MITEL – SIP CoE

Technical
Configuration Notes

Configure the Mitel 5000
Communications Platform SIP
Trunking for use with Broadvox

SIP CoE 09-4940-00078

MITEL

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Mitel Technical Configuration Notes – Configure the Mitel 5000 Communications Platform for use with Broadvox
September 2009, 09-4940-00078

Overview

This document provides a reference to Mitel Authorized Solutions providers for configuring the Mitel 5000 Communications Platform to connect to a Broadvox. 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 Status

The Interop of Broadvox has been given a Certification status. This service provider will be included in the SIPCoE Reference Guide. The status Broadvox achieved is:

COMPATIBLE	The most common certification which means the device/service 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 Broadvox service provider and the CS-5200.

Manufacturer	Variant	Software Version
Mitel	CS-5200	3.2 GA
Mitel	IP set 5224, 5330	Minet
Mitel	MAS server	1.2

Tested Features

This is an overview of the features tested during the Interop test cycle and not a detailed view of the test cases.

Feature	Feature Description	Issues
Basic Call	Making and receiving a call through the SIP Service provider and their PSTN gateway, call holding, transferring, conferencing, busy calls, long calls durations, variable codec.	⚠️
Automatic Call Distribution	Making calls to an ACD environment with RAD treatments, Interflow and Overflow call scenarios and DTMF detection.	☑
NuPoint Voicemail	Terminating calls to a NuPoint voicemail boxes and DTMF detection.	☑
Mobile Extension	Receiving a call through the SIP Service provider and their PSTN gateway to Mobile extensions and TUI interface. Also moving calls to/from Desktop and Twinned devices.	Not Supported
Fax	T.38 and G711 Fax Calls	✗

☑ - No issues found   ✗ - Issues found, cannot recommend to use   ⚠️ - Issues found

Device Limitations and Known Issues

This is a list of problems or not supported features when Broadvox has a SIP trunk connected to the Mitel 5000 Communications Platform.

Features	Problem Description
T38 and G711 fax	For outgoing faxes, no more than one page could be faxed, broadvox sent "Bye". For incoming faxes, no page could be faxed, 5000 sent "bye". **Recommendation:** Contact Mitel and Broadvox for further information regarding this feature.
Session Timers	Mitel 5000 does not support session timers **Recommendation:** Contact Mitel for further information regarding this feature.
G729	Incoming call with G729 as preferred codec cause call failure **Recommendation:** Contact Broadvox for further information regarding this feature.
Video Calls	Mitel 5000 do not support video calls at this time. **Recommendation:** Contact Mitel for further information regarding this feature.
PRACK	Mitel 5000 Communications Platform does not support PRACK at this time. **Recommendation:** Contact Mitel for further information regarding this feature.

Network Topology

This diagram shows how the testing network is configured for reference.
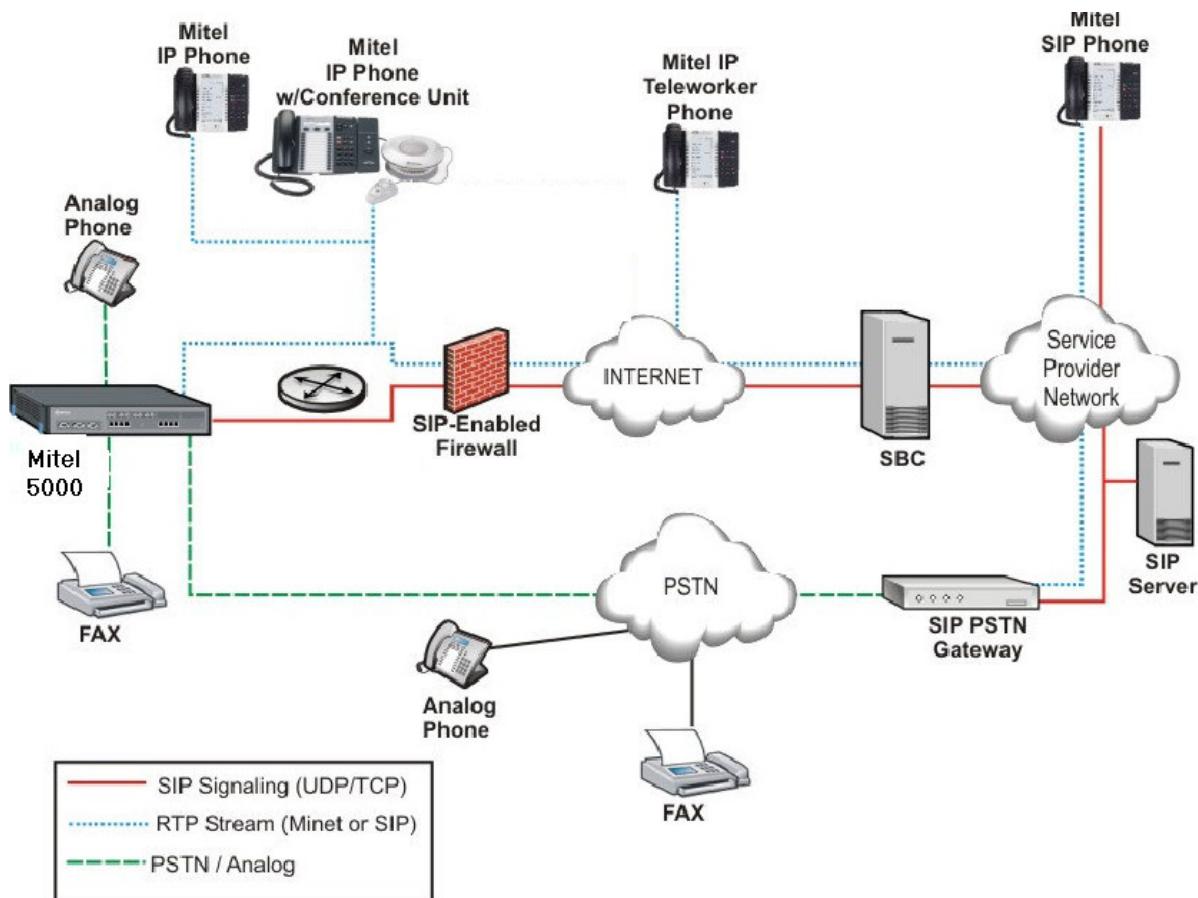
Figure 1 – Network Topology

Configuration Notes

This section is a description of how the SIP Interop was configured. These notes should give a guideline how the Mitel 5000 Communications Platform can connect to Broadvox service provider.

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.

Mitel 5000 Communications Platform Configuration Notes

The following steps show how to program Mitel 5000 Communications Platform to interconnect with a Broadvox Service Provider.

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 packetization). 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 for G.729. Almost all Enterprise LAN networks can support this level of traffic without any special engineering. Please refer to the 5200 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 Mitel 5000 Communications Platform Programming

- The SIP signaling connection is configured to use UDP on Port 5060.

Licensing and Option Selection – SIP Licensing

Ensure that the Mitel 5000 is equipped with enough SIP trunking licences for the connection to Broadvox. This can be verified within the License and Option Selection form.

Enter the total number of licenses in the SIP Trunk Licences field. This is the maximum number of SIP trunk sessions that can be configured in the Mitel 5000 to be used with all service providers and applications.

Software License Feature	Value
System Type	CS-5200
ACD Hunt Group	Yes
Additional T1/E1/PRI Ports	2
Agent Help	Yes
Analog Voice Mail Hunt Group	Yes
Basic Voice Mail Ports	32
Category 'A' Endpoints	32
Category 'B' Endpoints	32
Category 'C' Endpoints	32
Category 'D' Endpoints	32
Desktop Interface	Yes
Digital Expansion Interface # 1	Yes
Digital Expansion Interface # 2	Yes
Digital Expansion Interface # 3	No
Digital Expansion Interface # 4	No
Extended Node Capacity	Yes
File-Based MOH Sources	8
IP Endpoints Enabled	Yes
IP Networking	Unlimited
Personal Call Routing	Yes
PRI Licenses	8
Remote Automatic Call Distribution Hunt Groups	Yes
SIP Trunks	32
SIP Voice Mail Ports	32
System Health Report	Yes
System IP Endpoint Capacity	75
System OAI Events	Yes
System OAI Third Party Call Control	Yes
Voice Processor Messaging Networking	Yes

Figure 2: Example of SIP Licensing

Creating and Configuring a SIP Peer Trunk Group

To support SIP trunks through a SIP trunk service provider, the SIP Trunk Groups folder has been added to the SIP Peers folder in DB Programming.

To create a SIP Trunk Group for Broadvox, you will need to right click in the right hand window panel of a SIP Trunk and then select "Create SIP Trunk Group". (See Figure 3)
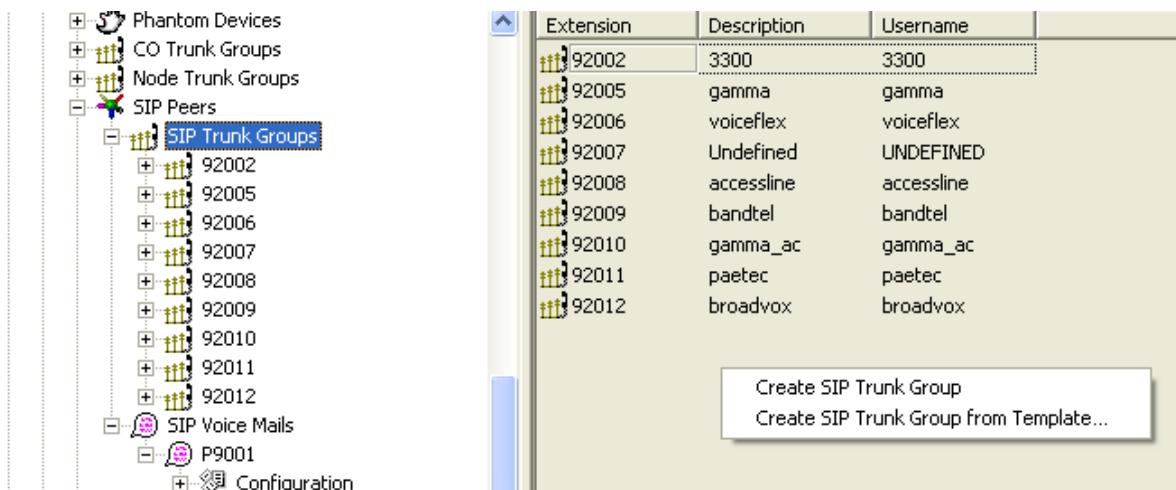
Figure 3: Example of Create SIP Trunk Group

When you create a SIP peer trunk group without using a template, such as Broadvox, you must obtain the necessary information from the SIP trunk service provider, and then configure this information in DB Programming.

Program the Configuration folder as described below:

- **Registration**: If the SIP peer does not require registration, the fields in this folder do not need to be configured. The Enable Registration option is set to No by default and the remaining fields appear with a red "X"

- **Authentication**:

  Username: This field applies only if the SIP peer requires registration or call authentication.

  Password: This field applies only if the SIP peer requires registration or call authentication.

- **Keep-Alive**: The Keep-Alive option keeps refreshing the NAT bindings for any Firewall/NAT in the path. It also helps in determining whether the SIP peer is reachable or not.

- **NAT Settings**: Specifies the NAT address type. The default is "No NAT or SIP-Aware NAT" (for systems that are using a SIP-aware firewall). If you are not using a SIP-aware firewall, you must change the setting to "Non SIP-Aware NAT".

- **Alternate IP/FQDN List**: Some providers use multiple IP addresses to send SIP messages to the Mitel 5000. You must add All IP addresses or FQDNs other than the primary IP/FQDN to the list for all calls to be successful.

- **IP Address**: Indicates the IP address of the SIP peer trunk group.

- **Port Number**: Indicates the port that the system listens on the system for SIP peer messages. The range is 0–65535.

- **Fully Qualified Domain Name**: Indicates the domain name of the SIP peer trunk group.

- **Call Configuration**: Clicking **Call Configuration** takes you to the Call Configuration folder

  (System\IP-Related Information\Call Configurations\<*call configuration number*>).

- **Operating State**: Indicates the operating state of the SIP peer.

- **Maximum Number of Calls**: Indicates the maximum number of concurrent calls that are permitted towards the SIP peer. DB Programming restricts this field based on the number of the SIP Trunks and SIP trunk licenses.

- **Use ITU-T E.164 Phone Number**: If set to Yes, the Mitel 5000 handles ITU-T E.164 formatted phone numbers as part of the incoming SIP INVITE messages from the SIP peer.
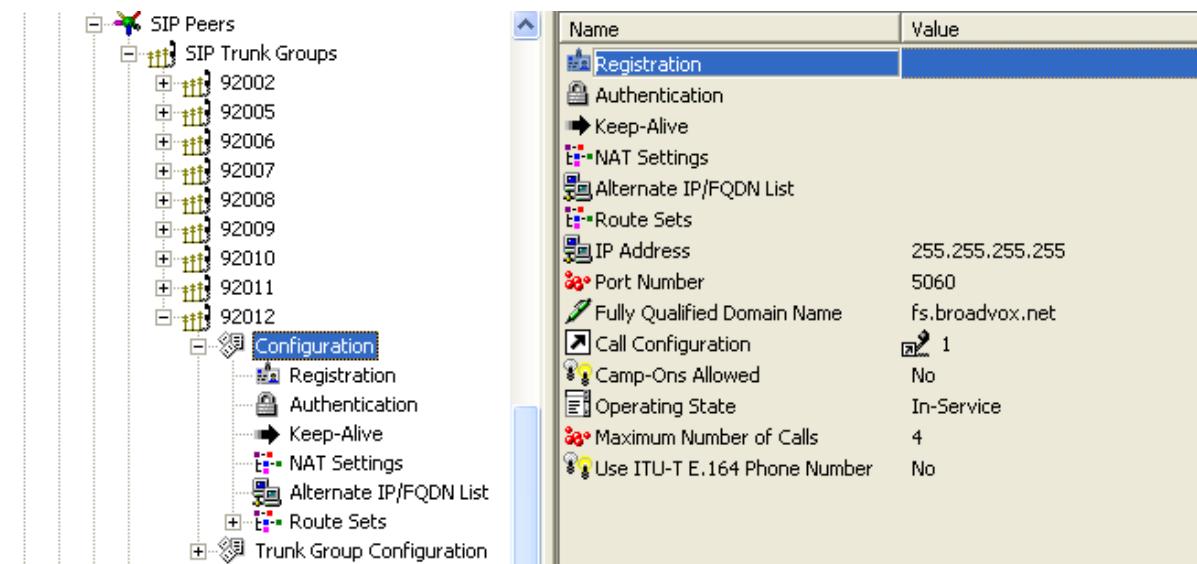
Figure 4: Example of Creating and Configuring a SIP Trunk

Broadvox requires the Mitel 5000 system to register with the SIP peer network. Broadvox provides information to you that must be programmed in DB Programming. Do the following:

- Contact Broadvox to obtain a user name and password to authenticate the account.
- Create a SIP peer trunk group in DB Programming to initiate registration with Broadvox
- Type the user name and password in DB Programming to provision the account information.
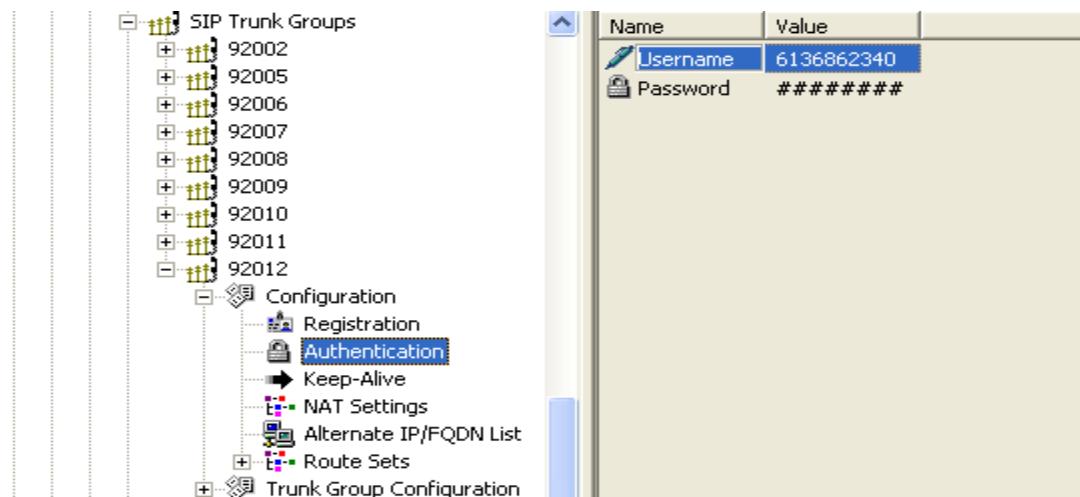
Figure 5: Configuration of a SIP peer Trunk Groups Registration Info

Programming the Trunk Group Configuration Folder

To program the Trunk Group Configuration folder:

1. Create the SIP peer trunks as follows:

- Double-click **Trunks**.

- Right-click the right pane, and the select **Create SIP Peer Trunk**. The Create SIP Peer Trunk Extension dialog box appears.

- Select the extension number you want to use for the item in the Starting Extension field. The recommended range is 94001–94999;

- Indicate the number of extensions you want to create in the Number of Extensions field. If the system is set to have more than one extension, the new trunks are assigned sequentially to the next available numbers.

- Click **OK**. For the Broadvox, 4 extensions were created, See Figure 6. The number of SIP peer trunks is restricted by the number of available SIP Trunks licences.
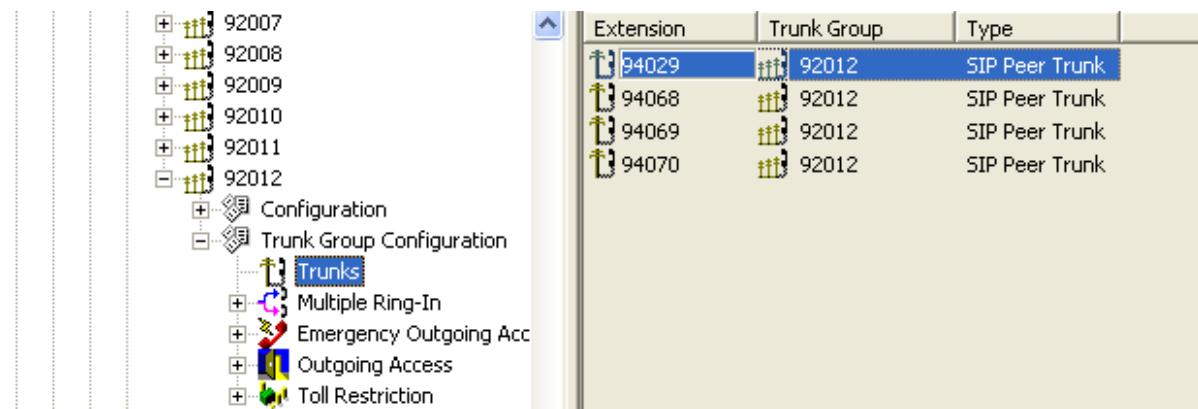
Figure 6: Example of SIP Trunks

2. See Figure 7, and then refer to the DB Programming Help for trunk programming (System\Devices and Feature Codes\SIP Peers\SIP Trunk Groups\<*trunkgroup*>\Trunk Group Configuration) and details about these fields.

Figure 7: Example of SIP Trunk Group Trunk Group configuration

IP Call Configurations

Call configurations define the settings that IP endpoints and gateways use when connected to calls. You can assign multiple devices to a specific call configuration.

By default, all IP devices are placed in Call Configuration 1, which is programmable. You do not need to add SIP endpoints to Call Configurations, because these devices negotiate call configurations before establishing a connection. You can program up to 25 different Call Configurations.
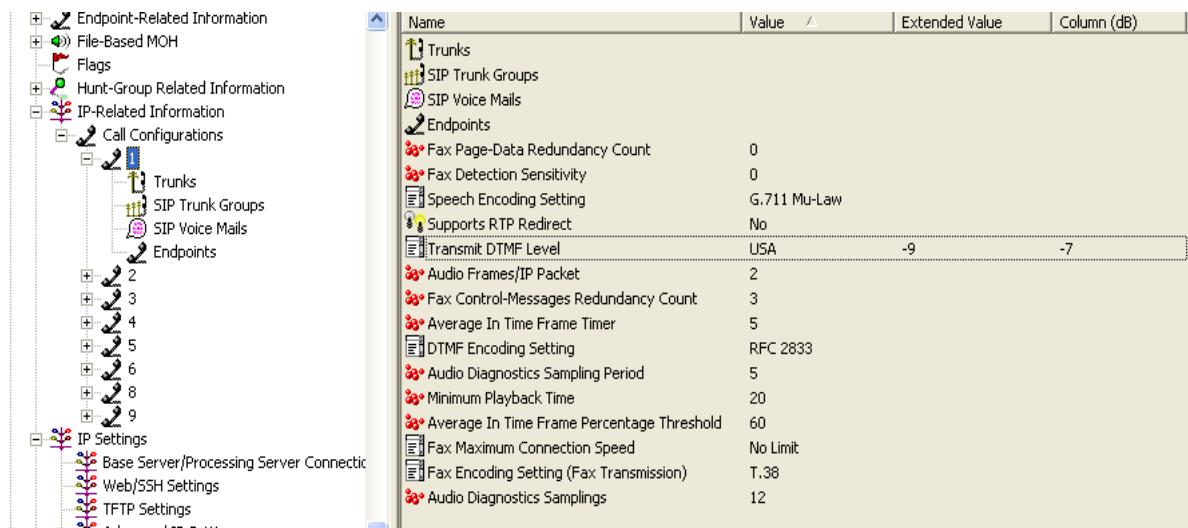
Figure 8: Call Configuration Options

To view a list of IP endpoints that are currently assigned to the call configuration:

- Select System – IP Related Information – Call Configurations – **Local** (or **Remote**).
- Double-click **Endpoints**.
-

To view IP trunks that are currently assigned to a Call Configuration:

- Select System – IP Related Information – Call Configurations – **Local** (or **Remote**).
- Double-click **Trunks**.
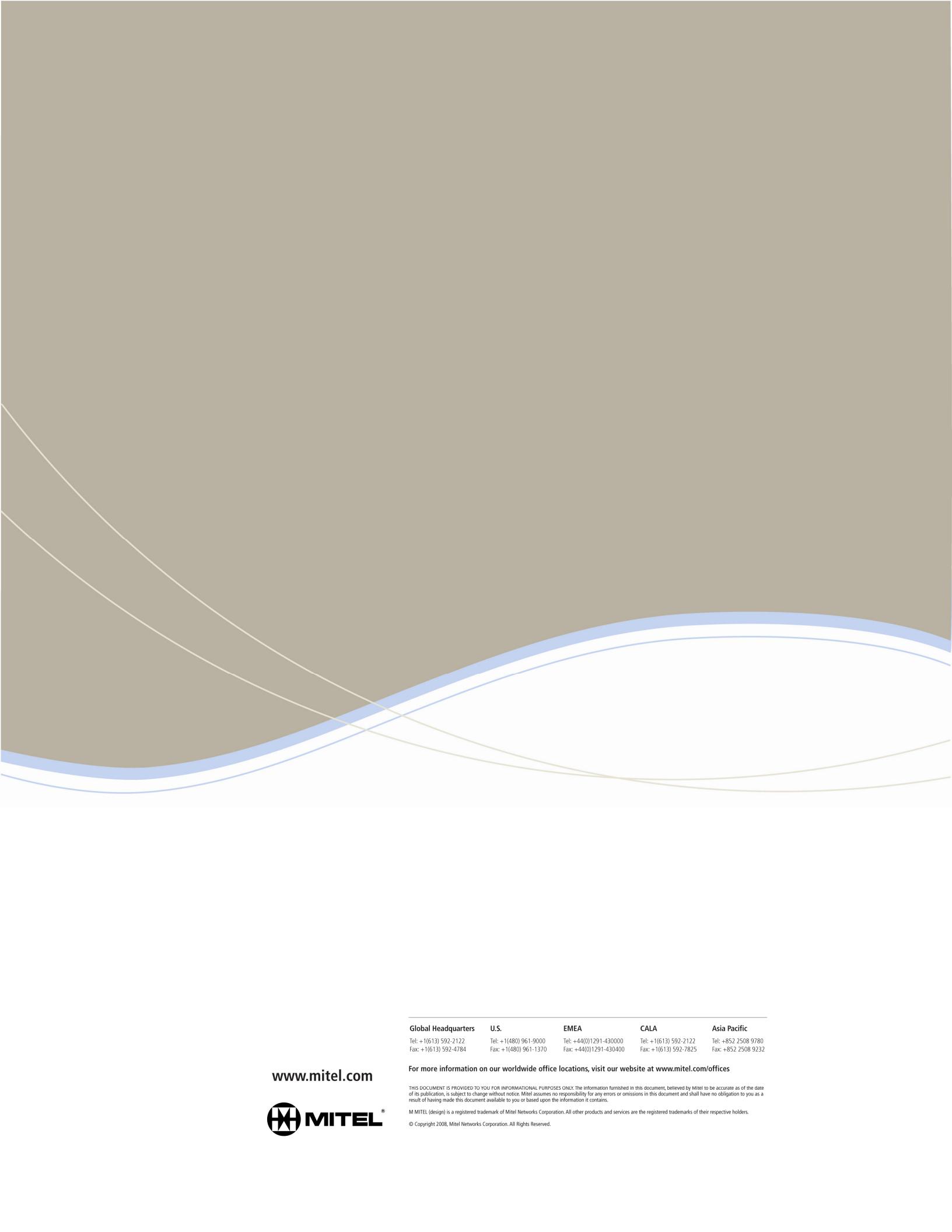
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