

# MiCollab Advanced Messaging 23.2

## RingCentral SIP Station

### Integration Technical Note

For version 23.2 and above

## Notice

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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 RingCentral telephone system software.

This document describes how to integrate MiCollab AM with RingCentral using the Session Initiation Protocol (SIP). The 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.

MiCollab AM registers its SIP ports as terminals or endpoints.

This ITN documents the procedures for setting up the SIP integration. The process consists of 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. This document does not detail any provisioning or configuration information for RingCentral.

## 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 RingCentral Telephone system software, please refer to the RingCentral documentation.

## Features Supported in This Integration

The following tables list the features supported using the RingCentral SIP integration.

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

Divert to MiCollab AM on	Supported
No Answer	No
Busy	No

Divert to MiCollab AM on	Supported
Privacy	No
Forward All	No
Do Not Disturb	No

Table 3. Integration features supported for RingCentral SIP Station

Feature	Supported	Notes
Automatic subscriber login	Not applicable	Note 1
ANI/CLI	Not applicable	Note 1
<i>Announce Busy</i> greeting on forward busy calls	Not applicable	Note 1
Call screening	Not applicable	Note 1
Caller queuing	Not applicable	Note 1
DNIS	Not applicable	Note 1
End-to-end DTMF, attendant console	Not applicable	Note 1
End-to-end DTMF, proprietary telephones	Not applicable	Note 1
Fax Detection	Not applicable	Note 1
Internal calling party ID for reply	Not applicable	Note 1
Live record, integrated	Not applicable	Note 1
Live reply to sender	Not applicable	Note 1
Message notification callouts	Not applicable	Note 1
MWI, set/clear	No	None
MWI, inband/outband	Not applicable	None
Networking, analog	No	None
Overflow from MiCollab AM to attendant	Not applicable	Note 1
Overflow to MiCollab AM from attendant	Not applicable	Note 1

Feature	Supported	Notes
PBX-provided disconnect signaling	Yes	None
Revert to operator	Not applicable	Note 1
SRTP	Not applicable	Note 1
TLS	Not applicable	Note 1
Transfers, blind	Yes	None
Transfers, confirmed	Yes	None
Transfers, supervised	Yes	None
Transfers, monitored	Yes	None
Trunk ID for call routing	No	None
Multiple Integrations	No	Note 2
Failover	No	None

#### NOTES

1. Feature has not been evaluated. Functionality might not be available.
2. 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 provide an authentication code and password for each line. You must get these authentication values from RingCentral. These fields are hidden on the lines tab and can be exposed by selecting the **Show Authentication Columns** checkbox.
- 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.
- MiCollab AM 23.2 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

**NOTE** Contact your provider for details on requirements.

The following is an example of the type of information you might receive from your provider:

- Username (Extension): 14259511600
- Authorization ID: 123456789
- Password: SN0095k
- SIP Server: sip.ringcentral.com
- Outbound Proxy: SIP10.ringcentral.com:5090

**NOTE** Since this is a station-based integration your provider will need to configure a route or hunt for the extension assigned to MiCollab AM. The hunt number will be assigned to the switch section as noted below.

## MiCollab AM Requirements

- MiCollab AM software version 23.2
- At least one 100 MB or 1000 MB network interface card and cable
- MiCollab AM software key diskette or feature file with the Generic PBX/CO SIP Station integration enabled and one Virtual SIP and RTP license enabled for each port involved in the integration



# Programming the Telephone System

Contact your telephony provider for requirements.

# 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:

**Database Initialization Parameters**

Mailbox Length:  First Extension:

**Switch**

Manufacturer:

Model:

Integration Type:

**Language**

☐ American English only

**Configure Now**

☐ VIM

< Back **Next >** Cancel Help

- 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 **Generic**.
  - d From the **Model** drop-down list, select **PBX**.
  - 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.
  - 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*.

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

**Integration Options**

System Switch: Generic PBX

Integration Type: SIP Sta Mitel 3300TCP Mitel SIP

Integration: - Create New -

Name: Generic PBX SIP Station

Local Integration Settings

View: Required Parameters Set Defaults

Name	Value
SIP Server Address	SIP10.ringcentral.com
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	@

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 4. 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. For example, RingCentral uses the following outbound proxy address: sip10.ringcentral.com
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.



Field	Value
SIP parser qualifier string	RingCentral does not provide for a static element on which to set the CX-E SIP Parser Qualifier, so the universal @ symbol was entered in this test. (IP addresses will change and domain names cannot be passed.) This means that if a single CX-E system is to support multiple SIP integrations including RingCentral, individual call servers for each will be necessary to differentiate the SIP traffic. A unique FQDN or IP address can be utilized to direct traffic to a particular Call Server's IP, allowing for any single integration on each call server.

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

Field	Value
SIP Registrar Port	Enter the port on which the PBX listens for SIP registration messages. The default port number is 5060.
Use DNS discovery procedures	This value should be cleared.
Use configured Domain Name	This value should be selected.
Local SIP Domain Name	Enter the name of the SIP domain for the provider. e.g., sip.ringcentral.com

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

**Switch Section Options**

Local Switch: Generic PBX

System Switch Section: - Create New -

**System Switch Section Settings**

Name: Generic PBX Section

Assigned to Tenant: Acme University

Node Code:

Location Code:

Location: Auburn

MWI Integration: None

**Local Switch Section Settings**

View: Required Parameters

Name	Value
Incoming Hunt Mode	Circular
Hunt Group Access Code	105

- 9 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**.
  - b In the **Hunt Group Access Code** value box, type the value that corresponds to the information from the SIP provider – typically this is the value of the first SIP Station number. In the **Local Switch Section Settings** section, select the **Callout Limit Settings** View.
  - 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.
 

In the table from the **Lines** tab, enter the extension number of each integrated line on the Call Server. You must provide an authentication code and password for each line. You must get these authentication values from your provider. These fields are hidden on the lines tab and can be exposed by selecting the **Show Authentication Columns** checkbox.
- 12 Click **OK** to save all changes.

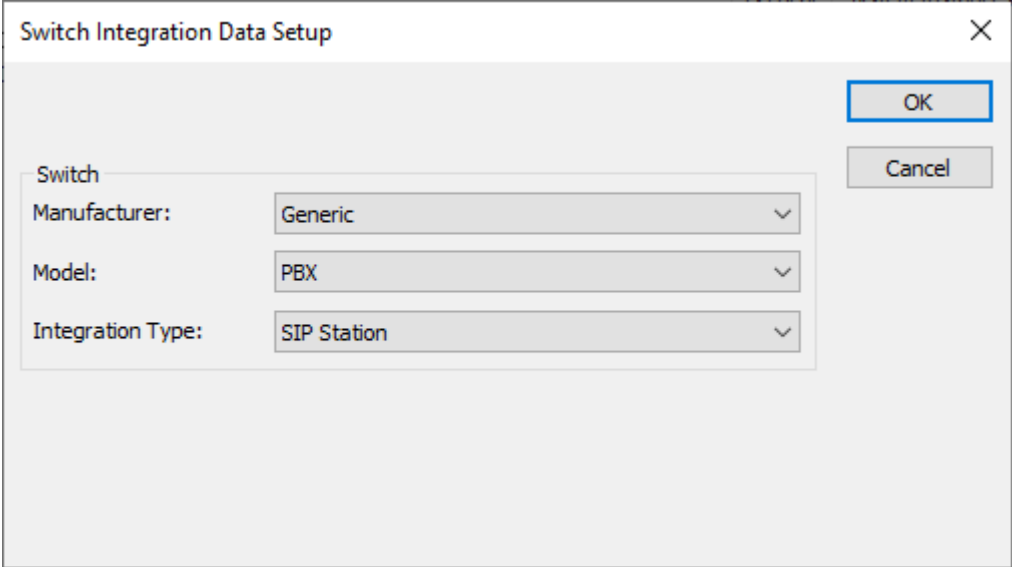
# Configuring Existing MiCollab AM for the Integration

To configure existing 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.



Switch Integration Data Setup

Switch

Manufacturer: Generic

Model: PBX

Integration Type: SIP Station

OK

Cancel

- a From the **Manufacturer** drop-down list, select **Generic**.
- b From the **Model** drop-down list, select **PBX**.
- c From the **Integration Type** drop-down list, select **SIP Station**.

- 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*.

**Switch Options**

Manufacturer: Generic

Model: PBX

System Switch: Generic PBX

System Switch Settings

Switch Name: Generic PBX

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

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"/>

Local Switch Settings

View: All Settings

Name	Value
Disconnect Loop Current Length (ms)	0
Flash Hook Time (ms)	500
T1 Protocol	FXS
T1 Signaling	Immediate

- 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 settings as follows:

Table 5. 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. For example, RingCentral uses the following outbound proxy address: sip10.ringcentral.com
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.

Field	Value
SIP parser qualifier string	RingCentral does not provide for a static element on which to set the CX-E SIP Parser Qualifier, so the universal @ symbol was entered in this test. (IP addresses will change and domain names cannot be passed.) This means that if a single CX-E system is to support multiple SIP integrations including RingCentral, individual call servers for each will be necessary to differentiate the SIP traffic. A unique FQDN or IP address can be utilized to direct traffic to a particular Call Server's IP, allowing for any single integration on each call server.

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

Field	Value
SIP Registrar Port	Enter the port on which the PBX listens for SIP registration messages. The default port number is 5060.
Use DNS discovery procedures	This value should be cleared.
Use configured Domain Name	This value should be selected.
Local SIP Domain Name	Enter the name of the SIP domain for the provider. e.g., sip.ringcentral.com

**Integration Options** [X]

System Switch: Generic PBX [v]

Integration Type: SIP Station [v]

Integration: - Create New - [v]

Name: Generic PBX SIP Station

[OK] [Apply] [Cancel] [Help] [ITN...]

---

**Local Integration Settings**

View: Integration Specific Parameters [v] [Set Defaults]

Name	Value
Registration period in seconds	3600
SIP Registrar Address	
SIP Registrar Port	5060
Use DNS discovery procedures	<input type="checkbox"/>
Use configured Domain Name	<input checked="" type="checkbox"/>
SIP Domain Name	
Local SIP Domain Name	sip.ringcentral.com
Use display name in outgoing SIP messages	<input type="checkbox"/>
Display name for outgoing SIP messages	

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

**Switch Section Options**

Local Switch: Generic PBX

System Switch Section: - Create New -

System Switch Section Settings

Name: Generic PBX Section

Assigned to Tenant: Acme University

Node Code:

Location Code:

Location: Auburn

MWI Integration: None

Local Switch Section Settings

View: Required Parameters

Name	Value
Incoming Hunt Mode	Circular
Hunt Group Access Code	105

- 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 value that corresponds to the information from the SIP provider – typically this is the value of the first SIP Station number.
  - b 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
 

In the table from the **Lines** tab, enter the extension number of each integrated line on the Call Server. You must provide an authentication code and password for each line. You must get these authentication values from your provider. These fields are hidden on the lines tab and can be exposed by selecting the **Show Authentication Columns** checkbox.
- 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.



# 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 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 6. 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