



Grandstream Networks, Inc.

How to Interconnect Multiple UCM6XXX series IP PBX



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OVERVIEW

This document describes basic configuration to interconnect two UCM6XXX series. In this example, we will be using two UCM6202. The two locations that will be used in this example are Boston, MA and Los Angeles, CA. The following methodology can be used for all UCM6XXX series. This is typically applied to the scenario where users would like to have UCM6XXX share trunks as well as call from one UCM6XXX extension to the other.

Note: UCM6XXX series include UCM6100 series (UCM6102, UCM6104, UCM6108 and UCM6116), UCM6200 series (UCM6202, UCM6204 and UCM6208) and UCM6510.

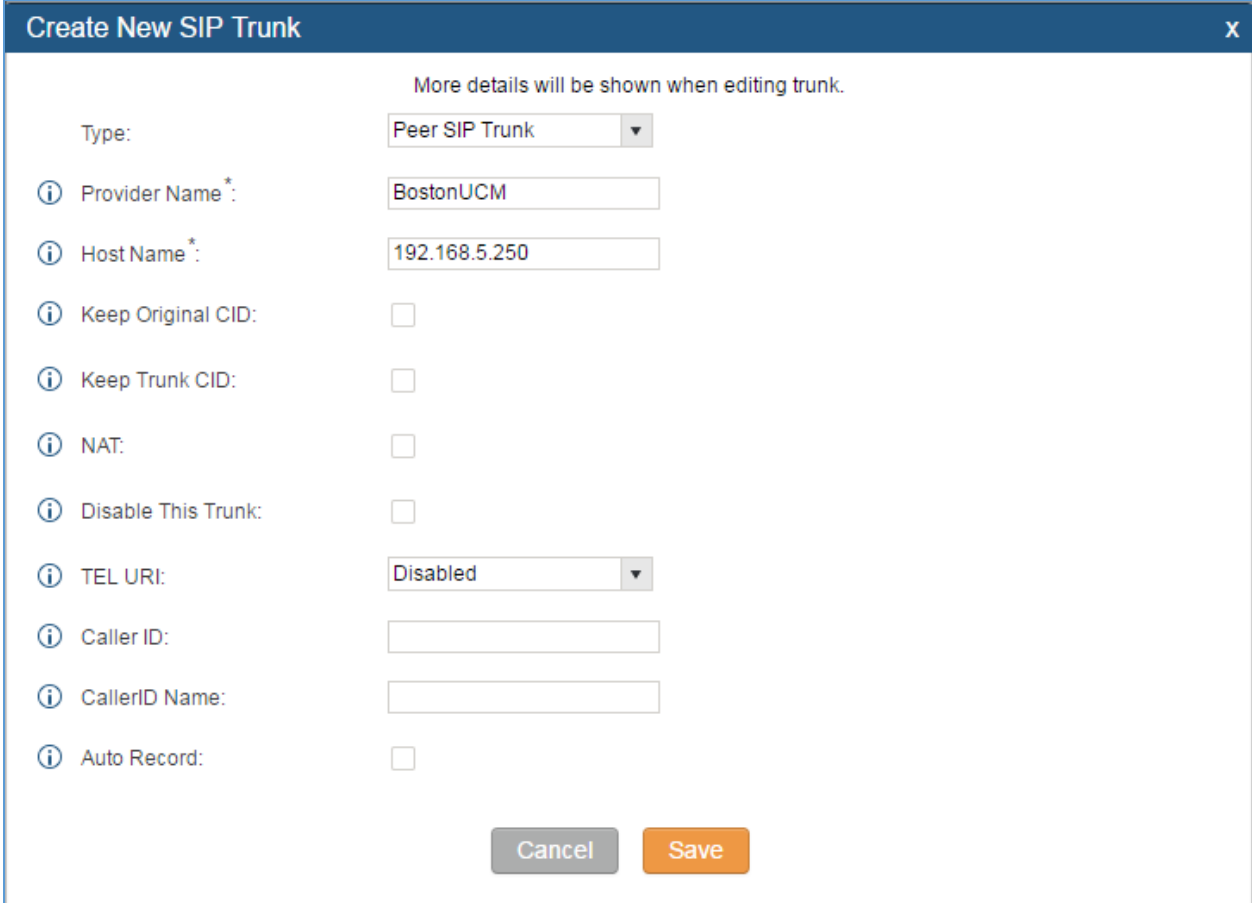
CONNECTING TWO UCM6XXX USING PEER SIP TRUNK

Create Peer SIP trunk for UCM6XXX

On the Los Angeles UCM6XXX web GUI, create a Peer SIP Trunk by navigating to **PBX->Call Features->VoIP Trunks** and click on “Create New SIP/IAX Trunk”.

In the “Create New SIP/IAX Trunk” screen:

- Select “Peer SIP Trunk” for Type.
- Enter a reference name for Provider Name. This is mainly for reference. In this example Boston is used.
- For Host Name enter the IP address/domain of the UCM2. In this case bostonucm.com is the domain of the other UCM6XXX.
- Click Save when done.



Create New SIP Trunk X

More details will be shown when editing trunk.

Type:

Provider Name*:

Host Name*:

Keep Original CID:

Keep Trunk CID:

NAT:

Disable This Trunk:

TEL URI:

Caller ID:

CallerID Name:

Auto Record:

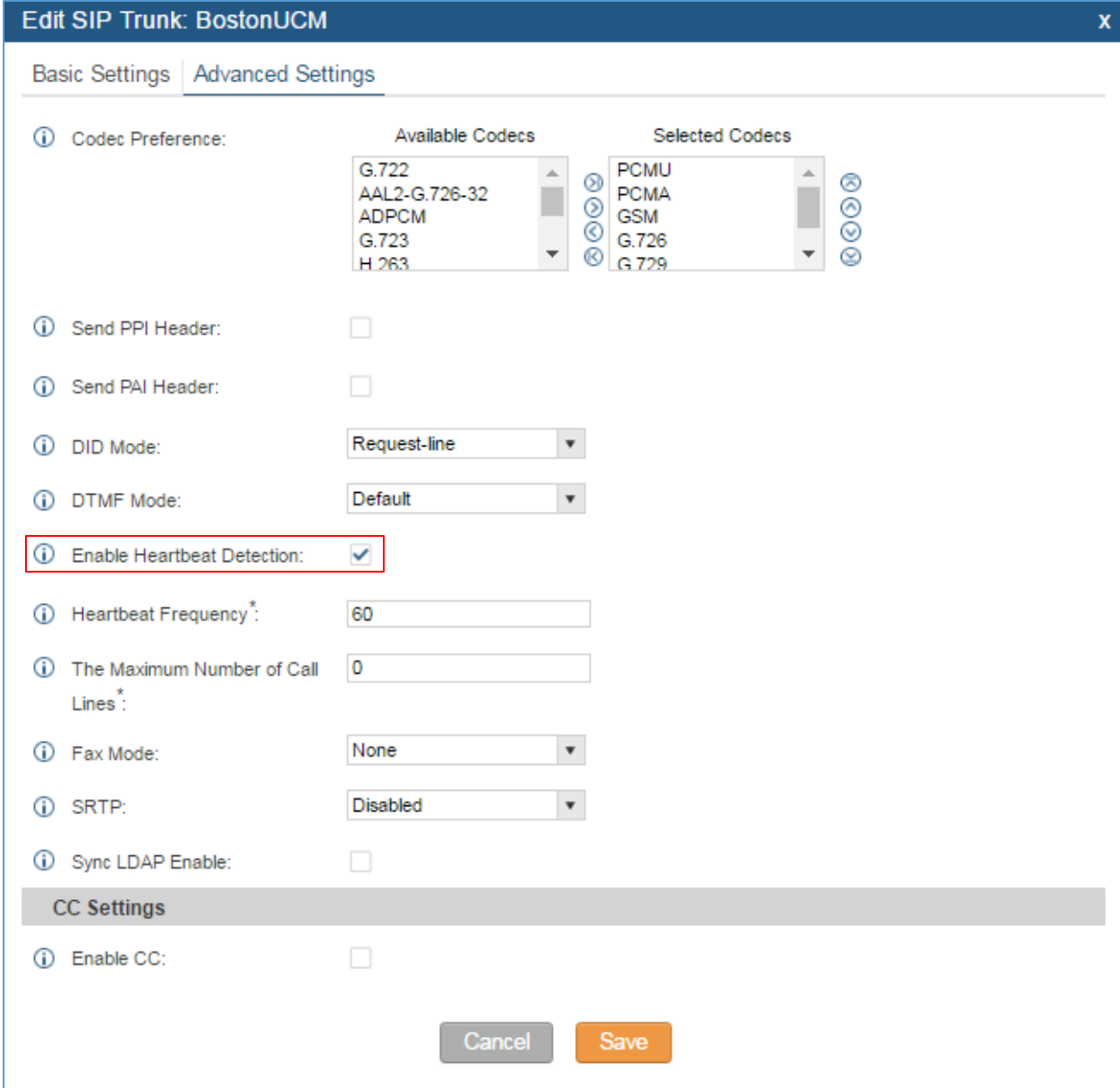
Figure 1: SIP Trunk - Create New SIP Trunk



- After clicking Save the new VoIP trunk will be displayed under **PBX->Call Features->VoIP Trunks**.

Click the edit pen .

- Locate the option labeled Enable Heartbeat Detection and enable this option by clicking the check box. This is a SIP option that allows UCM1 to monitor the status of UCM2.



Edit SIP Trunk: BostonUCM [X]

Basic Settings | **Advanced Settings**

① Codec Preference:

Available Codecs	Selected Codecs
G.722	PCMU
AAL2-G.726-32	PCMA
ADPCM	GSM
G.723	G.726
H.263	G.729

① Send PPI Header:

① Send PAI Header:

① DID Mode: Request-line

① DTMF Mode: Default

① Enable Heartbeat Detection:

① Heartbeat Frequency*: 60

① The Maximum Number of Call Lines*: 0

① Fax Mode: None

① SRTP: Disabled

① Sync LDAP Enable:

CC Settings

① Enable CC:

Cancel Save

Figure 2: SIP Trunk - Set Enable Qualify

- Click Save when done.

Once the trunk has been created and **Enable Heartbeat Detection** is set, users can view the status of the peered trunk by navigating to the **Status** page.



Trunks ↻ [-]				
Status ⬆	Trunks	Type	Username	Port/Hostname/IP
Reachable	BostonUCM	SIP		192.168.5.250

Total: 1 Show: 1/1 Go to:

Figure 3: SIP Trunk - Trunk Status

If the status of the trunk displays “Unreachable” it means that Los Angeles UCM6XXX and Boston UCM6XXX are unable to reach each other. Ensure physical connectivity of both devices. Also verify that from the Los Angeles network the Boston UCM6XXX is responding to ping and vice versa.

Note: The steps above will need to be performed on The Boston UCM6XXX as well. When configuring the Boston UCM6XXX, set the Peered SIP Trunk host name as the Los Angeles UCM6XXX IP or domain.

Configure Outbound Rule On UCM6XXX

On the Los Angeles UCM6XXX web GUI, go to PBX->Basic/Call Routes->Outbound Routes to create a new outbound rule. This would allow the extension on the Los Angeles UCM6XXX to reach extensions on Boston UCM6XXX.

Here’s what to configure:

- **Calling Rule Name:** This is for reference purposes so we chose to use “toBostonUCM”.
- **Pattern:** the pattern used in this example was 1XX since the Boston UCM6XXX is using an extension range of 100-199.
- **Privilege Level:** configured as “Internal”. This can be changed to regulate which users can make outbound calls through this particular route.
- **User Trunk:** Since we are configuring the Los Angeles UCM6XXX, we’ll select the SIP Peer Trunk –BostonUCM.
- Click on Save.



Create New Outbound Rule X

Calling Rule Name * :

Pattern * :

Disable This Route:

Call Duration Limit:

PIN Groups:

Password:

Privilege Level: Warning: Setting privilege level at "Internal" has potential security risks.

Enable Filter on Source Caller ID:

Send This Call Through Trunk

Use Trunk * :

Strip:

Prepend:

Use Failover Trunk:

Trunks	Strip	Prepend	Options
Click to add failover trunk			

Time Condition

Time Condition	Time	Options
Click to add Time Condition		

Figure 4: Outbound Rule - Create New Outbound Rule

In this example, "_1XX" means that when a user on the Los Angeles UCM6XXX dials a 3-digit number that has a leading "1" it will use this route and send the call out to the Boston UCM6XXX.

Note: These steps will also apply when configuring the outbound route from Boston UCM6XXX to the Los Angeles UCM6XXX. The only difference in the configuration is the Pattern and the Use Trunk. Since the Los Angeles UCM6XXX has an extension range of 200-299, then the Boston UCM6XXX would configure the outbound route Pattern as "_2XX".



Configure Inbound Rule On UCM6XXX

To configure the Inbound Rule, navigate to the web GUI, go to **PBX->Basic/Call Routes->Inbound Routes** to create a new inbound rule.

For this example, the Los Angeles UCM6XXX inbound rule needs be configured so that when Boston's UCM dials a LosAngeles UCM extension it will be routed to the specified user.

On the LosAngeles UCM6XXX configure the following:

- **Trunks:** Select the BostonUCM trunk.
- **DID Pattern:** Enter in the pattern “_2XX”.
- **Privilege Level:** Internal.
- **Default Destination:** By DID.

Create New Inbound Rule
X

Trunks* SIPTrunks -- BostonUCM ▼

DID Pattern* _2XX

Disable This Route:

Prepend Trunk Name:

Prepend User Defined Name:

Alert-info: None ▼

Inbound Multiple Mode:

Dial Trunk:

DID Destination:

Extension
 Conference
 Call Queue
 Ring Group

Paging/Intercom Groups
 IVR
 Voicemail Groups

Fax Extension
 Dial By Name
 All

Default Mode | **Mode 1**

Default Destination* By DID ▼

Strip: 0

Prepend:

Time Condition			
Time Condition	Time	Destination	Options
Click to add Time Condition			

Cancel
Save

Figure 5: Inbound Rule - Create New Inbound Rule

With this inbound rule configured, if a user from Boston dials an extension anywhere between 200-299, it will send it over to the Los Angeles UCM, then the Los Angeles UCM will use the inbound rule above to determine where to route the call. In this case the default destination is set to “By DID”, which will route the call based on the digits dialed by the Boston user.

These steps will also be used to create an inbound rule on the Boston UCM6XXX so that when a Los Angeles user dials a number that ranges from 100-199(Boston extensions range), it will be routed to a



Boston user.

Here's what to configure on the Boston UCM6XXX Inbound Rule:

- **Trunks:** Select the LosAngelesUCM.
- **DID Pattern:** Enter in the pattern “_1XX”.
- **Privilege Level:** Internal.
- **Default Destination:** By DID.