



Android API - Network

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Pakete und Klassen

Wichtige Pakete/Klassen der Network API:

- **java.net.ServerSocket** (TCP)
- **java.net.Socket** (TCP)
- **java.net.DatagramSocket** (UDP)
- **java.net.DatagramPacket** (UDP)
- android.net
- android.net.http
- android.net.wifi

Sockets

Lesen aus Sockets:

- `java.io.BufferedReader`
- `java.io.InputStreamReader`

Schreiben in Sockets:

- `java.io.BufferedWriter`
- `java.io.OutputStreamWriter`
- `java.io.PrintWriter`

Beispiel: ServerSocket

```
import java.io.BufferedReader;
import java.io.InputStreamReader;
import java.net.ServerSocket;
import java.net.Socket;

public void run() {
    ServerSocket serverSocket = new ServerSocket(SERVERPORT);
    while(true) {
        Socket client = serverSocket.accept();
        BufferedReader in = new BufferedReader(new
            InputStreamReader(client.getInputStream()));
        String str = in.readLine();
        client.close();
    }
}
```

Beispiel: Socket (Client)

```
import java.io.BufferedWriter;
import java.io.OutputStreamWriter;
import java.io.PrintWriter;
import java.net.InetAddress;
import java.net.Socket;

public void run() {
    InetAddress serverAddr = InetAddress.getByName("127.0.0.1");
    Socket socket = new Socket(serverAddr, SERVERPORT);
    String message = "Android client says hello!";
    PrintWriter out = new PrintWriter(new BufferedWriter
        (new OutputStreamWriter(socket.getOutputStream())), true);
    out.println(message);
    Socket.close();
}
```

Beispiel: UDP Server

```
import java.net.DatagramPacket;
import java.net.DatagramSocket;
import java.net.InetAddress;

public static final String SERVERIP = "127.0.0.1"; // 'Within' the emulator!
public static final int SERVERPORT = 4444;

public void run() {
    InetAddress serverAddr = InetAddress.getByName(SERVERIP);
    DatagramSocket socket = new DatagramSocket(SERVERPORT, serverAddr);
    byte[] buf = new byte[17];
    DatagramPacket packet = new DatagramPacket(buf, buf.length);
    socket.receive(packet);
}
```

Beispiel: UDP Client

```
import java.net.DatagramPacket;
import java.net.DatagramSocket;
import java.net.InetAddress;

public void run() {
    InetAddress serverAddr = InetAddress.getByName(Server.SERVERIP);
    DatagramSocket socket = new DatagramSocket();
    byte[] buf = ("Hello from Client").getBytes();
    DatagramPacket packet = new DatagramPacket(buf, buf.length, serverAddr, SERVERPORT);
    socket.send(packet);
}
```

Eigene IP feststellen

Das Tool „netcfg“ liefert eine Liste aller Netzwerkgeräte und ihres Status, sowie der dazugehörigen Konfigurationen.

```
# netcfg
gre0    DOWN  0.0.0.0      0.0.0.0      0x00000080
tunl0   DOWN  0.0.0.0      0.0.0.0      0x00000080
eth1    UP     192.168.0.213 255.255.255.0 0x00001043
eth0    UP     10.0.2.15    255.255.255.0 0x00001043
lo      UP     127.0.0.1    255.0.0.0    0x00000049
```

Hinweis: AndroidManifest.xml Eintrag:

```
<uses-permission android:name="android.permission.INTERNET" />
```