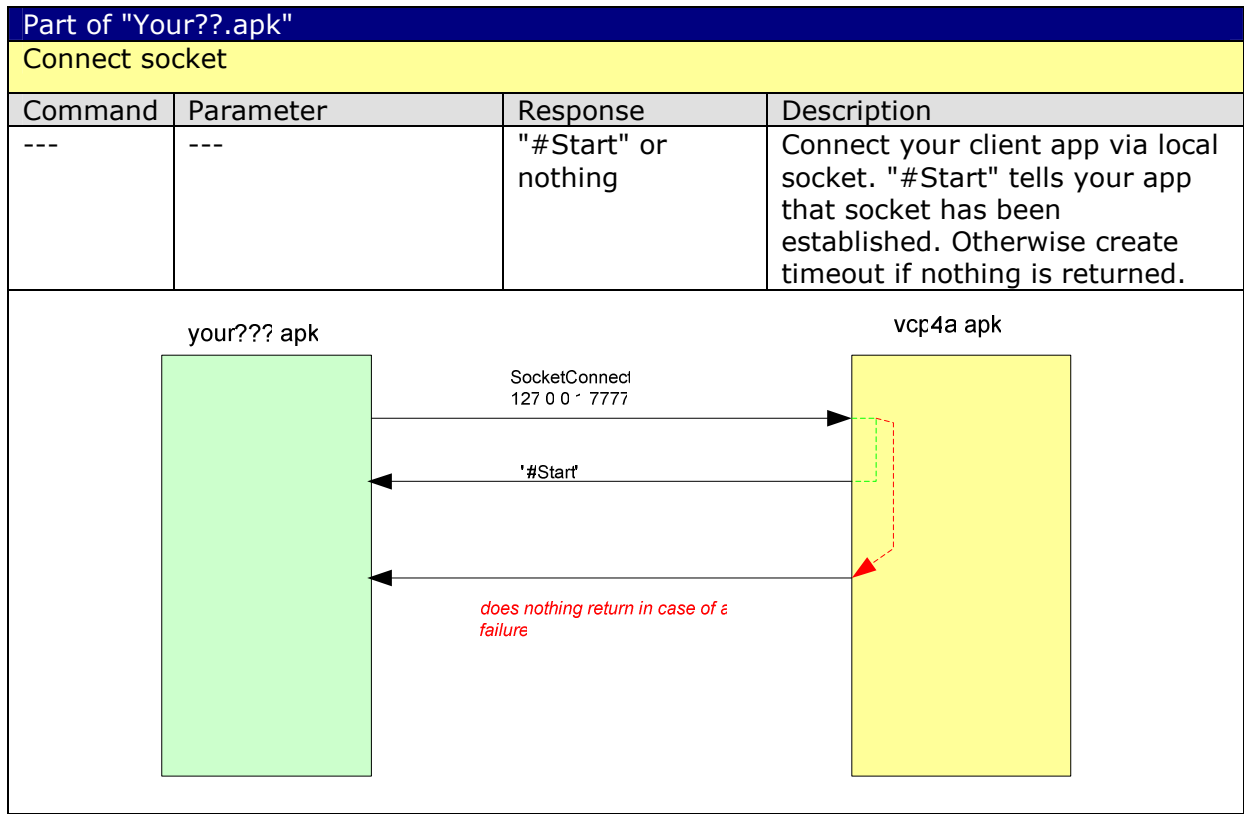
1. Touch on editor box



2. Type in port number, reception timeout an TCP/IP address



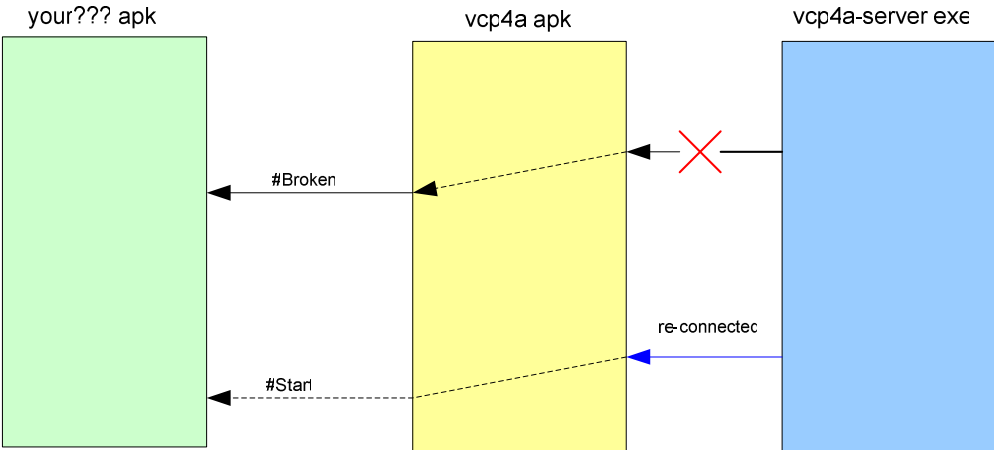
Commands



Part of "Your??.apk"

Broken server connection

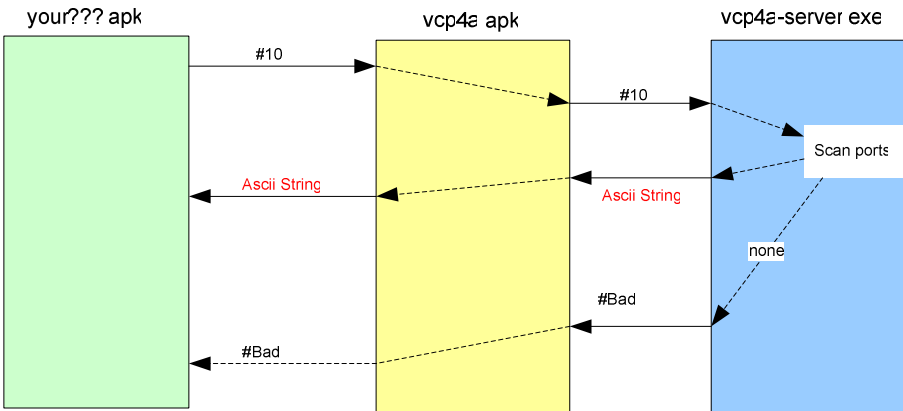
Command	Parameter	Response	Description
---	---	#Broken or #Start	CP4A.apk send a #255 in case of a broken connection to the windows server (CP4A-sever.exe). It sends "#Start" as soon as connection is re-established



Part of "Your??.apk"

Get number of available ports on PC

Command	Parameter	Response	Description
#10	---	ASCII String Or #Bad	Returns a string with available COM ports and settings. If no COM available, returns "#Bad"



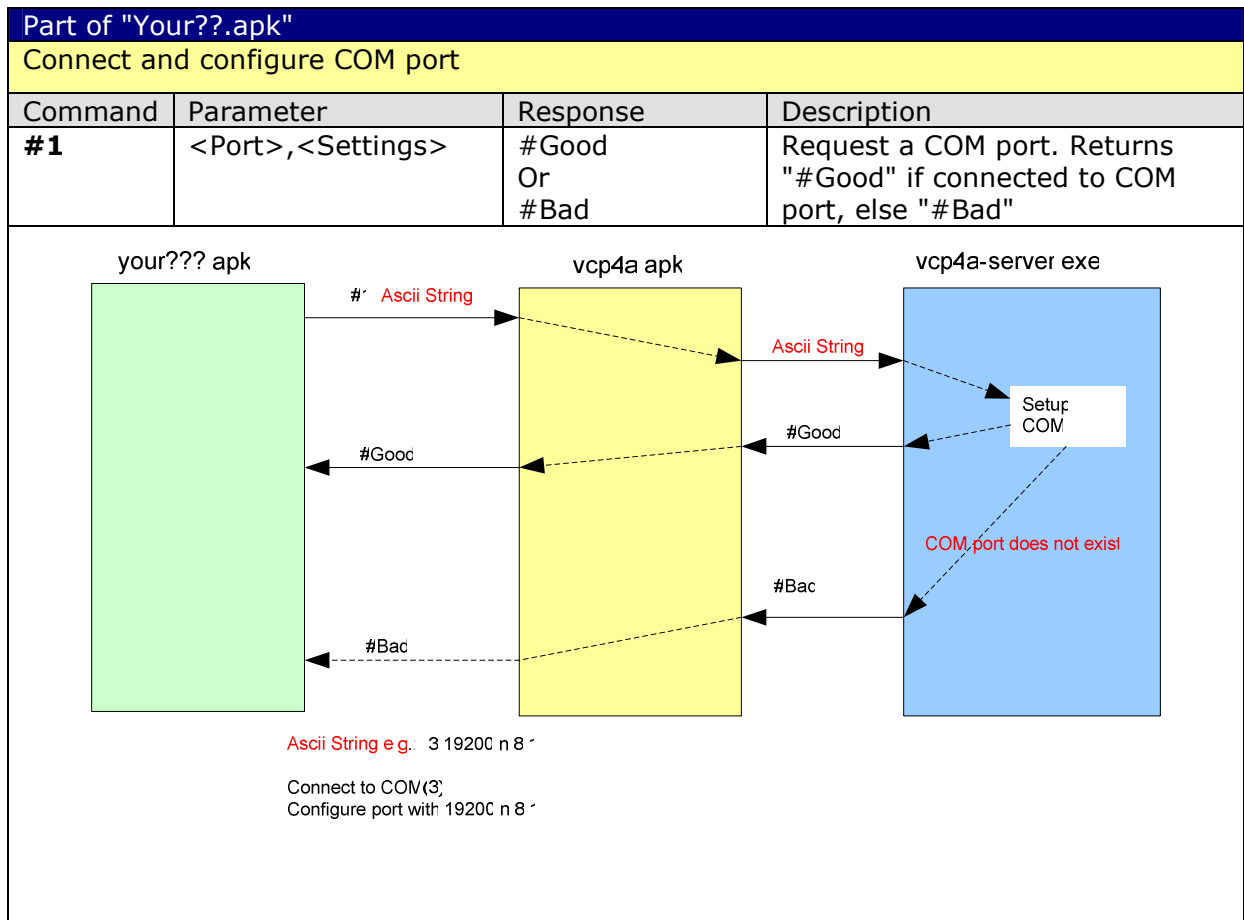
Ascii String e.g.:

```

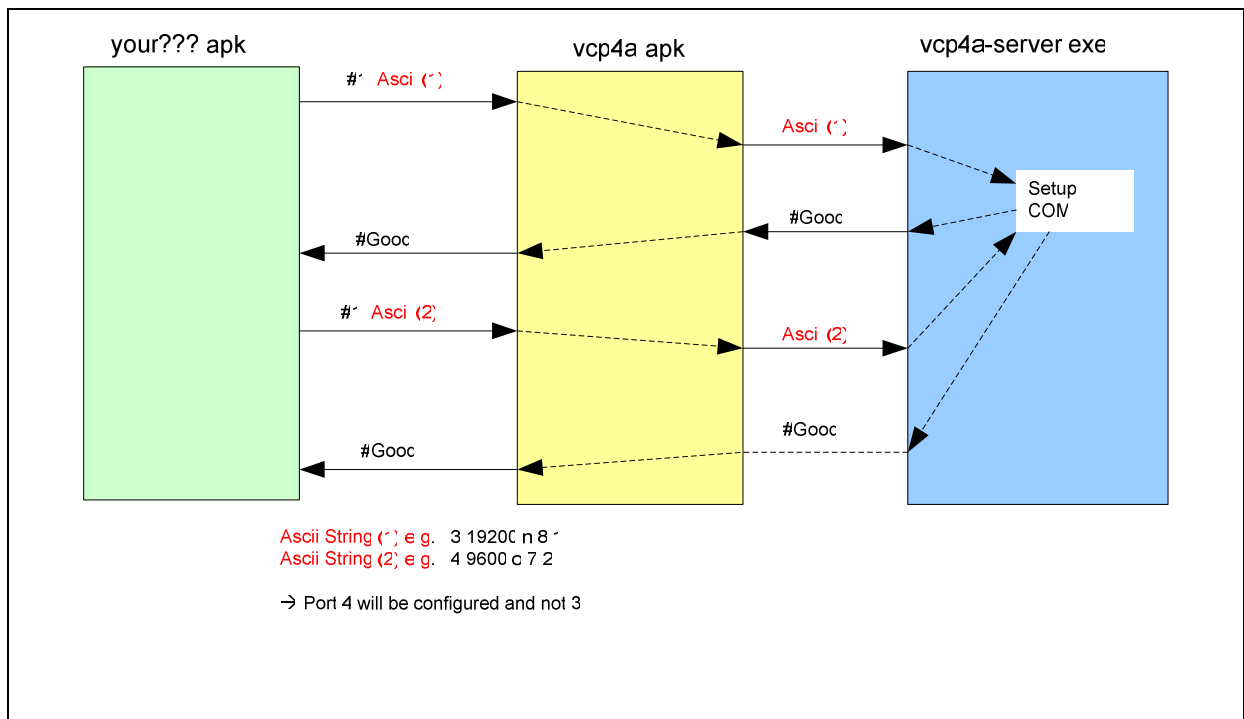
3 9400 r E ^ 4 120C r 7 2

```

Ports 3 4 available
Settings 9400 r E ^ for port 3
Settings 120C r 7 2 for port 4
r = parity none (could be also 'c' or 'e')
E 7 = number data bits
^ 2 = number stop bits



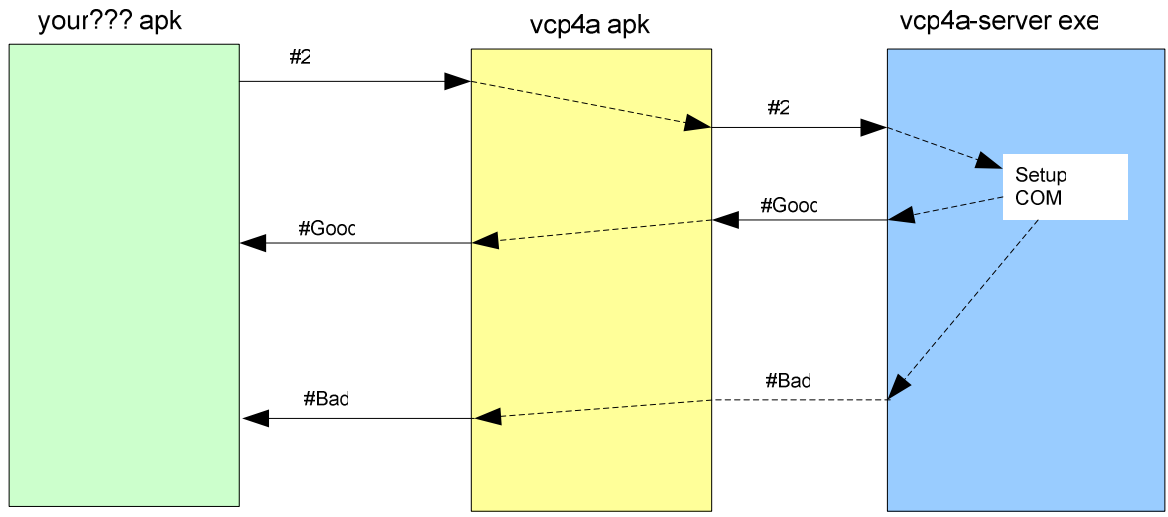
Please take care when configuring a COM port:
If you send a second configuration message the previously configured COM port will be rejected and the new one is established.



Part of "Your??.apk"

Disconnect COM port (note:

Command	Parameter	Response	Description
#2		#Good Or #Bad	Disconnect a COM port. Returns "#Good" if disconnected , else "#Bad"

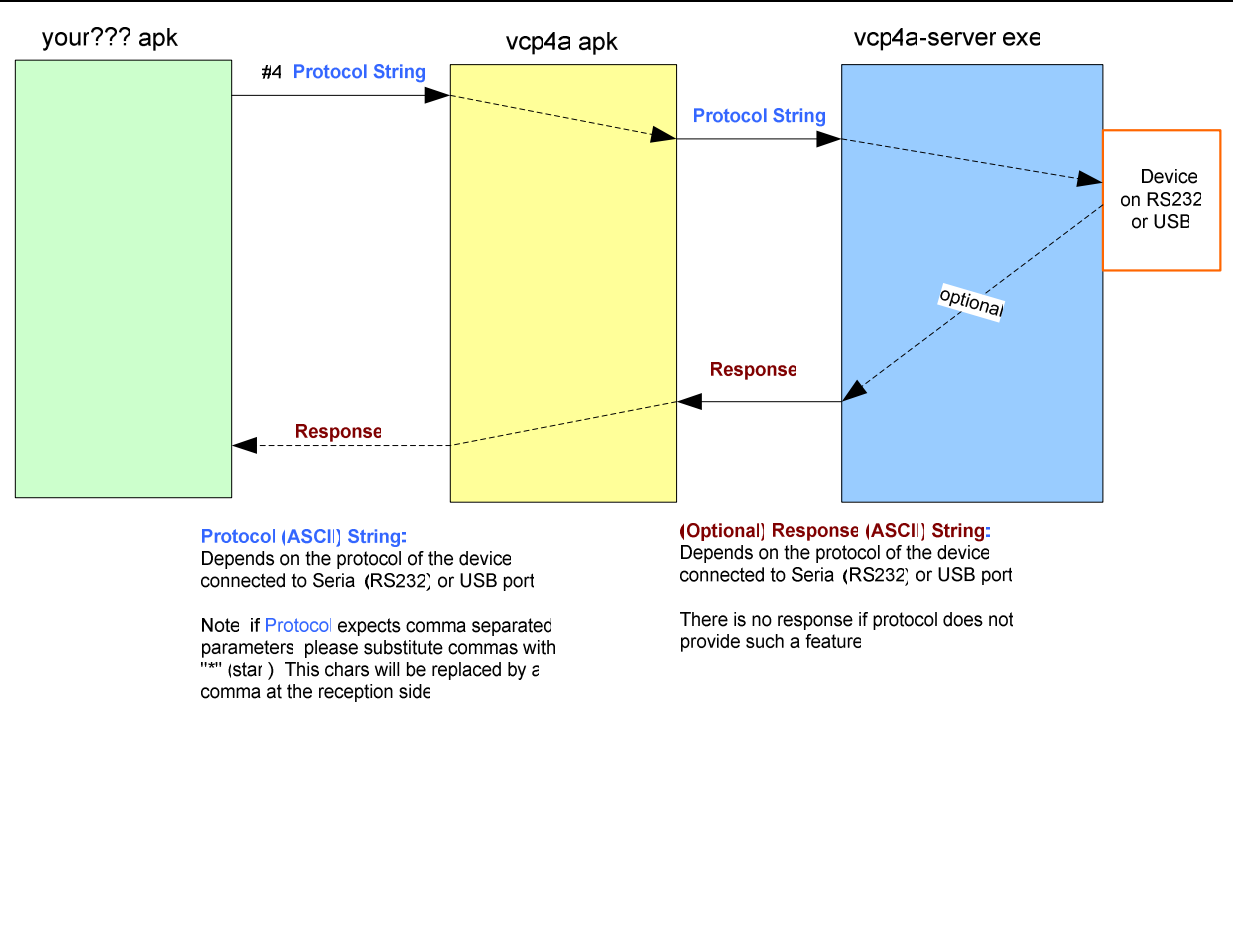


Returns '#Bad' if COM port does not exist or if port has not been connected at this point of time

Part of "Your??.apk"

Write String to COM port (note: protocol depends on your device which is connected to serial or USB port)

Command	Parameter	Response	Description
#4	<ASCII>	Depends on the protocol of the device connected to COM	Write an ASCII String to connected COM Port. If this string keeps comma separated items, replace commas by a asterisk *. Asterisks are replaced by comma at reception side.



Part of "Your??.apk"

Read String from COM port (note: protocol depends on your device which is connected to serial or USB port)

Command	Parameter	Response	Description
#5		<ASCII> or empty depending on the protocol of the device connected to COM	Read last message buffer

