Grandstream Networks, Inc.

CTI Guide

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CTI (Computer-Telephony Integration) provides the 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 DP75X, 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 3rd party application to control the interaction between the customer's phone and desk computer or can be run using a web browser on the customer's computer.

This CTI 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:

o Complete control over calls (answer, hang-up, call on hold, manage "do not disturb", call forward, conference, call transfer and etc...).

o Incoming call notifications on desk computers allow caller numbers to be screened against a database to collect or provide more information about the caller.

o Initiate outbound calls from the computer directly with the possibility of automatic and pre-dial calls commonly used for telemarketing.

o Increase productivity and improve customer service.

ENABLING CTI FEATURE

To enable the CTI feature on the GXP21xx series, follow the steps below:

1. Access GXP21xx web GUI as administrator.
2. Navigate to **Network → Remote Control**.
3. Enable **Action URI Support** by checking "Enabled".
4. On the 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 the Save and Apply button.
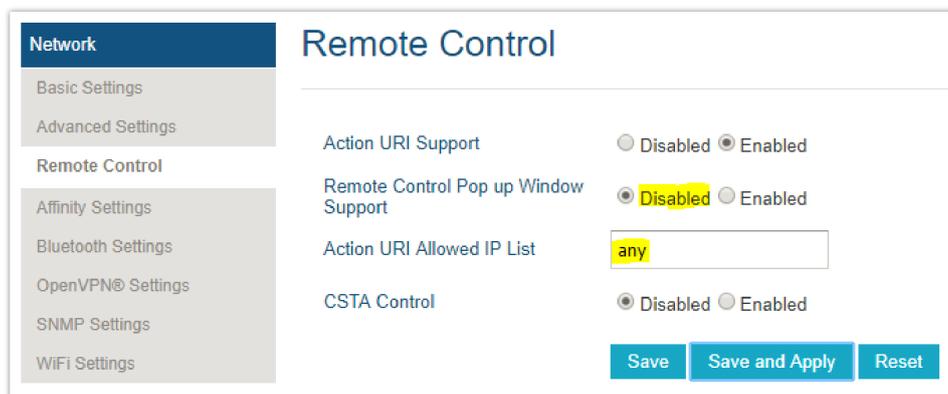
The CTI feature is enabled by default on DP75x, GXP17xx and GXP16xx phones.

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": "", "remotenumber": "", "active": 0}, {"line": 2, "state": "idle", "acct": "", "remotename": "", "remotenumber": "", "active": 0}, {"line": 3, "state": "idle", "acct": "", "remotename": "", "remotenumber": "", "active": 0}]}

TYPE OF CTI FUNCTIONS

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

Type	Function	Description
Functions used on GXP phones only		
Line Status	api-get_line_status	Retrieves line status of the phone
Phone Status	api-get_phone_status	Retrieves phone status
Phone Operations	api-phone_operation	Sends phone operations commands (hang up, answer call, reject call…)
Account Status	api-get_accounts	Retrieves account status
Functions used only on DP750/720/722/730		
Account Status	api-get_account_status	Retrieves account status

Handset Status	api-get_hs_status	Retrieves handset status
Handset Line Status	api-get_hs_line_status	Retrieves handset line status
Make Call	api-make_call	Make a call using a specific handset
Device Operations	api-device_operation	Sends device operations commands: mute, speaker, setdnd…
Functions used on all models		
Send Keys	api-send_key	Sends keys functions (speaker, volume up, volume down, mute, hold, 0-9…)
System Operations	api-sys_operation	Sends system operations commands (reset, reboot…)

CTI COMMANDS AND EXAMPLES

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

Functions used on GXP phones only

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

In this example, the phone shows that line 1 is in a call; the other lines are not in a call.

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	Phone available {"response":"success", "body": "available", "misc": "0"}
	Phone busy {"response":"success", "body": "busy", "misc": "0"}

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}
```

Account Status Function

General Format

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

```
http://phone-ip-address/cgi-bin/api-get_accounts?passcode=PASSWORD
```

Example

Request	http://192.168.5.135/cgi-bin/api-get_accounts?passcode=admin
Response	{"response":"success", "body": [{"id": 1, "sip_server":"testsipserver.com", "sip_id": "1234", "name": "test_account","reg": 1}, {"id": 2, "sip_server": "", "sip_id": "", "name":"", "reg": 0}]}

In this example, the phone shows account 1's basic SIP information and that account 1 is registered.

Functions used on DP75x/720/722/730 only

> **Note**
>
> DP75x Models include only DP750 and DP752 base stations.

Account Status

General Format

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

```
http://Phone-IP-Address/cgi-bin/api-get_account_status?passcode=PASSWORD&account=NUMBER
```

Example

Request	http://192.168.5.135/cgi-bin/api-get_account_status?passcode=admin&account=1
Response	Registered { "response": "success", "Account1": { "Registered": 1, "Profile": 1, "Active": 1, "HSMode": "HS1" } } Not registered { "response": "success", "Account1": { "Registered": 0, "Profile": 1, "Active": 0, "HSMode": "HS1" } }

Handset Status

General Format

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

```
http://Phone-IP-Address/cgi-bin/api-get_hs_status?passcode=PASSWORD&hs=NUMBER
```

Example

Request	http://192.168.5.135/cgi-bin/api-get_hs_status?passcode=admin&hs=1
Response	Handset paired { "response": "success", "HS1": { "initialized": 1, "subscribed": 1, "status": "idle" } } Handset not paired { "response": "success", "HS1": { "initialized": 0, "subscribed": 0, "status": "" } }

Handset Line Status

General Format

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

```
http://Phone-IP-Address/cgi-bin/api-get_hs_line_status?passcode=PASSWORD&hs=NUMBER
```

Example

Request	http://192.168.5.135/cgi-bin/api-get_hs_line_status?passcode=admin&hs=1
Response	{ "response": "success", "HS1": { "Line1": { "Status": "idle", "Account": 1, "Registered": 1, "Active": 1 }, "Line2": { "Status": "idle", "Account": 0, "Registered": 0, "Active": 0 }, "Line3": { "Status": "idle", "Account": 0, "Registered": 0, "Active": 0 }, "Line4": { "Status": "idle", "Account": 0, "Registered": 0, "Active": 0 }, "Line5": { "Status": "idle", "Account": 0, "Registered": 0, "Active": 0 }, "Line6": { "Status": "idle", "Account": 0, "Registered": 0, "Active": 0 }, "Line7": { "Status": "idle", "Account": 0, "Registered": 0, "Active": 0 }, "Line8": { "Status": "idle", "Account": 0, "Registered": 0, "Active": 0 }, "Line9": { "Status": "idle", "Account": 0, "Registered": 0, "Active": 0 }, "Line10": { "Status": "idle", "Account": 0, "Registered": 0, "Active": 0 } } }

Make Call

General Format

The general format of CTI command to initiate call is:

```
http://Phone-IP-Address/cgi-bin/api-make_call?passcode=PASSWORD&hs=NUMBER&phonenumber=NUMBERS
```

Example

Request	http://192.168.5.135/cgi-bin/api-make_call?passcode=admin&hs=1&phonenumber=3501
Response	{ "response": "success", "body": true }

Device Operations Functions

General Format

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

```
http://Phone-IP-Address/cgi-bin/api-device_operation?
passcode=PASSWORD&hs=NUMBER&line=NUMBER&cmd=OPERATION
```

Examples

Operation	Function	Examples
endcall	End established call	http://192.168.5.135/cgi-bin/api-device_operation? passcode=admin&hs=1&line=1&cmd=endcall
holdcall	Put the established call on Hold	http://192.168.5.135/cgi-bin/api-device_operation? passcode=admin&hs=1&line=1&cmd=holdcall

unholdcall	Resume on-hold call	http://192.168.5.135/cgi-bin/api-device_operation? passcode=admin&hs=1&line=1&cmd=unholdcall
acceptcall	Accept incoming call	http://192.168.5.135/cgi-bin/api-device_operation? passcode=admin&hs=1&line=1&cmd=acceptcall
rejectcall	Reject incoming call	http://192.168.5.135/cgi-bin/api-device_operation? passcode=admin&hs=1&line=1&cmd=rejectcall
cancel	Reject or cancel calls	http://192.168.5.135/cgi-bin/api-device_operation? passcode=admin&hs=1&line=1&cmd=cancel
For mute, speaker, setdnd and unsetdnd commands, there is no "line=x" argument		
mute	Mute while on call	http://192.168.5.135/cgi-bin/api-device_operation?passcode=admin&hs=1&cmd=mute
speaker	Enable speaker while on call	http://192.168.5.135/cgi-bin/api-device_operation?passcode=admin&hs=1&cmd=speaker
setdnd	Enable DND	http://192.168.5.135/cgi-bin/api-device_operation?passcode=admin&hs=1&cmd=setdnd
unsetdnd	Disable DND	http://192.168.5.135/cgi-bin/api-device_operation?passcode=admin&hs=1&cmd=unsetdnd

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}
```

Functions used on all Models

Sending Keys Functions

General format

- **For GXP Series**

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

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

- **For DP750/720/722/730**

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

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

Examples

Key	Function	Example
SPEAKER	Enable or Disable Speaker	http://192.168.5.143/cgi-bin/api-send_key?passcode=admin&keys=SPEAKER
		http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&hs=1&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://192.168.5.143/cgi-bin/api-send_key?passcode=admin&keys=MUTE
		http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&hs=1&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
		http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&hs=1&keys=1:0:0:0:HASH **Note:** # key need be sent as HASH on DP75x/DP720/722/730
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
LEFT_SOFT_KEY	Press left soft key	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&hs=1&keys=LEFT_SOFT_KEY
RIGHT_SOFT_KEY	Press right soft key	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&hs=1&keys=RIGHT_SOFT_KEY
STAR	Press star key	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&hs=1&keys=STAR

ONHOOK	Reject call	http://192.168.5.135/cgi-bin/api-send_key? passcode=admin&hs=1&keys=ONHOOK
OFFHOOK	Answer call	http://192.168.5.135/cgi-bin/api-send_key? passcode=admin&hs=1&keys=OFFHOOK
OK	Press OK	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&hs=1&keys=OK
LOCK	Lock keypad	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&hs=1&keys=LOCK
UNLOCK	Unlock keypad	http://192.168.5.135/cgi-bin/api-send_key? passcode=admin&hs=1&keys=UNLOCK
UP	Press UP	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&hs=1&keys=UP
DOWN	Press DOWN	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&hs=1&keys=DOWN
LEFT	Press LEFT	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&hs=1&keys=LEFT
RIGHT	Press RIGHT	http://192.168.5.135/cgi-bin/api-send_key?passcode=admin&hs=1&keys=RIGHT

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"}
```

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 (all models except DP75X):

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

Reboot (DP75X):

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

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"}
```

SUPPORTED DEVICES

The following table shows Grandstream products supporting CTI commands:

Model	Supported	Firmware
GXP16XX Series	Yes	1.0.3.28 or higher
GXP17XX Series	Yes	1.0.0.37 or higher
GXP21XX Series	Yes	1.0.7.25 or higher
DP75X Series	Yes	1.0.4.2 or higher

Need Support?

Can't find the answer you're looking for? Don't worry we're here to help!

CONTACT SUPPORT