

# MiCollab Advanced Messaging Mitel MiVoice Business SIP Station Integration Technical Note

For version 9.2 and above

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# Preface

This Integration Technical Note (ITN) is written for technicians who are experienced with MiCollab Advanced Messaging (MiCollab AM) and who are familiar with its procedures and terminology. It also assumes that you are familiar with the features and functionality of the Mitel MiVoice Business (Mitel) telephone system software.

This document describes how to integrate MiCollab AM with Mitel MiVoice Business using the Session Initiation Protocol (SIP). The Mitel integration is a SIP Station integration. This integration operates exclusively over a TCP/IP-based network; it uses no analog or digital voice telephony ports, but passes voice communication and signaling information over the network.

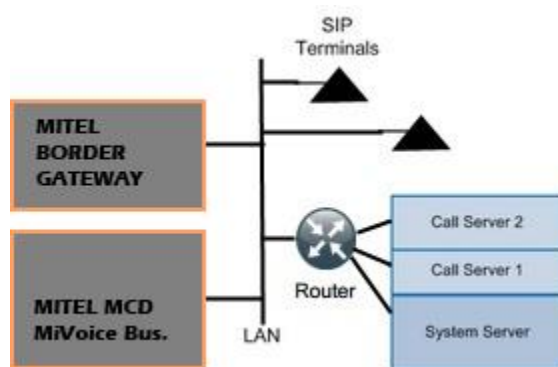


Figure 1. MiCollab AM System diagram

MiCollab AM registers its SIP ports as terminals or endpoints. Mitel provides the hunting and routes all incoming calls for MiCollab AM to the hunt group pilot number. MiCollab AM sets and clears message waiting indicators (MWIs) by dialing PBX feature access codes on lines configured to do MWI callouts.

This ITN documents the procedures for setting up the SIP integration. The process consists of programming Mitel, installing system software, and configuring MiCollab AM. This document also describes the critical application considerations with which you should be familiar before you begin work on the integration.

## References

A catalog of technical documentation is included on the MiCollab AM Installation Media. If you are installing any advanced applications, such as Networking and Fax Server applications, you should refer to the appropriate technical documentation for application and installation information.

## Documentation

The technical documentation is produced in the PDF format and requires the PDF reader to view it. The MiCollab AM Documentation Library includes the following documents and resources:

- **Administration Documentation.** Available as a PDF only. Contains the following:
  - **Administration Guides.** Available as a PDF only. Contains administrative guides for administrators about how to manage and configure the messaging system.
  - **Quick Reference Cards (QRC).** Contains shortcuts and quick instructions telling subscribers how to access and use the messaging system.
  - **User Guides.** Available as a PDF only. Contains user guides for subscribers about accessing the messaging system and checking and sending messages.
- **Server Documentation.** Available as a PDF only. Contains the following:
  - **Developer Resources.** Contains programming guides and API references for developers for integrating the server clients and web applications with MiCollab AM.
  - **Installation and Configuration.** Available as a PDF only. Contains installation and configuration guides for server administrators about how to install and configure the messaging system.
  - **Integration Technical Notes (ITN).** Contains a set of guides that describe the integration methods and instructions for a variety of phone systems to work with MiCollab AM. The ITNs are generally used by resellers or administrators who are experienced with MiCollab AM and familiar with the integration procedures and terminology.
  - **Spare Parts Documentation.** Contains a set of guides that describe the instructions for installing and configuring hardware parts to work with MiCollab AM. These documents are written for Mitel-certified MiCollab AM technicians who are experienced with MiCollab AM and familiar with the procedures and terminology.
- **Software Release Notice (SRN).** This notice introduces the new features, capabilities, and hardware/software requirements for the corresponding MiCollab AM version.

## Documentation Updates

Documentation updates may be available from the following sources:

- Mitel-certified technicians can view or download documents and program files from our partner web site: [www.mitel.com](http://www.mitel.com)

## Help

The primary source of information about MiCollab AM is the online help available within any of its administrative utilities. You can access **Help** by clicking the **Help** button in the dialog box or window in which you are working.

## Document Conventions

The following conventions are used in this document:

- **Key Names.** Names of keys on the keyboard are shown in a box.

Example: **Enter**

When two keys must be pressed simultaneously, they are joined by a + sign.

Example: **Alt** + **Tab**

- **Reference to Document** Titles of other documents are shown in italics.

Example: See the *System Installation and Configuration Guide*.

- **User Interface (UI) Element Names.** Names of UI elements such as dialog boxes, windows, screens, menu items, tabs, buttons, and icons are shown in bold.

Example: On the **Startup** screen, click the **Start** icon.

- **User Input.** Information required to be typed is shown in italics.

Example: Type the password *voicemail*.

- **Warning, Caution, Important, and Notes.** Text for the contents that require attention are shown as follows:

**WARNING** A warning paragraph advises you of circumstances that can result in the loss of data, harm to the MiCollab AM System Server platform, or personal harm.

**CAUTION** Failure to follow these recommendations can result in unauthorized access to the system and consequent loss of data.

**IMPORTANT** An important paragraph gives decision-making information or informs you of the order in which tasks need to be completed.

**NOTE** A note gives additional information, provides an explanation, or indicates an exception to the information in the preceding text.

For more detailed documents, refer to the following list of references:

Table 1. References

Document Type	Document Title
Administration Documentation	<i>System Administration Guide</i>
Server Documentation	<i>System Installation and Configuration Guide</i>
Online help	MiCollab AM online help system

For specific information about the Mitel MiVoice Business Telephone system software, please refer to the Mitel documentation.

## Features Supported in This Integration

The following tables list the features supported using the Mitel MiVoice Business SIP integration.

Table 2. Call forward to personal greeting support for these common call types

Divert to MiCollab AM on	Supported	
No Answer	Yes	
Busy	Yes	
Privacy	Yes	Note 8
Forward All	Yes	
Do Not Disturb	No (See Note)	

**NOTE** The Do Not Disturb feature of Mitel does not forward to voicemail alone. However, if either the Forward All or Forward Busy diversion is active, the diversion takes priority over the Do Not Disturb condition, and the call is forwarded to the subscriber's personal greeting.

Table 3. Integration features supported for Mitel MiVoice Business SIP Station

Feature	Supported	Notes
Automatic subscriber logon	Yes	
ANI/CLI	Yes	
<i>Announce Busy</i> greeting on forward busy calls	Yes	
Call screening	Yes	Note 1
Caller queuing	Yes	Note 2
DNIS	Yes	
End-to-end DTMF, attendant console	Yes	
End-to-end DTMF, proprietary telephones	Yes	
Fax Detection	Yes	
Internal calling party ID for reply	Yes	

Live record, integrated	No	Note 3
Live reply to sender	Yes	
Message notification callouts	Yes	
MWI, set/clear	Yes	
MWI, inband/outband	Inband	
Networking, analog	Yes	Note 4
Overflow from MiCollab AM to attendant	Yes	Note 5
Overflow to MiCollab AM from attendant	Yes	Note 5
PBX-provided disconnect signaling	Yes	
Revert to operator	Yes	
SRTP	No	Note 6
TLS	Yes	Note 7
Transfers, blind	Yes	
Transfers, confirmed	Yes	
Transfers, supervised	Yes	
Transfers, monitored	Yes	
Trunk ID for call routing	Yes	
Multiple Integrations	Yes	Note 8

## NOTES

1. Available only when using supervised transfers.
2. Caller Queuing is specific to each local Call Server. Call Servers within the system are unaware of queued calls to the same subscriber on other Call Servers. For more information, refer to the section, [Critical Application Considerations](#).
3. The Live Record feature may be implemented through a Live Record Call Processor action and a three-party PBX conference. Conferencing is a PBX feature.
4. The Mitel ports do not support fourth column DTMF tones.
5. This feature requires a uniquely configured hunt group.



6. MiCollab AM supports negotiation for SRTP media streams using the Secure RTP profile defined in RFC 3711 with the offer/answer model defined in RFC 3264. To enable SRTP, RTP, or both, see integration configuration options documentation for the switch. The default setting is RTP. Please note that MiCollab AM doesn't support RFC 5939 which is an extension of RFC 3264. Also, please note that SRTP has not been qualified for this integration, and no switch programming is available for setting up SRTP on the switch side. However, SRTP may be enabled as described above, and technical support will be available on a best effort basis.
7. MiCollab AM supports TLS. To enable TLS, see integration configuration options documentation for the switch. The default setting is RTP. Selected SIP Terminals on the Mitel would register as TLS terminals with the inclusion of a Mitel Border Gateway. Note: Signaling converts the call to the lowest common denominator TLS or RTP depending on the Core PBX value, and will override any specific settings defined on the Gateway or MiCollab AM. Also, a Mitel Border Gateway is required for TLS registration.

To create secure connections, use TLS 1.3 (recommended where available) or 1.2 for the System Server and Call Servers.

8. See [Critical Application Considerations](#).

# Critical Application Considerations

Known limitations or conditions within the telephone system and MiCollab AM that affect the integration performance are listed here. General recommendations are provided when ways to avoid these limitations exist.

- You must populate Line extension numbers on the **Lines** tab before starting MiCollab AM or the integration will fail. The extension numbers are registered as SIP stations with the IP PBX during system startup.
- Configure the MiCollab AM **Incoming Hunt Mode** in the **Switch Section Options** dialog box as circular and configure the hunt mode in the IP PBX as circular. This alleviates *glare* conditions between the IP PBX and the Call Server. The default mode is Terminal.
- You must configure the **Hunt Group Access Code** in the **Switch Section Options** dialog box. This code cannot conflict with extensions.  
**For example:**  
You can use 6000 for the Hunt Group Access Code and start MiCollab AM extensions with 6001.
- On a MiCollab AM server with two or more NICs, the NIC that supports this integration must not occupy first place in the operating system's binding order. The primary (public) network interface card (NIC) must be the first network connection in the network binding order. MiCollab AM binds and communicates to other servers and subscribers on this network connection. For more information, refer to [Changing the Network Binding Order on the MiCollab AM Platform](#).
- MiCollab AM supports G.729a with support for annex b on the incoming audio stream only. MiCollab AM does not transmit annex b packets.
- When codec negotiation takes place between MiCollab AM and the PBX, MiCollab AM always offers the G.729a audio format as an option. You may configure G.729a as the preferred codec in MiCollab AM; however, the decision whether to use G.729a is always made by the PBX.
- The SIP TCP/IP address in the **Integration Options** dialog box must match the SIP Terminal TCP/IP address configured in the telephone system.
- The Call Queuing feature does not transcend the Call Server. Calls may be queued on multiple Call Servers for the same subscriber but Call Servers do not have knowledge of calls in the queue on other Call Servers within the system. Callers may be prompted with specific information about their place in the queue; however, the information pertains only to the specific Call Server on which their call is queued.
- The use of Mitel PBX Cluster Node IDs is not supported. In PBX Administration, under **Voice Network > Cluster Elements** there is a column named **Primary Node ID (PNI)**. By default, this field must not be set for any node in the cluster. Because of specific site implementation, if this parameter is set, then extensions residing with that Cluster will be prefixed in the SIP layer of the voicemail, by the specific Node ID. This is not supported.

- Mitel MiVoice Business supports the Mitel Resiliency (redundant failover) feature. To use this feature, you must configure the Mitel PBXs accordingly. See the Mitel documentation for instructions on how to configure Mitel Resiliency.
- The following limitations exist in both functionality and behavior when using the Mitel Resiliency feature (combined with DNS failover):
  - There might be a delay of up to 5 minutes for the ports to register on the failed over PBX or back from it.
  - A manual MWI system wide refresh may be required each time the voicemail ports are transferred to another switch.
  - Call operations, including MWI, which are performed just prior to, or immediately following a resiliency event may fail and may not be repeated.
  - Calls in progress during a failover may be disconnected.
- The **Switch Section** parameter, **Maximum MWI Callouts**, must be set to 1 (one) in the Switch Section supporting this integration.
- The **Integration Specific Parameter, Onhook Delay**, must be set to 1000 for this integration.
- Phone stations as of MiVoice Business Release 8.0 can now have Private-Yes configured for direct station calls.
- MiCollab AM 9.2 supports up to 10 integration types (i.e., licensed integrations) in total per system. However, the following limitations apply to each Call Server:
  - Limited to 3 integration types per Call Server
  - The 3 integration types can be any mix of TDM and SIP (e.g., 1 TDM and 2 SIP)
  - Limited to 1 Cisco UCM SCCP IP integration. Can be mixed with TDM, but not with SIP
  - Connect up to 10 telephone systems total per Call Server (e.g., 2 Avaya Communication Manager systems using SIP + 5 Avaya IP Office systems using SIP + 3 Siemens HiPath 4000 systems using Station Set Emulation)
  - SIP timers for Aastra EETS integrations are incompatible with other SIP integrations. Thus, it is not possible to have an EETS integration with any other SIP integration on the Call Server.
- The MiCollab AM **Integration Options** parameter, **Validate Remote Hosts for Media** validates each incoming audio packet and accepts it only if it is sent from a valid endpoint. The parameter is disabled by default. Enabling this parameter causes MiCollab AM to reject RTP packets from invalid endpoints, rejects MWI packets that timeout after a specified number of times, and overcomes port lockups when callers hang up while MiCollab AM is performing a blind transfer.

**IMPORTANT** Enabling this parameter causes processing overhead and should only be enabled when necessary.

- It is recommended to use Windows Server 2016 or later for Integrations that use Session Initiation Protocol (SIP) Transport Layer Security (TLS) when FIPS is enabled on MiCollab AM. Older versions of Windows use algorithms that are not FIPS compliant to export the certificate information used for TLS. Because of this, MiCollab AM will not be able to access certificate-related data.

# Installation Requirements

Review the following information before performing any of the procedures in this document. To install this integration successfully, you must meet the installation requirements for both the telephone system and MiCollab AM.

## Telephone System Requirements

- Mitel MiVoice Business Version 9.1 or Version 9.1.0.92
- Mitel Border Gateway (TLS compatibility)
- One User license (for either a Mitel device or a SIP device)

**NOTE** Refer to the Mitel documentation for more information about these products.

## MiCollab AM Requirements

- MiCollab AM software version 9.2
- At least one 100 MB or 1000 MB network interface card and cable
- MiCollab AM software key diskette or feature file with the Mitel MiVoice Business SIP integration enabled and one Virtual SIP and RTP license enabled for each port involved in the integration

# Programming the Telephone System

Follow the recommendations and programming examples in this section to program Mitel MiVoice Business for integration with MiCollab AM. Programming examples show commands and parameters that are necessary for integration. They do not represent PBX programming in its entirety.

The installing technician should be familiar with programming Mitel MiVoice Business using the online System Administration application. Refer to the Mitel MiVoice Business Product documentation or online help for specific information on programming the telephone system.

## General Switch Programming

In addition to the specific programming listed in subsequent sections, please make sure the following parameters are set as indicated:

Make sure that **System Properties > System Feature Settings > Shared System Options > DPNSS/QSIG Diversion Enabled** is set to **Yes**. This feature affects integration of forwarded calls and must be enabled.

## Programming the Voicemail Class of Service

Create a separate Class of Service for the MiCollab AM ports and configure it to enable the required features and functionality of the integration.

To program the Class of Service:

- 1 On the Mitel System Administration web application's **Selection** list, go to **System Properties > System Feature Settings**, and then select **Class of Service Options**.
- 2 On the **Class of Service Options** list, find an unused **Class of Service Number**. If no unused Class of Service Number entries appear, click **Next** until an unused entry appears.

**IMPORTANT** Write down the **Class of Service (COS) Number** you selected as the MiCollab AM Class of Service. You need it later in the configuration process. A **Class of Service Number** that does not have a comment may nonetheless be in use. Refer to the actual configuration of your PBX to verify that a **Class of Service Number** is not in use.

This document assumes that all of the options for the **Class of Service Number** are set to their respective defaults. Refer to the Mitel online documentation to verify the default values for **Class of Service** options.

- 3 Click **Change**.
- 4 Configure the **Class of Service Number** options as described in the following table:

**NOTE** These are the minimum **COS** options required to configure the SIP voicemail ports for the integration.

Table 4. Class of Service Number option settings for MiCollab AM

Option	Value	Feature Type
Comment	VOICEMAIL_COS	(general)
ANI/DNIS/ISDN Number Delivery Trunk	Yes	(general)
COV/ONS/E&M Voice Mail Port	Yes	(general)
Force Device Busy if Any Line in Use	Yes	(general)
Auto Answer Allowed	No	(advanced)
Voice Mail Soft Key	Yes	(advanced)

- 5 Leave all other settings at their default.
- 6 Click **Save**.

## Programming the Voicemail SIP Device Capabilities

Program the SIP Device Capabilities for the MiCollab AM ports to enable the required features and functionality on the integration.

**NOTE** This document assumes that all of the options for the SIP Device Capabilities Number are set to their respective defaults. Refer to the Mitel online documentation to verify the default values for SIP Device Capabilities options.

### To program the SIP Device Capabilities:

- 1 On the Mitel System Administration web application's Selection list, go to **System Properties > System Feature Settings**, and then click **SIP Device Capabilities**.
- 2 On the **SIP Device Capabilities** list, find an unused **SIP Device Capabilities Number**.
- 3 Click **Next** until an unused entry appears.

**IMPORTANT** Write down the **SIP Device Capabilities Number** you selected as the **MiCollab AM SIP Device Capabilities**. You need it later in the configuration process.

A **SIP Device Capabilities Number** that does not have a comment may nonetheless be in use. Refer to the actual configuration of your PBX to verify that a SIP Device Capabilities Number is not in use.

- 4 Click **Change**.

- 5 Set the **SIP Device Capabilities Number** options as described in the following table:

Table 5. SIP Device Capabilities Number option settings for MiCollab AM

Option	Value
Comment	VOICEMAIL_DEV_capabilities
Replace System based with Device based In-Call Features	Yes
Prevent SDP Renegotiation if Peer Initiated Hold	Yes
Use P-Asserted-Identity Header	Yes

- 6 Leave all other settings at their default.
- 7 Click **Save**.

## Programming the Voicemail Ports

MiCollab AM ports for this integration emulate the Mitel Generic SIP Phone. Program the MiCollab AM ports as Generic SIP Phone type IP phones on the telephone system.

### To program the Voicemail Ports:

- 1 On the Mitel System Administration web application's **Selection** list, go to **Users and Devices > Advanced Configuration > IP Telephones**, and then click **Multiline IP Sets**.

- 2 The **Interconnect Number** in the next step may be site-specific.\

The suggested value of **1** should work for default configurations that do not use **Interconnect Restriction**. Refer to the Mitel online documentation for more information about Interconnect Numbers and Interconnect Restrictions.

**NOTE** You may be able to program many or all of your voicemail ports at once in the next step. Refer to the Mitel online documentation for more information on this procedure.

- 3 To configure one or more MiCollab AM ports, click **Add**.
- 4 On the **Device Type** list, select **Generic SIP Phone**, and then in the **Interconnect Number** text box, type **1**.
- 5 In the **Number** text box, type the extension number assigned to the MiCollab AM port.
- 6 In the **User PIN** and **Confirm User PIN** boxes, enter either the same password for all the extensions you are planning to use or nothing at all.

**IMPORTANT** If you enter a password, you must use the same password for all of the MiCollab AM ports. Write down the password, you need it later when you configure the **PBX Registration Password** field on MiCollab AM.



- 7 Click **Save**.
- 8 Repeat steps three through seven as required to configure the remaining MiCollab AM ports.

## Programming the Voicemail Ports into the Station Class of Service and the SIP Device Capabilities

To associate the MiCollab AM ports with the correct Class of Service and SIP Device capabilities, program the MiCollab AM ports into the Station Class of Service and SIP Device Capabilities you previously created in, *Programming the Voicemail Class of Service* and [Programming the Voicemail SIP Device Capabilities](#).

To program the Station Class of Service and SIP Device Capabilities:

- 1 On the Mitel System Administration web application's Selection list, go to **Users and Devices > Advanced Configuration**, and then click **Station Attributes**.
- 2 On the **Station Attributes** list, select the first MiCollab AM extension. If MiCollab AM extensions are not present in the list, search for the first extension, or click **Next** until a MiCollab AM extension appears.
- 3 Click **Change**.

**NOTE** In the next step, you may be able to program many or all of the **Station Service Assignments** at once. Refer to the Mitel online documentation for more information on this procedure.

- 4 In each of the **Class of Service – Day**, **Class of Service – Night1**, and **Class of Service – Night2** boxes, type the MiCollab AM Class of Service number.
- 5 For **SIP Device Capabilities**, type the Voicemail SIP Device Capabilities number.
- 6 Click **Save**.
- 7 Repeat steps two through six as needed to configure all the remaining voicemail ports.

## Programming the Voicemail ports as Multi-line Key Sets

In order for Supervised Transfer to work properly, at least one of the keys of the SIP device must be configured as **Multicall** to its own prime DN.

To program the Voicemail ports as Multi-line Key sets:

- 1 On the Mitel System Administration web application, go to **Users and Devices > Advanced Configuration > Multiline Set Keys**, search for the voicemail ports, and then select them in the upper **Multiline Set Keys** form.

- 2 On the lower **Programmable Keys** form, select **Button** number **2** (the first appearance in that table), and then click **Change Member**.
- 3 In the pop-up windows that appear, change the **Label** and **Button Directory Number** to match the exact extension of the voicemail port you are configuring.
- 4 Change the **Line Type** field to **Multicall**, the **Ring Type** field to **Ring**, and then click **Save**.
- 5 Repeat steps one through four for each voicemail port.

## Programming the Hunt Group for Voicemail Ports

Program a Voice Hunt Group and hunt group number that users dial to reach MiCollab AM. Choose a number that is easy for users to remember.

### To program the Voice Hunt Group number:

- 1 On the Mitel System Administration web application's Selection list, go to **Users and Devices > Group Programming > Hunt Groups**, and then click **Add** to configure a new hunt group.
- 2 In the **Hunt Group** box, type an extension number for the hunt group.

**NOTE** Choose a hunt group number that is easy for users to remember.

- 3 In the **Hunt Group Priority** box, type 64.
- 4 Select **Circular** as the hunt group mode.
- 5 In the **Hunt Group Type** list, select **VoiceMail**, and then click **Save**.

**IMPORTANT** Write down the **Voice Hunt Group** number you selected for this hunt group. You need it later when configuring MiCollab AM.

**NOTE** In the next step, you may be able to add many or all of your MiCollab AM ports to the **Voice Hunt Group** at once. Refer to the Mitel online documentation for more information on this procedure.

- 6 In the **Hunt Group** list, select the hunt group you just created, and then click **Add Member**.
- 7 In the **Number** box, enter the voicemail extension numbers you created in the section, [Programming the Voicemail Ports](#), and then click **Save**.
- 8 Repeat steps four through five to configure all of the remaining voicemail ports.

## Programming the Message Waiting System Feature Codes

The **Message-Waiting Activate and Deactivate** feature codes have a default code. Open the feature settings in system properties to view or change the current feature codes.

**NOTE** Write these codes down for use later when configuring the MiCollab AM Message Waiting Settings.

### To view or change the Message Waiting System Feature Settings in System Properties:

- 1 On the Mitel System Administration web application's Selection list, go to **System Properties > System Feature Setting > Feature Access Codes**, and then click **Message Waiting**.
- 2 Enter the code for **Message Waiting-Activate**.
- 3 Enter the code for **Message Waiting-Deactivate**.

**IMPORTANT** Do not enter codes that begin with a pound key (#). Mitel does not support them through the SIP layer.

## Programming the MiCollab AM Ports and Hunt Group for the Mitel Resiliency Feature

This section describes settings that pertain to the MiCollab AM ports and hunt group only. For information on programming Mitel Resiliency, refer to the related Mitel documentation or contact Mitel Technical Support.

### To program the MiCollab AM ports for Resiliency:

- 1 On the Mitel System Administration web application, select **Users and Devices**, and then click **User and Services Configuration**.
- 2 On the list of **User and Services Configuration**, select a voicemail port, click on number in **Summary**, and then click to pen details.
- 3 On the **Service Profile** Tab, configure the **Secondary Element** with the appropriate failover node name from the drop-down list.
- 4 Click **Save**.
- 5 Repeat steps one through three for each voicemail port.

### To program the MiCollab AM Hunt Group for Resiliency:

- 1 On the Mitel System Administration web application, go to **Users and Devices > Group Programming**, and then select **Hunt Groups**.
- 2 On the upper list of Hunt Groups, select the Voicemail Hunt Group you configured previously in the section, [Programming the Hunt Group for Voicemail Ports](#), and then click **Change**.
- 3 In the pop-up window that displays, go to **Secondary Element**, and then select the same element that you selected for the voicemail ports from the drop-down list.

4 Click **Save**.

# Configuring MiCollab AM

Once the telephone system is programmed, you must configure MiCollab AM for the integration. There are two ways you can configure MiCollab AM: (1) Configuring MiCollab AM for the telephone system integration when you are installing MiCollab AM for the first time, or (2) Configuring the existing MiCollab AM with the new telephone system integration.

Click the appropriate steps that your system requires from below and follow the steps:

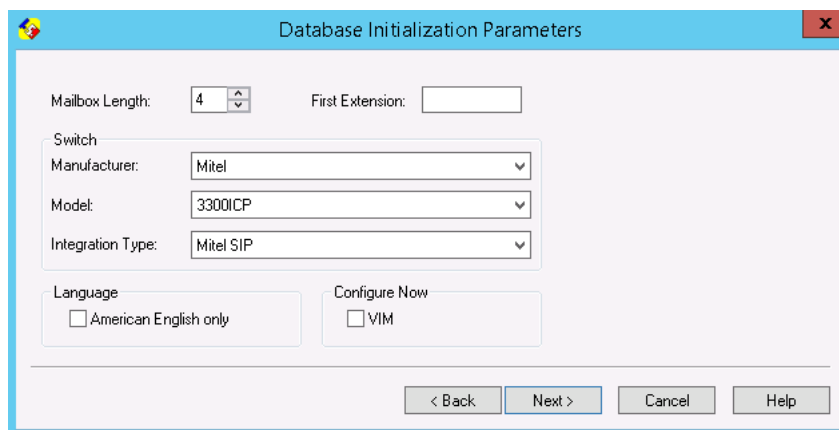
- [Configuring MiCollab AM for the Integration During Initial Installation](#): Integrate the telephone system while you install MiCollab AM for the first time.
- [Configuring Existing MiCollab AM for the Integration](#): Integrate a new telephone system on your exiting MiCollab AM system.

**NOTE** For general information on integrations, refer to the **Integrating MiCollab AM with the Telephone System** chapter in the *System Installation and Configuration Guide*, and the topic, **Integrating MiCollab AM with the Telephone System**, in the online help.

## Configuring MiCollab AM for the Integration During Initial Installation

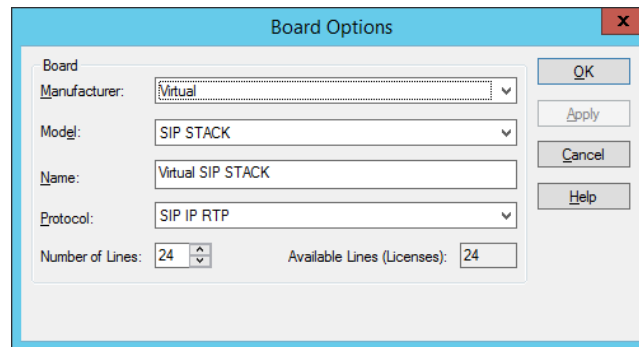
To configure MiCollab AM with the integration during the initial installation:

- 1 In the **Database Initialization Parameters** dialog box, configure the following options:



- a In the **Mailbox Length** box, enter the mailbox length in digits.
- b Leave the **First Extension** box empty.
- c From the **Manufacturer** drop-down list, select **Mitel**.
- d From the **Model** drop-down list, select **3300ICP**.
- e From the **Integration Type** drop-down list, select **Mitel SIP**.

- 2 Click **Next**. The **Board Options** dialog box displays for the virtual board configuration.

The 'Board Options' dialog box is shown with a blue title bar and a red close button. It contains several fields: 'Manufacturer' (Virtual), 'Model' (SIP STACK), 'Name' (Virtual SIP STACK), 'Protocol' (SIP IP RTP), 'Number of Lines' (24), and 'Available Lines (Licenses)' (24). On the right side, there are buttons for 'OK', 'Apply', 'Cancel', and 'Help'.

- 3 In the **Board Options** dialog box, configure the following options:
- a From the **Manufacturer** drop-down list, select **Virtual**.
  - b From the **Model** drop-down list, select **SIP STACK**.
  - c In the **Name** field, the name for this board is automatically generated. Enter a new name if necessary.
  - d From the **Protocol** drop-down list, select **SIP IP RTP**.
  - e In the **Number of Lines** field, enter the number of lines this board uses. The total number of lines is limited by the capacity of the board and the number of **Available Line Licenses**.
- 4 Click **OK**. The **Switch Options** dialog box appears.
- 5 If necessary, make any changes to the default settings your site requires in the **Switch Options** dialog box.

**NOTE** The settings related to the telephone system in the **Switch Options** dialog box are filled in automatically when you select the correct telephone system during setup.

If you need to customize settings on the **Switch Options** dialog box to meet requirements specific to your site, refer to the documentation accompanying the telephone system, the online help, and the *System Installation and Configuration Guide*.

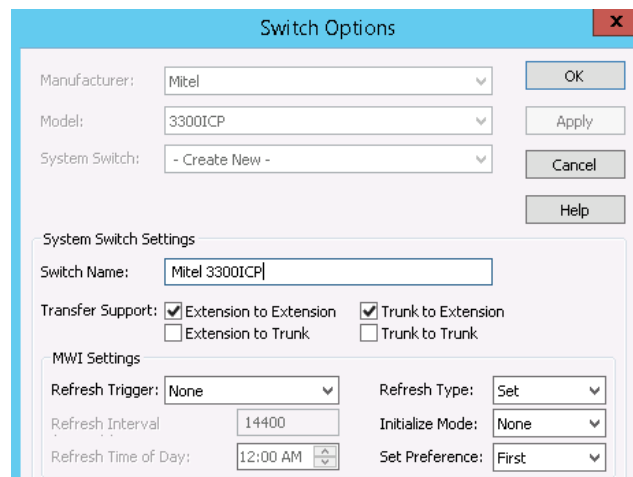
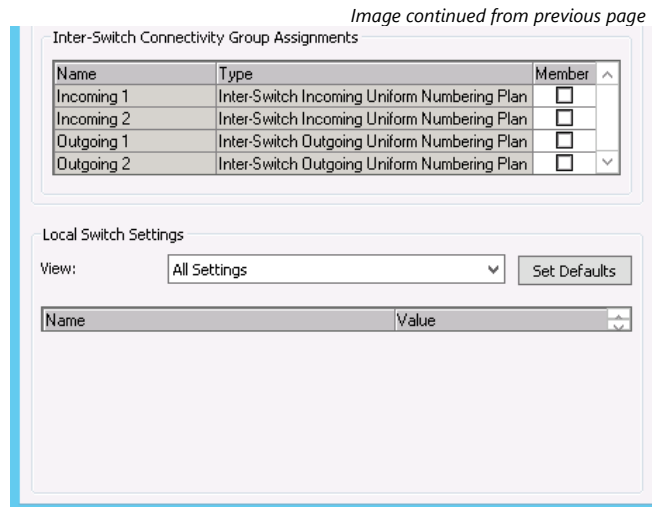
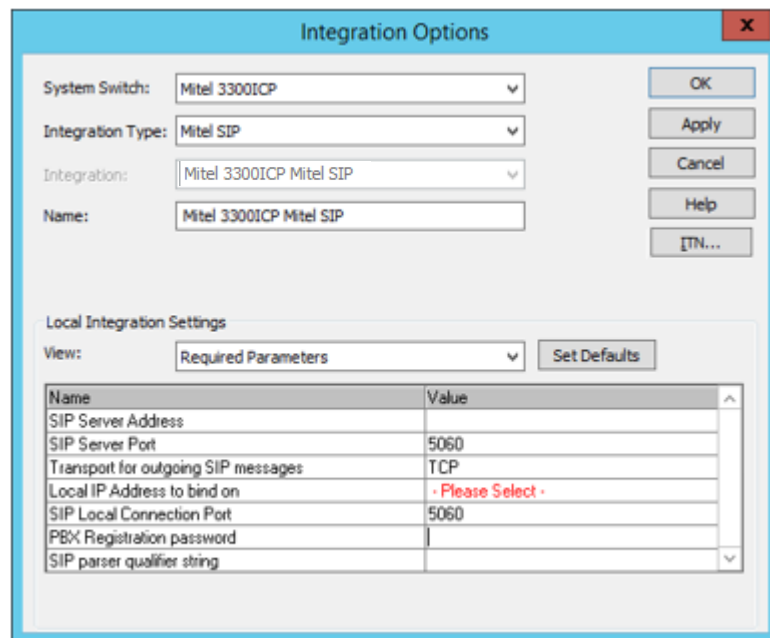
The 'Switch Options' dialog box is shown with a blue title bar and a red close button. It contains several fields: 'Manufacturer' (Mitel), 'Model' (3300ICP), 'System Switch' (- Create New -), 'Switch Name' (Mitel 3300ICP), 'Transfer Support' (checked for Extension to Extension, Trunk to Extension, Extension to Trunk, and Trunk to Trunk), 'MWI Settings' (Refresh Trigger: None, Refresh Interval: 14400, Refresh Time of Day: 12:00 AM, Refresh Type: Set, Initialize Mode: None, Set Preference: First). On the right side, there are buttons for 'OK', 'Apply', 'Cancel', and 'Help'.

Image continued on next page



6 Click **OK**. The **Integration Options** dialog box appears.



7 In the **Integration Options** dialog box, configure the following options:

- a In the **Local Integration Settings** section, select the **Required Parameters** view, and configure the settings as follows:

Table 6. Required Parameters View – Integration Options

Field	Value
SIP Server Address	Enter the IP Address or the DNS Fully Qualified Domain Name (FQDN) of the PBX or PBX cluster.
SIP Server Port	Enter the port on which the PBX listens for SIP messages. The default port number is 5060.
Transport for outgoing SIP	The default value, <b>TCP</b> is pre-selected. Select <b>UDP</b> if

Messages	your configuration requires UDP.
Local IP Address to bind on	Select the local IP Address of the Call Server that communicates with the PBX from the list.
SIP Local Connection Port	Enter the port on which the Call Server listens for incoming SIP messages. The default value is 5060.
PBX Registration Password	Enter the password associated with the MiCollab AM ports. This field is required only if a password is configured for MiCollab AM ports on the PBX. If you did not configure a password for the MiCollab AM ports in <a href="#">Programming the Voicemail Ports</a> , leave the field blank.
SIP parser qualifier string	<p>In cases of a single SIP integration on the call server, enter the local IP address to which the integration is bound. This field is used by MiCollab AM to match SIP packets to the appropriate SIP integration.</p> <p>In cases where there are multiple SIP integrations on the call server, use a string that is unique to each SIP integration.</p> <p><b>For example:</b></p> <p>The extension that will be used as the hunt number on the PBX followed by the @ symbol and the IP of the call server, such as 5000@172.16.4.202. <i>The hunt number must be unique across all IP integrations.</i></p> <p>The Fully Qualified Domain Name (FQDN) of the switch, such as pbx1.sipdomain.com.</p> <p><b>NOTE</b> This setting must match a string in the SIP header that is unique to this particular integration.</p>

- b** In the **Local Integration Settings** section, select the **Message Waiting Settings** View, and configure the following options:

Local Integration Settings

View: Message Waiting Settings Set Defaults

Name	Value
Max simultaneous MWI operations	1
Pause between MWI	250
Maximum MWI retries after a failure	1
MWI Retry Interval (min:sec)	00:10
Set MWI Dialing Template	
Clear MWI Dialing Template	
MWI notification destination address	
MWI notification destination port number	5060



Table 7. Message Waiting Settings

Field	Value
Set MWI Dialing Template	Enter the value from the Message Waiting-Activate field as configured on the PBX, and then add an X suffix. MiCollab AM replaces the <b>X</b> with the extension number for which a MWI message is sent.
Clear MWI Dialing Template	Enter the value from the Message Waiting-Deactivate field as configured on the PBX, and then add an X suffix. MiCollab AM replaces the <b>X</b> with the extension number for which a MWI message is sent.

- a** In the **Local Integration Settings** section, select the **Integration Specific Parameters** View, and configure the following options:

Integration Options

System Switch: Mitel 3300ICP

Integration Type: Mitel SIP

Integration: Mitel 3300ICP Mitel SIP

Name: Mitel 3300ICP Mitel SIP

Local Integration Settings

View: Integration Specific Parameters

Name	Value
Parser filename	MitelSIP
Incoming off hook delay	900
Outgoing off hook delay	0
On hook delay	1000
Session Expires value in seconds	1800
Minimum acceptable value of Session Expires	90
Trim After DTMF	70
Disconnect Trim (Out-of-Band)	0
Base ASR Sensitivity (Internal)	5

- Find the parameter **On hook Delay**, and then change the value to **1000**.
- Find the parameter **Type of Call Progress to use for External Calls**.

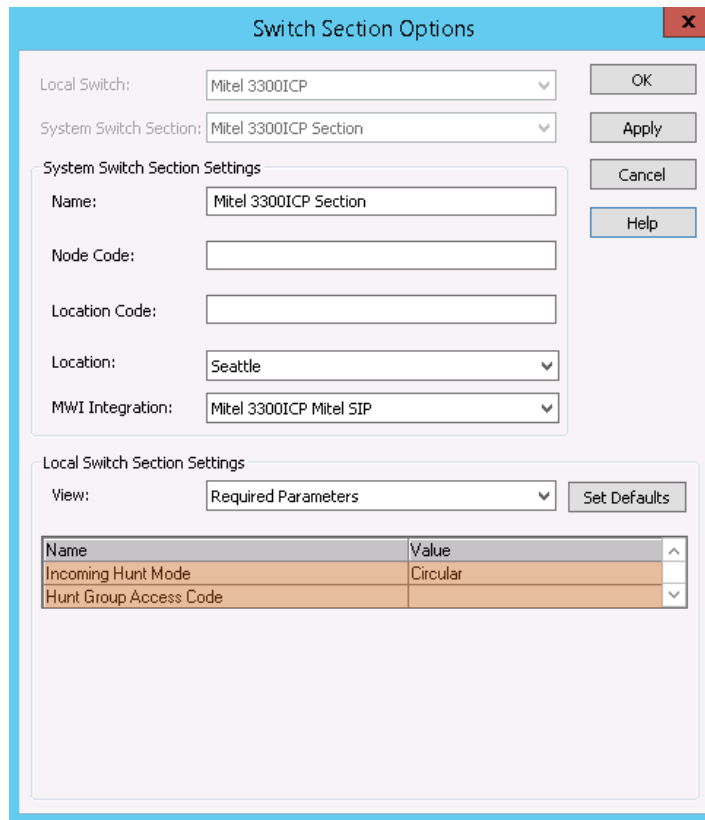
Local Integration Settings

View: Integration Specific Parameters

Name	Value
Base ASR Sensitivity (External)	5
Use Single Channel on Blind Transfers	<input type="checkbox"/>
Use Single Channel for Monitor Transfers	<input type="checkbox"/>
Type of call progress to use for external calls	Digital
Enable SIP server failover	<input type="checkbox"/>
Delay (in MS) between Failover attempts	1000
Enable fallback to primary SIP server	<input type="checkbox"/>
Rehome to Primary server timer (in MS)	90000
Maximum SIP message size (in Kilobytes)	4

- Digital:** Select Digital if the gateway supports call progress through to the endpoint.
- Media:** Select Media if the gateway reports early that the call is connected, such as before the phone rings or while the phone is ringing.

- 8 Click **OK**. The **Switch Section Options** dialog box appears.

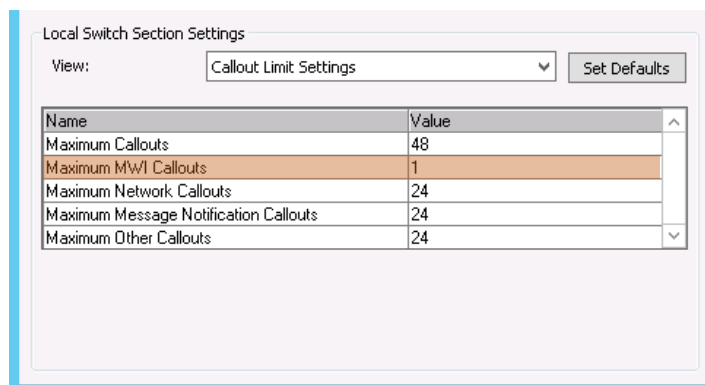


The **Switch Section Options** dialog box is shown. It contains the following fields and sections:

- Local Switch:** Mitel 3300ICP
- System Switch Section:** Mitel 3300ICP Section
- System Switch Section Settings:**
  - Name:** Mitel 3300ICP Section
  - Node Code:**
  - Location Code:**
  - Location:** Seattle
  - MWI Integration:** Mitel 3300ICP Mitel SIP
- Local Switch Section Settings:**
  - View:** Required Parameters
  - Set Defaults** button
  - | Name                   | Value    |
|------------------------|----------|
| Incoming Hunt Mode     | Circular |
| Hunt Group Access Code |          |

Buttons: OK, Apply, Cancel, Help.

- 9 In the **Switch Section Options** dialog box, configure the following options:
- In the **Local Switch Section Settings** section, select the **Required Parameters** View.
    - Find the parameter **Incoming Hunt Mode**, and select **Circular**.
    - In the **Hunt Group Access Code** value box, type the code you created in the section, [Programming the Hunt Group for Voicemail Ports](#).
  - In the **Local Switch Section Settings** section, select the **Callout Limit Settings** View.



The **Local Switch Section Settings** dialog box is shown. It contains the following fields and sections:

- View:** Callout Limit Settings
- Set Defaults** button
- | Name                                  | Value |
|---------------------------------------|-------|
| Maximum Callouts                      | 48    |
| Maximum MWI Callouts                  | 1     |
| Maximum Network Callouts              | 24    |
| Maximum Message Notification Callouts | 24    |
| Maximum Other Callouts                | 24    |

- In the **Maximum MWI Callouts Value** field, type **1**.

**NOTE** This value must be one.

- c Click **OK**.
- 10 Continue through and complete the configuration. At the end of the configuration, a confirmation dialog box appears. Click **OK**.
- 11 If **MiCollab AM Configuration** does not open automatically after the configuration completes, open **MiCollab AM Configuration**, and select the **Lines** tab.
- 12 In the table from the **Lines** tab, enter the extension number of each integrated line on the Call Server.
- 13 Click **OK** to save all changes.

## Configuring Existing MiCollab AM for the Integration

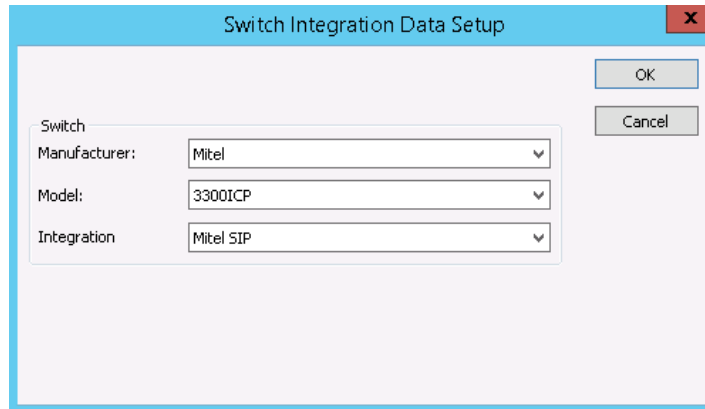
To configure exiting MiCollab AM for the telephone integration:

- 1 Open **MiCollab AM Configuration**, and go to the **Main** tab.
- 2 In the **Main** tab, click **Shutdown** to stop the system. Wait until the **Current Status** shows **Stopped**.

**NOTE** If you have not configured the virtual board with your MiCollab AM system yet, complete **Step 3**. If your MiCollab AM already has the virtual board configured, skip to **Step 4**.

- 3 **[Optional]** Select the **Boards** tab, and then click the **Add** button. The **Board Options** dialog box appears.

- a From the **Manufacturer** drop-down list, select **Virtual**.
  - b From the **Model** drop-down list, select **SIP STACK**.
  - c In the **Name** field, the name for this board is automatically generated. Enter a new name if necessary.
  - d From the **Protocol** drop-down list, select **SIP IP RTP**.
  - e In the **Number of Lines** field, enter the number of lines this board uses. The total number of lines is limited by the capacity of the board and the number of **Available Line Licenses**.
  - f Click **OK**.
- 4 Select the **Switch** tab, and click the **Add** button. The **Switch Integration Data Setup** dialog box appears.



- a** From the **Manufacturer** drop-down list, select **Mitel**.
  - b** From the **Model** drop-down list, select **3300ICP**.
  - c** From the **Integration Type** drop-down list, select **Mitel SIP**.
- 5** Click **OK**. The **Switch Options** dialog box appears.
- 6** If necessary, make any changes to the default settings your site requires in the **Switch Options** dialog box.

**NOTE** The settings related to the telephone system in the **Switch Options** dialog box are filled in automatically when you select the correct telephone system during setup.

If you need to customize settings on the **Switch Options** dialog box to meet requirements specific to your site, refer to the documentation accompanying the telephone system, the online help, and the *System Installation and Configuration Guide*.

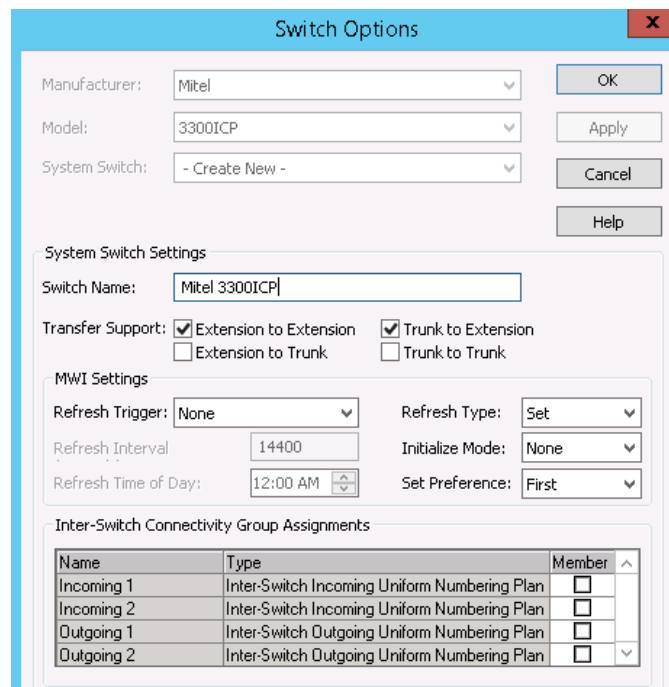
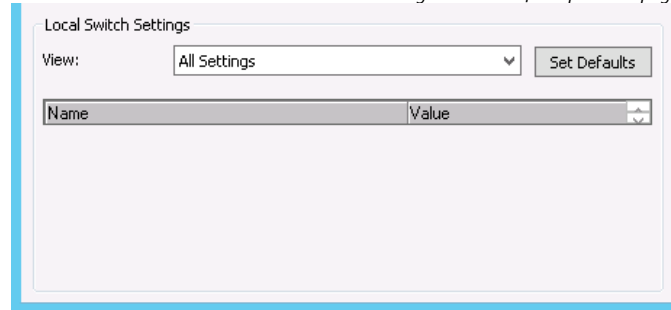


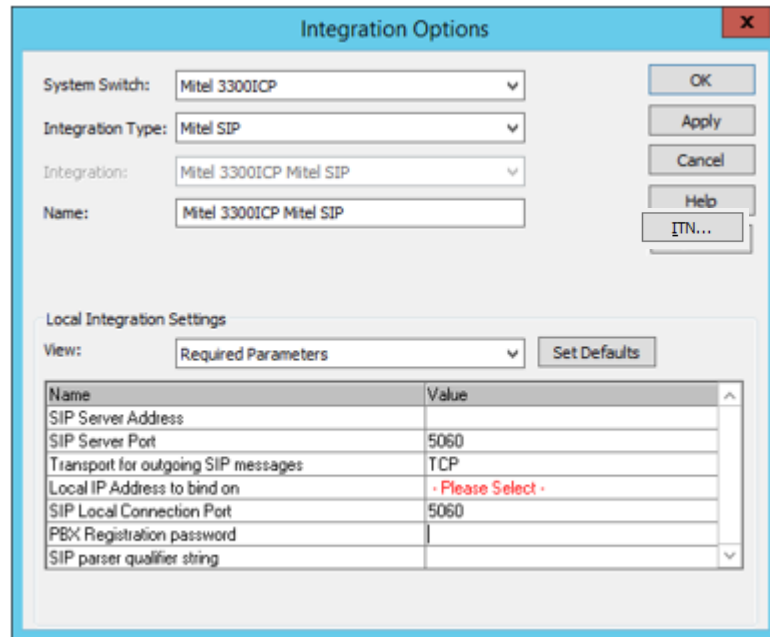
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The 'Local Switch Settings' dialog box has a 'View' dropdown menu set to 'All Settings' and a 'Set Defaults' button. Below this is a table with two columns: 'Name' and 'Value'. The table is currently empty.

- 7 Click **OK**. The **Integration Options** dialog box appears.



The 'Integration Options' dialog box contains several configuration fields: 'System Switch' (Mitel 3300ICP), 'Integration Type' (Mitel SIP), 'Integration' (Mitel 3300ICP Mitel SIP), and 'Name' (Mitel 3300ICP Mitel SIP). On the right are buttons for 'OK', 'Apply', 'Cancel', 'Help', and 'ITN...'. Below these is the 'Local Integration Settings' section, which has a 'View' dropdown set to 'Required Parameters' and a 'Set Defaults' button. It contains a table with the following data:

Name	Value
SIP Server Address	
SIP Server Port	5060
Transport for outgoing SIP messages	TCP
Local IP Address to bind on	- Please Select -
SIP Local Connection Port	5060
PBX Registration password	
SIP parser qualifier string	

- 8 In the **Integration Options** dialog box, configure the following options:

- a In the **Local Integration Settings** section, select the **Required Parameters** view, and configure the settings as follows:

Table 8. Required Parameters View – Integration Options

Field	Value
SIP Server Address	Enter the IP Address or the DNS Fully Qualified Domain Name (FQDN) of the PBX or PBX cluster.
SIP Server Port	Enter the port on which the PBX listens for SIP messages. The default port number is 5060.
Transport for outgoing SIP Messages	The default value, <b>TCP</b> is pre-selected. Select <b>UDP</b> if your configuration requires UDP.
Local IP Address to bind on	Select the local IP Address of the Call Server that communicates with the PBX from the list.
SIP Local Connection Port	Enter the port on which the Call Server listens for

incoming SIP messages. The default value is 5060.

PBX Registration Password	Enter the password associated with the MiCollab AM ports. This field is required only if a password is configured for MiCollab AM ports on the PBX. If you did not configure a password for the MiCollab AM ports in <a href="#">Programming the Voicemail Ports</a> , leave the field blank.
SIP parser qualifier string	<p>In cases of a single SIP integration on the call server, enter the local IP address to which the integration is bound. This field is used by MiCollab AM to match SIP packets to the appropriate SIP integration.</p> <p>In cases where there are multiple SIP integrations on the call server, use a string that is unique to each SIP integration.</p> <p><b>For example:</b></p> <p>The extension that will be used as the hunt number on the PBX followed by the @ symbol and the IP of the call server, such as 5000@172.16.4.202. <i>The hunt number must be unique across all IP integrations.</i></p> <p>The Fully Qualified Domain Name (FQDN) of the switch, such as pbx1.sipdomain.com.</p> <p><b>NOTE</b> This setting must match a string in the SIP header that is unique to this particular integration.</p>

- b** In the **Local Integration Settings** section, select the **Message Waiting Settings** View, and configure the following options:

Name	Value
Max simultaneous MWI operations	1
Pause between MWI	250
Maximum MWI retries after a failure	1
MWI Retry Interval (min:sec)	00:10
Set MWI Dialing Template	
Clear MWI Dialing Template	
MWI notification destination address	
MWI notification destination port number	5060

Table 9. Message Waiting Settings

Field	Value
Set MWI Dialing Template	Enter the value from the Message Waiting-Activate field as configured on the PBX, and then add an X suffix. MiCollab AM replaces the <b>X</b> with the extension

number for which a MWI message is sent.

Clear MWI Dialing Template Enter the value from the Message Waiting-Deactivate field as configured on the PBX, and then add an X suffix. MiCollab AM replaces the **X** with the extension number for which a MWI message is sent.

- C** In the **Local Integration Settings** section, select the **Integration Specific Parameters** View, and configure the following options:

The screenshot shows the 'Integration Options' dialog box. Under the 'Local Integration Settings' section, the 'View' is set to 'Integration Specific Parameters'. A table lists various parameters and their values:

Name	Value
Parser filename	MitelSIP
Incoming off hook delay	900
Outgoing off hook delay	0
On hook delay	1000
Session Expires value in seconds	1800
Minimum acceptable value of Session Expires	90
Trim After DTMF	70
Disconnect Trim (Out-of-Band)	0
Base ASR Sensitivity (Internal)	5

- Find the parameter **On hook Delay**, and then change the value to **1000**.
- Find the parameter **Type of Call Progress to use for External Calls**.

The screenshot shows the 'Local Integration Settings' dialog box. Under the 'Integration Specific Parameters' view, a table lists various parameters and their values:

Name	Value
Base ASR Sensitivity (External)	5
Use Single Channel on Blind Transfers	<input type="checkbox"/>
Use Single Channel for Monitor Transfers	<input type="checkbox"/>
Type of call progress to use for external calls	Digital
Enable SIP server failover	<input type="checkbox"/>
Delay (in MS) between Failover attempts	1000
Enable fallback to primary SIP server	<input type="checkbox"/>
Rehome to Primary server timer (in MS)	90000
Maximum SIP message size (in Kilobytes)	4

- Digital:** Select Digital if the gateway supports call progress through to the endpoint.
- Media:** Select Media if the gateway reports early that the call is connected, such as before the phone rings or while the phone is ringing.

- 9** Click **OK**. The **Switch Section Options** dialog box appears.

**Switch Section Options**

Local Switch: Mitel 3300ICP

System Switch Section: Mitel 3300ICP Section

System Switch Section Settings

Name: Mitel 3300ICP Section

Node Code:

Location Code:

Location: Seattle

MWI Integration: Mitel 3300ICP Mitel SIP

Local Switch Section Settings

View: Required Parameters

Name	Value
Incoming Hunt Mode	Circular
Hunt Group Access Code	

**10** In the **Switch Section Options** dialog box, configure the following options:

- a** In the **Local Switch Section Settings** section, select the **Required Parameters** View.
  - Find the parameter **Incoming Hunt Mode**, and select **Circular**.
  - In the **Hunt Group Access Code** value box, type the code you created in the section, [Programming the Hunt Group for Voicemail Ports](#).
- b** In the **Local Switch Section Settings** section, select the **Callout Limit Settings** View.

Local Switch Section Settings

View: Callout Limit Settings

Name	Value
Maximum Callouts	48
Maximum MWI Callouts	1
Maximum Network Callouts	24
Maximum Message Notification Callouts	24
Maximum Other Callouts	24

- In the **Maximum MWI Callouts Value** field, type **1**.

**NOTE** This value must be one.

- c** Click **OK**.



- 11 In **MiCollab AM Configuration**, verify that the telephone system is properly added and configured in the **Switches**, **Switch Sections**, and **Integrations** tabs.
- 12 Select the **Lines** tab.
- 13 In the table from the **Lines** tab, configure callouts for the application. For information on configuring callout settings, see the topic *Configuring Callout Settings*, in the online help system.
- 14 Click **OK** to save all changes.

## Configuring MiCollab AM for SIP Failover

MiCollab AM can be configured for automatic failover to the secondary SIP server in the event of the primary/host SIP server failure. Use the instructions provided in this section to add or remove secondary SIP server(s) for failover.

### To add a SIP failover server:

- 1 From **MiCollab AM Configuration**, click the **Integrations** tab.
- 2 From the **Integrations** list, select your integration, and then click **Edit**.
- 3 In the **Integration Options** dialog box, go to the **Local Integration Settings** section.
- 4 From the **View** drop-down list, select **Failover Server Settings**.
- 5 Click the **Add Failover Server** button. Two new rows are added to configure the secondary SIP server.
- 6 In the **Secondary SIP Server Address** and **Secondary SIP Server Port** rows, enter the appropriate value as follows:

Table 10. Secondary SIP Server Address and the Secondary SIP Server Port example

Field	Value
Secondary SIP Server Address	<div>Enter the TCP/IP address or an FQDN of the secondary node.</div> <div><b>For example:</b> The IP address 123.45.6.789 as displayed on the Review/Modify SIP Gateway screen.</div> <div><b>NOTE</b> This integration requires the machine name to be a fully qualified domain name. Therefore, use the Machine Name field as displayed on the Review/Modify SIP Gateway screen during the integration process.</div> <div><b>IMPORTANT</b> This value must match the configuration on the Gateway of the secondary node.</div>
Secondary SIP Server Port	Enter the port number of the secondary node. The default value is <b>5060</b> .

- 7 From the **View** drop-down list, select **Integration Specific Parameters**. The **Integration Specific Parameters** view appears.
- 8 In the **Integration Specific Parameters** list, enter the information as shown in the following table:

**NOTE** The parameters in the following table is listed in alphabetical order. The actual Integration Specific Parameters on your system may not be listed in the same order presented in the table below.

Table 11. Integration Specific Parameters

Field	Value
Enable SIP server failover	Select this check box to allow for failover and to enable the failover server setting changes.
Delay (in ms) between Failover attempts	The delay in milliseconds before MiCollab AM attempts to register its port with the SIP server. The default is <b>1000</b> ms.
Incoming off hook delay	800
Outgoing off hook delay	0
On hook delay	300
Type of Call Progress to use for External Calls	<p>How this should be set depends on the gateway used for the integration.</p> <ul style="list-style-type: none"><li>• If the gateway supports call progress through to the endpoint, set to <b>Digital</b>.</li><li>• If the gateway reports early that the call is connected, such as before the phone rings or while the phone is ringing, set to <b>Media</b>.</li></ul>

- 9 Click **Apply** to save the changes.
- 10 To add another failover server repeat **Steps 4-9**.
- 11 Click **OK** to close the **Integration Options** dialog box.

## To remove a SIP Failover Server:

- 1 From **MiCollab AM Configuration**, click the **Integrations** tab.
- 2 From the **Integrations** list, select your integration, and then click **Edit**.
- 3 In the **Integration Options** dialog box, go to the **Local Integration Settings** section.
- 4 From the **View** drop-down list, select **Failover Server Settings**.
- 5 In the **Failover Server Settings** view, click the **Remove Failover Server** button.
- 6 At the confirmation prompt, click **Yes** to confirm the deletion.

**NOTE** If multiple servers are listed, the last server address and port pair on the list is deleted first.

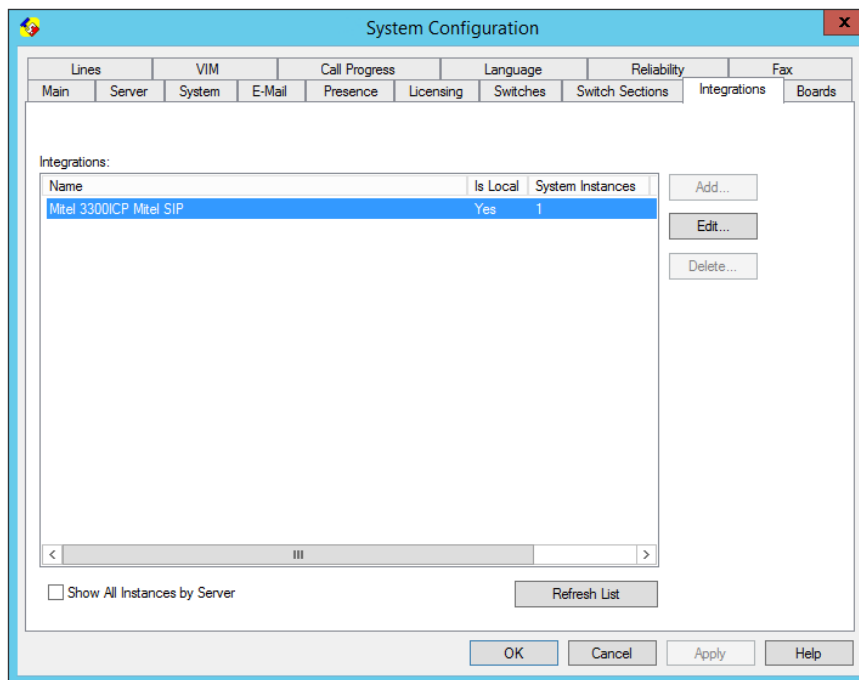
- 7 Click **Apply** to save the changes, and then click **OK** to close the **Integration Options** dialog box.

## Configuring MiCollab AM for TLS

MiCollab AM can be configured for Transport Layer Signaling (TLS). Use the instructions provided in this section to add or remove TLS.

To configure TLS settings:

- 1 From **MiCollab AM Configuration**, click the **Integrations** tab.



- 2 From the **Integrations** list, select your integration, and then click **Edit**.
- 3 In the **Integration Options** dialog box, go to the **Local Integration Settings** section.

**Integration Options**

System Switch: Mitel 3300ICP

Integration Type: Mitel SIP

Integration: Mitel 3300ICP Mitel SIP

Name: Mitel 3300ICP Mitel SIP

OK  
Apply  
Cancel  
Help  
ITN...

**Local Integration Settings**

View: Connection Security Settings Set Defaults

Name	Value
Enable TLS	<input checked="" type="checkbox"/>
SIP server TLS Port	5061
SIP Local TLS Port	5061
SSL/TLS protocol version	TLS V1.2
Preferred URL Scheme	sip
Thumbprint call server certificate	...
MTLS (Mutual TLS) required	<input type="checkbox"/>

Add Trusted SIP Server Address Remove Trusted SIP Server Address

☒ Show thumbprint properties [allows selection of certificates from Windows certificate store]

Add Local Issuer Certificate Remove Local Issuer Certificate

Add Remote Trusted Certificate Remove Remote Trusted Certificate

- 4 From the **View** drop-down list, select **Connection Security Settings**.
- 5 Click the **Enable TLS** button. This will put an **X** in the checkbox.
- 6 Check the value listed in the **SIP server TLS Port** and **SIP Local TLS Port**, and enter port **5061** as the value. The default value is 5060.

Name	Value
Input volume shift from the phone line	0
Media encryption preference	RTP and SRTP
Prefer RTP over SRTP	<input type="checkbox"/>
Encryption and Authentication algorithm preference	AES_CM_128_HMAC_SHA1_80
Transmit Master Key Identifier	<input checked="" type="checkbox"/>
Default size of the Master Key Identifier	4
Enable Key Derivation Rate	<input type="checkbox"/>
Key Derivation Rate	16
Window Size Hint	64

- 7 From the **View** drop-down list, select **Media Settings**.  
Scroll down the screen to locate **Media encryption preference**, and then select **RTP and SRTP** from the drop-down list.
- 8 Click **Apply** to save the changes.
- 9 Click **OK** to close the **Integration Options** dialog box.
- 10 To remove TLS, change the following values in the **Local Integration Settings** section of the **Integration Options** dialog box:
  - a From the **View** drop-down list, select **Media Settings**.  
Scroll down the screen to locate **Media encryption preference**, and then select **RTP Only** from the drop-down list.
  - b From the **View** drop-down list, select **Connection Security Settings**.  
Clear the **Enable TLS** checkbox and change the values in **SIP server TLS Port** and **SIP Local TLS Port** to **5060**.
  - c Click **Apply** to save the changes.
  - d Click **OK** to close the **Integration Options** dialog box.

# Changing the Network Binding Order on the MiCollab AM Platform

If your MiCollab AM server platform is a component of two or more local or wide area networks (LANs or WANs), you must make sure that this integration does not interfere with the normal network operation of the server. By default, MiCollab AM uses the primary (public) network interface card (NIC) in the platform, the first NIC in the network binding order. If you want MiCollab AM to use a NIC other than the first one, you must make several required configuration changes. It is much easier to configure the Integration to use another NIC by simply setting the integration parameter **Local IP Address to bind on** to the address of the NIC connected to the PBX.

**NOTE** The operating system gives precedence to the first network connection in the list followed by the remaining connections based on their position in the list.

The instructions in this section ensure that the binding order is correct when you set up the integration. However, if you replace a NIC on the MiCollab AM server platform later, the platform's operating system registers the new adapter at the bottom of its binding order. Restoring the original binding order should correct any problems caused by the change.

**IMPORTANT** The following procedure shifts the binding order of the network interface cards. To determine which NIC is associated with a specific network connection, right-click the connection in the **Network Connections** window, and then select **Properties**.

## Windows Server 2012 R2

To change the binding order of multiple NICs:

- 1 From the taskbar, click **Start** > **Control Panel**.
- 2 In the **Control Panel**, click **Network and Internet** > **Network and Sharing Center**.
- 3 On the left pane, select **Change Adapter Settings**.
- 4 Press **Alt** to display the menu bar.
- 5 On the menu bar, select **Advanced**, and then click **Advanced Settings**.
- 6 On the **Adapters and Bindings** tab of **Advanced Settings**, click the network connection that serves MiCollab AM.
- 7 Click the up arrow button to the right of the **Connections** list as many times as needed to move the connection to the top of the list.
- 8 Click **OK**, and then close the **Network Connections** window and the **Control Panel**.

# Windows Server 2016 / 2019

To change the binding order of multiple NICs:

- 1 From the taskbar, select **Start > Control Panel**.
- 2 In the **Control Panel**, click **Network and Internet > Network and Sharing Center**.
- 3 On the left pane, select **Change Adapter Settings**.
- 4 Right-click the network connection that serves MiCollab AM and then select **Properties**.
- 5 On the **Networking** tab of the **Local Area Connection Properties** dialog box, select **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**.
- 6 On the **General** tab of the **Internet Protocol Version 4 (TCP/IPv4) Properties** dialog box, click the **Advanced** button.
- 7 On the **IP Settings** tab of the **Advanced TCP/IP Settings** dialog box, clear the **Automatic metric** check box and then type in a low value in the **Interface metric** field. The lower the value, the higher the priority.

**NOTE** For all Windows systems, the value 1 is reserved for the loopback adapter. It is recommended to use a value of 2 or higher for the network connection that serves MiCollab AM.

- 8 Click **OK** on all of the dialog boxes to save the settings, and then close the **Local Area Connection Properties** dialog box.
- 9 Repeat steps 4 through 8 to assign an Interface metric value to all other network adapters.

# Configuring Quality of Service (QoS)

As of version 6.0, MiCollab AM has no internal support for QoS. QoS must now be implemented externally via group policies as Policy-Based QoS. Refer to your operating system's documentation for details.

Table 12. QoS Configuration

Field	Setting
Application Name	At_TelephonyServer.exe
Protocol	Match the setting used for the integration UDP or TCP
Source Port	<p>MiCollab AM requires a range of ports for audio support. The MiCollab AM audio ports start at the Local Media Base UDP Port configured in the <b>Server</b> tab. Each MiCollab AM line reserves 10 ports. Hence, the port range starts from the number configured there, and goes to the last port of the last line. The formula for calculating the highest port number in the range is as follows:</p> $\text{BasePortNumber} + (\text{NumberOfCXPorts} * 10) - 1.$ <p>Hence, if the base port is 10000, and MiCollab AM has 8 lines, then the port range to use would be:</p> <p>10000:10079</p>
DSCP Value	46