

Configure MiVoice MX-One 6.0 and MBG for use with BT WSIPT & One Voice SIP Trunks

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TECHNICAL CONFIGURATION NOTES



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Mitel Technical Configuration Notes:

Configure the MiVoice MX-One 6.0 and MBG for use with

BT SIP Trunks

April 2015

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Contents

| | |
|--|----------|
| Overview | 1 |
| Interop History | 1 |
| Interop Status | 1 |
| Software & Hardware Setup | 1 |
| Tested Features | 2 |
| Excluded Features | 2 |
| Network Topology | 3 |
| Configuration Notes | 4 |
| BT SIP Trunk Configuration Notes | 4 |
| MiVoice MX-One Configuration Notes | 5 |
| Network Requirements | 5 |
| Assumptions for the MiVoice MX-One Programming | 5 |
| Licensing – SIP Licensing | 6 |
| External Route number Assignment | 7 |
| Number Assignment by Incoming DID | 8 |
| DID Assignment for outgoing call | 9 |
| Route Assignment | 10 |
| Destination Assignment | 11 |
| Mitel Border Gateway Setup | 12 |
| MBG Setup | 12 |
| ICP Setup | 13 |
| SIP Trunk Setup | 14 |

Overview

This document provides a reference to Mitel Authorized Solutions providers for configuring the Mitel MiVoice MX-One 6.0 with MBG to BT SIP Trunks. The different devices can be configured in various configurations depending on your VoIP solution. This document covers a basic setup with required option setup.

Interop History

| Version | Date | Reason |
|---------|-----------|--|
| 1 | June 2015 | Initial Interop with Mitel MiVoice MX-One 6.0 with MBG 8.1.1.3 and BT One Voice SIP trunk UK |
| | | |

Interop Status

The Interop of BT SIP Trunks has been given a Certification status. This service provider or trunking device will be included in the SIP CoE Reference Guide. The status BT GS achieved is:

| | |
|---|---|
|  | The most common certification which means BT GS has been tested and/or validated by the Mitel SIP CoE team. Product support will provide all necessary support related to the interop, but issues unique or specific to the 3rd party will be referred to the 3rd party as appropriate. |
|---|---|

Software & Hardware Setup

This was the test setup to generate a basic SIP call between BT SIP Trunks and the MiVoice MX-One 6.0.

| Manufacturer | Variant | Software Version |
|--------------|--------------------|------------------|
| Mitel | MiVoice MX-One 6.0 | 16.0.0.0.55 |
| Mitel | MBG - Gateway | 8.1.1.3 |
| Mitel | Onebox Voicemail | 5.0 |
| Mitel | 6700i SIP Handset | SIP (3.3.1 SP4) |
| Mitel | 6800i SIP Handset | SIP (4.0.0.1096) |

Tested Features

This is an overview of the features tested during the Interop test cycle and not a detailed view of the test cases. Please see the SIP Trunk Side Interoperability Test Plan for detailed test cases.

| Feature | Feature Description | Issues |
|--|--|-------------------------------------|
| SIP Signaling & Timers | Examination of the SIP signaling in compliance with RFC 3261 and sub RFCs | <input checked="" type="checkbox"/> |
| Media Encoding Support RTP and DTMF | Checks on packetisation, and DTMF support | <input checked="" type="checkbox"/> |
| Basic Call Handling | Making and receiving a call through BT SIP Trunks and their PSTN gateway, call forwarding including external IVR. | <input checked="" type="checkbox"/> |
| Numbering Formats (Dial Plan Formatting) | Making and receiving a call through BT SIP Trunks and their PSTN gateway, call number formats | <input checked="" type="checkbox"/> |
| Advanced Call Handling | Making and receiving a call through BT SIP Trunks and their PSTN gateway, call holding, forwarding, transferring, conferencing, busy calls, long calls durations, hunt groups. | <input checked="" type="checkbox"/> |
| OneBox Voicemail | Terminating calls forwarded to Onebox voicemail and DTMF detection. | <input checked="" type="checkbox"/> |

- No issues found

- Issues found, cannot recommend to use

- Issues found

Excluded Features

This is an overview of the features excluded during the Interop test cycle and not a detailed view of the test cases. Please see the SIP Trunk Side Interoperability Test Plan (xx- xxxx-xxxxxx) for detailed test cases.

| Feature | Feature Description | Excluded |
|---------|---|-------------------------------------|
| Fax | T.38 and G711Fax Calls. Not tested due to FAX environment not being available. | <input checked="" type="checkbox"/> |

Network Topology

This diagram shows how the testing network is configured for reference.

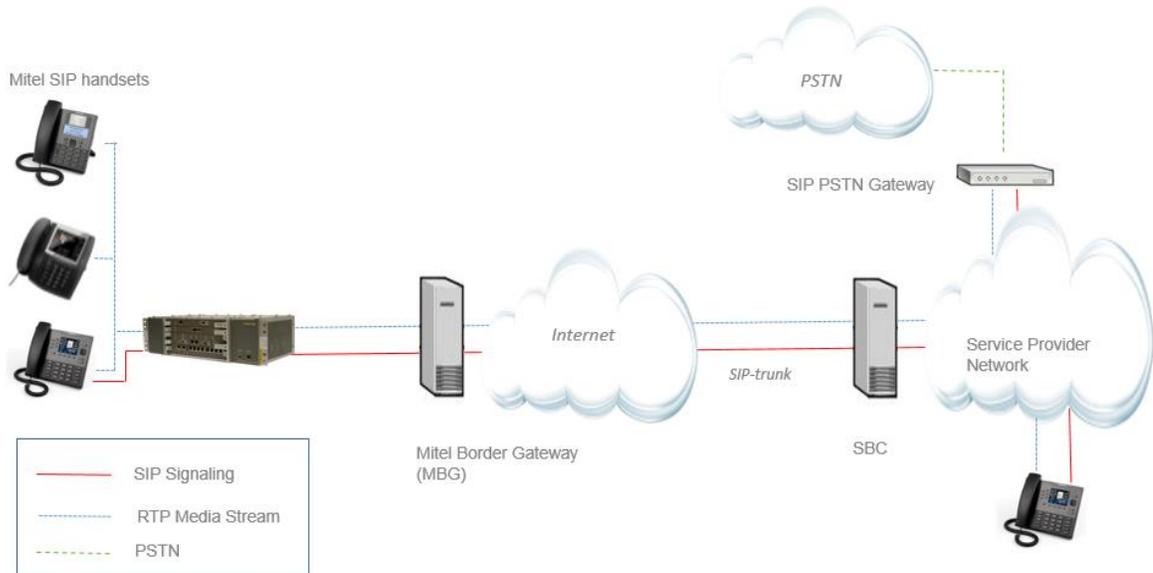


Figure 1 – Network Topology

Configuration Notes

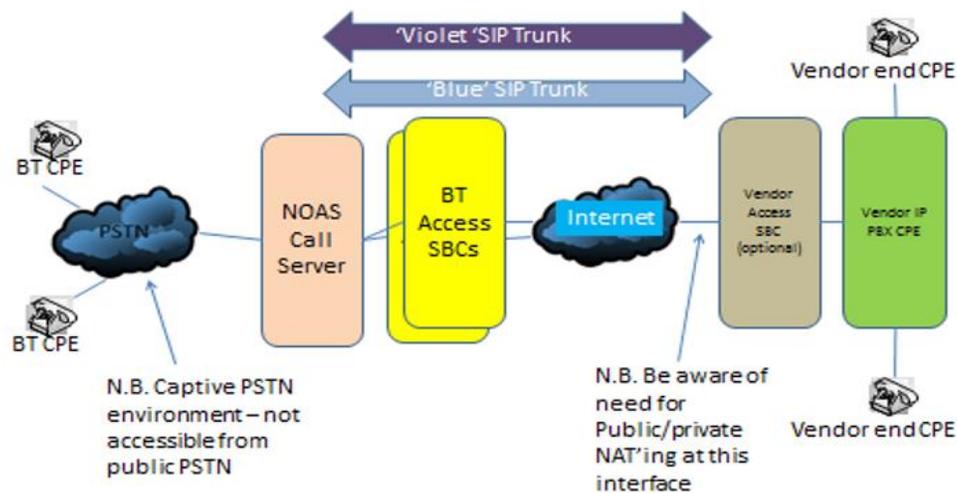
This section is a description of how the SIP Interop was configured. These notes should give a guideline how a device can be configured in a customer environment and how BT MiVoice MX-One 6.0 programming was configured in our test environment.

Disclaimer: Although Mitel has attempted to setup the interop testing facility as closely as possible to a customer premise environment, implementation setup could be different onsite. YOU MUST EXERCISE YOUR OWN DUE DILIGENCE IN REVIEWING, planning, implementing, and testing a customer configuration.

BT SIP Trunk Configuration Notes

The BT SIP Trunk testing environment was an internal/private Sandbox setup.

BT Sandbox Environment



| | |
|--|--------------------------|
| SIP Service Provider Server IP address | SBC IPs: 192.65.221.26 |
| Media Server | 192.65.221.25 |
| Registration and Authentication | N/A |
| Pilot Number | N/A |
| Username/Password | 05511500200 |
| DIDs | 05511500203-05511500204 |
| PSTN | 01912500753-01912500754 |
| IVR | 03036000034 |
| Preferred Codec | G711A,G711u,G729 |
| SIP port | 5060 |
| Transport Type | UDP |
| Session Timer | Requests will be ignored |

MiVoice MX-One Configuration Notes

The following steps show how to program a MiVoice MX-One to interconnect with BT SIP Trunks.

Network Requirements

- There must be adequate bandwidth to support the voice over IP. As a guide, the Ethernet bandwidth is approx 85 Kb/s per G.711 voice session and 29 Kb/s per G.729 voice session (assumes 20ms packetisation). As an example, for 20 simultaneous SIP sessions, the Ethernet bandwidth consumption will be approx 1.7 Mb/s for G.711 and 0.6Mb/s. Almost all Enterprise LAN networks can support this level of traffic without any special engineering. Please refer to the MiVoice MX-One Engineering guidelines for further information.
- For high quality voice, the network connectivity must support a voice-quality grade of service (packet loss <1%, jitter < 30ms, one-way delay < 80ms).

Assumptions for the MiVoice MX-One Programming

- The SIP signaling connection uses UDP on Port 5060.
- Traditional Licensing model is used.
- Mitel Border Gateway (MBG) is used.

Licensing – SIP Licensing

Ensure that the MiVoice MX-One is equipped with enough SIP trunking licenses for the connection to BT SIP Trunk. This can be verified from Provisioning Manager under System;Subsystem;Telephony System and selecting License Details.

The total number of licenses in the 'Trunk-SIP-Channel' Trunk Licences field is the maximum number of SIP trunk sessions that can be configured in the MiVoice MX-One to be used with all service providers, applications and SIP trunking devices.

The screenshot shows the 'MX-ONE™ Manager Provisioning' interface. The 'System' tab is selected, and the 'Subsystem - View - cal-mxone TS' page is displayed. The 'License Details' section shows a table of port licenses with columns for Tag, FAL, Trial Time, Time Left, Allowed, and Used.

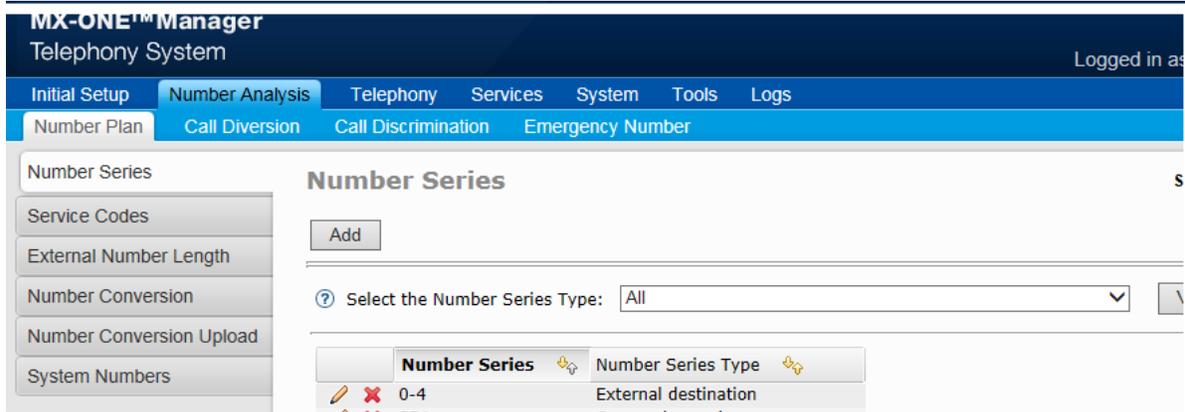
| Property | Value |
|------------------------------|-------------------------------|
| Hardware Id | b4af9-54b5e-3c8a7-8e288-7e2fc |
| Hardware Id Matches | true |
| Could Read License File | true |
| Licensed to Hardware Id | 00000-00000-00000-00000-00000 |
| License File Sequence Number | 0 |
| License File Age (in hours) | 1506 |

| Tag | FAL | Trial Time | Time Left | Allowed | Used |
|----------------------------|---------------|------------|-----------|---------|------|
| 3RD-PARTY-SIP-EXTENSION | 86L00079AAA-A | 0 | 0 | 0 | 6 |
| ACD-AGENT | FAL1046622 | 0 | 0 | 0 | 0 |
| ADDITIONAL-SIP-DEVICE | 86L00018AAA-A | 0 | 0 | 0 | 4 |
| ALERT-RING-SIGNAL | FAL1049282 | 0 | 0 | 0 | 0 |
| AMC-USER | 86L00042AAA-A | 0 | 0 | 0 | 0 |
| ANALOGUE-EXTENSION | 86L00128AAA-A | 0 | 0 | 0 | 0 |
| BASE-STATION-DECT | FAL1046624 | 0 | 0 | 0 | 0 |
| BLUSTAR-SERVER | 86-00200AAA-A | 0 | 0 | 0 | 0 |
| BSC-CLIENT | 86-00025AAA-A | 0 | 0 | 0 | 6 |
| CAS-EXTENSION | 86L00130AAA-A | 0 | 0 | 0 | 0 |
| MEDIA-SERVER | 86L00055AAA-A | 0 | 0 | 0 | 0 |
| MOBILE-EXTENSION | 86L00136AAA-A | 0 | 0 | 0 | 0 |
| MOBILE-EXTENSION-MIGRATION | 86L00048AAA-A | 0 | 0 | 0 | 0 |
| OPERATOR-EXTENSION | 86L00138AAA-A | 0 | 0 | 0 | 0 |
| PAGING | 86L00077AAA-A | 0 | 0 | 0 | 0 |
| RVA-EXTERNAL | FAL1046732 | 0 | 0 | 0 | 0 |
| RVA-INTERNAL | FAL1045505 | 0 | 0 | 0 | 0 |
| SIP-EXTENSION | 86L00104AAA-A | 0 | 0 | 0 | 39 |
| SIP-EXTENSION-MIGRATION | 86L00082AAA-A | 0 | 0 | 0 | 0 |
| SOM-APPLICATION | FAL1048157 | 0 | 0 | 0 | 0 |
| TENANT | 86L00128AAA-A | 0 | 0 | 0 | 0 |
| TRUNK-SIP-CHANNEL | 86L00088AAA-A | 0 | 0 | 0 | 25 |
| TRUNK-SIP-PRIVATE | 86L00085AAA-A | 0 | 0 | 0 | 1 |
| TRUNK-SIP-PRIVATE-SERVICES | 86L00087AAA-A | 0 | 0 | 0 | 1 |
| TRUNK-SIP-PUBLIC | 86L00085AAA-A | 0 | 0 | 0 | 3 |
| USER-SIP-EDN | 86L00074AAA-A | 0 | 0 | 0 | 0 |
| VIDEO | 86L00003AAA-A | 0 | 0 | 0 | 5 |
| VOICE-RECORDING | FAL1049272 | 0 | 0 | 0 | 0 |

Figure 2 – License information

External Route number Assignment

Ensure that the external Route code, in this case '4' is defined as an external destination in MTS under Number Analysis;Number Plan;Number Series.



The screenshot displays the MX-ONE Manager interface for a Telephony System. The top navigation bar includes 'Initial Setup', 'Number Analysis', 'Telephony', 'Services', 'System', 'Tools', and 'Logs'. The 'Number Analysis' section is active, with sub-tabs for 'Number Plan', 'Call Diversion', 'Call Discrimination', and 'Emergency Number'. The 'Number Series' configuration page is shown, featuring a left sidebar with options like 'Service Codes', 'External Number Length', 'Number Conversion', 'Number Conversion Upload', and 'System Numbers'. The main area has an 'Add' button and a dropdown menu for 'Number Series Type' set to 'All'. A table below lists the series, with one entry for '0-4' having the type 'External destination'.

| Number Series | Number Series Type |
|---------------|----------------------|
| 0-4 | External destination |

Figure 3 – External Route number assignment

Number Assignment by Incoming DID

This form is used to assign incoming DID range numbers assigned by BT to an associated extension number.

In this case each single DID number (for example, "05511500203") is truncated by 11 digits and replaced with the associated extension, for example 8001.

Please refer to the MX-One System Administration documentation for further programming information.

The screenshot displays the MX-ONE Manager web interface. The top navigation bar includes 'Initial Setup', 'Number Analysis', 'Telephony', 'Services', 'System', 'Tools', and 'Logs'. The 'Number Analysis' section is active, with sub-tabs for 'Number Plan', 'Call Diversion', 'Call Discrimination', and 'Emergency Number'. The left sidebar contains a menu with 'Number Series', 'Service Codes', 'External Number Length', 'Number Conversion', 'Number Conversion Upload', and 'System Numbers'. The main content area is titled 'Number Conversion - Change - 05511500203' and contains the following configuration fields:

| | |
|--|--|
| Type of Conversion: | Received B-number |
| Number(s) to be Converted: | 05511500203 |
| Type of Number Before: | Unknown public number |
| Number of Digits to Truncate: | <input type="text" value="11"/> |
| Digits to Insert at the Beginning of Number: | <input type="text" value="8001"/> |
| Search Continue Indication: | <input type="text" value="Conversion shall not continue"/> |

Buttons for 'Apply' and 'Cancel' are present at the top and bottom of the configuration area.

Figure 4 – Number Assignment by incoming call

DID Assignment for outgoing call

This form is used to assign the correct DID numbers to be presented by the extension number.

In this case each extension number (for example, "8005") is truncated by 4 digits and replaced with the associated DID, for example 05511500204. The route number '4' also needs to be configured

Please refer to the MX-One System Administration documentation for further programming information.

The screenshot displays the MX-ONE Manager web interface. The top navigation bar includes 'Initial Setup', 'Number Analysis', 'Telephony', 'Services', 'System', 'Tools', and 'Logs'. Below this, a secondary navigation bar shows 'Number Plan', 'Call Diversion', 'Call Discrimination', and 'Emergency Number'. The left sidebar contains a menu with 'Number Series', 'Service Codes', 'External Number Length', 'Number Conversion', 'Number Conversion Upload', and 'System Numbers'. The main content area is titled 'Number Conversion - Change - 8005' and contains the following configuration fields:

| | |
|--|---|
| Type of Conversion: | Sent A-number and sent connected number |
| Number(s) to be Converted: | 8005 |
| Number of Digits to Truncate: | 4 |
| Digits to Insert at the Beginning of Number: | 05511500204 |
| Type of Number Before: | None |
| Route Number: | 4 |
| New Type of Number After Conversion: | National number |
| Target Destination Number: | 8005 |

Figure 5 – DID Assignment for outgoing call

Route Assignment

Create a Route for BT SIP Trunk. In this example, the softswitch is reachable by an IP Address and is defined as route name "SIP TO MBG / BT". **The FQDN or IP addresses is the internal address of the Mitel Border Gateway (MBG).**

Set the Proxy Address to the IP Address of the MBG, the transport to UDP and port to 5060.

Please refer to the MX-One System Administration documentation for further programming information.

MX-ONE™ Manager
Telephony System

Initial Setup Number Analysis **Telephony** Services System Tools Logs
Extensions Operator Call Center Groups External Lines System Data IP Phone DECT

Route

Destination
Corporate Name
Busy No Answer Rerouting
Vacant Number Rerouting
Customer Rerouting
Public Exchange Number
Charging
Mobile Direct Access Dest

Route - Change - 4
Apply Cancel

General Services Number Data Hardware IP Public, SIP Name Identity

Password for Trunk Registration:
Trusted Privacy Domain: Not Trusted
Outgoing Traffic
Protocol to Use When Calling: UDP
Proxy Address: 10.132.128.29
Proxy Port Number: 5060
Remote Port: 5060
Remote IP Address for Tel:
Remote Extension from URI:
Remote Extension String:
Invite URI String for
Unknown Public Number: * sip:?@192.65.221.26
From URI String for
Unknown Public Number: sip:?@10.132.128.29
Incoming Traffic
Type of Accepted Calls: All
Addresses or Numbers to Match Incoming Call:
Emergency Callback Destination Number:
Type of Number to be Used with Dialed Emergency Number:
Destination Code: 255
Priority for Incoming Calls:
Context String for A Party
Unknown Public Number:
Context String for B Party
Unknown Public Number:
Third Party Registration
Type of Registration: No Registration
Number Range to Handle:

Figure 6 – Route Assignment

Destination Assignment

This is configured in the Manager Telephony System (MTS) under Telephony;External Lines;Destination form. In this example the Destination is defined as Destination 4 so that calls prefixed with a 4 will be directed to the route 'SIP TO MGB / BT' stripping off the initial digit 4 by setting the 'Start position for Digit Transmission' field to 1.

The screenshot shows the 'Destination - Change - 4' configuration form in the Manager Telephony System (MTS). The form is divided into a left sidebar with navigation options and a main configuration area. The main area contains the following fields and values:

| Field | Value |
|---------------------------------------|--------------------------|
| Destination | 4 |
| Route Name | SIP TO MGB / BT |
| Start Position for Digit Transmission | 1 |
| Type of Seizure of External Line | Immediate seizure |
| Forward Switching | <input type="checkbox"/> |
| Type of Called Number | Unknown public |
| Type of Calling Public Number | Unknown public |
| Type of Calling Private Number | Unknown private |
| Use as Emergency Destination | <input type="checkbox"/> |

The form also includes an 'Advanced...' button and 'Apply' and 'Cancel' buttons at the bottom.

Figure 7 – Destination Assignment

Mitel Border Gateway Setup

MBG Setup

The screenshot displays the Mitel Standard Linux web interface. The top navigation bar includes the Mitel logo, the text "Mitel Standard Linux", the user "admin@cal-demombg.mitel.com", the alarm status "Major", and a "Logout" link. A secondary navigation bar contains "System status", "Service configuration", "System configuration", and "Administration".

The main content area is titled "MBG status" and includes a "Page updated: Tue Apr 28 2015 15:58:06 UTC+0100" timestamp. It features three primary sections:

- MBG status:** Shows "Enabled: Enabled" with "Start", "Courtesy down", and "Stop" buttons. It lists "Network profile" as Gateway mode, "Security profile" as Legacy mode, "Daisy-chain mode" as No, "Set-side streaming addresses" as 109.239.80.50, "Icp-side streaming addresses" as 10.132.128.29, "WAN IPs" as 109.239.80.50, "LAN IPs" as 10.132.128.29, and "Third IPs" as None.
- Clustering status:** Provides instructions for creating or joining a cluster. It includes "Create a cluster" and "Join a cluster" buttons.
- License information:** A table showing license availability and usage.

| Availability and usage | License type | Total | Local | Total local in use |
|------------------------|-----------------------|-------|-------|--------------------|
| | Teleworker licenses | 205 | 9 | |
| | Tap licenses: | 0 | 0 | |
| | SIP Trunk licenses: | 30 | 0 | |
| | Transcoding licenses: | 0 | 0 | |

Additional settings shown include "Virtualization support" (False) and "IPv6 support" (Licensed: False, Enabled: False). An "Expiry" date of Jan. 1, 2030 is also displayed.

At the bottom, the footer contains: "Mitel Standard Linux 10.1.39.0", "MiVoice Border Gateway 9.0.27.0", and "© Mitel Networks Corporation".

Figure 8 – MBG setup

ICP Setup

To program an MX-One into the MBG, click on ICP's → Add an ICP.

Enter a name for the MX-One.

Enter the IP address of the MX-One and select the Type as MiVoice Business.

The screenshot displays the Mitel Standard Linux web management interface. The top navigation bar includes the Mitel logo, the text "Mitel Standard Linux", the user "admin@cal-demombg.mitel.com", an "Alarm Status: Major" indicator, and a "Logout" button. A secondary navigation bar contains "System status", "Service configuration", "System configuration", and "Administration".

The main content area is titled "Manage ICP" and contains a form for adding a new ICP entry. The form fields are as follows:

- Name:** Text input field containing "MXONE".
- Hostname or IP address:** Text input field containing "10.132.128.90".
- Type:** Dropdown menu with "MiVoice Business" selected.
- Installer password:** Text input field (empty).
- SIP capabilities:** Dropdown menu with "UDP" selected.
- Indirect call recording capable:** A checkbox that is currently unchecked.

Below the form is a "Save" button. Above the form, a message states: "Page updated: Tue Apr 28 2015 16:02:49 UTC+0100. The following is a form for modifying an icp entry. You may edit this information as you wish, and click on the 'Save' button below when you are done."

The left sidebar contains a navigation menu with categories: Applications (MiVoice Border Gateway), ServiceLink (Blades, Status), Administration (Web services, Backup, View log files, Event viewer, System information, System monitoring, System users, Shutdown or reconfigure), Security (Remote access, Port forwarding, Web Server Certificate, Certificate Management), Configuration (Networks, E-mail settings, Google Apps, DHCP, Date and Time, Hostnames and addresses, Domains, IPv6-in-IPv4 Tunnel, SNMP, Ethernet Cards, Review configuration), and Miscellaneous (Support and licensing, Help).

At the bottom of the page, the following text is visible: "Mitel Standard Linux 10.1.39.0", "MiVoice Border Gateway 9.0.27.0", and "© Mitel Networks Corporation".

Figure 9 – ICP setup

SIP Trunk Setup

Under the Services tab, click on SIP trunking and then “Add a SIP Trunk”. Enter the SIP trunk’s details as shown in Figure 10:

Name – is the name of the trunk

Remote trunk endpoint address – the public IP address of the provider’s switch or gateway (this address should be given to you by the provider).

Local/Remote RTP framesize (ms) – is the packetisation rate you want to set on this trunk

Routing rule one – it allows routing of any digits to the selected MX-One

The rest of the settings are optional and could be configured if required. Click **Save** button

Mitel Standard Linux

admin@cal-demombg.mitel.com Alarm Status: Major Logout

Applications: System status ▾ Service configuration ▾ System configuration ▾ Administration ▾

Remote proxy services

ServicesLink
Status
Administration
Web services
Backup
View log files
Event viewer
System information
System monitoring
System users
Shutdown or reconfigure

Security
Remote access
Port forwarding
Web Server Certificate
Certificate Management

Configuration
Networks
Email settings
Google Apps
DND
Date and Time
Hostnames and addresses
Domains
IPv6-in-IPv4 Tunnel
GSM
Ethernet Cards
Review configuration

Miscellaneous
Support and licensing
Help

Page updated: Tue Apr 28 2015 16:05:53 UTC+0100
This interface provides the ability to edit a SIP trunk's details. Edit below, and click the "Save" button to commit the changes. If you do not wish to save, simply navigate elsewhere.

Manage SIP trunk

| | | | |
|----------------------------|-------------------------------------|---------------------------------|--------------------------|
| Name | BT MXONE | Remote trunk endpoint address | 192.65.221.26 |
| Remote trunk endpoint port | 5060 | Accept traffic from any port | <input type="checkbox"/> |
| Options keepalives | Always | Options interval | 60 |
| Rewrite host in PAI | <input checked="" type="checkbox"/> | Remote RTP framesize (ms) | 20ms |
| Idle timeout (s) | 3600 | RTP address override | --- |
| Local streaming | <input type="checkbox"/> | PRACK support | Use master setting |
| Log verbosity | Use master setting | Authentication username | |
| Authentication password | | Confirm authentication password | |

Routing rules

Note: if you modify your routing rules, you must save them before changing pages or navigating elsewhere, or those changes will be lost.

Rules per page: 10

Page 1 of 1

Jump to page: 1

| Match | Rule | Primary | Secondary | |
|-------------|------|---------|-----------|---|
| Request-URI | * | MXONE | | Raise Prepend Delete Lower Append |

Save

Mitel Standard Linux 10.1.39.0
MVoice Border Gateway 9.0.27.0
© Mitel Networks Corporation

Figure 10 – Services - SIP Trunk setup

