

MiCollab Advanced Messaging 9.3 MiVoice Office 400 SIP Station Integration Technical Note

For version 9.3 and above

Notice

The information contained in this document is believed to be accurate in all respects but is not warranted by Mitel Networks™ Corporation (MITEL®). Mitel makes no warranty of any kind with regards to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. The information is subject to change without notice and should not be construed in any way as a commitment by Mitel or any of its affiliates or subsidiaries. Mitel and its affiliates and subsidiaries assume no responsibility for any errors or omissions in this document. Revisions of this document or new editions of it may be issued to incorporate such changes.

No part of this document can be reproduced or transmitted in any form or by any means - electronic or mechanical - for any purpose without written permission from Mitel Networks Corporation.

Trademarks

The trademarks, service marks, logos and graphics (collectively "Trademarks") appearing on Mitel's Internet sites or in its publications are registered and unregistered trademarks of Mitel Networks Corporation (MNC) or its subsidiaries (collectively "Mitel") or others. Use of the Trademarks is prohibited without the express consent from Mitel. Please contact our legal department at legal@mitel.com for additional information. For a list of the worldwide Mitel Networks Corporation registered trademarks, please refer to the website: <http://www.mitel.com/trademarks>.

© Copyright 2022, Mitel Networks Corporation

All rights reserved

Contents

Preface	4
References	4
Documentation	4
Documentation Updates	5
Help	5
Document Conventions	5
Features Supported by this Integration	7
Critical Application Considerations	9
Telephone System Considerations	10
Installation Requirements	11
Telephone System Requirements	11
MiCollab AM Requirements	11
Programming the Telephone System	12
Creating Users and Terminals for the Integration	12
Configuring the Voicemail User Group for the Integration	13
Assigning a Password to each MiCollab AM SIP Terminal	14
Configuring Call Distribution Elements	15
Configuring MiCollab AM	16
Configuring MiCollab AM for the Integration During Initial Installation	16
Configuring Existing MiCollab AM for the Integration	21
Configuring MiCollab AM for SIP Failover	26
Changing the Network Binding Order on the MiCollab AM Platform	28
Windows Server 2012 R2	28
Windows Server 2016 / 2019	29
Configuring Quality of Service (QoS)	30

Preface

This Integration Technical Note (ITN) is written for dealers 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 MiVoice Office 400.

This document describes how to integrate MiCollab AM with a MiVoice Office 400 system using the Session Initiation Protocol (SIP) integration. The MiVoice Office 400 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.

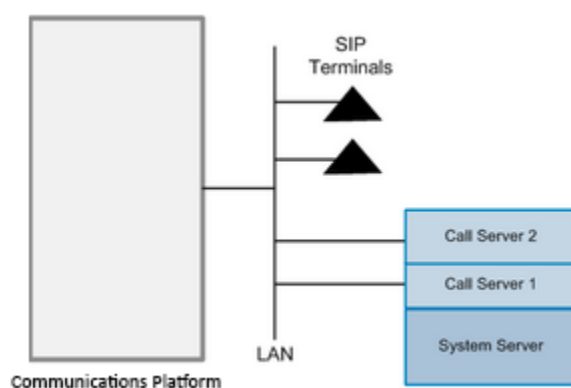


Figure 1. MiCollab AM Integration Diagram

MiCollab AM registers its SIP ports as terminals or endpoints. MiVoice Office 400 provides the hunting. MiVoice Office 400 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 MiVoice Office 400 integration. The process consists of programming MiVoice Office 400, installing MiCollab AM 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

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 MiVoice Office 400 system, see the *MiVoice Office 400* documentation.

Features Supported by this Integration

The following tables list the features supported using the MiVoice Office 400 SIP Station 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
Forward All	Yes
Do Not Disturb/Deflect/Reject	Yes

Table 3. Integration features supported for MiVoice Office 400 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	
Live reply to sender	Yes	
Message notification callouts	Yes	
MWI, set/clear	Yes	
Networking, analog	Yes	

Overflow from MiCollab AM to attendant	Yes	
Overflow to MiCollab AM from attendant	Yes	
PBX-provided disconnect signaling	Yes	
Revert to operator	Yes	
Transfers, blind	No	Note 3
Transfers, confirmed	Yes	
Transfers, supervised	Yes	
Transfers, monitored	Yes	Note 3
Trunk ID for call routing	Yes	
Multiple Integrations	Yes	Note 4

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 [Critical Application Considerations](#).
3. Refer to the Telephone System Considerations section of the Critical Application Considerations section.
4. 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.
- You must configure the MiCollab AM **Incoming Hunt Mode** in the **Switch Section Options** dialog box. The hunt mode must match the type of hunting provided by the IP PBX. This helps to alleviate any *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.
- The Windows quality of service (QoS) packet scheduler must be installed and operational on the network connection serving MiCollab AM and the telephone system. For more information about installing and configuring the QoS packet scheduler, refer to Windows Help.
- 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 IP address in the **Integration Options** dialog box must match the SIP 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 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.

- MiCollab AM 9.3 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 the Mitel TSW IP integrations are incompatible with other SIP integrations. Thus, it is not possible to have a Mitel TSW IP integration with any other SIP integration on the Call Server.

Telephone System Considerations

- Transfers to internal stations are disconnected on busy conditions if Call Forward Busy is not enabled.
- Transfers to external stations are disconnected on busy conditions
- MiVoice Office 400 Digital Set Restrictions
 - One call forwarding type can be active at a time. The call forwarding features on digital sets can be set to CFU (FWDALL), CFB (FWDBSY), or CFNR (FWDRNA), however only one forwarding type can be active at a time. Setting one forwarding type automatically clears any other forwarding type set previously.
 - Multi-hop CFNA and CFB forwarded calls from digital stations to MiCollab AM fail to reach MiCollab AM; the caller hears RNA or Busy. For example, digital set subscriber A forwards calls to digital station B, and station B is CFNA or CFB to MiCollab AM. If digital station C calls digital station A, the call is not forwarded, resulting in an RNA or Busy condition. In the same scenario, if digital station B is CFU to MiCollab AM, the caller is greeted with the correct messaging options and the envelope information is correct.
 - Subscribers or operators transferring callers to other subscribers whose stations are set to CFNA to MiCollab AM must remain on the line until MiCollab AM answers in order for the caller to hear the correct subscribers messaging options. Failure to do so results in the caller hearing the messaging options of the transferring party.
 - Blind transfers to CFNA stations fail, in that MiCollab AM answers with the answer mode greeting rather than the personal greeting of the called (target) party. For this reason, do not configure MiCollab AM to use blind transfers.

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

- MiVoice Office 415, MiVoice Office 430, or MiVoice Office 470 Communications Platform
- Software Release version 1.1
- One SIP Subscriber License for each integrated MiCollab AM port

You can find more information about these products in the MiVoice Office 400 documentation.

MiCollab AM Requirements

- MiCollab AM software version 9.3 or later
- At least one 100 MB or 1000 MB network interface card and cable
- MiCollab AM software key diskette or feature file with the MiVoice Office 400 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 the telephone system 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.

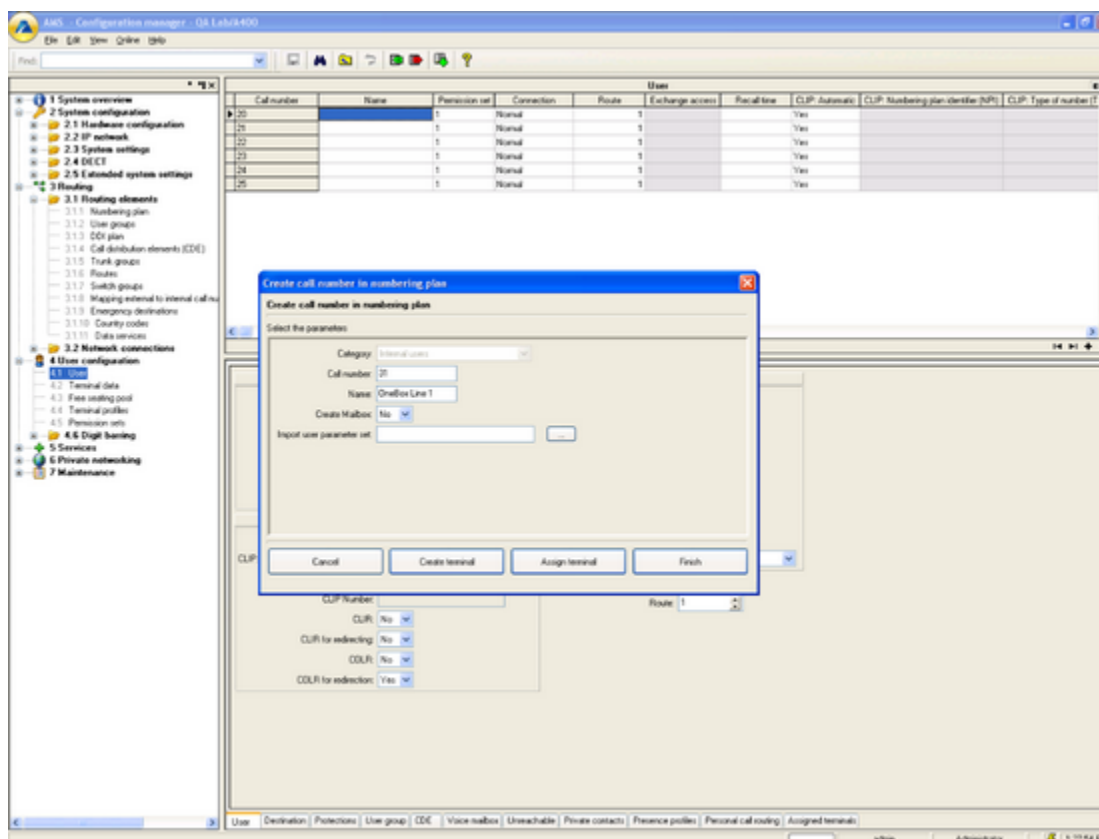
The installing technician should be familiar with programming the MiVoice Office 400 system. Refer to the *MiVoice Office 400* documentation or the online help for specific information on programming the telephone system.

Creating Users and Terminals for the Integration

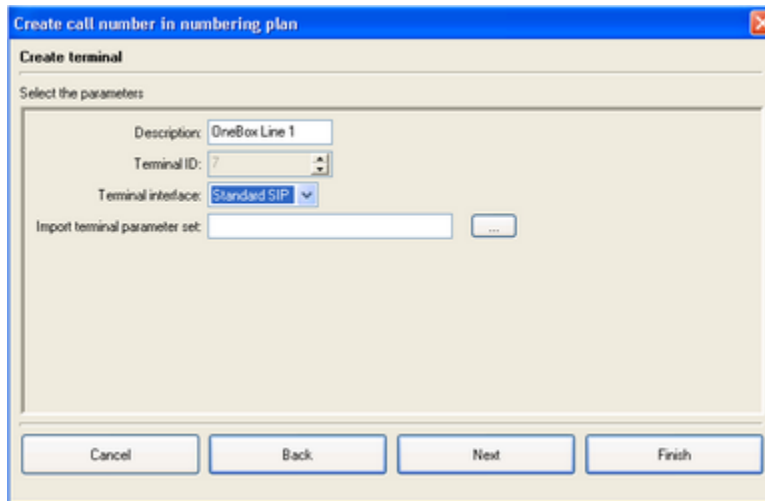
Add a new User and Terminal for each MiCollab AM SIP port. Start with Call number 31 (on MiVoice Office 430). The terminals easily created and configured during the user creation process.

To create users and terminals for the integration:

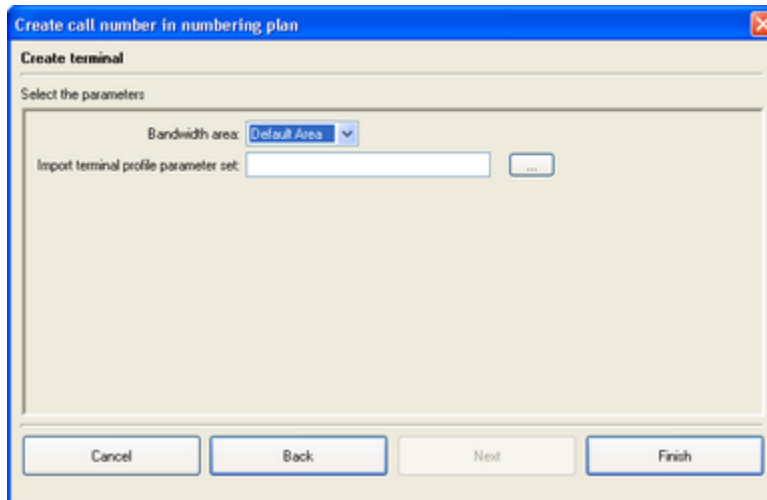
- 1 In the **Configuration Manager**, click **User Configuration**, and then click **Users**. The **Select Parameters** dialog box appears.



- 2 Type a description in the **Name** field.
- 3 Leave the **Create Mailbox** field set at **No**.
- 4 Click **Create Terminal**. The **Create Terminal** dialog box appears.



- 5 Select **Standard SIP** as the **Terminal interface** type, and then click **Next**.



- 6 Leave the **Bandwidth area** set at **Default Area**.
- 7 Click **Finish**.
- 8 Repeat steps one through seven for each MiCollab AM SIP port.

Configuring the Voicemail User Group for the Integration

Configure the MiCollab AM SIP ports in the Voicemail User Group. Assign a SIP terminal and extension number for each MiCollab AM port in user group programming.

NOTE Use User Group 17 for the MiVoice Office 415 and MiVoice Office 430 and use User Group 25 for the MiVoice Office 470.

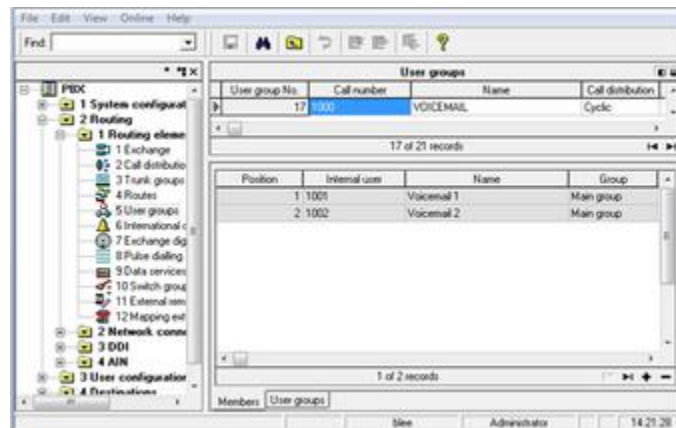


Figure 2. Voicemail User Group

Assigning a Password to each MiCollab AM SIP Terminal

Assign the same password to each SIP terminal in Terminal Data programming. MiCollab AM uses one password for all of the SIP terminals.

IMPORTANT You must assign the same password to each MiCollab AM SIP Terminal or the integration will fail.

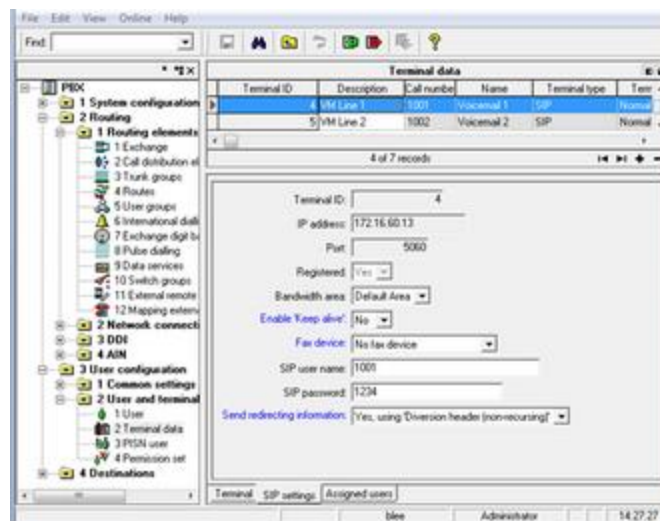


Figure 3. Terminal Data

Configuring Call Distribution Elements

Depending on the Switch positions, when a DDI is set for different routing to MiCollab AM, the DDI CDE cannot be named and the Common settings of the CDE must be set as follows:

- Force showing DDI number=**No**
- Show forwarding information instead of CDE name=**Yes**
- Show CDE name at first position=**No**



Figure 4. Call Distribution Elements

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:

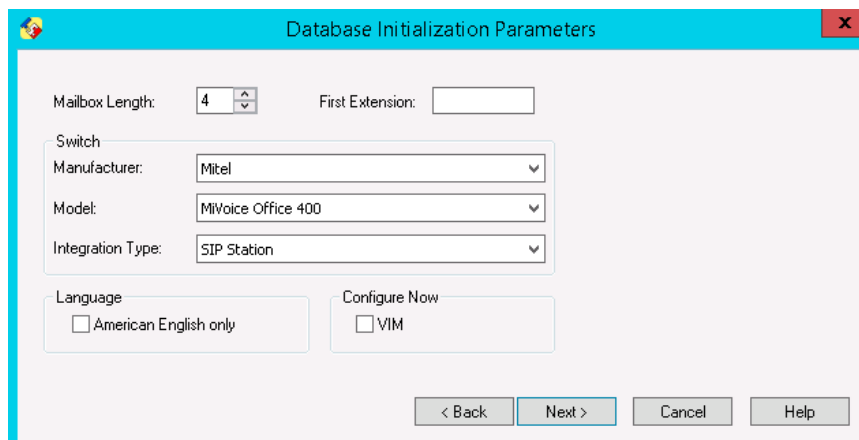
- [Configuring MiCollab AM for the Integration During Initial Installation](#): Integrate the telephone system while you install MiCollab AM for the first time.
- [Configuring Existing MiCollab AM for the Integration](#): Integrate a new telephone system on your existing MiCollab AM system.

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

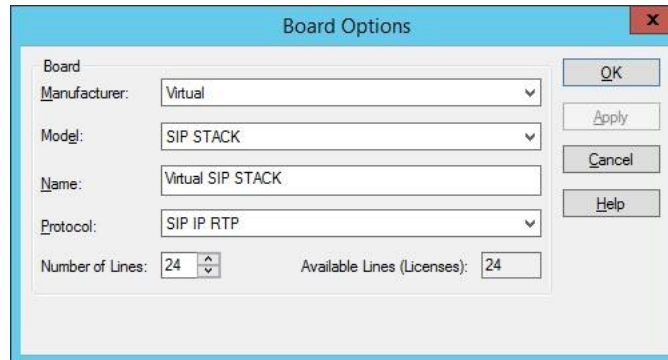
To configure MiCollab AM with the integration during the initial installation:

- 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 In the **First Extension** box, enter first extension number for the first line. You can also leave the **First Extension** box empty.
- c From the **Manufacturer** drop-down list, select **Mitel**.

- d From the **Model** drop-down list, select **MiVoice Office 400**.
 - e From the **Integration Type** drop-down list, select **SIP Station**.
- 2 Click **Next**. The **Board Options** dialog box displays for the virtual board configuration.

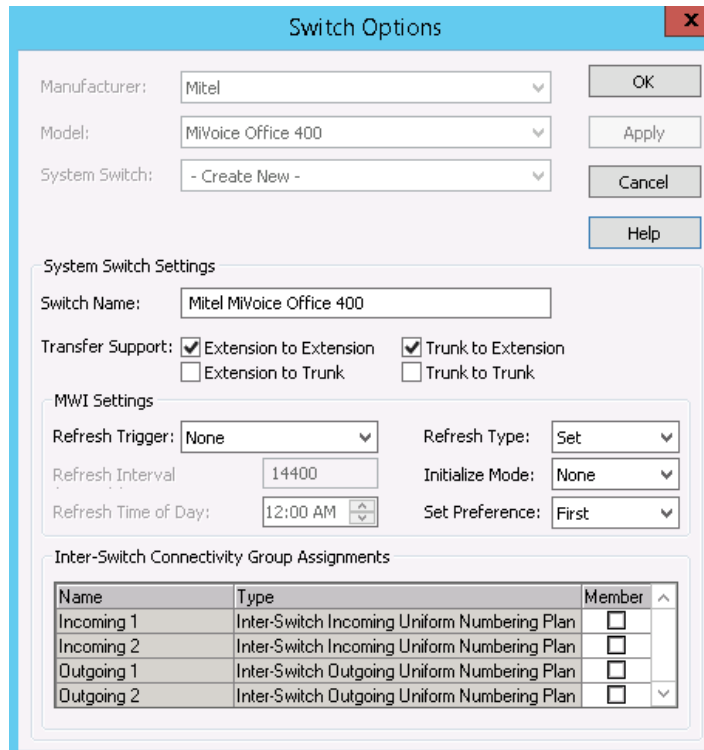


The **Board Options** dialog box is shown with the following configuration:

- Board**: Virtual
- Manufacturer**: Virtual
- Model**: SIP STACK
- Name**: Virtual SIP STACK
- Protocol**: SIP IP RTP
- Number of Lines**: 24
- Available Lines (Licenses)**: 24

Buttons on the right: OK, Apply, Cancel, 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.



The **Switch Options** dialog box is shown with the following configuration:

- Manufacturer**: Mitel
- Model**: MiVoice Office 400
- System Switch**: - Create New -
- System Switch Settings**:
 - Switch Name**: Mitel MiVoice Office 400
 - Transfer Support**:
 - ☒ Extension to Extension
 - ☒ Trunk to Extension
 - ☐ Extension to Trunk
 - ☐ Trunk to Trunk
- MWI Settings**:
 - Refresh Trigger**: None
 - Refresh Type**: Set
 - Refresh Interval**: 14400
 - Initialize Mode**: None
 - Refresh Time of Day**: 12:00 AM
 - Set Preference**: First
- Inter-Switch Connectivity Group Assignments**:

Name	Type	Member
Incoming 1	Inter-Switch Incoming Uniform Numbering Plan	<input type="checkbox"/>
Incoming 2	Inter-Switch Incoming Uniform Numbering Plan	<input type="checkbox"/>
Outgoing 1	Inter-Switch Outgoing Uniform Numbering Plan	<input type="checkbox"/>
Outgoing 2	Inter-Switch Outgoing Uniform Numbering Plan	<input type="checkbox"/>

Buttons on the right: OK, Apply, Cancel, Help.

- 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*.

- 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 following options:

Table 4. Required Parameter View – Integration Options

Field	Value
SIP Server Address	Enter the IP address of MiVoice Office 400. IMPORTANT This value must match the configuration of MiVoice Office 400.
SIP Server Port	Enter the port on which listens MiCollab AM for incoming SIP messages. The default value is 5060 . IMPORTANT This value must match the configuration of MiVoice Office 400.

Transport for outgoing SIP Messages	Select the transport protocol used for sending out SIP messages. The default value is TCP .
Local IP Address to bind on	Select the local IP address of the MiCollab AM server platform that communicates with MiVoice Office 400. The drop-down box displays all available local IP addresses.
SIP Local Connection Port	Enter the port MiCollab AM listens on for incoming SIP messages. The default value is 5060 .
SIP parser qualifier string	<ul style="list-style-type: none"> • 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. • Multiple SIP integrations on the call server: Use a string that is unique to each SIP integration. <p>For example: The Fully Qualified Domain Name (FQDN) of the switch, such as pbx1.sipdomain.com.</p> <p>NOTE This setting must match a string in the SIP header that is unique to this particular integration</p>
PBX Password	Enter the password programmed in the MiVoice Office 400 Terminal Data programming.
	IMPORTANT This password must match the password of all SIP terminals on MiVoice Office 400.
Registration Period in seconds	Enter the time in seconds, for the SIP port registration period. The default value is 800 .
Media packet size (milliseconds)	MiCollab AM sends/receives packets containing the number of milliseconds worth of audio data set here. The default value is 20 .

- b** In the **Local Integration Settings** section, select the **Integration Specific Parameters** View.

The screenshot shows the 'Local Integration Settings' window with the 'View' dropdown set to 'Integration Specific Parameters'. A 'Set Defaults' button is visible. The table below lists the parameters and their current values:

Name	Value
Base ASR Sensitivity (Internal)	5
Base ASR Sensitivity (External)	5
Use Single Channel on Blind Transfers	<input checked="" type="checkbox"/>
Use Single Channel for Monitor Transfers	<input checked="" 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

- Find **Type of Call Progress to use for External Calls** and set the value as how the gateway is used for the integration.

- **Digital:** Select if the gateway supports call progress through to the endpoint.
- **Media:** Select 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.

9 In the **Switch Section Options** dialog box, configure the following options.

- In the **Local Switch Settings** section, select **Required Parameters** view.
- In the **Incoming Hunt Mode** field, select the mode appropriate for your configuration.
- In the **Hunt Group Access Code** field, type the pilot number or destination code that users dial to reach MiCollab AM.

NOTE Select the hunt mode that matches the hunt mode type in IP PBX programming.

- 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.

IMPORTANT You must enter the PBX extension numbers that the Call Server is configured to answer or the integration will fail. The extension numbers are registered as SIP stations with the IP PBX during system startup.

- 13 Click **OK** to save all changes.

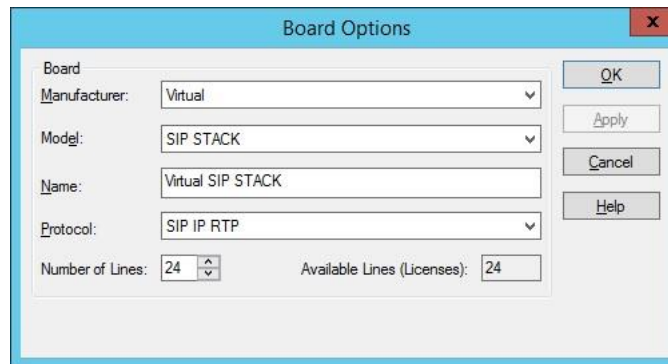
Configuring Existing MiCollab AM for the Integration

To configure exiting MiCollab AM for the telephone integration:

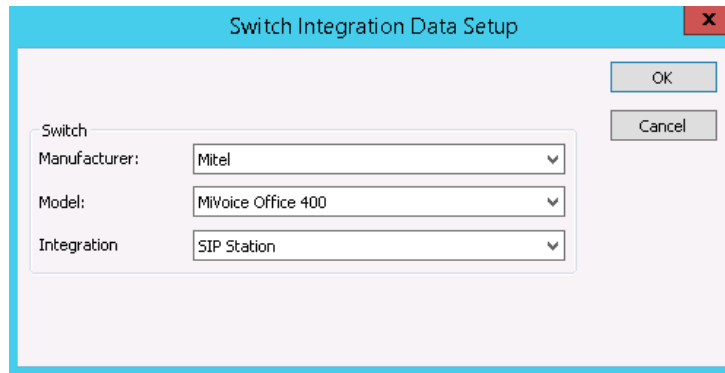
- 1 Open **MiCollab AM Configuration**, and go to the **Main** tab.
- 2 In the **Main** tab, click **Shutdown** to stop the system. Wait until the **Current Status** shows **Stopped**.

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 **Switches** tab and click the **Add** button. The **Switch Integration Data Setup** dialog box appears.



Switch Integration Data Setup

Switch

Manufacturer:

Model:

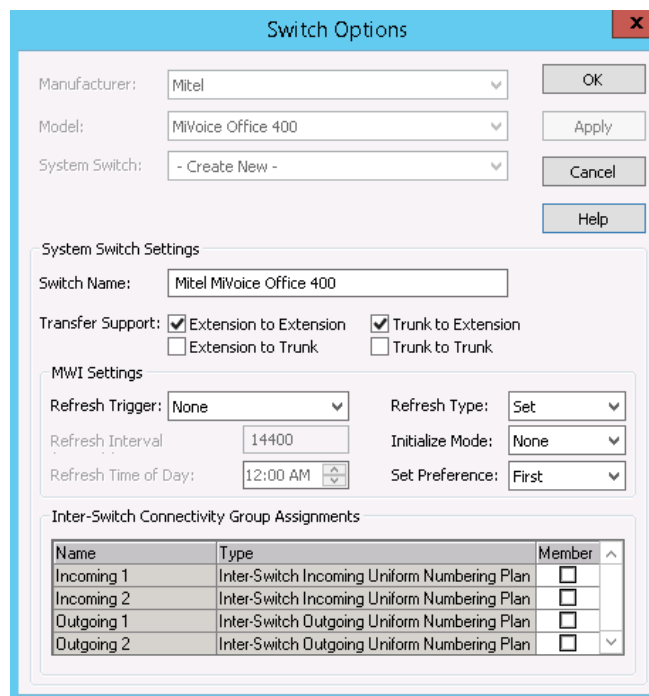
Integration:

OK

Cancel

- a From the **Manufacturer** drop-down list, select **Mitel**.
- b From the **Model** drop-down list, select **MiVoice Office 400**.
- c From the **Integration Type** drop-down list, select **SIP Station**.

5 Click **OK**. The **Switch Options** dialog box appears.



Switch Options

Manufacturer:

Model:

System Switch:

OK

Apply

Cancel

Help

System Switch Settings

Switch Name:

Transfer Support: ☒ Extension to Extension ☒ Trunk to Extension
☐ Extension to Trunk ☐ Trunk to Trunk

MWI Settings

Refresh Trigger: Refresh Type:

Refresh Interval: Initialize Mode:

Refresh Time of Day: Set Preference:

Inter-Switch Connectivity Group Assignments

Name	Type	Member
Incoming 1	Inter-Switch Incoming Uniform Numbering Plan	<input type="checkbox"/>
Incoming 2	Inter-Switch Incoming Uniform Numbering Plan	<input type="checkbox"/>
Outgoing 1	Inter-Switch Outgoing Uniform Numbering Plan	<input type="checkbox"/>
Outgoing 2	Inter-Switch Outgoing Uniform Numbering Plan	<input type="checkbox"/>

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*.

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

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 following options:

Table 5. Required Parameter View – Integration Options

Field	Value
SIP Server Address	Enter the IP address of MiVoice Office 400. IMPORTANT This value must match the configuration of MiVoice Office 400.
SIP Server Port	Enter the port on which listens MiCollab AM for incoming SIP messages. The default value is 5060 . IMPORTANT This value must match the configuration of MiVoice Office 400.
Transport for outgoing SIP Messages	A default value of TCP is pre-selected. Select UDP if your configuration requires UDP.
Local IP Address to bind on	Select the local IP address of the MiCollab AM server platform that communicates with MiVoice Office 400. The drop-down box displays all available local IP addresses.
SIP Local Connection Port	Enter the port MiCollab AM listens on for incoming SIP messages. The default value is 5060 .
SIP parser qualifier string	<ul style="list-style-type: none"> • 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.

- **Multiple SIP integrations on the call server:** Use a string that is unique to each SIP integration.

For example:

The Fully Qualified Domain Name (FQDN) of the switch, such as **pbx1.sipdomain.com**.

NOTE This setting must match a string in the SIP header that is unique to this particular integration

PBX Password	Enter the password programmed in the MiVoice Office 400 Terminal Data programming.
IMPORTANT This password must match the password of all SIP terminals on MiVoice Office 400.	
Registration Period in seconds	Enter the time in seconds, for the SIP port registration period. The default value is 800 .
Media packet size (milliseconds)	MiCollab AM sends/receives packets containing the number of milliseconds worth of audio data set here. The default value is 20 .

- b** In the **Local Integration Settings** section, select the **Integration Specific Parameters** View.

Name	Value
Base ASR Sensitivity (Internal)	5
Base ASR Sensitivity (External)	5
Use Single Channel on Blind Transfers	<input checked="" type="checkbox"/>
Use Single Channel for Monitor Transfers	<input checked="" 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

- Find **Type of Call Progress to use for External Calls** and set the value as how the gateway is used for the integration.
 - **Digital:** Select if the gateway supports call progress through to the endpoint.
 - **Media:** Select 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 MiVoice Office 400

System Switch Section: - Create New -

System Switch Section Settings

Name: Mitel MiVoice Office 400 Section

Node Code:

Location Code:

Location: Seattle

MWI Integration: Mitel MiVoice Office 400 SIP Station

Local Switch Section Settings

View: Required Parameters

Set Defaults

Name	Value
Incoming Hunt Mode	Terminal
Hunt Group Access Code	

- 10 In the **Switch Section Options** dialog box, configure the following options.
 - a In the **Local Switch Settings** section, select **Required Parameters** view.
 - b In the **Incoming Hunt Mode** field, select the mode appropriate for your configuration.
 - c In the **Hunt Group Access Code** field, type the pilot number or destination code that users dial to reach MiCollab AM.

NOTE Select the hunt mode that matches the hunt mode type in IP PBX programming.

- d 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, enter the extension number of each integrated line on the Call Server.

IMPORTANT You must enter the PBX extension numbers that the Call Server is configured to answer or the integration will fail. The extension numbers are registered as SIP stations with the IP PBX during system startup.

- 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 6. 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>For example: The IP address 123.45.6.789 as displayed on the Review/Modify SIP Gateway screen.</div> <div>NOTE 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>IMPORTANT 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 5060 .

- 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 7. 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 1000 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"> • If the gateway supports call progress through to the endpoint, set to Digital. • If the gateway reports early that the call is connected, such as before the phone rings or while the phone is ringing, set to Media.

- 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.

Changing the Network Binding Order on the MiCollab AM Platform

MiCollab AM uses the primary (public) network interface card (NIC) in the platform. It must be the first network connection in the network binding order. 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.

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. 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 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 8. 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 Server 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