



Grandstream Networks, Inc.

CTI Guide



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1. SUPPORTED DEVICES

Following table shows Grandstream products supporting CTI commands:

Model	Supported	Firmware
GXP16XX Series		
GXP1610	Yes	1.0.3.28 or higher
GXP1620/25	Yes	1.0.3.28 or higher
GXP1628	Yes	1.0.3.28 or higher
GXP1630	Yes	1.0.3.28 or higher
GXP21XX Series		
GXP2130	Yes	1.0.7.25 or higher
GXP2140	Yes	1.0.7.25 or higher
GXP2160	Yes	1.0.7.25 or higher
GXP2135	Yes	1.0.7.25 or higher
GXP2170	Yes	1.0.7.25 or higher



2. INTRODUCTION

CTI (Computer-Telephony Integration) provides ability to manage phone calls from a computer including basic call operations such as making and answering calls, and advanced call operations such as call forward, conference, call hold and more.

Grandstream GXP16XX and GXP21XX series support CTI operations and commands providing complete control over phone calls from a desktop computer. CTI commands can be integrated with a 3rd party application to control interaction between customer's phone and desk computer or can be run using a web browser on customer's computer.

This guide describes available operations and commands with examples how-to run them from a web browser.

3. BENEFITS OF CTI

The major benefits of using Computer Telephony Integration (CTI) are the following:

- Complete control over calls (answer, hang-up, call on hold, manage “do not disturb”, call forward, conference, call transfer and etc...).
- Incoming calls notifications on desk computer allowing caller numbers to be screened against a database to collect or provide more information related to caller.
- Initiate outbound calls from computer directly with possibility of automatic and pre-dial calls commonly used for telemarketing.
- Increase productivity and improve customer service.

4. CTI COMMANDS FORMAT DEFINITION

4.1 Request format

The general CTI commands request format is:

<http://Phone-IP-Address/cgi-bin/function?passcode=PASSWORD¶m=value>

“Function” is one of CTI functions as described in next chapter (*api-get_line_status* for example)

“Password” is phone admin level password

“Param=value” is parameter for specific CTI function type

4.2 Response format

Positive answer with no returned value

```
{"response": "success", "body": "complete"}
```

Negative answer

```
{"response": "error", "body": "failed"}
```

Positive answer with returned values

```
{"response": "success", "body": [{"line": 1, "state": "idle", "acct": "", "remotename": "", "remotenum": "", "active": 0}, {"line": 2, "state": "idle", "acct": "", "remotename": "", "remotenum": "", "active": 0}, {"line": 3, "state": "idle", "acct": "", "remotename": "", "remotenum": "", "active": 0}]}
```

5. TYPE OF CTI FUNCTIONS

Please refer to following table describing type of CTI functions supported:

Type	Function	Description
Line Status	<i>api-get_line_status</i>	Retrieve line status of the phone
Phone Status	<i>api-get_phone_status</i>	Retrieve phone status
Send Keys	<i>api-send_key</i>	Send keys functions (speaker, volume up, volume down, mute, hold, 0-9, #, *...)
Phone Operations	<i>api-phone_operation</i>	Send phone operations commands (hang up, answer call, reject call...)
System Operations	<i>api-sys_operation</i>	Send system operations commands (reset, reboot...)



6. CTI COMMANDS AND EXAMPLES

Following commands have been run in a web browser on computer in same phone's network. In the examples below, a GXP2135 phone is used with IP address 192.168.5.135 and admin level password set to default (passcode=admin).

6.1 Line Status Function

- **General format**

The general format of CTI command to retrieve the line status is:

http://Phone-IP-Address/cgi-bin/api-get_line_status?passcode=PASSWORD

- **Example**

Request	http://192.168.5.135/cgi-bin/api-get_line_status?passcode=admin
Response	<pre>{"response":"success", "body": [{"line": 1, "state": "idle", "acct": "", "remotename": "", "remotenum": "", "active": 0}, {"line": 2, "state": "idle", "acct": "", "remotename": "", "remotenum": "", "active": 0}, {"line": 3, "state": "idle", "acct": "", "remotename": "", "remotenum": "", "active": 0}]}</pre>

In this example, the phone shows that only one account is available on line 1; other lines are not registered.

6.2 Phone Status Function

- **General format**

The general format of CTI command to retrieve phone status is:

http://Phone-IP-Address/cgi-bin/api-get_phone_status?passcode=PASSWORD

- **Example**

Request	http://192.168.5.135/cgi-bin/api-get_phone_status?passcode=admin
Response	<p>Phone available <pre>{"response":"success", "body": "available", "misc": "0"}</pre></p> <p>Phone busy <pre>{"response":"success", "body": "busy", "misc": "0"}</pre></p>



6.3 Sending Keys Functions

- **General format**

The general format of CTI command to send keys functions is:

http://Phone-IP-Address/cgi-bin/api-send_key?passcode=PASSWORD&keys=KEY

- **Examples**

Key	Function	Example
SPEAKER	Enable or Disable Speaker	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=SPEAKER
XFER	Enable Transfer	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=XFER Note: This command works only during established call
VUP	Volume UP	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=VUP
VDOWN	Volume Down	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=VDOWN
MUTE	Enable / Disable Mute	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=MUTE
HOLD	Put the call on Hold	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=HOLD Note: This command works only during established call
0-9,*	Send standard keypad keys	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=1:0:0:0 Note: The phone will send number 1000
LINE[1-8]	Select phone line	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=LINE1
CONF	Enable conference mode	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=CONF Note: This command works only during established call
VM	Access to Voice mail	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=VM
HEADSET	Enable Headset Mode	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=HEADSET
DND	Enable / Disable DND mode	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=DND
SEND	Send call	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=SEND
SOFT[1-4]	Select soft keys	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=SOFT1
MPK[1-24]	Select MPK keys	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=MPK1



- **Positive answer**

If accepted, the command will be run instantly on the phone and below positive answer can be returned:

```
{"response": "success", "body": "complete"}
```

- **Negative answer**

If not accepted, the phone will not react to it and below negative answer can be returned:

```
{"response": "error", "body": "unknown"}
```

Make call example

Customers may use following example to initiate a call to number 1000

http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&keys=1:0:0:0:SEND

6.4 Phone Operations Functions

- **General format**

The general format of CTI command to send phone operations is:

http://Phone-IP-Address/cgi-bin/api-phone_operation?passcode=PASSWORD&cmd=OPERATION

- **Examples**

Operation	Function	Examples
endcall	End established call	http://192.168.5.135/cgi-bin/api-phone_operation?passcode=admin&cmd=endcall
holdcall	Put the established call on Hold	http://192.168.5.135/cgi-bin/api-phone_operation?passcode=admin&cmd=holdcall
acceptcall	Accept incoming call	http://192.168.5.135/cgi-bin/api-phone_operation?passcode=admin&cmd=acceptcall
rejectcall	Reject incoming call	http://192.168.5.135/cgi-bin/api-phone_operation?passcode=admin&cmd=rejectcall
cancel	Reject or cancel calls	http://192.168.5.135/cgi-bin/api-phone_operation?passcode=admin&cmd=cancel



- **Positive answer**

If accepted, the command will be run instantly on the phone and below positive answer can be returned:

```
{"response": "success", "body": true}
```

- **Negative answer**

If not accepted, the phone will not react to it and below negative answer can be returned:

```
{"response": "error", "body": false}
```

6.5 System Operations Functions

- **General format**

The general CTI command to send phone system operations is:

http://Phone-IP-Address/cgi-bin/api-sys_operation?passcode=PASSWORD&request=OPERATION

- **Examples**

Operation	Function	Example
REBOOT	Reboot the phone	http://192.168.5.135/cgi-bin/api-sys_operation?passcode=admin&request=REBOOT
RESET	Reset the phone to default settings	http://192.168.5.135/cgi-bin/api-sys_operation?passcode=admin&request=RESET

- **Positive answer**

If accepted, the command will be run instantly on the phone and below positive answer can be returned:

Reboot: {"response": "success", "body": "savereboot"}

Reset: {"response": "success", "body": "reset"}

- **Negative answer**

If not accepted, the phone will not react to it and below negative answer can be returned:

```
{"response": "error", "body": "unknown"}
```

