ZYCOO
We Focus · We Deliver

CTN
(Cloud Telephony Node)
User Manual

Version:2.0

Contents

About this User Manual

If you are reading this user manual, it means your company has deployed Zycoo CTMS (Cloud Telephony Management System). CTMS is an infrastructure of an integrated, secure and private enterprise-level IP phone system. It consists of 3 facilities: CTMC (Cloud Telephony Management Center) server, CTNs (Cloud Telephony Node) and end points.

CTMC is the core of this infrastructure it can configure and manage all the CTNs centrally. CTNs will be deployed in each branch office for local trunk lines and extensions.

This user manual is for guiding the branch office supervisor or network administrator to connect the CTNs to CTMC server and do some other necessary configurations and management that cannot be done remotely from CTMC server side.

China	UAE	UK
Add. Chengdu, China. Tel. +86 2885337096	Add. Dubai , UAE. Tel. +971 43552755	Add. Doncaster, UK. Tel. +44(0)1302773162

ZYCOO | Zycoo Co., Ltd.　　　　　　　　　　　　　　　　　　　　　E-mail. zycoo@zycoo.com

1. CTN Deployment

1.1 Hardware Installation

Before you can power on the CTN, please read its Quick Installation Guide inside the packing box. There are some important notices about safety, environment and hardware installation prerequisites that you should be aware of.

Please refer to the guide and properly install the CTN in your computer room before turning it on and configure it. Below is what the cover of the Quick Installation Guide looks like.
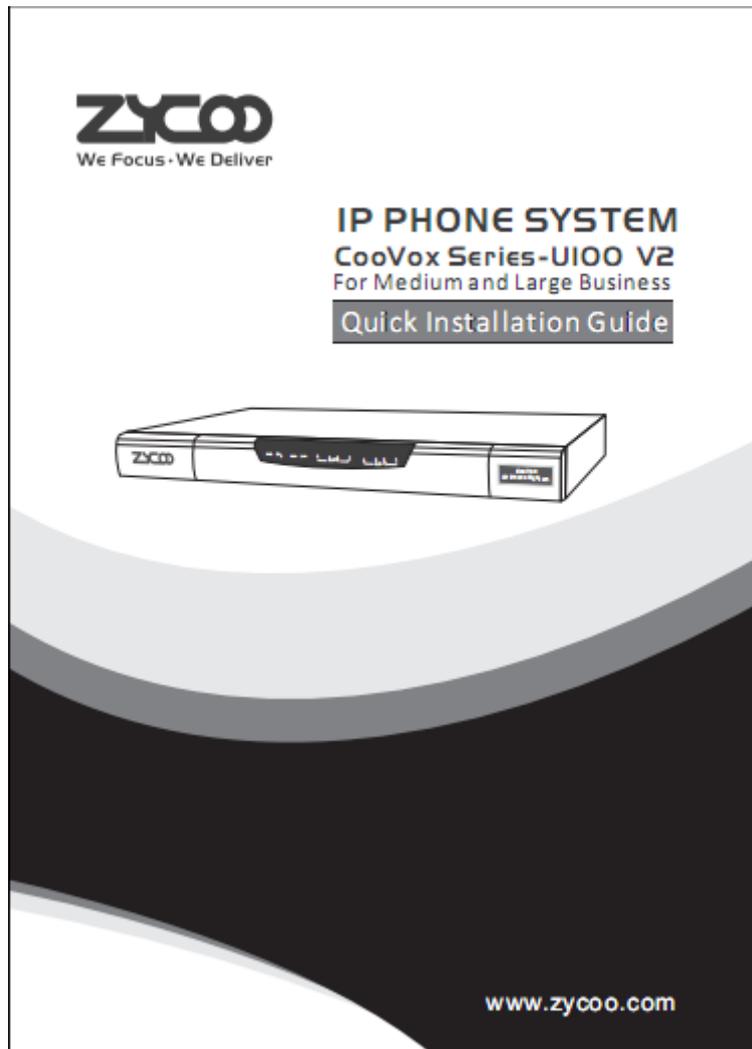
1.2 CTN Firmware Upgrading

The device to be deployed in your branch office should come with CTN firmware installed. Please connect the CTN to your local network behind router/firewall. Access its Web GUI using URL

https://192.168.1.100:9999, 192.168.1.100 is the default IP address.

The login page should appear as below figure which has "CLOUD TELEPHONY NODE" written. If yes, then please login in with default username and password admin/admin and go on from chapter 1.3 Connect CTN to CTMC.

If you see "IP PHONE SYSTEM" written, then you have to upgrade its firmware to CTN mode before you can configure it to connect to CTMC server.

CTN firmware download links are listed below:

CooVox-U20V2: http://www.zycoo.com/files/upload/CooVox-U20V2-CTN-firmware-v2.0.2.zip

CooVox-U50V2: http://www.zycoo.com/files/upload/CooVox-U50V2-CTN-firmware-v2.0.2.zip

CooVox-U80: http://www.zycoo.com/files/upload/CooVox-U80-CTN-firmware-v2.0.2.zip

CooVox-U100V2: http://www.zycoo.com/files/upload/CooVox-U100V2-CTN-firmware-v2.0.2.zip

Please make sure you download the correct CTN firmware according to your IPPBX model.

After downloading you should get a .zip format package, please unzip it and you'll get a file named "uImage-md5.uxx.ctn.vxx". To upgrade this CTN firmware, please navigate to IPPBX Web menu *System->Upgrade* page and click "Browse" to browse the firmware you have downloaded from your local hard drive and then click "Upload" to upgrade its firmware. The whole process will take around 3 minutes.

After upgrading you should be directed to CTN login page, if you still get IPPBX login page please refresh the login page or clear the Web browser cache to try again.

1.3 Connect CTN to CTMC

1.3.1 Change Network Profile

The CTN needs Internet access to be able to connect to the CTMC server. So before you connecting it to CTMC server you may need to change its network profiles.

Please navigate to Web menu *Network Settings->Network* and change the network profiles according to your local network infrastructure. Below is an example of changing CTN network profile.

Network

WAN Port Setup

IP Assign: Static ▼
IP Address: 192.168.2.251
Subnet Mask: 255.255.255.0
Gateway: 192.168.2.1
Primary DNS: 8.8.8.8
Alternative DNS: 4.4.4.4

LAN Port Setup

IP Address: 192.168.10.100   Subnet Mask: 255.255.255.0
☐IP AddressV1: _____   Subnet MaskV1: _____
☐IP AddressV2: _____   Subnet MaskV2: _____

Save Cancel

Notice:
WAN and LAN IP should not be in the same IP range.

1.3.2 Connect to CTMC server

After a reboot you can login to CTN Web GUI using the new IP address that you configured just now. In the above example, you should use URL https://192.168.2.251:9999 to access the Web GUI.

Please navigate to *Node Settings->Local Settings* page. And fill in the blanks that are necessary to connect and register the CTN to CTMC server. Please see below example.

CTN User Manual   Firmware Version V2.0.2

China
Add. Chengdu, China. Tel. +86 2885337096

UAE
Add. Dubai , UAE. Tel. +971 43552755

UK
Add. Doncaster, UK. Tel. +44(0)1302773162

Zycoo Co., Ltd.
E-mail. zycoo@zycoo.com

Local Settings

Local Settings

Enable: ☑
Server Address: 117.176.159.157
Server Port: 8505
VPN Port: 1194
Device Name: CooVox-U50V2-CD
Description: Chengdu Office
Contact: john-doe@gmail.com
Address: 7F, B7, Tianfu Software Park, Chengdu, China

Save Cancel

Status: Connected

The information in above example is used to register this CTN to CTMC server and show its identity. Below table is the description of those configuration options.

Name	Description
Enable	Enable or disable CTN register
Server Address	IP or domain of the CTMC server, it should be given by the supervisor or network administrator of the CTMC server.
Server Port	Port number that CTN communicates with CTMC, by default it's 8505. This port can be modified on CTMC server. You have to ensure it's the same as on CTMC.
VPN Port	Port number of OpenVPN, by default it's 1194. This port can be modified on CTMC server. You have to ensure it's the same as on CTMC.
Device Name	Device name should be properly defined here, so on the CTMC server this CTN can be easily identified.
Description	Brief introduction of this CTN.
Contact	A phone number or email of a person who can contact for CTN maintenance affairs.
Address	Branch office location.
Status	Status of the connection with CTMC server. Status: Connected : Successfully registered to CTMC server. Status: Disconnected : Connection to the CTMC server has failed.

1.3.3 Trunk Lines

After the CTN is successfully registered to the CTMC server most of the configurations will be done from the CTMC server. Now you have to attach the trunk lines to the CTN telephony interfaces.

PSTN Lines:
PSTN lines are coming from your telephone company. Please attach the lines to the FXO ports of the CTN. FXO ports should be indicated by Red LED indicators.

GSM Lines:
If your CTN has GSM module/modules equipped you'll have to power off the CTN and unplug the GSM module. Insert the SIM cards on to the SIM slots on the backside of the GSM module. Plug the GSM module to the module slot and setup GSM antennas for better single reception. After all these have been done please power on the CTN again.

E1 and BRI Lines:
If your CTN model is CooVox-U80/CooVox-U100V2 and has E1/BRI module equipped. You have to change the model settings and reboot the CTN to let the CTN system load and drive the E1/BRI module properly. If the modules are not E1 and BRI modules then you don't have to do this. Please navigate to CTN Web interface *PBX Settings->Module Settings* page. Then refer to the U80 and U100V2 user manual in chapter 8.2 Module Settings to configure E1 or BRI module settings.

So far the job is done at this stage. You have to wait for the configurations been made from the CTMC server and been pushed to this CTN by the CTMC server administrator, and then you go on to the next chapter.

China
Add. Chengdu, China. Tel. +86 2885337096

UAE
Add. Dubai , UAE. Tel. +971 43552755

UK
Add. Doncaster, UK. Tel. +44(0)1302773162

ZYCOO | Zycoo Co., Ltd.
E-mail. zycoo@zycoo.com

2. Configurations

2.1 Register Extensions

Open CTN Web GUI again and navigate to *PBX Settings->User Management* page. You'll see the extension numbers assigned by the CTMC server. These extensions are available for you to register with your IP phones in your branch office.

Click "View" to show the extension detailed info. In the "General" section you can find out the necessary info for registering this extension number on the IP phone. See below figure.

Open the IP phone GUI and register the extensions one by one. Below Figure 3-2 is an example of register extension on Zycoo Coofone D30/D60.

Up to now, your CTN should have all telephony features ready and you are able to make internal and external phone calls. For outbound calls you may need to dial a prefix. And there are also many useful feature codes that can be used to access the CTN system facilities. For more details please contact the CTMC administrator.

CTN User Manual   Firmware Version V2.0.2

2.2 Network Features

2.2.1 Network Profiles

It's recommended that you set a static IP on the CTN WAN interface as the example given in chapter 1.3.1.
Except static IP, the CTN can also set to obtain IP address from a DHCP server or you can do PPPoE from the WAN port to connect to your ISP.

2.2.2 DHCP Server

CooVox series IPPBX system in CTN mode also can be used as a DHCP server to distribute network configuration parameters to the computers and other devices within the same local network.
Please navigate to CTN Web menu *Network Settings->DHCP Server* page. To activate DHCP service please tick the "Enable" checkbox. Below figure is an example of activating and configuring DHCP service on the CTN WAN port.

DHCP Server

DHCP Server	DHCP Client List	Static MAC

DHCP Server Settings

Enable: ✔
Interface: WAN ▾
Start IP: 192.168.2.150
End IP: 192.168.2.199
Subnet Mask: 255.255.255.0
Gateway: 192.168.2.1
Primary DNS: 8.8.8.8
Lease Time(min): 1440
TFTP Server:

Save Cancel

DHCP service can be activated on WAN or LAN port. You can choose the interface you are using in the Interface dropdown list. Specify the address pool by specifying the Start IP and End IP. Subnet mask, Gateway and DNS server address also need to be specified.
Lease Time is the period of the assigned address available before leasing to the other client. By default it's 1440 minutes (a day).
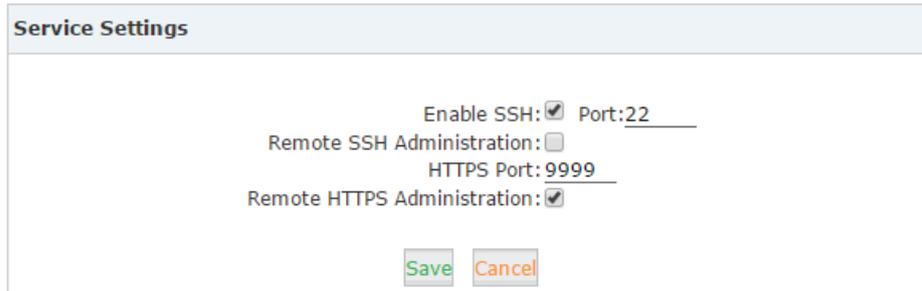**Notice**:
Please ensure there is no other DHCP server running in the same local network.

2.2.3 Service Settings

On the *Network Settings->Service* page you are able to enable SSH access to the CTN Linux command lines for troubleshooting purpose. And also you are able to change the SSH and Web GUI service port. See below figure.

Service Settings

Service Settings

Enable SSH:☑ Port:22
Remote SSH Administration:☐
HTTPS Port:9999
Remote HTTPS Administration:☑

Save Cancel

By default SSH is disabled, you can check the "Enable SSH" checkbox to enable SSH. Default port is 22, you can change to another port if needed.

The "Remote SSH Administration" option can enable SSH access from WAN port.

Web GUI service port is 9999 by default and it cannot be disabled. You can change its port number to another one.

The "Remote HTTPS Administration" option can enable Web GUI access from WAN port.

2.2.4 Troubleshooting

We have included two tools ping and traceroute for troubleshooting network problems and they allow you to check the network reachability. With these tools you'll get an outside view of your network response time and network topology, which allows you to track down possible errors more easily.

➢ Ping

The ping command is a very common method for troubleshooting the accessibility of devices. It uses a series of Internet Control Message Protocol (ICMP) Echo messages to determine:

● Whether a remote host is active or inactive.

● The round-trip delay in communicating with the host.

● Packet loss.

CTN User Manual   Firmware Version V2.0.2

China
Add. Chengdu, China. Tel. +86 2885337096

UAE
Add. Dubai , UAE. Tel. +971 43552755

UK
Add. Doncaster, UK. Tel. +44(0)1302773162

ZYCOO Zycoo Co., Ltd.
E-mail. zycoo@zycoo.com

Troubleshooting

Ping	Traceroute

Ping 192.168.1.2   Packets: 4   Run Stop

```
PING 192.168.1.2 (192.168.1.2) 56(84) bytes of data.
64 bytes from 192.168.1.2: icmp_req=1 ttl=128 time=0.979 ms
64 bytes from 192.168.1.2: icmp_req=2 ttl=128 time=0.952 ms
64 bytes from 192.168.1.2: icmp_req=3 ttl=128 time=0.870 ms
64 bytes from 192.168.1.2: icmp_req=4 ttl=128 time=0.910 ms

--- 192.168.1.2 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3003ms
rtt min/avg/max/mdev = 0.870/0.927/0.979/0.055 ms
```

First specify the domain or IP of the host you want to contact and then define how many packets are to be sent, finally click the "Run" button and the command begins to process. You will receive results output from the system indicating the reachability of the destination.

➢ Traceroute

The traceroute command is used to discover the routes that packets actually take when traveling to their destination.

Click "Traceroute" tab and specify the domain or IP address that you want to lookup and then click the "Run" button to start the process.

Troubleshooting

Ping	Traceroute

Traceroute 8.8.8.8   Run Stop

```
traceroute to 8.8.8.8 (8.8.8.8), 30 hops max, 38 byte packets
 1  192.168.1.253 (192.168.1.253)  9.090 ms   2.339 ms   1.364 ms
 2  117.176.159.129 (117.176.159.129)  2.953 ms   3.768 ms   3.141 ms
 3  221.182.42.129 (221.182.42.129)  7.828 ms   3.642 ms   3.220 ms
 4  *   *   *
 5  *  221.183.19.45 (221.183.19.45)  3.036 ms   2.875 ms
 6  221.176.20.137 (221.176.20.137)  42.682 ms  42.717 ms  42.592 ms
 7  221.176.24.2 (221.176.24.2)  89.873 ms  38.681 ms  38.080 ms
 8  221.183.15.14 (221.183.15.14)  202.732 ms  202.97.15.9 (202.97.15.9)
 9  202.97.60.134 (202.97.60.134)  209.421 ms  210.220 ms  207.741 ms
10  *   *   *
11  *  202.97.60.82 (202.97.60.82)  210.967 ms  210.754 ms
12  202.97.61.118 (202.97.61.118)  209.741 ms  209.814 ms  212.201 ms
13  202.97.62.214 (202.97.62.214)  47.344 ms  43.307 ms  44.187 ms
14  209.85.241.56 (209.85.241.56)  43.452 ms  209.85.241.58 (209.85.241.5
15  216.239.40.13 (216.239.40.13)  45.787 ms  209.85.142.185 (209.85.142.
16  216.239.57.239 (216.239.57.239)  77.555 ms  209.85.253.89 (209.85.253
17  64.233.175.205 (64.233.175.205)  109.890 ms  72.14.237.171 (72.14.237
18  *   *   *
19  google-public-dns-a.google.com (8.8.8.8)  75.043 ms  86.514 ms  72.94
```

After the process has competed the system will notify you that "Trace Complete" and you can view which routes the packets have taken before reaching their final destination.

2.3 Time Settings

System time is very important for the CTN system, especially if the CTN system handles inbound phone calls using time rules, then only if the system time is correct will calls be handled properly. Also, call logs and debug logs recorded to the system events use system time.

You can set the CTN to obtain time from a NTP server from the Internet or you can manually set the time.

Please navigate to Web menu *PBX Settings->Time Settings*, choose a way of how the CTN gets its time configured. You can choose either NTP or manual.

By default the CTN is set to obtain time from a NTP server from the Internet. You just have to ensure the NTP server IP or domain is valid and you select the correct time zone, and then you click on "Sync" you'll get time synchronized from the NTP server.

Time Settings

Time Settings
● NTP   ○ Manual Time Set
NTP Server: pool.ntp.org   Sync
Time Zone: Asia/Chongqing   ▼
Save Cancel

If you wish to manually set the CTN time, tick on the "Manual Time Set" radio button. Then specify the current time and date. To specify the time more precisely you can synchronize from your operating system by clicking on "Sync" button. Once done, click on "Save" to write the time info into the hardware clock. See below figure.

Time Settings

Time Settings
○ NTP   ● Manual Time Set
Year: 2016   (YYYY, eg: 2010)
Month: 04   (MM, eg: 05)
Day: 01   (DD, eg: 08)
Hour: 13   (HH, eg: 09)
Minute: 45   (MM, eg: 30)
Synchronize with current PC time Sync
Save Cancel

3. Maintenance

3.1 System Info

At each login of the CTN Web GUI, you'll be first directed to *Home* page. Here on this page you can have a glance of system info. Please see below figure.

Home ↻

System Info

Network
WAN   IP: 192.168.10.148 MAC: 68:69:0A:3C:2E:06
LAN   IP: 192.168.1.148 MAC: 68:69:0B:3C:2E:06
Storage
Disk   Total: 5.3G   Used: 1.3G
Slot Info
1   2   4
FXO   FXS   N/A

Device Info
Model No.:   CTN-U20(V2)   System Version: 2.0.1

Current Time:03/30/16 14:18   Run Time:24 min

3.2 Operator Panel

On *Operator* page there are 3 sections Extensions, VoIP Trunks and FXO/GSM Ports

Operator ↻

Extensions

● Idle   ● Ringing   ● InUse   ⑩ Hold   ● UnAvailable

4501 4501(SIP)	4502 4502(SIP)	4503 4503(SIP)	4504 4504(SIP)	4505 4505(SIP)
4506 4506(SIP)	4507 4507(SIP)	4508 4508(SIP)	4509 4509(SIP)	4510 4510(SIP)
4511 4511(SIP)	4512 4512(SIP)	4513 4513(SIP)	4514 4514(SIP)	4515 4515(SIP)
4516 4516(SIP)	4517 4517(SIP)	4518 4518(SIP)	4519 4519(SIP)	4520 4520(SIP)

Total:20   Online:0   Current Call(s):0

VoIP Trunks

Status	Trunk Name	Type	Username	Hostname/IP/Port	Reachability
			No *VoIP Trunk* defined.		

FXO/GSM Ports

Status	Signal Strength	Type	Port	BLF Label
Disconnected		FXO	1	Channel1
OK		FXS	2	

In the "Extensions" section, you can see the real-time status of all extensions on this CTN. In "VoIP Trunks" section, you can see VoIP trunk status if there's any VoIP trunks been configured. In "FXO/GSM Ports" section you can see PSTN line connection status or GSM signal strength. If the CTN is an U80/U100V2, on this page there will be "E1/T1" or "BRI" trunk status section indicating E1/T1 or BRI lines connection status.

China
Add. Chengdu, China. Tel. +86 2885337096

UAE
Add. Dubai , UAE. Tel. +971 43552755

UK
Add. Doncaster, UK. Tel. +44(0)1302773162

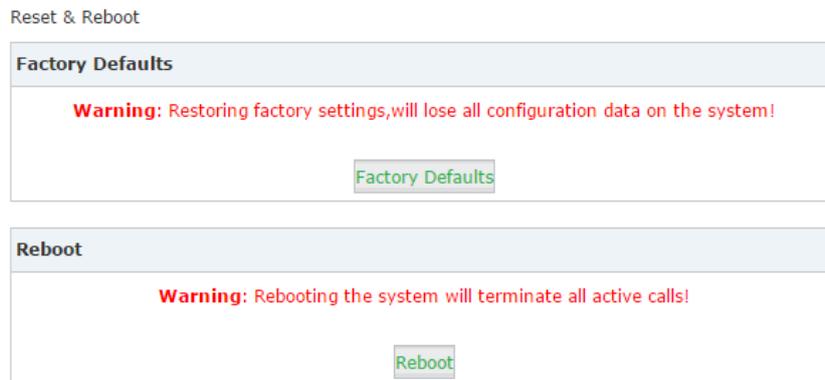ZYCOO   Zycoo Co., Ltd.
E-mail. zycoo@zycoo.com

3.3 CTN Reset & Reboot

To Reset or Reboot the CTN device, please navigate to Web menu *Node Settings->Reset & Reboot* page.

Reset the CTN will erase all configurations you have to program it from zero. Before doing this please think twice if you are sure about what you are going to do.

To reset the device please click on the "Factory Defaults" button and confirm the dialog. A reset will need a reboot and load factory configurations the whole process will take about 5 minutes.

A reboot of the CTN system will terminate all active phone calls going through this CTN, please make sure there's no active calls going on then you perform the reboot. The whole process will take around 3 minutes. Below figure is the reset and reboot menu.

Reset & Reboot

Factory Defaults

Warning: Restoring factory settings,will lose all configuration data on the system!

Factory Defaults

Reboot

Warning: Rebooting the system will terminate all active calls!

Reboot

3.4 CTN Mode to IPPBX Mode Switch

Is there any way that I can convert my CTN to IPPBX mode? The answer is yes.

Please navigate to Web menu *PBX Settings->Mode Settings*. Here on this page you are able to convert this CTN to IPPBX mode and use the IPPBX software facilities.

Mode Settings

Change to IP PBX Mode
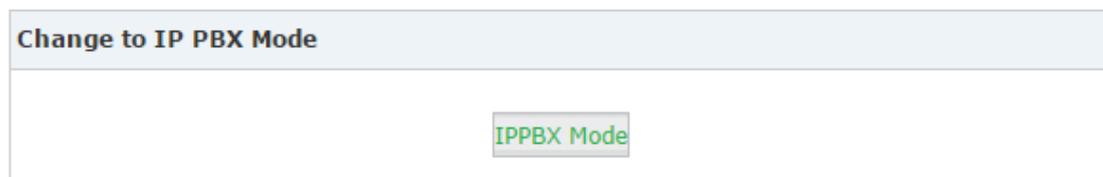
IPPBX Mode

Please click on the "IPPBX Mode" and confirm the dialog the CTN will reboot, after rebooting you may need to refresh the CTN login page then you get IPPBX login page.

CTN User Manual   Firmware Version V2.0.2

China	UAE	UK
Add. Chengdu, China. Tel. +86 2885337096	Add. Dubai , UAE. Tel. +971 43552755	Add. Doncaster, UK. Tel. +44(0)1302773162

ZYCOO Zycoo Co., Ltd.   E-mail. zycoo@zycoo.com

3.5 Logs

Call logs and system logs of the CTN will be kept locally on the CTN file system and can be accessed from the CTN Web interface.

From the CTMC server side, administrator can also fetch these logs remotely on the CTMC server Web interface.

3.5.1 Call Logs

Call logs are the reports of all calls went inbound and outbound through this CTN system. Navigate to *Report->Call Logs* page you are able to trace all the call history. Filter criteria including Caller ID, Destination ID and Account Code.

Caller ID is used to filter the call history of which the number is the caller, no matter it is an external number or extension number.

Destination ID is used to filter the call history of which the number is the callee. No matter it is an external number or extension number.

Account Code is also known as PIN code the PIN codes are defined by the CTMC administrator to authorize outbound phone calls. By specifying an account code to filter the call logs you'll get the call history of the PIN code holder.

Call Logs

Start Date:	Mar ▼ 31 ▼ 2016 ▼	Field: Caller ID ▼		Filter
End Date:	Mar ▼ 31 ▼ 2016 ▼			Download

Call Start	Caller ID	Destination ID	Account Code	Duration(sec)	Disposition
2016-03-31 10:46:45	4501 <4501>	4502		16	Answered
2016-03-31 10:42:16	4501 <4501>	4502		9	Answered
2016-03-31 10:41:47	4501 <4501>	4502		11	Answered
2016-03-31 10:37:24	4501 <4501>	4502		41	Answered
2016-03-31 10:28:18	4501 <4501>	4502		8	Answered
2016-03-31 10:26:49	4501 <4501>	4502		14	Answered
2016-03-31 10:21:41	4501 <4501>	4502		4	Answered
2016-03-31 10:08:19	4501 <4501>	4502		5	Answered
2016-03-31 10:07:48	4501 <4501>	4502		6	Answered
2016-03-31 10:07:22	4501 <4501>	4502		6	Answered
2016-03-31 09:53:22	4501 <4501>	4502		14	Answered
2016-03-31 09:50:23	4501 <4501>	4502		34	Answered
2016-03-31 09:49:04	4501 <4501>	4502		6	Answered
2016-03-31 09:48:41	4501 <4501>	4502		11	Answered

By clicking on the "Download" button you can download the searching results as a CSV file to your desktop.

3.5.2 System Logs

These logs are IPPBX journals which store all system activities. They can be used for debug purpose if the system is running into exception. Please do not enable these logs if the system is functioning properly as debug information creates large log files which consume space and also utilize system resources.

CTN User Manual   Firmware Version V2.0.2

China
Add. Chengdu, China. Tel. +86 2885337096

UAE
Add. Dubai , UAE. Tel. +971 43552755

UK
Add. Doncaster, UK. Tel. +44(0)1302773162

ZYCOO   Zycoo Co., Ltd.
E-mail. zycoo@zycoo.com

System Logs

System Logs		
Enable System Log: ✔		Enable PBX Log: ✔
Enable PBX Debug Log: ✔		Enable Access Log: ✔

Save Cancel

List of Logs ↻			Download Selected	Delete Selected
☐	Name	Type		Options
☐ 1	debug20160330.log	Debug Log		Delete Download
☐ 2	login201603.log	Login Log		Delete Download
☐ 3	pbx20160330.log	PBX Log		Delete Download
☐ 4	sys20160330.log	System Log		Delete Download

If one of these logs being turned on, in the "List of Logs" section there will be log files generated. System, PBX and PBX debug logs will be generated every day in a separated file. Access logs will be generated every month in a separated file.