

EC2x&EG9x&EG2x-G Series

Software Configuration for AT&T Data-only Guide

LTE Standard Module Series

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About the Document

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1 Introduction

Since AT&T requires that devices that need to be certified as Data-only (only data supported) must use modules certified as Data-only, in order to help users optimize the operation on AT&T technology approval test requirements and increase the certification speed, for those who have used Quectel Voice + Data modules (both voice and data supported) requires configuration on the device when performing AT&T Data-only certification.

This document mainly introduces how to switch from Quectel Data + Voice module to Data-only module through software configuration.

1.1. Applicable Modules

Table 1: Applicable Modules

Module Series	Module
EC2x	EC21 series
	EC25 series
EG9x	EG91 series
	EG95 series
EG2x-G	EG21-G
	EG25-G

1.2. Data + Voice and Data-only Modules

The Data + Voice and Data-only modules of EC2x series, EG9x series and EG2x-G modules are shown in the following table. Among them, the Data + Voice module needs to be switched to the Data-only module through the software configuration described in **Chapter 3**, and the Data-only module is for reference only.

Table 2: Data + Voice and Data-only Modules

Module	Data + Voice Model	Data-only Model
EC25 系列 & EC25 系列 Mini PCIe	EC25-AF	EC25-AF(D)
	EC25-AF Mini PCIe	EC25-AF(D) Mini PCIe
	EC25-AFX	EC25-AFXD
	EC25-AFX Mini PCIe	EC25-AFXD Mini PCIe
	EC25-A	/
	EC25-A Mini PCIe	/
EC21 系列 & EC21 系列 Mini PCIe	EC21-A	/
	EC21-A Mini PCIe	/
EG25-G & EG25-G Mini PCIe	EG25-G	EG25-G(D)
	EG25-G Mini PCIe	EG25-G(D) Mini PCIe
	EG25-G(C)	/
EG21-G & EG21-G Mini PCIe	EG21-G	/
	EG21-G Mini PCIe	/
EG91 系列	EG91-NA	/
	EG91-NAX	EG91-NAXD
	EG91-NS	/
EG95 系列	EG95-NA	/
	EG95-NAX	EG95-NAXD

2 Background

This chapter introduces the background of AT&T's requirements for Data-only devices. AT&T 13340 V21.1 has the following configuration requirements for Data-only devices.

<CDR-IOT-180> Data Only module and device configuration

Summary: Cat 1 and above Data Only (DO) modules and devices shall operate in CS/PS mode 2 (3GPP TS 24.301, section 4.3.1) and perform combined EPS/IMSI Attach & TAU with the Additional Update Type set to "SMS only" (3GPP TS 24.301, section 9.9.3.0B). Per 3GPP TS 24.301, sections 8.2.4.13 and 8.2.29.19, UE Usage and Voice Domain Reference Information Elements (IEs) are omitted for a data-only product.

<CDR-LTE-1112> SMS Only Indication

Summary: Devices which support SMS over SGs but NOT CSFB for voice must give the "SMS Only" indication during the combined attach response so the network can handle them correctly. From 3GPP 23.272 section 5.6: "UEs that need SMS service but not CSFB indicate this specific condition with the 'SMS-only' indication in the EPS/IMSI Attach Request and combined TA/LA update procedures."

<CDR-CDS-042> APN for 4G Data Devices

Summary: 4G data-only devices shall use the "broadband" APN as the default APN when an AT&T SIM is detected.

<CDR-CDS-045> APN for Data Devices - FirstNet SIM

Summary: When a FirstNet SIM (as defined in CDR-SMCD-2102) is detected, the data-centric device shall use "firstnet-broadband" as the default APN.

Figure 1: Background of AT&T Requirements for Data-only Devices

3 Software Configuration

This chapter mainly introduces the software configuration steps for EC2x series, EG9x series and EG2x-G modules to switch from Data + Voice to Data-only.

3.1. Disable Voice and ECC

Execute the following commands to disable voice and ECC.

```
AT+QNVW=5280,0,"0102000000000000" //Disable voice and ECC.
OK
AT+QNVR=5280,0 //Query current configuration.
+QNVR: "0102000000000000"
OK
```

3.2. Configure Ue_Usage_Setting

Execute the following commands to configure Ue_Usage_Setting to Data Centric as required by AT&T.

```
AT+QNVFW="/nv/item_files/modem/mmode/ue_usage_setting",01 //Configure Ue_Usage_Setting
as data centric.
OK
AT+QNVFR="/nv/item_files/modem/mmode/ue_usage_setting" //Query current configuration.
+QNVFR: 01
OK
```

3.3. Disable IMS

Execute the following commands to disable IMS.

```
AT+QNVFW="/nv/item_files/ims/IMS_enable",00 //Disable IMS.
OK
AT+QNVFR="/nv/item_files/ims/IMS_enable" //Query current configuration.
+QNVFR: 00
OK
```

3.4. Configure UE to SMS Only

Execute the following commands to configure the UE to SMS only.

```
AT+QNVFW="/nv/item_files/modem/mmode/sms_only",01 //Configure the UE as SMS Only
according to AT&T Data-only device
requirements.
OK
AT+QNVFR="/nv/item_files/modem/mmode/sms_only" //Query current configuration.
+QNVFR: 01
OK
```

3.5. Configure First APN

Execute the following commands to configure the first APN to the specified one. See **document [1]** for details of the following AT commands.

3.5.1. Configure the First APN to broadband

If the AT&T carrier (U)SIM card is inserted, execute the following commands to configure the APN name.

```
AT+CGDCONT=1,"IPV4V6","broadband" //Set the first APN to AT&T's default Data-only APN
"broadband". If there is a customized APN, please
ignore this step.
OK
AT+CGDCONT? //Query current configuration.
```

```
+CGDCONT: 1,"IPV4V6","broadband","0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0",0,0,0,0
+CGDCONT: 2,"IPV4V6","ims","0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0",0,0,0,0
+CGDCONT: 3,"IPV4V6","SOS","0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0",0,0,0,1

OK
```

3.5.2. Configure the First APN to firstnet-broadband

If you insert an AT&T FirstNet SIM card, please execute the following commands.

```
AT+CGDCONT=1,"IPV4V6","firstnet-broadband" //Set the first APN to AT&T FirstNet's default
Data-only APN "firstnet-broadband". If there is a
customized APN, please ignore this step.

OK
AT+CGDCONT? //Query current configuration.
+CGDCONT: 1,"IPV4V6","firstnet-broadband","0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0",0,0,0,0
+CGDCONT: 2,"IPV4V6","ims","0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0",0,0,0,0
+CGDCONT: 3,"IPV4V6","SOS","0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0",0,0,0,1

OK
```

3.6. Reboot the Module

Manually reboot the module to make the above configuration take effect.

NOTE

Every time another carrier (U) SIM card is switched to AT&T or AT&T FirstNet (U)SIM card, or when switching between AT&T carrier and FirstNet (U)SIM card, please reconfigure the module software as Data-only according to the description in this chapter.

4 Appendix References

Table 3: Related Documents

Document Name
[1] Quectel_EC2x&EG9x&EG2x-G&EM05_Series_AT_Commands_Manual

Table 4: Terms and Abbreviations

Abbreviation	Description
APN	Access Point Name
ECC	Emergency Communications Center
EPS	Evolved Packet System
IMS	IP Multimedia Subsystem
IoT	Internet of Things
LTE	Long-Term Evolution
RAT	Radio Access Technology
(U)SIM	(Universal) Subscriber Identity Module
SMS	Short Message Service
UE	User Equipment
VoLTE	Voice (voice calls) over LTE