



# Grandstream Networks, Inc.

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GRP26XX Carrier-Grade IP Phones

**CTI Guide**



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## SUPPORTED DEVICES

Following table shows Grandstream products supporting CTI commands:

Model	Supported	Firmware
GRP2612/GRP2612W/ GRP2612P	Yes	1.0.5.67+
GRP2613	Yes	1.0.5.67+
GRP2614	Yes	1.0.5.67+
GRP2615	Yes	1.0.5.67+
GRP2616	Yes	1.0.5.67+
GRP2624	Yes	1.0.5.67+
GRP2634	Yes	1.0.5.67+
GRP2601/P	Yes	1.0.3.18+
GRP2602/P/W	Yes	1.0.3.18+
GRP2603/P	Yes	1.0.3.18+
GRP2604/P	Yes	1.0.3.18+

## 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 GRP26XX 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**

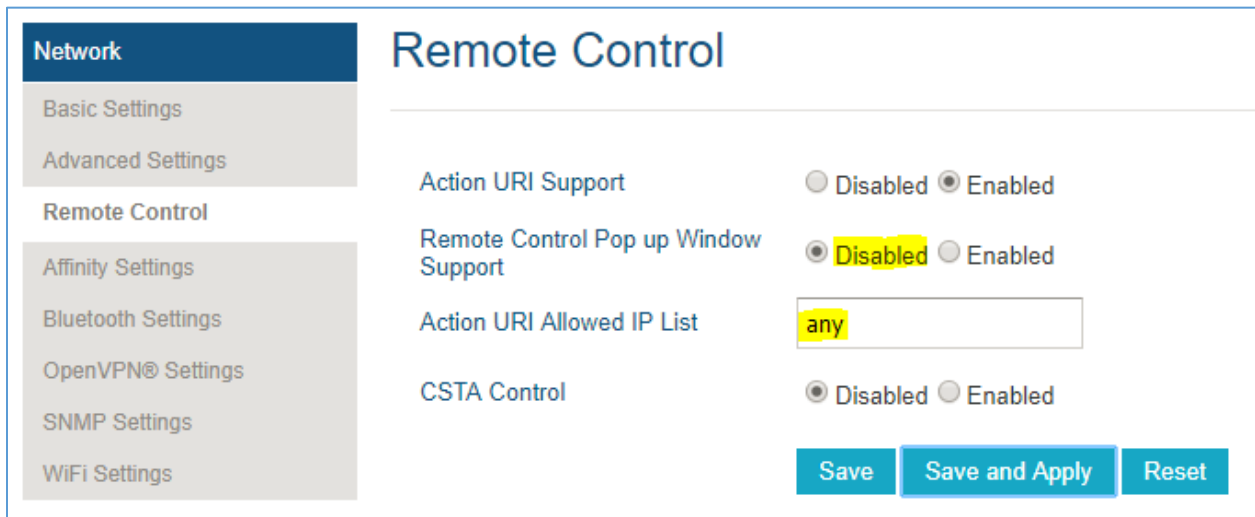
The major benefits of using Computer Telephony Integration (CTI) are the following:

- 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.

## ENABLING CTI FEATURE

To enable CTI feature on GRP26XX series, follow steps below:

1. Access GRP26XX web GUI as administrator.
2. Navigate to **Network** → **Remote Control** (on GRP261x/GRP2624/GRP2634) or **Network Settings** → **Advanced Settings** → **Remote Control** (on GRP260x).
3. Enable **Action URI Support** by checking "Enabled".
4. On field **Action URI Allowed IP List**, put the remote party's IP address. If the IP address is unknown, add "any".
5. Set **Remote Control Pop up Window Support** to "Disabled" to allow remote control without confirmation on the physical phone.
6. Press Save and Apply button.



The screenshot shows the 'Remote Control' settings page in the Grandstream web GUI. On the left, a navigation menu is visible with 'Network' selected. The main content area is titled 'Remote Control' and contains the following settings:

- Action URI Support:** Radio buttons for 'Disabled' and 'Enabled'. The 'Enabled' option is selected.
- Remote Control Pop up Window Support:** Radio buttons for 'Disabled' and 'Enabled'. The 'Disabled' option is selected and highlighted in yellow.
- Action URI Allowed IP List:** A text input field containing the value 'any', which is highlighted in yellow.
- CSTA Control:** Radio buttons for 'Disabled' and 'Enabled'. The 'Disabled' option is selected.

At the bottom right, there are three buttons: 'Save', 'Save and Apply', and 'Reset'.

Figure 1: Enabling CTI on GRP261x/GRP2624/GRP2634



**Remote Control**

Action URI Support ?	<input checked="" type="checkbox"/>
Remote Control Popup Window Support ?	<input type="checkbox"/>
Action URI Allowed IP List ?	<input type="text" value="any"/>
CSTA Control ?	<input type="checkbox"/>

**Figure 2: Enabling CTI on GRP260x**

**Important:** The “Click-To-Dial Feature” should be enabled under **Settings → Call Features** (on GRP261x/GRP2624/GRP2634) or under **Phone Settings → Call Settings** (on GRP260x), to be able to run the “Make Call” Command. [Make Call]



## 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/user 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
<b>Line Status</b>	<i>api-get_line_status</i>	Retrieves line status of the phone
<b>Phone Status</b>	<i>api-get_phone_status</i>	Retrieves phone status
<b>Phone Operations</b>	<i>api-phone_operation</i>	Sends phone operations commands (hang up, answer call, reject call...)
<b>Send Keys</b>	<i>api-send_key</i>	Sends keys functions (speaker, volume up, volume down, mute, hold, 0-9... )
<b>System Operations</b>	<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 GRP26XX phone is used with IP address 192.168.5.135 and admin/user level password set to (passcode=admin).

As for the System operation

### Functions used on GRP26XX

#### 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": 0, "active": 0, "remotename": "", "remotenum": "" }, { "line": 2, "state": "idle", "acct": 0, "active": 0, "remotename": "", "remotenum": "" }, { "line": 3, "state": "idle", "acct": 0, "active": 0, "remotename": "", "remotenum": "" }, { "line": 4, "state": "idle", "acct": 0, "active": 0, "remotename": "", "remotenum": "" } ] }</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>



## 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}
```



## Make Call

### General format

The general format of CTI command to initiate a call is:

[http://Phone-IP-Address/cgi-bin/api-make\\_call?passcode=PASSWORD&phonenumber=NUMBER](http://Phone-IP-Address/cgi-bin/api-make_call?passcode=PASSWORD&phonenumber=NUMBER)

### Example

<b>Request</b>	<a href="http://192.168.5.135/cgi-bin/api-make_call?passcode=admin&amp;phonenumber=3501">http://192.168.5.135/cgi-bin/api-make_call?passcode=admin&amp;phonenumber=3501</a>
<b>Response</b>	{ "response": "success", "body": true }

## 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
<b>REBOOT</b>	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>
<b>RESET</b>	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"}

### Important:

The **Reset** Command requires the Admin level password in the passcode field.



## 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-X]</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-X]</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-X]</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>
<b>STAR</b>	Press star key	<a href="http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;&amp;keys=STAR">http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;&amp;keys=STAR</a>
<b>ONHOOK</b>	Reject call	<a href="http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=ONHOOK">http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=ONHOOK</a>
<b>OFFHOOK</b>	Answer call	<a href="http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=OFFHOOK">http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=OFFHOOK</a>
<b>OK</b>	Press OK	<a href="http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;&amp;keys=OK">http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;&amp;keys=OK</a>
<b>LOCK</b>	Lock keypad	<a href="http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=LOCK">http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=LOCK</a>
<b>UNLOCK</b>	Unlock keypad	<a href="http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=UNLOCK">http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=UNLOCK</a>
<b>UP</b>	Press UP	<a href="http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=UP">http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=UP</a>
<b>DOWN</b>	Press DOWN	<a href="http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=DOWN">http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=DOWN</a>
<b>LEFT</b>	Press LEFT	<a href="http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=LEFT">http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=LEFT</a>
<b>RIGHT</b>	Press RIGHT	<a href="http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=RIGHT">http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&amp;keys=RIGHT</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"}
```

