



# Grandstream Networks, Inc.

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## CTI Guide



## Table of Contents

<b>1. SUPPORTED DEVICES.....</b>	<b>3</b>
<b>2. INTRODUCTION .....</b>	<b>4</b>
<b>3. BENEFITS OF CTI .....</b>	<b>4</b>
<b>4. CTI COMMANDS FORMAT DEFINITION.....</b>	<b>5</b>
4.1 Request format.....	5
4.2 Response format.....	5
<b>5. TYPE OF CTI FUNCTIONS.....</b>	<b>5</b>
<b>6. CTI COMMANDS AND EXAMPLES .....</b>	<b>6</b>
6.1 Line Status Function .....	6
6.2 Phone Status Function.....	6
6.3 Sending Keys Functions .....	7
6.4 Phone Operations Functions .....	8
6.5 System Operations Functions.....	9

## SUPPORTED DEVICES

Following table shows Grandstream products supporting CTI commands:

Model	Supported	Firmware
<b>GXP16XX Series</b>		
<b>GXP1610</b>	Yes	1.0.3.28 or higher
<b>GXP1620/1625</b>	Yes	1.0.3.28 or higher
<b>GXP1628</b>	Yes	1.0.3.28 or higher
<b>GXP1630</b>	Yes	1.0.3.28 or higher
<b>GXP17XX Series</b>		
<b>GXP1760</b>	Yes	1.0.0.37 or higher
<b>GXP1780/1782</b>	Yes	1.0.0.37 or higher
<b>GXP21XX Series</b>		
<b>GXP2130</b>	Yes	1.0.7.25 or higher
<b>GXP2140</b>	Yes	1.0.7.25 or higher
<b>GXP2160</b>	Yes	1.0.7.25 or higher
<b>GXP2135</b>	Yes	1.0.7.25 or higher
<b>GXP2170</b>	Yes	1.0.7.25 or higher



## 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, GXP17XX 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 3<sup>rd</sup> 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.

## 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.

## CTI COMMANDS FORMAT DEFINITION

### Request format

The general CTI commands request format is:

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

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

“Password” is the phone’s admin level password

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

### 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}]}
```

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



## 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).

### 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](http://Phone-IP-Address/cgi-bin/api-get_line_status?passcode=PASSWORD)

#### Example

<b>Request</b>	<a href="http://192.168.5.135/cgi-bin/api-get_line_status?passcode=admin">http://192.168.5.135/cgi-bin/api-get_line_status?passcode=admin</a>
<b>Response</b>	<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.

### 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](http://Phone-IP-Address/cgi-bin/api-get_phone_status?passcode=PASSWORD)

#### Example

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



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

### Examples

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



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

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

### Examples

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





### 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}
```

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

### Examples

Operation	Function	Example
REBOOT	Reboot the phone	<a href="http://192.168.5.135/cgi-bin/api-sys_operation?passcode=admin&amp;request=REBOOT">http://192.168.5.135/cgi-bin/api-sys_operation?passcode=admin&amp;request=REBOOT</a>
RESET	Reset the phone to default settings	<a href="http://192.168.5.135/cgi-bin/api-sys_operation?passcode=admin&amp;request=RESET">http://192.168.5.135/cgi-bin/api-sys_operation?passcode=admin&amp;request=RESET</a>

### 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"}
```

