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# End Device AT Commands and Downlink Command

last modified by Edwin Chen

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## 1. Introduction

Dragino LoRaWAN End Node support two types of AT Commands and Downlink Commands:

- **Common Commands:** They should be available for each sensor, such as: change uplink interval, reset device.
- **Sensor Related Commands:** Only for special sensor, such as control relay, poll RS485 device.

**This page shows the common commands since Dragino LoRaWAN stack DR-LWS-005. Make sure the end node support stack higher than DR-LWS-005 before checking this page.**

## 2. How to use AT Commands or Downlink command

- For AT Command , See Devices User Manual for Device. The user manual can be found in each product page of [Dragino Official Website](#)
- For LoRaWAN Downlink: The gateway transfer downlink command in HEX format. This page shows the HEX format downlink code for each command. but some servers use base64 as downlink code. Below are reference for how to use downlink command:
  - Use HEX format to send a downlink: [TTN v3](#)
  - Use Base64 format to send a downlink: [Chirpstack](#)
  - See use note for more serves [Servers Note](#)(IoT LoRaWAN Server)

## 3. Support End Node and firmware version

Dragino STM32 base hardware Firmware / LoRaWAN stack list	
Model	Description
<a href="#">LSN50-v1</a> , <a href="#">LSN50-V2</a> ,	Open Source Generic LoRaWAN Sensor Node
<a href="#">LGT92</a> ,	LoRaWAN GPS Tracker
<a href="#">LBT1</a> ,	LoRaWAN BLE Indoor Tracker
<a href="#">RS485-LN</a> ,	LoRaWAN RS485 Modbus Converter
<a href="#">LHT65</a> ,	LoRaWAN Temperature & Humidity Sensor

## 4. System Management Commands

### 4.1 Change Uplink Interval

Feature: Change LoRaWAN End Node Transmit Interval.

**AT Command: AT+TDC**

AT+TDC		
Command Example	Function	Response

AT+TDC=?	Show current transmit Interval	30000 OK
AT+TDC=60000	Set Transmit Interval	OK Set transm

**Downlink Command: 0x01**

Format: Command Code (0x01) followed by 3 bytes time value.

If the downlink payload=0100003C, it means set the END Node's Transmit Interval to 0x00003C=60(S), while type code is 01.

- **Example 1:** Downlink Payload: **0100001E** // Set Transmit Interval (TDC) = 30 seconds
- **Example 2:** Downlink Payload: **0100003C** // Set Transmit Interval (TDC) = 60 seconds

## 4.2 Reboot End Node

Feature: Reboot End Node to perform a new OTAA or ABP Join.

**AT Command: ATZ**

ATZ: Trig a reset of the MCU		
Command Example	Function	Response
ATZ	Reset MCU	Device res LSN50 Image V Frequer DevEui= <followe

**Downlink Command: 0x04**

Format: Command Code (0x04) followed by FF.

If the downlink payload=**04FF**, the end node will reboot.

## 4.3 Reset to factory Default

Feature: Reset the parameters to Factory Default, factory default value depends on the firmware settings, the OTAA and ABP keys will reserve after this command.

**AT Command: AT+FDR**

Reset to factory default	
Command Example	Function
AT+FDR	Reset to factory default

**Downlink Command: 0x04**

Format: Command Code (0x04) followed by FE.

If the downlink payload=04FE, Reset Parameters to Factory Default, Keys Reserve.

## 4.4 Show Firmware Version

Feature: Show firmware version. No downlink command yet.

**AT Command: AT+VER**

AT+VER: Image Version and Frequency Band		
Command Example	Function	Response
AT+VER=?	Show Image version and Frequency Band	1.3 EU868
		OK

**Downlink Command: 0x26 (Valid in 006 stack)**

Downlink Format: 0x26

Device will reply with firmware version info, device info. frequency band info. detail please check device user manual. Total 5 bytes Example: If device is of firmware version 1.1.0 Upload: xx -- yy -- zz -- 110 total 5 bytes

**xx: Software Type:**

- 0x00 01: LGT92 Version
- 0x00 02: LBT1
- 0x00 03: LSE01/LDDS75/LDDS20/LSPH01/LLMS01/LSNPK01

**yy: Frequency Band:**

- 0x01: EU868
- 0x02: US915
- 0x03: IN865
- 0x04: AU915
- 0x05: KZ865
- 0x06: RU864
- 0x07: AS923
- 0x08: AS923-1
- 0x09: AS923-2
- 0xa0: AS923-3

**zz: Subband**

firmware version: v1.1.0 --> 110

## 4.5 Show System Configure

Feature: Show All configure. No downlink command yet.

**AT Command: AT+CFG**

<b>AT+CFG: Print all configurations</b>		
<b>Command Example</b>	<b>Function</b>	<b>Response</b>
AT+CFG	Show all configures	AT+DEUI = XX XX XX XX XX XX X AT+DADDR=XXXXXXXX ..... AT+RX2WTO=X AT+CHS=868100000 OK

## 5. Keys, IDs and EUIs management

### 5.1 Application EUI

Feature: Get or Set the Application EUI.

**AT Command: AT+APPEUI**

<b>AT+APPEUI</b>		
<b>Command Example</b>	<b>Function</b>	<b>Response</b>
AT+APPEUI=?	Get the Application EUI	00 b3 d5 00 00 00 OK
AT+APPEUI=00 b3 d5 7e f0 00 4d 34	Set the Application EUI	OK

### 5.2 Application Key

Feature: Get or Set the Application Key.

**AT Command: AT+APPKEY**

<b>AT+APPKEY</b>	
<b>Command Example</b>	<b>Function</b>
AT+APPKEY=?	Get the Application Key
AT+APPKEY=00 35 55 55 22 23 55 53 43 24 23 42 34 35 35 35	Set the Application Key

### 5.3 Application Session Key

Feature: Get or Set the Application Session Key.

**AT Command: AT+APPSKEY**

<b>AT+APPSKEY</b>	
<b>Command Example</b>	<b>Function</b>
AT+APPSKEY=?	Get the Application Session Key



AT+APPSKEY=00 7d dc 73 33 d3 eb 9e 14 38 d5 a4 3e 62 5b e2

Set the Application Session Key

## 5.4 Device Address

Feature: Get or Set the Device Address.

**AT Command: AT+DADDR**

**AT+DADDR**

**Command Example**

AT+DADDR=?

**Function**

Get the Application Session Key.

AT+DADDR=A8 40 41 FF

Set the Application Session Key.

## 5.5 Device EUI

Feature: Get or Set the Device EUI.

**AT Command: AT+DEUI**

**AT+DEUI**

**Command Example**

AT+DEUI=?

**Function**

Get the Device EUI.

AT+DEUI=A8 40 41 FF FF 12 34 56

Set the Device EUI.

## 5.6 Network ID

Feature: Get or Set the Network ID.(You can enter this command change only after successful network connection)

**AT Command: AT+NWKID**

**AT+NWKID**

**Command Example**

AT+NWKID=?

**Function**

Get the Network ID.

**Response**

a8 40 41 ff

OK

AT+NWKID=A8 40 41 FF

Set the Network ID.

OK

## 5.7 Network Session Key

Feature: Get or Set the Network Session Key

**AT Command: AT+NWKSKEY**

**AT+NWKSKEY**

Command Example	Function
AT+NWKSKEY=?	Get the Network Session Key.
AT+NWKSKEY=A8 40 41 FF FF 12 34 56 00 01 02 04 05 06 06 07	Set the Network Session Key.

## 6. Joining and sending data on LoRaWAN network

### 6.1 Confirm Mode

#### 6.1.1 AT+CFM command before DR-LWS007 software stack

Feature: Get or Set the confirmation mode (0-1).

##### AT Command: AT+CFM

AT+CFM	Command Example	Function	Response
	AT+CFM=?	Get the confirmation mode	0 OK
	AT+CFM=1	Set the confirmation mode	OK
	AT+CFM=2	Set the confirmation mode	While Error in

##### Downlink Command: 0x05

Format: Command Code (0x05) followed by 2 bytes mode value.

If the downlink payload=0501, it means set end node to use confirm mode, while type code is 05.

- **Example 1:** Downlink Payload: 0501 // Set AT+CFM=1
- **Example 2:** Downlink Payload: 0500 // Set AT+CFM=0

#### 6.1.2 AT+CFM command since DR-LWS007 software stack

##### AT Command: AT+CFM

AT+CFM	Command Example	Function	Response
	AT+CFM=1,0,0 value1	confirmed uplink	1 OK
	AT+CFM=0,?,0 value2	set max retry , range: 0 ~ 7	0~7 OK
	AT+CFM=0,0,1 value3	uplink fcnt increase by 1 for each retry	1 OK

##### Downlink Command: 0x05

Format: Command Code (0x05) followed by 2 bytes mode value.

If the downlink payload=05010101, it means set end node to use confirm mode, while type code is 05.

- **Example 1:** Downlink Payload: 05010101 // Set AT+CFM=1,1,1
- **Example 2:** Downlink Payload: 05000700 // Set AT+CFM=0,7,0

## 6.2 Confirm Status

Feature: Get confirmation status of the last AT+SEND (0-1).

### AT Command: AT+CFS

AT+CFS		
Command Example	Function	Response
AT+CFS=?	Get confirmation status	0 OK

## 6.3 Join LoRa® Network

Feature: Join network.

### AT Command: AT+JOIN

AT+JOIN		
Command Example	Function	Response
AT+JOIN ?	Get information.	AT+JOIN: Join network OK While Error in format, re

## 6.4 LoRa® Network Join Mode

Feature: Get or Set the Network Join Mode. (0: ABP, 1: OTAA).

### AT Command: AT+NJM

AT+NJM		
Command Example	Function	Response
AT+NJM=?	Get the Network Join Mode	1 OK
AT+NJM=0	Set the Network Join Mode	OK
AT+NJM=2	Set the Network Join Mode	While

### Downlink Command: 0x20

Format: Command Code (0x20) followed by 1 bytes mode value.

If the downlink payload=2000, it means set the Network Join Mode, while type code is 20.

- **Example 1:** Downlink Payload: **2000** // Set AT+NJM=0
- **Example 2:** Downlink Payload: **2001** // Set AT+NJM=1

## 6.5 LoRa® Network Join Status

Feature: LoRa® Network Join Status.

### AT Command: AT+NJS

AT+NJS		
Command Example	Function	Response

AT+NJS=?	Get the join status.	0 OK
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## 6.6 Print Last Received Data in Raw Format

Feature: Print Last Received Data in Raw Format<port:data>.

**AT Command: AT+RECV**

AT+RECV		
Command Example	Function	Response
AT+RECV=?	print last received data in raw format.	0: OK

## 6.7 Print Last Received Data in Binary Format

Feature: Print Last Received Data in Binary Format<port:data>.

**AT Command: AT+RECVB**

AT+RECVB	
Command Example	Function
AT+RECVB=?	print last received data in binary format (with hexadecimal values).

## 6.8 Send Text Data

Feature: Send Text Data<port:data>.

**AT Command: AT+SEND**

AT+SEND	
Command Example	Function
AT+SEND=12:hello world	Send text data along with the application port.

## 6.9 Send Hexadecimal Data

Feature: Send hexadecimal data along with the application port.

**AT Command: AT+SENDB**

AT+SENDB	
Command Example	Function
AT+SENDB=12:abcdef0123456789	Send hexadecimal data along with the app
AT+SENDB=abcdef0123456789	Send hexadecimal data along with the app

## 7. LoRaWAN network management

### 7.1 Adaptive Data Rate

Feature: Get or Set the Adaptive Data Rate setting. (0: off, 1: on).

**AT Command: AT+ADR**

AT+ADR		
Command Example	Function	Response
AT+ADR=?	Get the Adaptive Data Rate setting.	1 OK
AT+ADR=0	Set the Adaptive Data Rate setting.	OK
AT+ADR=2	Set the Adaptive Data Rate setting.	While Error in form AT_PARAM_ERR

**Downlink Command: 0x22**

If the downlink payload=2201, it means setting the adaptive data rate to 1, while type code is 22.

- **Example 1:** Downlink Payload: **2201** // Set AT+ADR=1.
- **Example 2:** Downlink Payload: **2200FFFF** // Set AT+ADR=0.

### 7.2 LoRa® Class

Feature: Get or Set the Device Class(Currently only support class A, class C).

**AT Command:AT+CLASS**

AT+CLASS		
Command Example	Function	Response
AT+CLASS=?	Get the Device Class.	A OK
AT+CLASS=C	Set the Device Class.	OK

### 7.3 Duty Cycle Setting

Feature: Get or Set the ETSI Duty Cycle setting - 0=disable, 1=enable - Only for testing.

**AT Command:AT+DCS**

AT+DCS		
Command Example	Function	Response
AT+DCS=?	Get the ETSI Duty Cycle setting.	1 OK
AT+DCS=1	Set the ETSI Duty Cycle setting.	OK

## 7.4 Data Rate

Feature: Get or Set the Data Rate. (0-7 corresponding to DR\_X) . Note: while set Data Rate, please use set Adaptive Data Rate, ADR=0 first. otherwise device will response to server's ADR command and change the DR to the setting from server

### AT Command: AT+DR

AT+DR		
Command Example	Function	Response
AT+DR=?	Get the Data Rate.	5 OK
AT+DR=2	Set the Data Rate.	OK

### Downlink Command: 0x2200aaFF

If the downlink payload=220001FF, it means setting the data rate to 1, while type code is 22 00 aa FF.

- **Example 1:** Downlink Payload: **220001FF** // Set AT+DR=1.
- **Example 2:** Downlink Payload: **220000FF** // Set AT+DR=0.

## 7.5 Frame Counter Downlink

Feature: Get or Set the Frame Counter Downlink.

### AT Command:AT+FCD

AT+FCD		
Command Example	Function	Response
AT+FCD=?	Get the Frame Counter Downlink.	0 OK
AT+FCD=10	Set the Frame Counter Downlink.	(System will write) OK

## 7.6 Frame Counter Uplink

Feature: Get or Set the Frame Counter Uplink.

### AT Command:AT+FCU

AT+FCU		
Command Example	Function	Response
AT+FCU=?	Get the Frame Counter Uplink.	0 OK
AT+FCU=10	Set the Frame Counter Uplink.	OK

## 7.7 Join Accept Delay1

Feature: Get or Set the Join Accept Delay between the end of the Tx and the Join Rx Window 1 in ms.

**AT Command:AT+JN1DL**

AT+JN1DL		
Command Example	Function	Response
AT+JN1DL=?	Get the Join Accept Delay.	5000 OK
AT+JN1DL=10000	Set the Join Accept Delay.	OK

## 7.8 Join Accept Delay2

Feature: Get or Set the Join Accept Delay between the end of the Tx and the Join Rx Window 2 in ms.

**AT Command:AT+JN2DL**

AT+JN2DL		
Command Example	Function	Response
AT+JN2DL=?	Get the Join Accept Delay.	6000 OK
AT+JN2DL=20000	Set the Join Accept Delay.	OK

## 7.9 Public Network Mode

Feature: Get or Set the public network mode. (0: off, 1: on). A Public LoRaWAN network use 0x34 as syncword.  
Default Settings; PNM=1

**Notice: If user build their own LoRaWAN server but still use syncword=0x34, this is still considered a public LoRaWAN network**

**AT Command:AT+PNM**

AT+PNM		
Command Example	Function	Response
AT+PNM=?	Get the public network mode.	1 OK
AT+PNM=1	Set the public network mode. Set syncword=0x34	(System will write new) OK
AT+PNM=0	Set to use private network autosec syncword=0x12	

## 7.10 Receive Delay1

Feature: Get or Set the delay between the end of the Tx and the Rx Window 1 in ms

**AT Command:AT+RX1DL**

AT+RX1DL		
Command Example	Function	Response
AT+RX1DL=?	Get the delay.	1000

AT+RX1DL=1500	Set the delay.	OK
		OK

## 7.11 Receive Delay2

Feature: Get or Set the delay between the end of the Tx and the Rx Window 2 in ms

**AT Command:AT+RX2DL**

AT+RX2DL		
Command Example	Function	Response
AT+RX2DL=?	Get the delay.	2000 OK
AT+RX2DL=2500	Set the delay.	OK

## 7.12 Rx2 Window Data Rate

Feature: Get or Set the Rx2 window data rate (0-7 corresponding to DR\_X)

**AT Command:AT+RX2DR**

AT+RX2DR		
Command Example	Function	Response
AT+RX2DR=?	Get the Rx2 window data rate.	2 OK
AT+RX2DR=6	Set the Rx2 window data rate.	OK

## 7.13 Rx2 Window Frequency

Feature: Get or Set the Rx2 window frequency

**AT Command:AT+RX2FQ**

AT+RX2FQ		
Command Example	Function	Response
AT+RX2FQ=?	Get the Rx2 window frequency.	434665000 OK
AT+RX2FQ=434665000	Set the Rx2 window frequency.	OK

## 7.14 Transmit Power

Feature: Get or Set the Transmit Power(0-5, MAX:0, MIN:5, according to LoRaWAN Spec, or 40=10dB, 41 = 11dB, ..., 50 = 20dB which is out of LoRaWAN spec. )

Notice: Transmit Power might be changed by ADR from LoRaWAN server. So manually change TXP also remember to set AT+ADR=0 in sensor



**AT Command:AT+TXP**

AT+TXP		
Command Example	Function	Response
AT+TXP=?	Get the Transmit Power.	0 OK
AT+TXP=1	Set the Transmit Power.	OK

Downlink Payload. The 4th byte of 0x22 downlink.

If the downlink payload=22000100, it means setting the TXP to 0.

- **Example 1:** Downlink Payload: **22000102** // Set AT+TXP=2.
- **Example 2:** Downlink Payload: **220000FF** // Set AT+TXP=0.

## 7.15 RSSI of the Last Received Packet

Feature: Get or Set the Rx2 window frequency

**AT Command:AT+RSSI**

AT+RSSI		
Command Example	Function	Response
AT+RSSI=?	Get the RSSI of the last received packet.	0 OK

## 7.16 SNR of the Last Received Packet

Feature: Get the SNR of the last received packet

**AT Command:AT+SNR**

AT+SNR		
Command Example	Function	Response
AT+SNR=?	Get the RSSI of the last received packet.	0 OK

## 7.17 Application Port

Feature: Get or set the application port.

**AT Command: AT+PORT**

AT+PORT		
Command Example	Function	Response
AT+PORT=?	Get the application port	21 OK
AT+PORT=21	Set the application port	OK

**Downlink Command: 0x23**

Format: Command Code (0x23) followed by 1 bytes port value.

If the downlink payload=2301, it means set the application port to 1, while type code is 23.

- **Example 1:** Downlink Payload: **2301** // set the application port to 1
- **Example 2:** Downlink Payload: **2305** // set the application port to 5

## 7.18 Single Channel Mode

Feature: Get or Set Frequency (Unit: Hz) for Single Channel Mode.

### AT Command: AT+CHS

AT+CHS		
Command Example	Function	Response
AT+CHS=?	Get Frequency for Single Channel Mode	0 OK
AT+CHS=86810000	Set Frequency for Single Channel Mode	OK

## 7.19 Eight Channel Mode

Feature: Get or Set eight channels mode, Only for US915,AU915,CN470.

### AT Command: AT+CHE

AT+CHE		
Command Example	Function	Response
AT+CHE=?	Get eight channels mode	1 902.3 902.5 9 OK
AT+CHE=1	Set eight channels mode	OK

### Downlink Command: 0x24

Format: Command Code (0x24) followed by 1 bytes channel value.

If the downlink payload=2401, it means set channel mode to 1, while type code is 24.

- **Example 1:** Downlink Payload: 2401 // set channel mode to 1
- **Example 2:** Downlink Payload: 2405 // set channel mode to 5

## 7.20 Get or Set RXwindows1 timeout

Feature: Get or Set the number of symbols to detect and timeout from RXwindow1(0 to 255).

### AT Command: AT+RX1WTO

AT+ RX1WTO		
Command Example	Function	Response
AT+RX1WTO=?	Get RXwindows1 timeout	14 OK
AT+RX1WTO=60	Set RXwindows1 timeout	OK

**AT+RX1TWO** is the RxSingle timeout value of receive window 1. If it is not set, then the queried value is the default value. If it is set, then the queried value is the set value. **AT+RX2TWO** is the same as above. The definition of RxSingle timeout is as described in the following paragraph.



SEMTECH

WIRELESS SENSING &amp; TIMING PRODUCTS

AN1200.24

SX1276 Settings for LoRaWAN

APPLICATION NOTE

The downlink preamble transmitted by the gateways contains 8 symbols. The receiver requires 5 symbols to detect the preamble and synchronize. Therefore there must be a 5 symbols overlap between the receive window and the transmitted preamble.

The gateway always initiates the transmission of the preamble 1 sec +/- 20uSec after the end of the uplink. Therefore the beginning of the downlink preamble can be considered as a perfectly precise reference for the rest of this calculation.

Increasing this value is equal to extending the time that the receiving window is opened, but the corresponding power consumption will also increase. Properly increasing this value can increase the success rate of the downlink.

## 7.21 Get or Set RXwindows2 timeout

Feature: Get or Set the number of symbols to detect and timeout from RXwindow2(0 to 255).

**AT Command: AT+RX2WTO**

AT+ RX2WTO		
Command Example	Function	Response
AT+RX2WTO=?	Get RXwindows2 timeout	7 OK
AT+RX2WTO=20	Set RXwindows2 timeout	OK

## 7.22 Setting up uplinkdwelltime (as923, au915)

Feature: Get or Set uplinkdwelltime

**AT Command: AT+DWELLT**

AT+DWELLT		
Command Example	Function	Response
AT+DWELLT=?	Get uplinkdwelltime	1 OK
AT+DWELLT=0	Set uplinkdwelltime	OK

**Downlink Command: 0x25**

Format: Command Code (0x25) followed by 1 bytes state value.

If the downlink payload=2501, it means set uplinkdwelltime to 1, while type code is 25.

- **Example 1:** Downlink Payload: **2501** // set uplinkdwelltime to 1
- **Example 2:** Downlink Payload: **2500** // set uplinkdwelltime to 0

## 7.23 Set Packet Receiving Response Level

Feature: Get or Set packet receiving response level. This feature is used to set compatible with different LoRaWAN servers. If RPL doesn't match, user will see strange message in the server portal.

### RPL value:

- **AT+RPL=0:** Device won't immediately reply any downlink commands from platform.
- **AT+RPL=1:** Device will immediately reply message to Unconfirmed Data Down. Payload is 0x00.
- **AT+RPL=2:** Device will immediately reply message to Confirmed Data Down. Payload is 0x00 and required response header for this command.
- **AT+RPL=3:** Device will immediately reply message to MAC Command. Payload is 0x00 and required response header for this command.
- **AT+RPL=4:** Device will immediately reply message to Confirmed Data Down & MAC Command. Payload is 0x00 and required response header for these two commands.

### Case Analyses:

- For Class A devices, AT+RPL=0 is ok. that is default settings in software.
- For Class C devices used in ChirpStack, need to set AT+RPL=4 because Chirpstack require immediately reply message to MAC Command.
- For Class C devices used in TTI, need to set AT+RPL=4 because TTI require immediately reply message to Confirmed Data Down & MAC Command.

### AT Command: AT+RPL

AT+RPL		
Command Example	Function	Response
AT+RPL=?	Get packet receiving response level	1 OK
AT+RPL=0	Set packet receiving response level	OK

### Downlink Command: 0x21

Format: Command Code (0x21) followed by 1 bytes level value.

If the downlink payload=2101, it means set packet receiving response level to 1, while type code is 21.

- **Example 1:** Downlink Payload: **2101** // set packet receiving response level to 1
- **Example 2:** Downlink Payload: **2102** // set packet receiving response level to 2

## 7.24 Controls NBTrans in unconfirmed uplink mode (LWS007 NBTrans:Set retransmission packets)

### AT Command: AT+SETMAXNBTRANS

AT+SETMAXNBTRANS		
Command Example	Function	Response
AT+SETMAXNBTRANS=1, 0	Value1: set the maximum NBTrans.	1 OK
AT+SETMAXNBTRANS=? , 1	value2: 0: uplink fcnt doesn't change for each NBTrans;	1 OK

1: uplink fcnt increase by 1 for each NBTrans.

**Downlink Command: 0x33**

Format: Command Code (0x33) followed by 2 bytes mode value.

If the downlink payload=330100, it means set end node to use confirm mode, while type code is 33.

- Example 1: Downlink Payload: 330100 // Set AT+SETMAXNBTRANS=1,0
- Example 2: Downlink Payload: 330201 // Set AT+SETMAXNBTRANS=2,1

**7.25 Device offline rejoining (LWS007)**

**AT Command: AT+DDETECT**

AT+DDETECT		
Command Example	Function	Response
AT+DDETECT=1,1440,2880 value1	Enable online detect	1 OK
AT+DDETECT=1,?,2880 value2	Online detection packet sending time	OK
AT+DDETECT=1,1440,? value3	Process rejoin	OK

**Downlink Command: 0x33**

Format: Command Code (0x32) followed by 2 bytes mode value.

If the downlink payload=320105A00B40, it means set end node to use confirm mode, while type code is 33.

- **Example 1:** Downlink Payload: 320105A00B40 // Set AT+DDETECT=1,1440,2880

**7.26 Request the server to send an ACK**

**AT Command: AT+PNACKMD**

AT+PNACKMD		
Command Example	Function	Response
AT+PNACKMD=1	If the node uploads the ACK as confirm, it will request the server to send an ACK. If the server ack is not received, the node will upload the packets that have not received the ACK the next time it receives the ACK	1 OK
AT+PNACKMD=0	off request the server to send an ACK	0 OK

**7.27 Adjust network rejoining interval**

**AT Command: AT+RJTDC**

AT+RJTDC		
Command Example	Function	Response
AT+RJTDC=?	Show the ReJoin data transmission interval in min	30000 OK the inter

AT+RJTDC=60000

Set the ReJoin data transmission interval in min

OK

Set the Re

### Downlink Command: 0x26

Format: Command Code (0x26) followed by 2 bytes mode value.

If the downlink payload=26000A, it means set end node to use confirm mode, while type code is 26.

- **Example 1:** Downlink Payload: 26000A // Set AT+RJTDC=10
- **Example 2:** Downlink Payload: 260002 // Set AT+RJTDC=2

## 8. AT Commands Combination

### 8.1 Set a fix RX2DR for downlink window

- **AT+ADR=0** --> Disable ADR first
- **AT+RX2DR=xxxx** --> Set xxxx to your wanted DataRate

### 8.2 Use Downlink Command to set a fix uplink DR

#### Downlink Command: 0x22000500

Same as:

- AT+ADR=0 [Reference](#)
- AT+DR=5 [Reference](#)
- AT+TXP=0 [Reference](#)