

E-MetroTel APPLICATION NOTE for Bell Canada SIP Trunking

Date: 16 September 2016

System: UCx

Release: 5.0

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1. Introduction

This Application Note describes the steps to configure a SIP trunk between Bell Canada SIP Trunking Service and an E-MetroTel UC^X Server.

E-MetroTel

E-MetroTel UC^X Server is a cost-effective SIP Based Unified Communications solution that helps customers extend the use of their existing IP, Digital and Analog telephones. This helps employees be more productive and collaborative by using new UC capabilities - while leveraging the existing telephony investments and reducing ongoing maintenance cost. UC^X supports SIP phones from multiple vendors as well giving customers choice of devices, both hard phones and soft clients, including the E-MetroTel WebRTC.

Bell Canada

Bell SIP Trunking provides a voice gateway to the public switched telephone network (PSTN), replacing multiple physical PRI/T1 connections and voice gateways with a scalable, flexible two-way access solution. Bell SIP trunking allows PSTN interconnection to anywhere in Canada – all from a single connection that supports a wide range of voice and data services.

2. Components

2.1 Hardware Components

UCx Server Platform	UCx50E
UCx Software Release	5.0
IP Phones	Generic SIP phones
Bell SBC	ACME Packet 4500
Bell SBC Load	SCX6.3.6 MR-2 Patch 1

2.2 Features

The following is a list of the features that have been validated as part of the Interoperability Test Plan with Bell Canada SIP Trunking. It does not represent the complete list of features available and supported with E-MetroTel UC^X Server.

Features Supported

- G.711 calls
- G.729 calls
- RFC 2833 DTMF
- Inband (Q.24) DTMF
- Call redirection to Voicemail
- All PSTN numbering plans
- Calling Number Presentation
- Calling Name Presentation
- Private and Unknown calls
- Call Hold and Resume, with and without music
- Call Forward (All, No Answer, Busy)
- Blind Transfer
- Attended Transfer
- Call Park
- Conference
- Failover from primary Bell SBC pair to secondary SBC pair
- Concurrent calls
- Long duration calls
- Active calls maintained during session audits

Features Not Supported

- Trunk Group Selection with “tgrp” tag
- Calling Party Number Presentation using diversion headers
- Calling Party Name Presentation using diversion headers
- Call Forward to External Number with 302 response
- Call Forward to External Number with Refer
- Blind Transfer with Refer

Features Supported by E-MetroTel and Bell Canada but not tested

- Fax Protocol T.30 over G.711

3. Configuration

This section describes the configuration steps on the UC^X Server to interoperate with Bell Canada SIP Trunking.

3.1 STEP ONE: Configure IP Trunk

There are two presentation modes supported for Outgoing Name & Number Display (ONND):

- **Static** is meant for service-provider control of calling names and numbers (pre-provisioned, with optional number overrides) within the Bell core network.
- **Dynamic** is meant for CPE/PBX control of calling names and numbers, dynamically determined for each call, within the customer's voice network.

3.1.1 Static ONND

- Open the UC^X Web-based Configuration Utility.
- From the **PBX** tab, select **IP Trunk Assistant**.
- Press the **New Account** button.
- Enter a unique name for this account in the **Account Name** field. (It is recommended that you do not use spaces in the name.)
- From the **Trunk Provider** drop down list, select **Bell Canada**.
- Enter the **User Name** and **Secret** provided by Bell Canada.
- Optionally enter the **Outbound CallerID** number.
- From the **ONND Mode** drop down list, select **Static**.
- Enter the **Host/IP** address provided by Bell Canada.
- Enter the **From Domain** as assigned by Bell Canada for the static ONND mode.
- The rest of the fields are pre-filled with default values that have been tested and verified by E-MetroTel.

IP Trunk Assistant

Save Cancel

Account Settings

Account Name: * bellcanada

Trunk Provider: Bell Canada ▾

Status: Enabled ▾

User Name: * XXXXXX_XXXXXXXXXXXXXXX_XXX

Secret: * XXXXXXXX

Outbound CallerID: 613XXXXXXXX

ONND Mode: Static ▾

Configuration Details

Type: peer ▾ Technology: SIP ▾

Qualify: yes ▾ Can Reinvite: no ▾

Insecure: port,invite ▾ Send RPID: no ▾

DTMF Mode: rfc2833 ▾ Trust RPID: yes ▾

DTLS-SRTP: no ▾ ICE: no ▾

Host / IP: * XXX.XXX.XXX.XXX

Context: * from-trunk

Disallow: all

Allow: ulaw,alaw

From User:

From Domain: * bell.assigned.domain

- Press the **Save** button to create the account.
- The corresponding trunk for this account is automatically created and immediately enabled.
- You can view the details of the trunk created by going to the **PBX Configuration - Trunks** page.

PEER Details for Static ONND Mode

```
username=XXXXX_XXXXXXXXXX_01A
type=peer
trustpid=yes
sendrpid=no
secret=XXXXXXXX
qualify=yes
permit=XXX.XXX.XXX.XXX/255.255.255.0
onnd_mode=static
insecure=port,invite
host=XXX.XXX.XXX.XXX
fromdomain=bell.assigned.domain
dtmfmode=rfc2833
disallow=all
deny=0.0.0.0/0.0.0.0
context=from-trunk
canreinvite=no
allow=ulaw,alaw
```

3.1.2 Dynamic ONND

- Open the UC^X Web-based Configuration Utility.
- From the **PBX** tab, select **IP Trunk Assistant**.
- Press the **New Account** button.
- Enter a unique name for this account in the **Account Name** field. (It is recommended that you do not use spaces in the name.)
- From the **Trunk Provider** drop down list, select **Bell Canada**.
- Enter the **User Name** and **Secret** provided by Bell Canada.
- From the **ONND Mode** drop down list, select **Dynamic**.
- Enter the **Host/IP** address provided by Bell Canada.
- Enter the **From Domain** as assigned by Bell Canada for the dynamic ONND mode.
- The rest of the fields are pre-filled with default values that have been tested and verified by E-MetroTel.

IP Trunk Assistant

Save Cancel

Account Settings

Account Name: * bellcanada

Trunk Provider: Bell Canada ▾

Status: Disabled ▾

User Name: * XXXXX_XXXXXXXXXX_XXX

Secret: * XXXXXXXX

Outbound CallerID:

ONND Mode: Dynamic ▾

Configuration Details

Type: peer ▾ Technology: SIP ▾

Qualify: yes ▾ Can Reinvite: no ▾

Insecure: port,invite ▾ Send RPID: no ▾

DTMF Mode: rfc2833 ▾ Trust RPID: yes ▾

DTLS-SRTP: no ▾ ICE: no ▾

Host / IP: * XXX.XXX.XXX.XXX

Context: * from-trunk

Disallow: all

Allow: ulaw,alaw

From User:

From Domain: * bell.assigned.domain

- Press the **Save** button to create the account.
- The corresponding trunk for this account is automatically created and immediately enabled.

- You can view the details of the trunk created by going to the **PBX Configuration - Trunks** page.

PEER Details for Dynamic ONND Mode

```
username=XXXXX_XXXXXXXXXX_01A
type=peer
trustpid=yes
sendrpid=no
secret=XXXXXXXX
qualify=yes
permit=XXX.XXX.XXX.XXX/255.255.255.0
onnd_mode=dynamic
insecure=port,invite
host=XXX.XXX.XXX.XXX
fromdomain=bell.assigned.domain
dtmfmode=rfc2833
disallow=all
deny=0.0.0.0/0.0.0.0
context=from-trunk
canreinvite=no
allow=ulaw,alaw
```

3.1.3 Failover Trunk

For redundancy, you need to configure a secondary SIP trunk. Repeat the steps in section 3.1.1 or 3.1.2 to create a secondary Bell Canada SIP trunk.

There are two different **Host/IP** addresses provided by Bell Canada, one for the primary and another for the secondary SIP trunk.

3.2 STEP TWO: Configure Inbound Route

- From the **PBX** tab, select **Inbound Routes**.
- Enter a name for the route in the **Description** field.
- Enter the **DID Number** and/or the **CallerID Number** specific to the Bell Canada trunks.
- Select a destination from the **Set Destination** pull down list.
- Press the **Submit** button.

3.3 STEP THREE: Configure Outbound Route

3.3.1 Static ONND

- From the **PBX** tab, select **Outbound Routes**.
- Enter a name for the route in the **Route Name** field.
- Enter the Caller ID information that is to be used for outbound calls when using this route in the **Route CID** field.
- Enter the trunk group ID provided by Bell Canada in the **Trunk Group ID** field. This is optional.

Additional Settings

Trunk Group ID[?]:

Shared Calls Tag[?]:

Max. Call Duration[?]:

PIN Set[?]:

Call Recording[?]:

- In the **Dial Patterns** section, enter one or more dial patterns that will use this route to send calls over the Bell Canada trunk.
- In the **Trunk Sequence for Matched Routes** section, select the Bell Canada trunks created in STEP ONE. Select the primary Bell Canada SIP trunk for sequence **0** and the secondary Bell Canada SIP trunk for sequence **1**.

Trunk Sequence for Matched Routes[?]

0

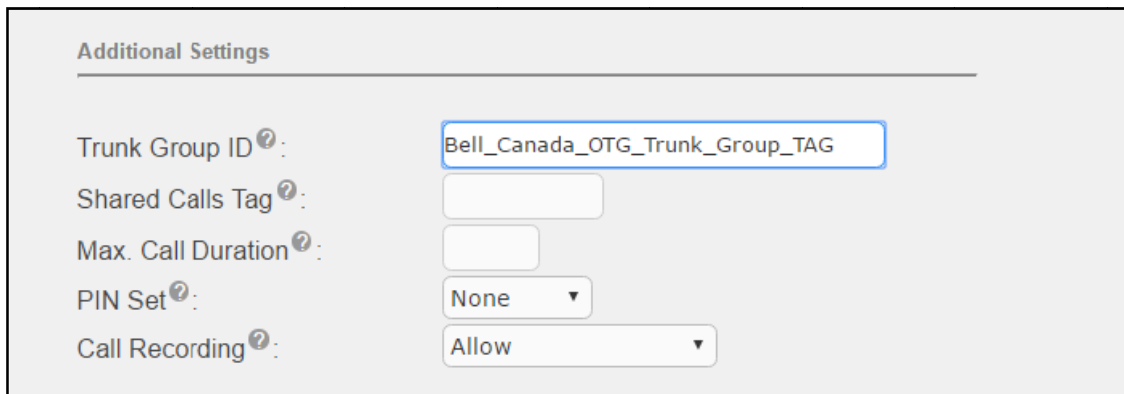
1

2

- Press the **Submit Changes** button.
- Press the **Apply Config** bar at the top.

3.3.2 Dynamic ONND

- From the **PBX** tab, select **Outbound Routes**.
- Enter a name for the route in the **Route Name** field.
- Enter the Caller ID information that is to be used for outbound calls when using this route in the **Route CID** field.
- Enter the trunk group ID provided by Bell Canada in the **Trunk Group ID** field. This is mandatory.



Additional Settings

Trunk Group ID[?]:

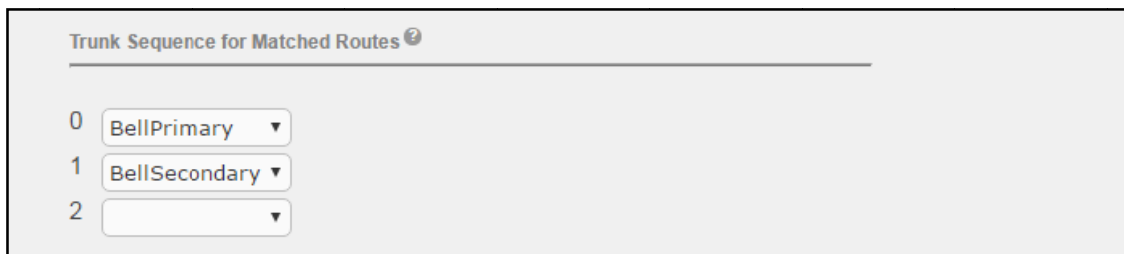
Shared Calls Tag[?]:

Max. Call Duration[?]:

PIN Set[?]:

Call Recording[?]:

- In the **Dial Patterns** section, enter one or more dial patterns that will use this route to send calls over the Bell Canada trunk.
- In the **Trunk Sequence for Matched Routes** section, select the Bell Canada trunks created in STEP ONE. Select the primary Bell Canada SIP trunk for sequence **0** and the secondary Bell Canada SIP trunk for sequence **1**.



Trunk Sequence for Matched Routes[?]

0

1

2

- Press the **Submit Changes** button.
- Press the **Apply Config** bar at the top.

3.3.3 Multiple Trunk Groups

Multiple trunk groups over one SIP trunk connection to Bell Canada are supported by E-MetroTel UCx Server.

Set the trunk group that you want to use for each outbound route by setting the **Trunk Group ID** field to the corresponding trunk group ID provided by Bell Canada.

Additional Settings

Trunk Group ID [?]:

Shared Calls Tag [?]:

Max. Call Duration [?]:

PIN Set [?]:

Call Recording [?]: