**APN configuration with AT+CGDCONT**

A PDP context is a structure used by GSM/UMTS/LTE networks to establish an IP-based data session between a modem and the internet via the operator’s gateway. It includes:

* CID – Context ID
* PDP Type – e.g., IP, IPV6, IPV4V6
* APN – Access Point Name (provided by operator)

**Syntax:**

* AT+CGDCONT=<cid>,<PDP\_type>,<APN>[,<PDP\_addr>[,<d\_comp>[,<h\_comp>]]]

**Basic Parameters:**

|  |  |
| --- | --- |
| **Parameter** | **Description** |
| <cid> | Context identifier (1–16) |
| <PDP\_type> | "IP", "IPV6", or "IPV4V6" – protocol type |
| <APN> | APN string (operator-specific) |
| <PDP\_addr> | (Optional) IP address to assign (usually left empty for dynamic IP) |
| <d\_comp> | Data compression (0 = off, 1 = on) |
| <h\_comp> | Header compression (0 = off, 1 = on) |

**Sample APN Settings for Indian Operators**

|  |  |  |
| --- | --- | --- |
| **Operator** | **APN** | **Notes** |
| Jio | jionet | No username/password needed |
| Airtel | airtelgprs.com | Widely used for mobile data |
| Vodafone-Idea (Vi) | www | May vary by region |
| BSNL | bsnlnet | For BSNL prepaid users |

**Expected Response on Real GSM/LTE Modem**

**Command:**

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

**Command Testing Summary**

|  |  |  |  |
| --- | --- | --- | --- |
| **Command** | **Real Modem Output** | **Emulator Output** | **Notes** |
| AT+CGDCONT=1,"IP","jionet" | OK | ERROR | APN set (real) / Not supported |
| AT+CGDCONT=2,"IP","airtelgprs.com" | OK | ERROR | - |
| AT+CGDCONT=3,"IP","www" | OK | ERROR | - |
| AT+CGDCONT? | Lists contexts | ERROR | - |

**Use Cases of AT+CGDCONT in Industry**

|  |  |
| --- | --- |
| **Use Case** | **Description** |
| **IoT Devices** | Used in modules for remote monitoring, telemetry, GPS trackers |
| **4G/LTE Modules (e.g., EC25)** | Required for TCP/UDP connection over cellular networks |
| **Remote Firmware Updates** | Allows devices to connect to servers via GPRS/LTE |
| **Industrial Gateways** | Enables data transmission to cloud platforms (AWS, Azure, etc.) |

**Conclusion**

* The **AT+CGDCONT** command is essential for setting up **internet access via cellular modems**.
* While the **CelerSMS AT Emulator doesn’t support PDP context**, the syntax and configuration are **standardized** across most 2G/3G/4G modules (e.g., **SIM800, SIM7600, EC25**).
* This assignment demonstrates an understanding of how internet sessions are configured on GSM/LTE networks using **APN provisioning**.