**PDP Context & Internet Setup with AT+CGDCONT**

**What is PDP Context?**

PDP (Packet Data Protocol) context defines the parameters required for a device to connect to the internet over a cellular network. It includes information like:

* APN (Access Point Name)
* IP type (IPv4/IPv6)
* PDP address (optional)
* Data compression settings (optional)

**AT+CGDCONT – Define PDP Context**

Syntax:

AT+CGDCONT=<cid>,"<PDP\_type>","<APN>"

* <cid>: Context ID (1–16; often 1)
* <PDP\_type>: "IP" (IPv4), "IPV6", or "IPV4V6"
* <APN>: Access Point Name (e.g., internet, airtelgprs.com, etc.)

**Example Commands (on real modems)**

1. Set APN (for Airtel India):

AT+CGDCONT=1,"IP","airtelgprs.com"

1. Set APN (for Jio India):

AT+CGDCONT=1,"IP","jionet"

1. Query current PDP context:

AT+CGDCONT?

1. Expected response:

+CGDCONT: 1,"IP","jionet","0.0.0.0",0,0

**Important Notes**

* This command only configures the PDP context. To actually connect to the internet, follow with:
  + AT+CGATT=1 → Attach to GPRS
  + ATD\*99# or ATD\*99\*\*\*1# → Dial data call

**How GSM Modules Use AT+CGDCONT to Set Up Internet**

**Step 1: Set APN with AT+CGDCONT**

This command tells the modem:

* What kind of IP connection to use
* What APN (Access Point Name) to connect to

Command:

AT+CGDCONT=1,"IP","<apn>"

Example (for Jio India):

AT+CGDCONT=1,"IP","jionet"

**Step 2: Attach to GPRS with AT+CGATT**

Command:

AT+CGATT=1

This tells the modem to attach to the GPRS network, enabling data services.

Expected Response:

OK

**Step 3: Start Data Call with ATD\*99#**

Command:

ATD\*99#

This dials a special number that starts a data session using the context defined in +CGDCONT.

Optional: If using CID other than 1 (say 2), use:

ATD\*99\*\*\*2#

Expected Response:

CONNECT

At this point, the modem opens a data channel and the serial port becomes a raw PPP stream.

**Step 4: Use PPP (Point-to-Point Protocol)**

Once CONNECT is received, the modem expects a PPP session (handled by OS or software like pppd on Linux). If you’re on a microcontroller, a PPP stack is needed.

Complete Sequence Example:

AT+CFUN=1 → Full functionality mode

AT+CSQ → Check signal strength

AT+CGDCONT=1,"IP","internet"

AT+CGATT=1 → Attach to GPRS

ATD\*99# → Start data session

Verify Settings

* Query current context:

AT+CGDCONT?

* Check GPRS attachment:

AT+CGATT?

Returns:

+CGATT: 1 → attached

* Check registration:

AT+CREG? → for GSM

AT+CGREG? → for GPRS

Supported PDP Types

| Type | Description |
| --- | --- |
| "IP" | IPv4 only |
| "IPV6" | IPv6 only |
| "IPV4V6" | Dual-stack |

Notes:

* Incorrect APN = no internet access
* SIM card must have active data plan
* PPP or LTE connection depends on module type (2G/3G/4G)