

MiCollab Advanced Messaging BroadSoft BroadWorks SIP Trunk Integration Technical Note

For version 9.0 and above

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Preface

This Integration Technical Note (ITN) is written for MiCollab Advanced Messaging (MiCollab AM) certified technicians who are experienced with MiCollab AM and are familiar with its procedures and terminology. This document also assumes that you are familiar with the features and programming of the BroadSoft BroadWorks SIP Trunk.

This document describes how to integrate MiCollab AM with BroadSoft BroadWorks SIP Trunk. This integration operates exclusively over an IP-based network. It uses no analog or digital voice telephony ports, but instead passes voice communication and signaling information over the network.

The BroadSoft BroadWorks SIP Trunk integration consists of the following major components:

- BroadSoft BroadWorks SIP Trunk
- MiCollab AM

This document also describes the critical application considerations with which you should be familiar before you begin work on the integration.

Use this document in conjunction with the *System Installation and Configuration Guide*, the *System Administration Guide*, and the MiCollab AM online help system.

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 documentation set for this MiCollab AM includes the following documents and resources:

- **Developer Resources.** Contains programming guides and API references for developers for integrating the server clients and web applications with MiCollab AM.
- **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.
- **Quick Reference Card (QRC).** Contains shortcuts and quick instructions telling subscribers how to access and use the messaging system.
- **Server Documentation.** Available as a PDF only. Contains administrative guides for administrators about installing, configuring, and administering the messaging system, and user guides for subscribers about accessing the messaging system and checking and sending messages.

- **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 the latest/updated documents and program files from our partner web site: connect.mitel.com/connect

Help

The primary source of information about MiCollab AM is the online help available within any of its administrative utilities. You can access **Help** as follows:

- Click the **Help** button in the dialog box or window in which you are working
- Press the **F1** key at any time.

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.** *Italics* fonts can also signify the titles of other documents.

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

- **UI Element Names.** Names of UI elements such as dialog windows, screens, menu items, tabs, buttons, icons, etc. 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 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.

Features Supported by This Integration

The following tables list the features supported using the BroadSoft BroadWorks SIP Trunk integration.

Table 1. 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	Yes

NOTE This will depend on the BroadSoft configuration. These feature may not be supported in all cases.

Table 2. Integration features supported for BroadSoft BroadWorks SIP Trunk

Feature	Supported	Notes
Automatic subscriber logon	Yes	
ANI/CLI	Yes	
Announce Busy greeting on forwarded calls	Yes	Note 4
Call screening	Yes	Note 1

Caller queuing	Yes	Note 2, 4
DNIS	Yes	Note 4
Fax Tone 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	
MWI, inband/outband	Outband	
Networking, analog	No	
SRTP	No	Note 3
TLS	No	Note 3
Transfers, blind	Yes	
Transfers, confirmed	Yes	
Transfers, fully supervised	Yes	
Transfers, monitored	Yes	
Trunk ID for call routing	No	
Multiple Integrations	Yes	Note 5

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 next section, [Critical Application Considerations](#).
3. 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.

4. This will depend on the BroadSoft configuration. These feature may not be supported in all cases.
5. Refer to the [Critical Application Considerations](#) section.

Table 3. Interoperability tested features for BroadSoft BroadWorks SIP Trunk

Feature	Supported	Notes
Voice Mail Deposit	Yes	
Voice Mail Retrieval	Yes	
Session Audit	Yes	
Session Timer	Yes	
DTMF – Inband	Yes	
DTMF – RFC 2833	Yes	
Calling Line ID	Yes	
Calling Name with Unicode Characters	Yes	
Diversion Header	Yes	
History-Info Header	Yes	
Dialed Digits	Yes	Note
Ringback	Yes	
Forked Dialog	Yes	
Codec Renegotiation	Yes	
Authentication	Yes	
Message Waiting Indicator – Extension-Only User	Yes	
DNS SRV Lookup	Yes	
Invite Failover or Failback	Yes	
Bye Failover	Yes	
Incoming INVITE	Yes	

Outgoing INVITE	Yes
Voice Mail Deposit	No
Voice Mail Retrieval	No
Session Audit	No
Outdial	No
Registration with Authentication	No
Redundancy	No
Dual Stack with Alternate Connectivity	No

NOTE Does not support out dial to star code.

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.

- 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](#).
- Multiple MiCollab AM Call Servers may be supported for this integration using the Mitel SIP Routing Manager. Please consult Mitel Technical Support for details.
- 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 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.

- 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 9.0 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

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

- BroadSoft BroadWorks Release 19 SP1 or above

MiCollab AM Requirements

- MiCollab AM version 9.0 or above
- MiCollab AM software key diskette or feature file with the BroadSoft BroadWorks SIP Trunk integration enabled and one Virtual SIP and RTP license enabled for each port involved in the integration
- One 100 Mbps or 1000 Mbps (1 Gbps) network interface card

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 telephone system. For detailed information on programming and installing the telephone system, refer to BroadSoft documentation.

BroadWorks Device Profile Type Configuration

This section defines the configuration of the device profile type used when integrating BroadWorks and MiCollab AM.

The table that follows identifies the required BroadWorks device profile settings for integrating MiCollab AM and BroadWorks. For explanations of these settings, please refer to the *BroadWorks Device Management Configuration Guide* produced by BroadSoft.

Table 4. BroadWorks Identity Profile Settings for MiCollab AM

Feature	Supported
Signaling Address Type	Intelligent Proxy Addressing
Standard Options	
Number of Ports	Unlimited
Ringback Tone or Early Media Support	Local Ringback – No Early Media
Authentication	Enabled
Hold Normalization	RFC 3264
Registration Capable	
Static Registration Capable	
E. 164 Capable	
Trusted	
Authenticate REFER	
Video Capable	
Use History-Info Header	

Advanced Options	
Route Advance	
Wireless Integration	
PBX Integration	
Add P-Called-Party-ID	
Auto Configuration Soft Client	
Requires BroadWorks Call Waiting Tone	
Advice of Charge Capable	
Support Emergency Disconnect Control	
Enable Monitoring	
Static Line/Port Ordering	
Forwarding Override	
Conference Device	
Music On Hold Device	
Requires BroadWorks Digit Collection	
Requires MWI Subscription	
Support Call Center MIME Type	
Support Identity in UPDATE and Re-INVITE	
Support RFC 3398	
Reset Event	Not Supported
Trunk Mode	User
Hold Announcement Method	Inactive
Unscreened Presentation Identity Policy	Profile Presentation Identity
Web Based Configuration URL Extension	
Device Configuration Options	
Device Configuration Options	Not Supported

Configuring BroadWorks

To configure BroadWorks, do the following:

- 1 Configure the device profile for the MiCollab AM server as shown below:

The screenshot shows the 'Identity/Device Profile Type Modify' dialog box. The 'Options' pane on the left is set to 'Identity/Device Profile Type'. The main area contains the following settings:

- Identity/Device Profile Type:** ☐ BroadWorks
- Signaling Address Type:** ☒ Intelligent Proxy Addressing
- ☐ Obsolete

Standard Options:

- Number of Ports:** ☒ Unlimited ☐ Limited To
- Ringback Tone/Early Media Support:** ☐ RTP - Session ☐ RTP - Early Session ☒ Local Ringback - No Early Media
- Authentication:** ☐ Enabled ☒ Disabled ☐ Enabled With Web Portal Credentials
- Hold Normalization:** ☐ Unspecified Address ☐ Inactive ☒ RFC3264
- ☐ Registration Capable ☐ Authenticate REFER
- ☐ Static Registration Capable ☐ Video Capable
- ☐ E164 Capable ☐ Use History Info Header
- ☐ Trusted

Advanced Options:

- ☐ Route Advance ☐ Forwarding Override
- ☐ Wireless Integration ☐ Conference Device
- ☐ PBX Integration ☐ Mobility Manager Device
- ☐ Add P-Called-Party-ID ☐ Music On Hold Device
- ☐ Auto Configuration Soft Client ☐ Requires BroadWorks Digit Collection
- ☐ Requires BroadWorks Call Waiting Tone ☐ Requires MWI Subscription
- ☐ Advice of Charge Capable ☐ Support Call Center MIME Type
- ☐ Support Emergency Disconnect Control ☐ Support Identity In UPDATE and Re-INVITE
- ☐ Enable Monitoring ☐ Support RFC 3398
- ☐ Static Line/Port Ordering ☐ Bypass Media Treatment
- Reset Event:** ☐ reSync ☐ checkSync ☒ Not Supported
- Trunk Mode:** ☒ User ☐ Pilot ☐ Proxy
- Hold Announcement Method:** ☒ Inactive ☐ Bandwidth Attributes
- Unscreened Presentation Identity Policy:** ☒ Profile Presentation Identity ☐ Unscreened Presentation Identity ☐ Unscreened Presentation Identity With Profile Domain
- Web Based Configuration URL Extension:**

Device Configuration Options: ☒ Not Supported ☐ Device Management ☐ Legacy

- 2 In **Resources**, enter the IP address and transport for the MiCollab AM server as illustrated below.

Options:

- Profile
- Resources**
- Services
- Acct/Auth Codes
- Call Center
- Communication Barring
- Meet-Me Conferencing
- Utilities

Identity/Device Profile Modify

Modify or delete an existing group identity/device profile.

OK Apply Delete Cancel

Profile **Users**

Identity/Device Profile Name:

Identity/Device Profile Type:

Device Type URL:

Protocol:

Host Name/IP Address: Port:

Transport:

MAC Address:

Serial Number:

Description:

Outbound Proxy Server:

STUN Server:

Physical Location:

Lines/Ports: Unlimited

Assigned Lines/Ports: 1

Unassigned Lines/Ports: Unlimited

Version:

OK Apply Delete Cancel

- 3 In **Profile**, create a user to be the Voice Mail Pilot User. Assign the Call Waiting service to the user.

Options:

- Profile
- Resources**
- Services
- Acct/Auth Codes
- Call Center
- Communication Barring
- Meet-Me Conferencing
- Utilities

Users

Add a new user or manage existing users in your department or group.

OK Add Cancel

Enter search criteria below

User ID	Last Name	First Name	Phone Number	Extension	Department	In Trunk Group	Edit
AVST-VM-Pilot (Group)	AVST	VM Pilot	+1-240-888-1100	4108			Edit

[Page 1 of 1]

OK Add Cancel

- 4 Configure the pilot user's address information. This number is used as the voice portal number dialed by users. The line/port setting must match the pilot number configured in MiCollab AM.

Options:

- Profile
- Resources**
- Incoming Calls
- Outgoing Calls
- Call Control
- Client Applications
- Messaging
- Service Scripts
- Utilities

Addresses

Addresses allows you to view and maintain your phone number and other identities that are used to make and receive calls.

OK Apply Cancel

Phone Number: Activated

Extension:

☒ Identity/Device Profile ☐ Trunking ☐ None

Identity/Device Profile

Identity/Device Profile Name: [Configure Identity/Device Profile](#)

* Line/Port: [Advanced Settings](#)

Aliases: sip: AVST-VM-Pilot@as.icp1.broadworks.net

sip:

sip:

sip:

- 5 Assign and configure group third-party voice mail support by enabling it as illustrated in the screen that follows. The **Third Party Voice Mail Server** text box must contain the BroadWorks number assigned to the group's voice mail pilot number as configured above.

Options:
Profile
Resources
► Services
Acct/Auth Codes
Call Center
Communication Barring
Meet-Me Conferencing
Utilities

Third-Party Voice Mail Support

Allows an administrator to configure a third-party voice mail system for a group

OK Apply Cancel

Third-Party Voice Mail: ☒ On ☐ Off

Third-Party Voice Mail Server: 240

OK Apply Cancel

- 6 Assign and configure user third-party voice mail support by assigning the **Third Party Voice Mail Support** feature to one or more users.

To do this, select the **Group Mail Server** toggle, select the **SIP-URI** toggle, and supply the Exchange Unified Messaging (UM) mailbox ID.

NOTE The user portion of the mailbox ID must match the mailbox ID as configured on MiCollab AM.

For users with full directory numbers (DNs) assigned, the user portion of the mailbox ID is normally the full DN.

For users with extensions only, the user portion of the mailbox ID is normally the extension. The domain portion of the mailbox ID must be the voice mail system domain or IP address.

Options:
Profile
Incoming Calls
Outgoing Calls
Call Control
Client Applications
► Messaging
Service Scripts
Utilities

Third-Party Voice Mail Support

Third-Party Voice Mail Support allows you to specify how to handle your voice messages. You can choose to send busy and/or unanswered calls to your voice mail, as well as the number of rings before an incoming call is considered unanswered.

OK Apply Cancel

Third-Party Voice Mail Support: ☒ On ☐ Off

☐ Send All Calls to Voice Mail
☒ Send Busy Calls to Voice Mail
☒ Send Unanswered Calls to Voice Mail

Third-Party Voice Mail Server:
☒ Group Mail Server
☐ User Specific Mail Server:

Mailbox ID on Third-Party Voice Mail Platform:
☒ User's (or Group's) Phone Number
☐ SIP-URI:

Number of rings before greeting: 3

OK Apply Cancel

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:

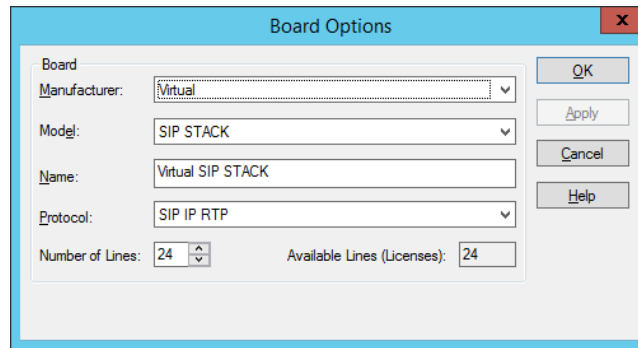
- [Configuring MiCollab AM for the Integration During Initial Installation](#): Integrate the telephone system while you install MiCollab AM for the first time.
- [Configuring Existing MiCollab AM for the Integration](#): Integrate a new telephone system on your existing MiCollab AM system.

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 the Telephony Server with the Telephone System**, in the online help.

Configuring MiCollab AM for the Integration During Initial Installation

To configure MiCollab AM for 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 **BroadSoft**.
 - d From the **Model** drop-down list, select **BroadWorks**.
 - e From the **Integration Type** drop-down list, select **SIP**.
- 2 Click **Next**. The **Board Options** dialog box appears.



The **Board Options** dialog box contains the following fields and controls:

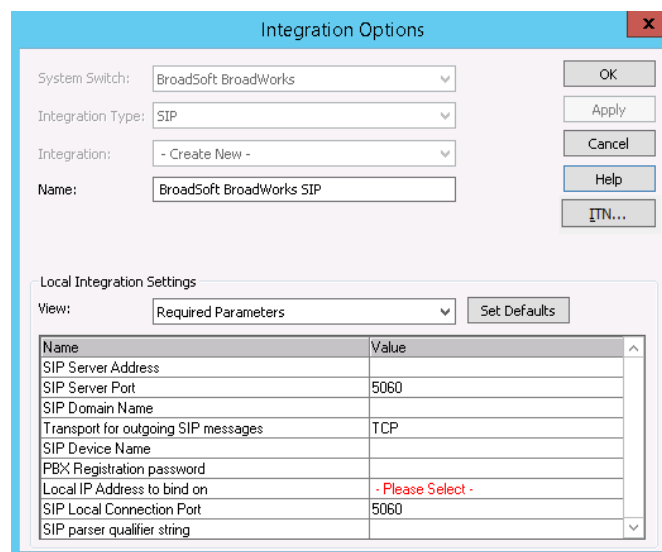
- Manufacturer:** Drop-down menu with "Virtual" selected.
- Model:** Drop-down menu with "SIP STACK" selected.
- Name:** Text field containing "Virtual SIP STACK".
- Protocol:** Drop-down menu with "SIP IP RTP" selected.
- Number of Lines:** Spin box set to 24.
- Available Lines (Licenses):** Spin box set to 24.
- Buttons: 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.
- 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.



The **Integration Options** dialog box contains the following fields and controls:

- System Switch:** Drop-down menu with "BroadSoft BroadWorks" selected.
- Integration Type:** Drop-down menu with "SIP" selected.
- Integration:** Drop-down menu with "- Create New -" selected.
- Name:** Text field containing "BroadSoft BroadWorks SIP".
- Buttons: OK, Apply, Cancel, Help, ITN...
- Local Integration Settings** section:
 - View:** Drop-down menu with "Required Parameters" selected.
 - Set Defaults** button.
 - Table of settings:

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

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

- a In the **Local Integration Settings** section, select the **Required Parameters** view, and configure the following parameters:

Table 5. Required Parameters View – Integration Options

Field	Value
SIP Server Address	Enter the address of the BroadWorks SIP server as a fully qualified domain name.
SIP Server Port	Enter the port on which the BroadWorks SIP server listens. The default is 5060 .
Transport for outgoing SIP messages	Select TCP or UDP from the list.
SIP Device Name	Leave blank.
PBX Registration Password	Leave blank.
Local IP Address to bind on	Select the IP Address for this integration.
SIP Local Connection Port	Enter the local port on which SIP messages are expected. The default 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:</p> <ul style="list-style-type: none">• 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>• The Fully Qualified Domain Name (FQDN) of the switch, such as pbx1.sipdomain.com. <p>NOTE This setting must match a string in the SIP header that is unique to this particular integration.</p>

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

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

- a In the **Local Integration Settings** section, select the **Required Parameters** view.
- b In the **Incoming Hunt Mode** field, enter the mode for this integration.

- c In the **Hunt Group Access Code** field, enter the pilot number you configured previously. This is the pilot number that users dial to reach MiCollab AM.
- d 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, configure callouts for the application. For information on configuring callout settings, see the topic *Configuring Callout Settings*, in the online help system.
- 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.
 - a From the **Manufacturer** drop-down list, select **BroadSoft**.
 - b From the **Model** drop-down list, select **BroadWorks**.
 - c From the **Integration Type** drop-down list, select **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*.

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

- 8 In the **Integration Options** dialog box, select the **Required Parameters** view from the **Local Integration Settings** section, and configure the following parameters:

Table 6. Required Parameters for Integration Options

Field	Value
SIP Server Address	Enter the address of the BroadWorks SIP server as a fully qualified domain name.
SIP Server Port	Enter the port on which the BroadWorks SIP server listens. The default is 5060 .

Transport for outgoing SIP messages	Select TCP or UDP from the list.
SIP Device Name	Leave blank.
PBX Registration Password	Leave blank.
Local IP Address to bind on	Select the IP Address for this integration.
SIP Local Connection Port	Enter the local port on which SIP messages are expected. The default 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:</p> <ul style="list-style-type: none"> • 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> • The Fully Qualified Domain Name (FQDN) of the switch, such as pbx1.sipdomain.com. <p>NOTE This setting must match a string in the SIP header that is unique to this particular integration.</p>

- 9 Click **OK**. The **Switch Section Options** dialog box appears.
- 10 In the **Switch Section Options** dialog box, configure the following options:
 - a In the **Local Integration Settings** section, select the **Required Parameters** view.
 - b In the **Incoming Hunt Mode** field, enter the mode for this integration.
 - c In the **Hunt Group Access Code** field, enter the pilot number you configured previously. This is the pilot number that users dial to reach MiCollab AM.
 - 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, 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 a Mailbox

To get around number normalization issues, MiCollab AM can use the *NodeCode*. MiCollab AM expects to be able to dial an extension number for each subscriber, typically the last 3 or 4 digits of their 10-digit number.

However, this is inconsistent with the BroadSoft requirement that 10-digit numbers be used for dialing. In addition, calls received from within the group arrive as 4-digit extensions, while calls from outside of the group arrive as 10-digit numbers.

MiCollab AM needs to be able to handle the 10 digit numbers which have the typical format XXX YYY ZZZZ where XXX is the area code, YYY the exchange code and ZZZZ the subscriber number.

Since we don't know which subscribers are in which groups it is simpler to just assign the ZZZZ portion of the number with each MiCollab AM subscriber. But, since the full 10 digit number can be used for dialing and is mandatory for MWI, we need a way to construct and decompose these numbers.

The Node Code is the field that supports this. By adding the XXXYYY portion of the number to the node code the system will be able to receive either 4 digit ZZZZ or full 10 digit numbers for any subscriber and get a match.

To configure a BroadSoft mailbox on Mitel MiCollab AM:

- 1 Open **MiCollab AM Configuration** and go to the **Switch Sections** tab.

The screenshot shows the 'Switch Sections' tab in the MiCollab AM Configuration interface. The interface has a top navigation bar with tabs: Lines, VIM, Call Progress, Language, Reliability, and Fax. Below this is a sub-navigation bar with tabs: Main, Server, System, E-Mail, Presence, Licensing, Switches, Switch Sections (selected), Integrations, and Boards. The main content area is titled 'Switch Sections:' and contains a table with the following data:

Name	Location	Is Local	System Instances
BroadSoft BroadWorks Section	Seattle	Yes	1

To the right of the table are three buttons: 'Add...', 'Edit...', and 'Delete...'. Below the table is a checkbox labeled 'Show All Instances by Server' and a 'Refresh List' button. At the bottom of the window are four buttons: 'OK', 'Cancel', 'Apply', and 'Help'.

- 2 Select the **BroadSoft BroadWorks** Section entry and click **Edit**. The **Switch Section Options** screen appears.
- 3 Enter the proper Node Code in the **Node Code** field. For this installation, the node code value is the first 6 digits of the number 240498XXXX or the XXXYYY portion of a 10-digit subscriber number formatted XXXYYYZZZZ.

Switch Section Options

Local Switch: BroadSoft BroadWorks

System Switch Section: BroadSoft BroadWorks Section

System Switch Section Settings

Name: BroadSoft BroadWorks Section

Node Code:

Location Code:

Location: Seattle

MWI Integration: BroadSoft BroadWorks SIP

Local Switch Section Settings

View: All parameters

Set Defaults

Name	Value
Incoming Hunt Mode	Terminal
Hunt Group Access Code	
Incoming Line Reserve	0
Maximum Callouts	0
Maximum MWI Callouts	0
Maximum Network Callouts	0
Maximum Message Notification Callouts	0
Maximum Other Callouts	0
Maximum Ports on Hold	0
MWI Import/Export Transport Name	

- 4 In **Node Code** field, enter the BroadWorks pilot number (the **Hunt Group Access Code**) used in the [Configuring MiCollab AM for the Integration During Initial Installation](#) or [Configuring Existing MiCollab AM for the Integration](#) section.
- 5 In the **Local Switch Section Settings** section, select the **All parameters** view.
- 6 In the **Hunt Group Access Code** field, enter the same BroadWorks pilot number you entered in **Step 4**.
- 7 Click **OK** and exit **MiCollab AM Configuration**.
- 8 Open and log on to **MiCollab AM Admin**. The **MiCollab AM Admin** utility appears.
- 9 Open the Subscriber mailbox to be configured. The Subscriber mailbox opens.
- 10 In the **Main** tab, go to the **Extension** group, and configure the following options.

- a** In the **Number** field, enter the four-digit extension for the mailbox.

NOTE The four-digit extension will make up the last four digits of a 10-digit subscriber number formatted XXXYYYZZZZ.

- b** In the **Switch** group, select **BroadSoft BroadWorks Section** from the **Section** drop-down list.

- 11** Click **OK** to save the subscriber settings.

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 7. Secondary SIP Server Address and the Secondary SIP Server Port example

Field	Value
Secondary SIP Server Address	<p>Enter the TCP/IP address or an FQDN of the secondary node.</p> <p>For example:</p> <p>The IP address 123.45.6.789 as displayed on the Review/Modify SIP Gateway screen.</p> <p>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.</p> <p>IMPORTANT This value must match the configuration on the Gateway of the secondary node.</p>
Secondary SIP Server Port	<p>Enter the port number of the secondary node. The default value is 5060.</p>

- 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 8. 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 document 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 2008 R2 with Service Pack 1

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 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

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 9. 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