



Grandstream Networks, Inc.

Connecting GXW450x with UCM6200/UCM6510



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INTRODUCTION

This document describes basic configuration to interconnect GXW450x with UCM6XXX series. This is typically applied to the scenario where users would like to use T1/E1/J1 interface with UCM62XX or add more T1/E1/J1 interfaces to UCM6510.

Environment Setup

The following illustration show the typical setup that will be used in this guide:



Figure 1: Typical Architecture

To achieve this scenario, following main steps need performed:

1. Create SIP Peer Trunk between GXW450X and UCM6XXX. This step must be done on both ends, refer to:
 - a. [Create Peer SIP trunk on GXW450X](#)
 - b. [Create Peer SIP trunk on UCM6XXX](#)
2. Configuring call routing: This will allow to forward calls from Digital to VoIP and vice-versa.
 - a. [From GXW450X \(Digital\) to UCM6XXX \(VoIP\)](#)
 - b. [From UCM6XXX \(VoIP\) to GXW450X \(Digital\)](#)

In this guide, we will be using a GXW4501 as a digital interface for the UCM6202. The following methodology can be used for all UCM6XXX series.

Note: T1/E1/J1 trunk configuration (marked as “B” in figure 1) is out of the scope of this document, for more details, refer to [GXW4500 User Manual](#). We will consider that GXW450X is connected to the ISDN network, the port type, channels and digital trunk “Digital_1” are already configured. The guide covers needed configuration between GXW450X and UCM6XXX only (marked as “A” in Figure 1). The configuration between UCM6XXX and endpoints (marked as “C” in Figure 1) is also not covered in this guide, for more details, refer to [UCM6200 User Manual](#) or [UCM6510 User Manual](#).

CONNECTING GXW450X and UCM6XXX USING PEER SIP TRUNK

Create Peer SIP trunk on GXW450X

On the GXW450X web GUI, create a Peer SIP Trunk by navigating to **Trunks** → **VoIP Trunks** and click on “Add SIP Trunk”.

In the “Create New SIP Trunk” screen:

1. Select “Peer SIP Trunk” for Type.
2. Enter a reference name for Provider Name. This is mainly for reference. In this example Trunk_test is used.
3. For Host Name enter the IP address/domain of the UCM6202. In this case **192.168.5.190** is the IP address of the UCM6202.
4. Click Save when done.

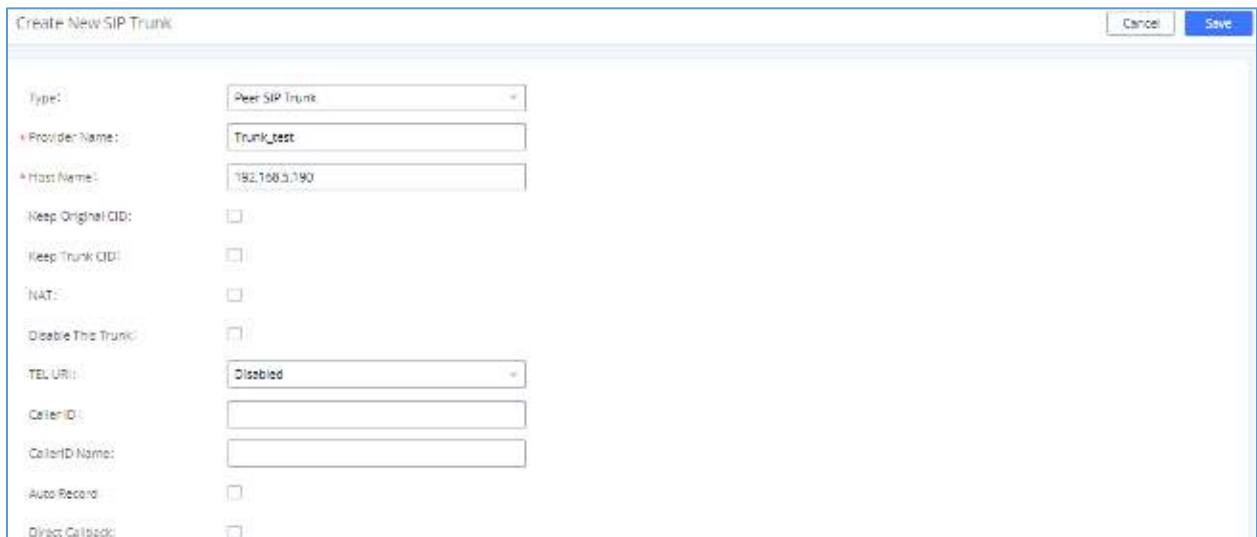
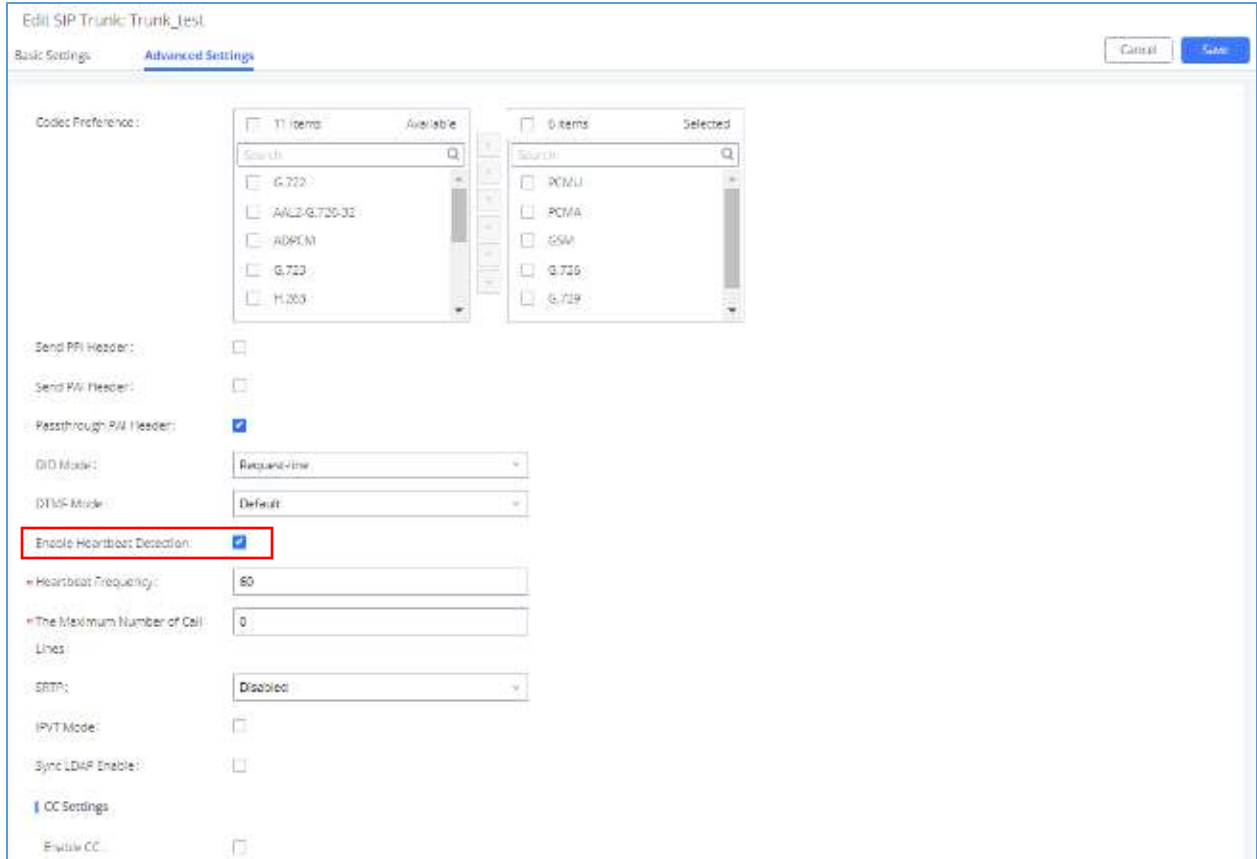


Figure 2: SIP Trunk - Create New SIP Trunk on GXW4501

5. After clicking “Save” the new VoIP trunk will be displayed under **Trunks** → **VoIP Trunks**.
6. Click edit button .
7. Locate the option labeled Enable Heartbeat Detection and enable this option by clicking the check box. This is a SIP option that allows GXW4501 to monitor the status of UCM6202.





Edit SIP Trunk: Trunk_test
 Basic Settings | **Advanced Settings** | Cancel | Save

Codec Preference:

11 items Available

Search:

G.722
 AAC2-G.726-32
 ADPCM
 G.723
 H.263

0 items Selected

Search:

PCMU
 PCMA
 GSM
 G.726
 G.729

Send PFI Header: ☐
 Send PW Header: ☐
 Passthrough PW Header: ☒
 DID Mode: Request-Line
 DTMF Mode: Default
Enable Heartbeat Detection: ☒
 Heartbeat Frequency: 60
 The Maximum Number of Call Lines: 0
 SIP: Disabled
 IPVT Mode: ☐
 Sync LDAP Enable: ☐
 CC Settings
 Enable CC: ☐

Figure 3: SIP Trunk - Set Enable Heartbeat on GXW4501

8. 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 **Dashboard** page.

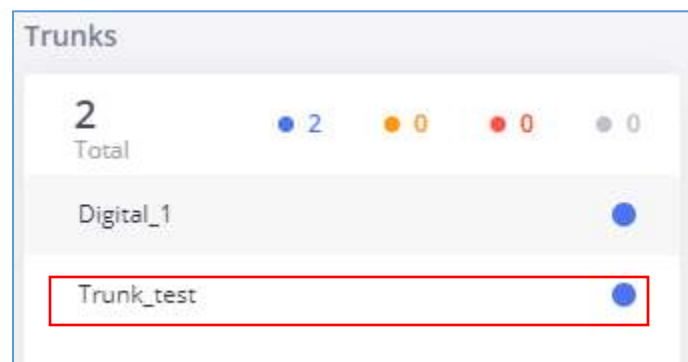


Figure 4: SIP Trunk - Trunk Status on GXW4501

Create Peer SIP trunk on UCM6202

On the UCM6202 web GUI, create a Peer SIP Trunk by navigating to **Extension / Trunk** → **VoIP Trunks** and click on “Add SIP Trunk”.

In the “Create New SIP Trunk” screen:

1. Select “Peer SIP Trunk” for Type.
2. Enter a reference name for Provider Name. This is mainly for reference. In this example “Trunk_test” is used.
3. For Host Name enter the IP address/domain of the GXW450X. In this case **192.168.5.129** is the IP address of the GXW4501.
4. Click Save when done.

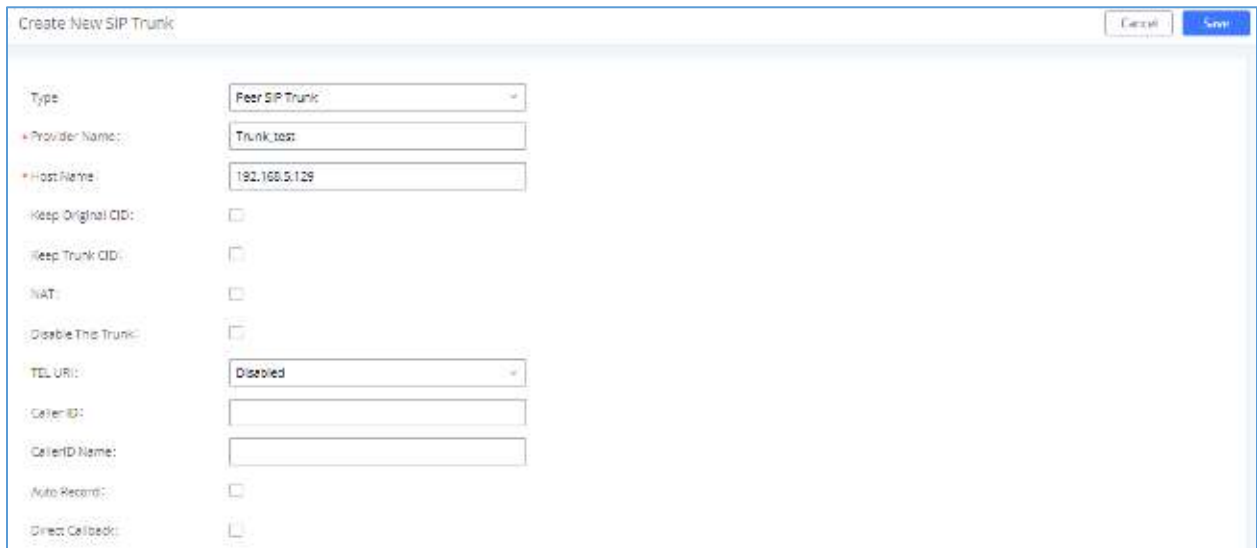


Figure 5: Create new SIP trunk on UCM6202

5. After clicking “Save” the new VoIP trunk will be displayed under **Trunks** → **VoIP Trunks**.
6. Click edit button  .
7. Locate the option labeled Enable Heartbeat Detection and enable this option by clicking the check box. This is a SIP option that allows UCM6202 to monitor the status of GXW4501.

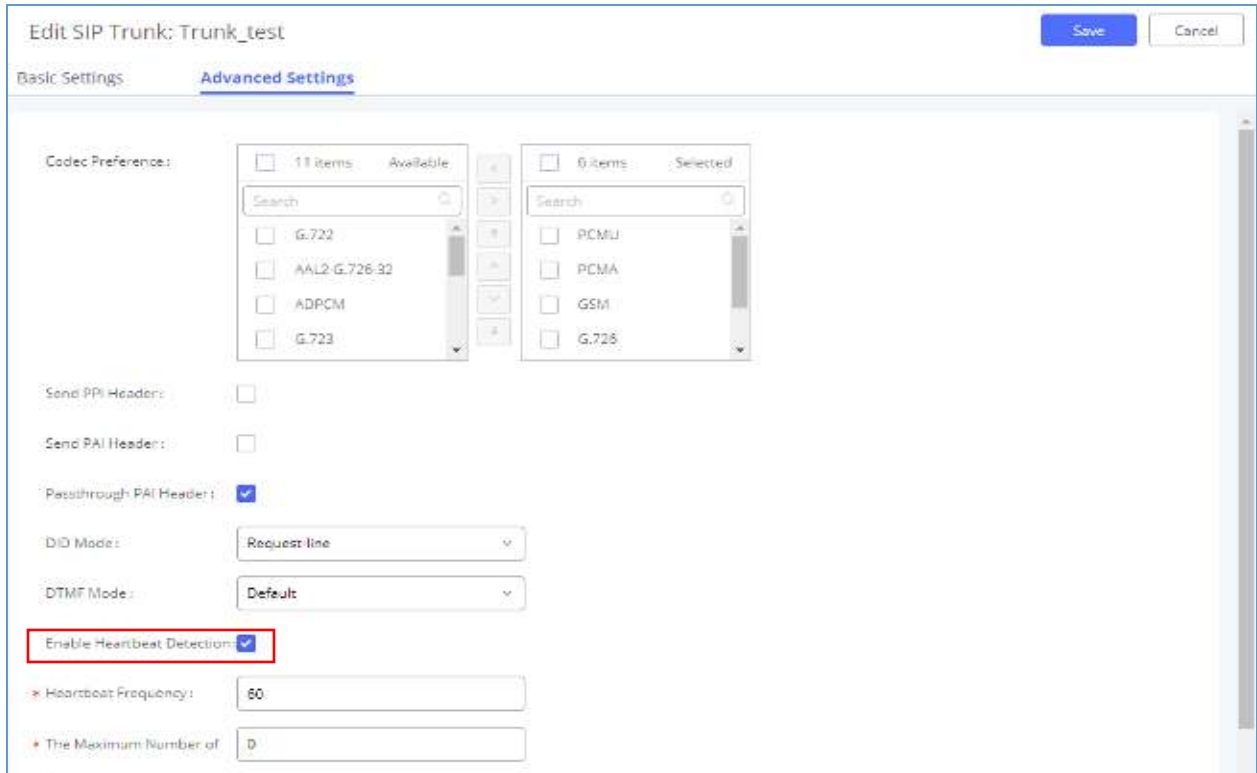


Figure 6: SIP Trunk - Set Enable Heartbeat on UCM6202

8. 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 **Dashboard** page.

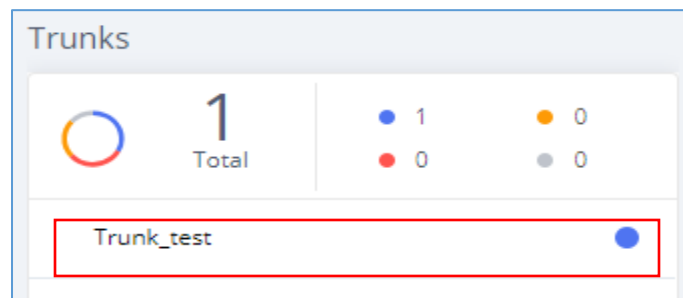


Figure 7: SIP Trunk - Trunk Status on UCM6202

Note: If the status of the trunk displays “Unreachable” it means that the UCM6XXX and GXW450X are not able to reach each other. Ensure physical connectivity of both devices.

CONFIGURE CALL ROUTING

From GXW450X (Digital) to UCM6XXX (VoIP)

This section will guide you in order to forward the calls coming from Digital network to VOIP network.

Step 1: Configure Inbound Rule on GXW450X

In order to receive the inbound calls coming from the ISDN trunk, we need first to create an inbound route under **Trunks** → **Inbound Routes** for the PRI Trunk to define the incoming calls allowed.

Following needs to be configured:

- **Pattern:** the pattern used in this example is the DID for this trunk “**_0612345678**” to allow incoming calls coming from the PRI Trunk: **Digital_1**.



Figure 8: Create new inbound rule on GXW450x

Click on Save then Apply Changes to apply the new settings.

Step 2: Configure Outbound Rule on GXW450X

In order to route the calls coming from ISDN to the UCM, on the GXW4501 web interface, go to **Trunks** → **Outbound Routes** to create a new outbound rule which will allow the digital network to reach the extension on UCM6202.

Following needs to be configured:

- **Calling Rule Name:** This is for reference purposes, so we chose to use “to190”.
- **Pattern:** the pattern used in this example is “**_0612345678**” since will be receiving the call from **Digital_1** and allow this number to be dialed out to the UCM6202 from the digital network.
- **Trunk:** Since we are configuring the GXW4501, we will select the SIP Peer Trunk “Trunk_test”, in order to send the call out to the UCM6202.

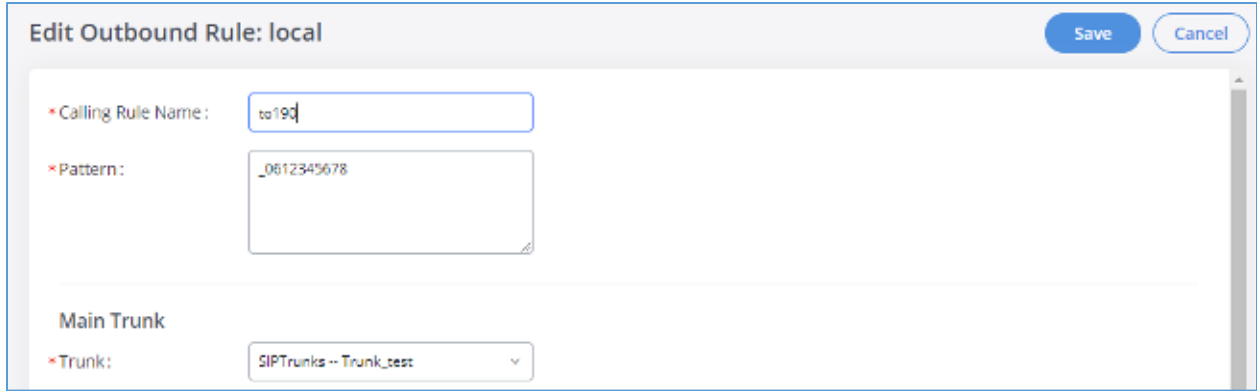


Figure 9: Create new outbound rule on GXW4501

Click on Save then Apply Changes to apply the new settings.

Step 3: Configure Inbound Rule on UCM6XXX

These steps will also be used to create an inbound rule on the UCM6202 so that when it receives an incoming call from the ISDN network it will redirect to the configured default destination.

Following needs to be configured on the UCM6202 Inbound Rule:

- **Trunks:** Select the Trunk_test.
- **DID Pattern:** Enter in the pattern “_0612345678”.
- **Default Destination:** Extension 2000.

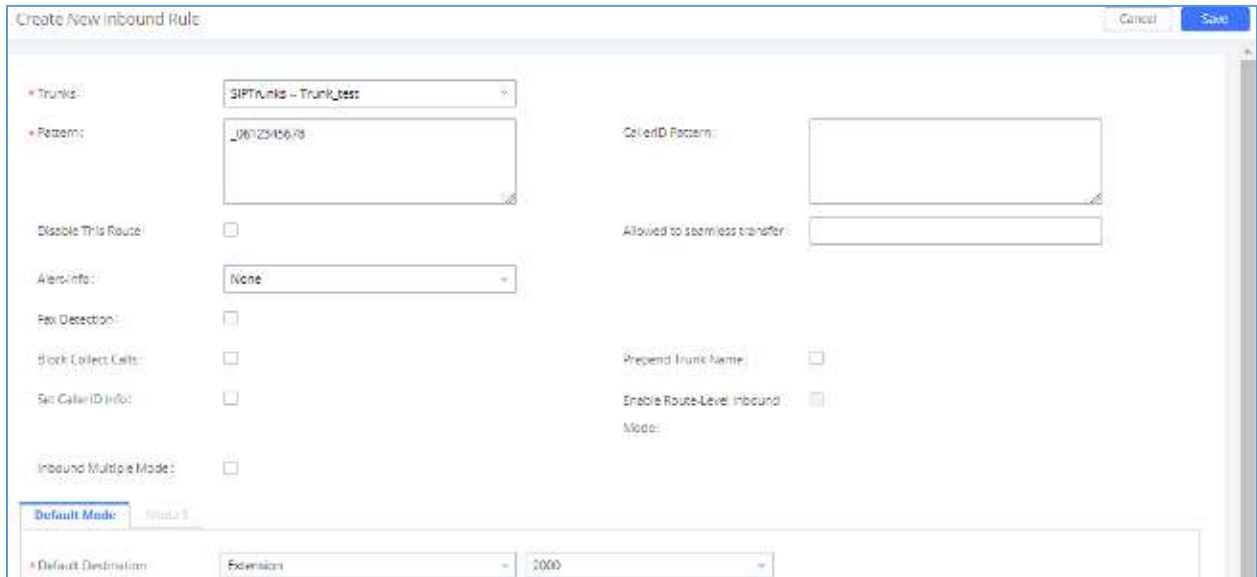


Figure 10: Create new inbound rule on UCM6202

From UCM6XXX (VoIP) to GXW450X (Digital)

This section will guide you in order to forward the calls coming from VoIP network to Digital network.

Step 1: Configure Outbound Rule on UCM6xxx

Same steps will also be applied when configuring the outbound route from the UCM6202 to the GXW4501. The only difference in the configuration is the Pattern and the Main Trunk. Since will be using the pattern “_06X.” to reach Digital network on the GXW4501 and select the trunk between UCM6202 and GXW4501.

The screenshot shows the 'Create New Outbound Rule' configuration window. The 'General' tab is active. The 'Calling Rule Name' field contains 'to129'. The 'Pattern' field contains '_06X.'. The 'Disable This Route' checkbox is unchecked. The 'Privilege Level' dropdown is set to 'National'. The 'PIN Groups' dropdown is set to 'None'. The 'PIN Groups with Privilege' checkbox is unchecked. The 'Password' field is empty.

Figure 11: Create new Outbound Rule on UCM6202

Step 2: Configure Inbound Rule on GXW450x

To allow the inbound calls coming from the UCM6202 on the GXW4501 we need to configure the Inbound Rule, to do so, navigate to the web GUI, go to **Trunks** → **Inbound Routes** to create a new inbound rule.

For this example, GXW4501 inbound rule needs to be configured so that when the UCM dials a digital network's number it will be routed to the specified user.

On the GXW4501 configure the following:

- **Trunks:** Select the Trunk_test trunk.
- **Pattern:** Enter in the pattern “_06X.”.



Figure 12: Create new inbound rule on GXW4501

With this inbound rule configured, if an extension of the UCM6202 dials an external number, it will send it over the gxw4501.

Step 3: Configure Outbound Rule on GXW450x

In order to define which Digital trunk the GXW4501 will choose to send the call from, we need to configure the Outbound Rule, under **Trunks** → **Outbound Routes**.

Following needs to be configured:

1. **Calling Rule Name:** This is for reference purposes, so we chose to use “longDistance”.
2. **Pattern:** the pattern used in this example is “_06x” since will be receiving the call from the UCM6202 with number starting with “06”.
3. **Trunk:** Since we want the call to be sent to the Digital Line, we need to select our ISDN trunk **Digital_1**.

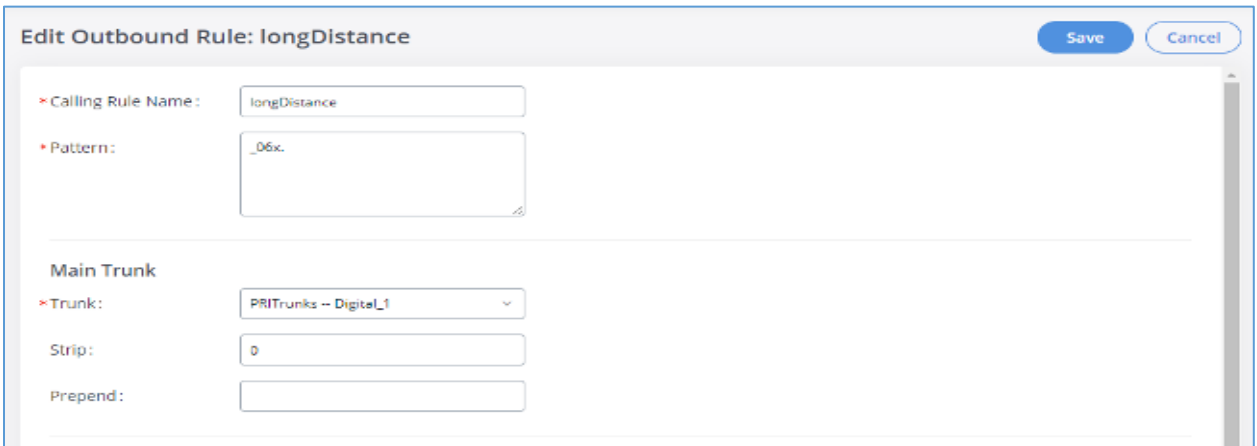


Figure 13: Create new outbound rule on GXW4501

Note: If using multiple digital trunks on the GXW45xx, we can differentiate between them by using different pattern on the outbound rules and selecting the desired trunk that will match the best pattern.

