



SIM7028 Series_COAP _Application Note

LPWA Module

SIMCom Wireless Solutions Limited

SIMCom Headquarters Building, Building 3, No. 289 Linhong
Road, Changning District, Shanghai P.R.China

Tel: 86-21-31575100

support@simcom.com

www.simcom.com

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SIMCom Wireless Solutions Limited

SIMCom Headquarters Building, Building 3, No. 289 Linhong Road, Changning District, Shanghai
P.R.China

Tel: +86 21 31575100

Email: simcom@simcom.com

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About Document

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Revision	Date	Chapter	Description
V1.00	2022.7.13	All	New version
V1.01	2022.10.24	All	Added the details

Scope

This document presents the AT Command Set for SIMCom SIM70XX Series.

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1 Introduction

1.1 Purpose of the document

This document mainly introduces how to use the CoAP function of the SIM7028 module through AT commands.

1.2 Related documents

[1] SIM7028 Series_AT Command Manual

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2 CoAP AT Commands

2.1 Overview

Command	Description
AT+COAPSTART	Init the CoAP service
AT+COAPSTOP	Deinit the CoAP service
AT+COAPOPEN	Connect to the special server
AT+COAPCLOSE	Disconnect from the special server
AT+COAPHEAD	Config the head of the message
AT+COAPOPTION	Config the option of the message
AT+COAPSEND	Send the message to the special server
AT+COAPSENDTX	Send the message to the special server by transparent transmission

2.2 Detailed Description

2.2.1 AT+COAPSTART Init the CoAP service

AT+COAPSTART is used to init the CoAP context. You must execute AT+COAPSTART before any other CoAP related operations.

AT+COAPSTART Init the CoAP Service	
Test Command AT+COAPSTART=?	Response OK
Execution Command AT+COAPSTART	Response 1) OK 2) ERROR
Parameter Saving Mode	NO_SAVE
Max Response Time	9000ms
Reference	

Examples

AT+COAPSTART

OK

2.2.2 AT+COAPSTOP Deinit the CoAP service

AT+COAPSTOP is used to Deinit the CoAP context When you are no longer using the COAP service, use this command.

AT+COAPSTOP Deinit the CoAP service

Test Command AT+COAPSTOP=?	Response OK
Execution Command AT+COAPSTOP	Response 1) OK 2) ERROR
Parameter Saving Mode	NO_SAVE
Max Response Time	9000ms
Reference	

Examples

AT+COAPSTOP

OK

2.2.3 AT+COAPOPEN Connect to the special server

AT+COAPOPEN Connect to the special server

Test Command AT+COAPOPEN=?	Response OK
Execute Command AT+COAPOPEN=<server>,<serverport>	Response 1)If the registration request is successfully sent, but no successful registration response is received OK 2)If the registration request is successfully sent, and successful registration response is received OK

	+COAPOPEN:<coap_id> 3) ERROR
Parameter Saving Mode	NO_SAVE
Max Response Time	9000ms
Reference	

Defined Values

<server>	The CoAP server address URL or ipaddress
<serverport>	The CoAP server port,the range is from 0 to 65535.
<coap_id>	The CoAP session ID.the range is from 0 to 1.

Examples

```
AT+COAPOPEN=?
OK
AT+COAPOPEN="47.108.134.22",5683
OK
+COAPOPEN:0
```

2.2.4 AT+COAPCLOSE Disconnect from the special server

AT+COAPCLOSE Disconnect from the special server

Test Command AT+COAPCLOSE=?	Response OK
Write Command AT+COAPCLOSE=<coap_id>	Response 1) OK 2) ERROR
Parameter Saving Mode	NO_SAVE
Max Response Time	9000ms
Reference	

Defined Values

<coap_id>	AT+COAPOPEN return the CoAP session ID.the range is from 0 to 1.
-----------	--

Examples

AT+COAPCLOSE=0

OK

2.2.5 AT+COAPHEAD Config the head of the message

AT+COAPHEAD Config the head of the message

Test Command	Response
AT+COAPHEAD=?	OK
Write Command	Response
AT+COAPHEAD=<coap_id>,<msgId>,<tkl>,<token>	1) OK 2) ERROR
Parameter Saving Mode	NO_SAVE
Max Response Time	9000ms
Reference	

Defined Values

<coap_id>	AT+COAPOPEN return the CoAP session ID.the range is from 0 to 1.
<msgId>	The CoAP message ID,the range is 0 to 65535.
<tkl>	The length of token,the range is 0 to 8.
<token>	The token of CoAP message.

Examples

AT+COAPHEAD=?

OK

AT+COAPHEAD=0,35691,1,"1"

OK

2.2.6 AT+COAPOPTION Config the option of the message

AT+COAPOPTION Config the option of the message

Test Command AT+COAPOPTION=?	Response OK
Write Command AT+COAPOPTION=<coap_id>,<opt_count>,<optNum>,<optValue>.....	Response 1) OK 2) ERROR
Parameter Saving Mode	NO_SAVE
Max Response Time	9000ms
Reference	

Defined Values

<coap_id>	AT+COAPOPEN return the CoAP session ID.the range is from 0 to 1.
<opt_count>	The num of option you want to config.the range is 0 to 10.
<optNum>	The type of option.
<optValue>	The value of the option

Examples

```
AT+COAPOPTION=?
OK
AT+COAPOPTION=0,1,7,"5683"
OK
```

2.2.7 AT+COAPSEND Send the message to the special server

AT+COAPSEND Send the message to the special server

Test Command AT+COAPSEND=?	Response OK
Write Command AT+COAPSEND=<coap_id>,<type>,<method>[,<data_len>,<data>]	Response 1) OK 2) ERROR
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<coap_id>	AT+COAPOPEN return the CoAP session ID.the range is from 0 to 1.
<type>	The message type of CoAP,it can set "con","non","ack","rst".
<method>	The message method of CoAP,it can set "get","post","put","delete","fetch","patch","ipatch".
<data_len>	The data length of CoAP message.the range is 1 to 255.
<data>	The data of CoAP message

Examples

AT+COAPSEND=?

OK

AT+COAPSEND=0,"con","get",5,"12345"

OK

2.2.8 AT+COAPSENDTX Send the message to the special server by transparent transmission

AT+COAPSENDTX Send the message to the special server by transparent transmission

Test Command	Response
AT+COAPSENDTX=?	OK
Write Command	Response
AT+COAPSENDTX=<coap_id>,<type>,<method>,<data_len>	1) > OK 2) ERROR
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<coap_id>	AT+COAPOPEN return the CoAP session ID.the range is from 0 to 1.
<type>	The message type of CoAP,it can set "con","non","ack","rst".
<method>	The message method of CoAP,it can set "get","post","put","delete","fetch","patch","ipatch".

<data_len>

The data length of CoAP message.the range is 1 to 2000.

Examples

```
AT+COAPSENDTX=?
```

```
OK
```

```
AT+COAPSENDTX =0,"con","get",5
```

```
>
```

```
01234
```

```
OK
```

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3 CoAP Related URCs

This chapter gives CoAP related URCs and their descriptions.

3.1 Overview

URC	Description
+COAPRECV: "request", from session <coap_id>,<received code>,<received tid>[,<len>,<data>]	When the CoAP server sends a request, if the module receives such request, this URC will be reported.
+COAPRECV: "response", from session <coap_id>,<received code>,<received tid>[,<len>,<data>]	When the CoAP server sends a response, if the module receives such request, this URC will be reported.

3.2 Detailed Description

3.2.1 Description of Request URC

Receive the request message from server

+COAPRECV: "request", from session <coap_id>,<received code>,<received tid>[,<len>,<data>]

Notify the request from CoAP server

Defined Values

<coap_id>	The CoAP session ID. The range is from 0 to 1.
<received code>	The received code of the message
<received tid>	The received tid of the message
<len>	The response data len.
<data>	The response data.

3.2.2 Description of Response URC

Receive the response message from server

+COAPRECV: "response", from session <coap_id>,<received code>,<received tid>[,<len>,<data>]

Notify the response from CoAP server

Defined Values

<coap_id>	The CoAP session ID. The range is from 0 to 1.
<received code>	The received code of the message
<received tid>	The received tid of the message
<len>	The response data len.
<data>	The response data.

4 Example

Before all FOTA related operations, we should check network status:

```
AT+CESQ //Query signal quality
+CESQ: 99,99,255,255,22,58

OK
AT+CEREG? //Query network registration status.
+CEREG: 0,1

OK
AT+CGPADDR //Query the allocated IP address for the default PDN
+CGPADDR: 0,"11.102.241.134"

OK
```

4.1 Send CoAP Request to the CoAP Server

Following commands shows how to communicate with a CoAP server.

```
// Init CoAP service
AT+COAPSTART
OK
// Acquire one client which will connect to a CoAP server
AT+COAPOPEN="183.230.40.39", 5683
OK
+COAPOPEN: 0
// Set the head information
AT+COAPHEAD=0,35691,1,"1"
OK
// Set the option information
AT+COAPOPTION=0,2,11,"bs",15,"ep=866651069979741;460042251325392"
OK
// Send the CoAP message
```

AT+COAPSEND=0,"con","post"

OK

// Receive a response

+COAPRECV:response,from session 0,2.04,35691

// Receive a request

+COAPRECV:request,from session 0,0.04,19771

// Close the CoAP client

AT+COAPCLOSE=0

OK

// Deinit the CoAP service

AT+COAPSTOP

OK

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