

**AT COMMAND**

*Go to Cloud (G2C) click*

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**MANUAL**

VERSION 1.0

*January, 2019.*

# 1. Document scope

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This document describes all the Go to Cloud (G2C) click AT commands in detail, as well as the message responses, used in the communication with the click board. Some additional specifics are covered, such as the command execution timings, which are necessary for the implementation of a parser, as well as for the embedded applications which communicate with the click board.

## 2. Supported AT Command Types

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There are several different types of AT commands. They can be categorized as the ACTION, SET, GET, or TEST commands. In most cases, the same AT command may be used to perform a specific action and set up some parameters, but also to read back the parameters, or test the specific command to find out about the parameters that can be used with it. Also, AT commands acknowledge the execution status with short response messages. This can be illustrated with the example of AT+GPEN command, which is used to enable or disable the status LEDs of the Go to Cloud (G2C) click:

- AT+GPEN=1** This command will SET the status LEDs as ENABLED, returning OK as the command response string
- AT+GPEN=0** This command will SET the status LEDs as DISABLED, returning OK as the command response string
- AT+GPEN?** This command will GET the state of the status LEDs, returning it as the command response string, followed by the OK string
- AT+GPEN=?** This command will TEST the available parameters, returning them as the command response string, followed by the OK string

### Action command

An ACTION command is used to force the Go to Cloud (G2C) click to print an information or execute a specific action. A typical example of this command type is providing the factory-programmed settings of the DCE, such as the manufacturer name, firmware version, etc. A command response string varies depending on the specific command and ends with the execution status notification.

### Set command

A SET command is used to configure the settings for a specified command. Using a SET command is the only way to set preferred configuration settings in the Go to Cloud (G2C) click. For some commands, it is possible to store the current settings in a user profile or in a non-volatile memory and retrieve them in another connection. A command response string contains only the execution status notification.

### Get command

A GET command is used to discover the current configuration of the command parameters. A command response string contains currently set parameters for the command, followed by the execution status notification.

## Test command

A TEST command provides the list of values allowed by each parameter of the command. A command response string contains all the valid configuration values that can be used, separated with the comma, and followed by the execution status notification.

## URC

An unsolicited result code [URC] is a string message provided by the Go to Cloud [G2C] click. It can be received from the Click Cloud service at any time, providing an information about the specific event or a status change. The URC string should not be confused with the command response message: the command response message is triggered by a specific command, while the URC message strings are pushed by the Click Cloud service and are automatically received by the click.

## Command Response String

Each command sends back a command response string, acknowledging the command reception. The command response string varies depending on the used command and the command type. In most cases, the command response string is just a status message which confirms the execution, but the command response message can also contain a required information, such as in the case of SET and TEST type of commands. However, even those commands will have an additional response message at the end, confirming a successful execution.

# 3. Commonly used commands

## 3.1 AT - Communication test

AT					
Command type supported	Action	Set	Get	Test	URC
		+			

This command is used to test the UART communication between the Go to Cloud [G2C] click and the host.

Example

```
AT
OK
```

AT+GMR					
Command type supported	Action	Set	Get	Test	URC
		+			

This command returns the current Go to Cloud [G2C] click firmware version. The first five letters represent the hardware version, while the last four letters represent the firmware version [related to that specific HW VER.]

**Example**

```
AT+GMR
G2C102F091
OK
```

### 3.3 ATE1 - Enable echo

ATE1					
	Action	Set	Get	Test	URC
Command type supported	+				

This command enables the echo function, which is returned before the command response message.

**Example**

```
ATE1
ATE1

OK
```

**NOTE:** Command configuration will be saved inside the non-volatile [flash] memory as the default profile setting. More information can be found in the AT+R and AT+W commands description.

### 3.4 ATE0 - Disable echo

ATE0					
	Action	Set	Get	Test	URC
Command type supported	+				

This command disables the echo function.

**Example**

```
ATE0

OK
```

**NOTE:** Command configuration will be saved inside the non-volatile [flash] memory as the default profile setting. More information can be found in the AT+R and AT+W commands description.

### 3.5 AT+RST - Reset Device

AT+RST					
	Action	Set	Get	Test	URC
Command type supported	+				

This command performs a reset of the device. The time interval before the device becomes fully functional after the reset is about 5 seconds. After the reset is performed, the device will be configured according to a profile stored on the non-volatile [Flash] memory.

Example

```
AT+RST
```

```
OK
```

### 3.6 AT+CRST - Connector module reset

AT+CRST					
Command type supported	Action	Set	Get	Test	URC
	+				

This command performs a reset of the connector module, only. The time interval before the device becomes fully functional after the reset, is about 5 seconds.

Example

```
AT+CRST
```

```
OK
```

### 3.7 AT+CEN - Enable connector module

AT+CEN=(0,1)					
Command type supported	Action	Set	Get	Test	URC
		+	+	+	

This command enables the connectivity module.

**Command parameters:**

- [0,1] - Disable, Enable connector module

**Set**

Example

```
AT+CEN=1
```

```
OK
```

**Get**

```
AT+CEN=?
AT+CEN=1
```

```
OK
```

**Test**

```
AT+CEN=?
AT+CEN=(0,1)
```

```
OK
```

**NOTE:** Command configuration will be saved inside the non-volatile [flash] memory as the default profile setting. More information can be found in the AT+R and AT+W commands description.

### 3.8 AT+GPEN - Enable GPIO outputs

AT+GPEN=(0,1)					
Command type supported	Action	Set	Get	Test	URC
			+	+	+

This command enables GPIO outputs. GPIO outputs are used for status LED indicators.

**Command parameters:**

- [0,1] - Disable, Enable GPIO outputs

**Set**

*Example*

```
AT+GPEN=0
OK
```

**Get**

```
AT+GPEN=?
AT+GPEN=1
OK
```

**Test**

```
AT+GPEN=?
AT+GPEN=(0,1)
OK
```

**NOTE:** Command configuration will be saved inside the non-volatile [flash] memory as the default profile setting. More information can be found in the AT+R and AT+W commands description.

### 3.8 AT+W - Store configuration

AT+W					
Command type supported	Action	Set	Get	Test	URC
		+			

This command allows to store the current configuration to a Flash memory. Parameters stored to the flash will be automatically restored during the next boot-up sequence, or they can be restored by the user, using the AT+R command.

Parameters which will be saved to the Flash memory as a default profile, are:

- Connector Enable
- GPIO Enable
- Echo Configuration
- Network Parameters
- Network Credentials
- Network Enable
- Broker Credentials
- Broker Enable

Example

```
AT+W
OK
```

### 3.8 AT+R - Restore configuration

AT+R					
Command type supported	Action	Set	Get	Test	URC
	+				

This command restores the configuration from the flash memory. Parameters which were last stored on the flash memory [using AT+W command], will be restored.

Parameters which will be restored from the flash memory are:

- Connector Enable
- GPIO Enable
- Echo Configuration
- Network Parameters
- Network Credentials
- Network Enable
- Broker Credentials
- Broker Enable

Example

```
AT+R
OK
```

### 3.9 AT+NWP - Network parameters

AT+NWP=(0,1)[,"DevIP","netmask","gateway"]					
Command type supported	Action	Set	Get	Test	URC
		+	+	+	

This command enables GPIO outputs. GPIO outputs are used for status LED indicators.

**Command parameters:**

- [0, 1] - Disable, Enable DHCP
- DevIP [parameter is necessary only in case of disabled DHCP] - Device IP in the "aaa.bbb.ccc.ddd" format
- NetMask [parameter is necessary only in case of disabled DHCP] - Network mask in the "aaa.bbb.ccc.ddd" format

- Gateway [parameter is necessary only in case of disabled DHCP] - Gateway IP in the "aaa.bbb.ccc.ddd" format

**Set**

**Example**

```
AT+NWP=1
```

```
OK
```

```
AT+NWP=0, "192.168.0.10", "255.255.255.0", "192.168.0.1"
```

```
OK
```

**Get**

```
AT+NWP?  
AT+GPEN=1
```

```
OK
```

**Test**

```
AT+NWP=?  
AT+NWP=(0,1) [ , "<device_ip>","<netmask>","<gateway_ip>"]
```

```
OK
```

**NOTE:** Command configuration will be saved inside the non-volatile [flash] memory as the default profile setting. More information can be found in the AT+R and AT+W commands description.

**3.10 AT+NWCR - Network credentials**

AT+NWCR="SSID","Password"					
Command type supported	Action	Set	Get	Test	URC
		+	+	+	

This command configures network credentials.

**Command parameters:**

- SSID - Network SSID [Service Set Identification]
- Password - Network Password

**Set**

**Example**

```
AT+NWCR= "MyNet", "MyPass"
```

```
OK
```



## Get

```
AT+NWCR?  
AT+NWCR= "SomeNet","SomePass"  
  
OK
```

## Test

```
AT+NWCR?  
AT+NWCR= "<wifi_ssid>","<wifi_pass>"  
  
OK
```

**NOTE:** Command configuration will be saved inside the non-volatile [flash] memory as the default profile setting. More information can be found in the AT+R and AT+W commands description.

### 3.11 AT+NWC - Connect to network

AT+NWC=(0,1)					
Command type supported	Action	Set	Get	Test	URC
			+	+	+

This command connects the connector module to network with previously configured parameters and credentials.

#### Command parameters:

- [0,1] - Disconnect/Connect to network

## Set

### Example

```
AT+NWC=1  
  
OK
```

## Get

```
AT+NWCR?  
AT+NWCR= 0  
  
OK
```

## Test

```
AT+NWC=?  
AT+NWC=(0,1)  
  
OK
```

**NOTE:** Command configuration will be saved inside the non-volatile [flash] memory as the default profile setting. More information can be found in the AT+R and AT+W commands description.

### 3.12 AT+BRCR - Broker credentials

AT+BRCR="devkey","password"					
Command type supported	Action	Set	Get	Test	URC
		+	+	+	

This command configures the broker credentials.

**Command parameters:**

- devkey - Device Key
- password - Device Password

**Set**

**Example**

```
AT+BRCR="asa9876123sennbe", "123sad213s3dvseessaa"
```

```
OK
```

**Get**

```
AT+BRCR?
```

```
AT+BRCR="asa9876123sennbe", "123sad213s3dvseessaa"
```

```
OK
```

**Test**

```
AT+BRCR?
```

```
AT+BRCR="<device_id>", "<password>"
```

```
OK
```

**NOTE:** Command configuration will be saved inside the non-volatile [flash] memory as the default profile setting. More information can be found in the AT+R and AT+W commands description.

### 3.13 AT+BRC - Connect to broker

AT+BRC=(0,1)					
Command type supported	Action	Set	Get	Test	URC
		+	+	+	

This command connects the click to the broker, using the previously configured credentials.

**Command parameters:**

- [0,1] - Disconnect/Connect to broker

### Set

Example

```
AT+BRC=1
```

```
OK
```

### Get

```
AT+BRC?
```

```
AT+BRC= 0
```

```
OK
```

### Test

```
AT+BRC=?
```

```
AT+BRC= (0,1)
```

```
OK
```

**NOTE:** Command configuration will be saved inside the non-volatile [flash] memory as the default profile setting. More information can be found in the AT+R and AT+W commands description.

## 3.14 AT+ASTA - Actuator status

AT+ASTA="reference","value"					
Command type supported	Action	Set	Get	Test	URC
		+		+	

This command sets the current actuator status. The status provided with this command will be stored to internal memory only, so it is necessary to execute AT+PUB command to publish the internally stored data to the cloud application.

#### Command parameters:

- reference - Actuator reference string
- value - Actuator status value

### Set

Example

```
AT+ASTA= "MyActuator", "50"
```

```
OK
```

### Test

```
AT+ASTA=?
```

```
AT+ASTA= "<reference>", "<value>"
```

```
OK
```

**NOTE:** Execution of the AT+PUB command has to be performed in order to publish the internally stored data.

### 3.15 AT+DSET - Data set

AT+DSET="reference","value"					
Command type supported	Action	Set	Get	Test	URC
			+		+

This command prepares the data for sending. The data will only be stored to the internal memory, so it is necessary to execute AT+PUB command to publish the internally stored data to the cloud application.

**Command parameters:**

- reference - Data reference string
- value - Data value

**Set**

**Example** AT+DSET= "MyDataRef", "125.5"  
  
OK

**Test**

```
AT+DSET=?  
AT+DSET= "<reference>", "<value>"  
  
OK
```

**NOTE:** Execution of the AT+PUB command has to be performed in order to publish the internally stored data.

### 3.16 AT+PUB - Publish data

AT+PUB					
Command type supported	Action	Set	Get	Test	URC
		+			

This command publishes the data previously stored by using AT+DSET or AT+ASTA commands to the Click Cloud service.

**Example** AT+PUB  
  
OK

### 3.17 +ACT - Actuator

<b>+ACT: "reference","value"</b>					
Command type supported	Action	Set	Get	Test	URC
					+

This is an actuator response received from the cloud application.

#### Command parameters:

- reference - Actuator reference string
- value - Actuator value

**Example** `+ACT: "MyActuator", "true"`

**NOTE:** It is recommended to send back the current actuator status by using the AT+ASTA command.

### 3.18 +ERR - Error code

<b>+ERR: errcode</b>					
Command type supported	Action	Set	Get	Test	URC
					+

This is an error during execution of some command or a command sequence.

#### Command parameters:

- errcode - The error code

**Example** `+ERR: 120`

**NOTE:** It is recommended to take the necessary actions, according to the returned error code. [i.e. reset the device with the AT+RST command]

### 3.19 Error codes

- [-1] - FATAL ERROR [Unknown state] - RESET device
- 101 - Module Working Mode Configuration Error
- 110 - Network Connection Error
- 120 - Broker Connection Error
- 121 - Module Config Error
- 130 - Application Connection Error
- 131 - Broker Configuration Error
- 140 - Broker Error
- 200 - DHCP Configuration Error
- 201 - Network Parameters Configuration Error
- 202 - DHCP Error
- 203 - Network Disconnect Error
- 204 - Network Connection Error
- 301 - TCP Connection Error
- 302 - Broker Connection Error
- 303 - Communication Mode Error
- 304 - Communication Stream Error
- 401 - Application Disconnect Error
- 402 - Application Connect Error



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