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## 1. External PPP Setting

Port: USB->modem / UART, Hardware flow control

AT command:

```
AT+CGDCONT=1,"IP","apn"
```

```
ATD*99#
```

*Note, Sequence of +++ could be issued to exit data mode.*

## 2. SIMCom Internal TCPIP Protocol

### 2.1 Network Environment

TCPIP application is based on GPRS network; so, ensure GPRS network is available before TCPIP setup. Following is the recommended steps.

```
AT+CSQ  
+CSQ: 23,0
```

```
OK  
AT+CREG?  
+CREG: 0,1
```

```
OK  
AT+CPSI?  
+CPSI: GSM,Online,460-00 0x1816,63905,81 EGSM 900,-68,0,31-31
```

```
OK  
AT+CGREG?  
+CGREG: 0,1
```

```
OK
```

## 2.2 PDP Context Enable/Disable

APN setting:

```
AT+CGSOCKCONT=1,"IP","CMNET"
```

```
OK
```

```
AT+CSOCKSETPN=1
```

```
OK
```

*Note, usually CSOCKAUTH and CSOCKSETPN parameter are kept default if not care about.*

Enable PDP context:

```
AT+CIPMODE=0 // command mode, if not configured, it's 0 as default. If want data mode, please configure before Net open.
```

```
OK
```

```
AT+NETOPEN
```

```
OK
```

```
+NETOPEN: 0
```

```
AT+IPADDR
```

```
+IPADDR: 10.113.43.157
```

```
OK
```

Disable PDP context:

```
AT+NETCLOSE
```

```
OK
```

```
+NETCLOSE: 0
```

## 2.3 Command Mode (Non-transparent mode)

Command mode is sometimes called non-transparent mode, which is default configured by module. Multi sockets are available under this mode.

### 2.3.1 TCP Client

```
AT+CIPOPEN=0,"TCP", "116.236.221.75",8011//only IP address is supported
OK
```

```
+CIPOPEN: 0,0
```

```
AT+CIPSEND=0,5 // only supports fixed-length to send
>HELLO
OK
```

```
+CIPSEND: 0,5,5
```

```
AT+CIPSEND=0, //the second parameter is empty means using <Ctrl+Z> to check the end
>HELLO<Ctrl+Z>
OK
```

```
+CIPSEND: 0,5,5
```

```
AT+CIPCLOSE=0 // close by local
OK
```

```
+CIPCLOSE: 0,0
```

*Note, if connection closed by remote server, following URC will return:*

```
+IPCLOSE: 0, 1
```

*Here, the meaning of second parameter in this URC is following,*

*0 - closed by local, active*

*1 - closed by remote, passive*

*3 - Reset*

### 2.3.2 UDP Connexion

One socket could communicate with multiple UDP channels.

```
AT+CIPOPEN=0,"UDP",,,9000//here 9000 is local port
+CIPOPEN: 0,0
OK
```

```
AT+CIPSEND=0,5,"16.236.221.75",9015
```

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