

MiCollab Advanced Messaging Mitel TSW IP Integration Technical Note

For version 9.1 and above

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Preface

This Integration Technical Note (ITN) is written for dealers who are experienced with MiCollab Advanced Messaging (MiCollab AM) and familiar with MiCollab AM procedures and terminology. It also assumes that you are familiar with the features and programming of Mitel TSW.

This document describes how to integrate MiCollab AM with a Mitel TSW system using the IP integration, which is an IP station integration. This integration operates exclusively over a TCP/IP-based network; it does not use analog or digital voice telephony ports, but passes voice communication and signaling information over the network.

Mitel TSW can be configured with its IP station port boards distributed among multiple Line Interface Modules (LIMs). It is also possible to designate one station port board as an *entry gatekeeper* for the other boards.

Once in operation, the entry gatekeeper polls the network for changes in configuration, such as the addition or removal of a board, and load levels on each of the other boards. It then directs incoming call traffic to boards with relatively low current loads.

In this integration, MiCollab AM communicates exclusively with the entry gatekeeper board to exchange integration information, message-waiting indicator (MWI) clear and set commands, and audio signal data.

The LIM designated as containing the entry gatekeeper can designate any of its station port boards for the actual gatekeeping role.

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

Features Supported by this Integration

The following tables list the features supported using a Mitel TSW IP integration.

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

Divert to MiCollab AM on	Supported
No Answer	Yes

Busy	Yes
Forward All	Yes
Follow Me	Yes
Do Not Disturb	No

Table 3. Integration features supported for Mitel TSW IP

Feature	Supported	Notes
Automatic subscriber logon	Yes	
ANI/CLI	Yes	
<i>Announce Busy</i> greeting on forwarded calls	Yes	
Call screening	Yes	
Caller queuing	Yes	Note 1
DNIS	No	
End-to-end DTMF, attendant console	Yes	
End-to-end DTMF, proprietary telephones	Yes	
Fax Tone Detection	Yes	
Internal calling party ID for reply	Yes	
Live record, integrated	No	Note 3
Live reply to sender	Yes	
Message notification callouts	Yes	
MWI, set/clear	Yes	
MWI, inband/outband	Outband	
Networking; AMIS, analog	Yes	
Overflow from MiCollab AM to attendant	Yes	
Overflow to MiCollab AM from attendant	Yes	
PBX-provided disconnect signaling	Yes	

Feature	Supported	Notes
Revert to operator from personal greeting	Yes	
Transfers, blind	Yes	
Transfers, confirmed	No	
Transfers, fully supervised	Yes	
Transfers, monitored	Yes	
Trunk ID for call routing	No	
Multiple Integrations	Yes	Note 3

NOTES

1. 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 [Critical Application Considerations](#).
2. Third-party conferences are not allowed on an integrated VM port. To use this feature, you must have a separate non-integrated port.
3. 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.

MiCollab AM Application Considerations

- 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 IP stations with the IP PBX during system startup.
- 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 MiCollab AM. The default mode is Terminal.
- 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 to the specific Call Server on which their call is queued.
- The Call Screening feature requires T-type supervised transfers. To use this feature without having to remove diversion programming from the subscriber telephone, set the TRAF parameter of the extension category to restrict voice mail ports from calling other voice mail ports.
- 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](#).
- The MiCollab AM default recording format must be set to PCM μ -law or PCM A-law (G.711).
- The IP address in the MiCollab AM **Integration Options** dialog box must match the IP Address configured in the telephone system.
- MiCollab AM 9.1 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

Mitel TSW Application Considerations

- Each IP station port board installed in Mitel TSW, as well as the telephone system itself, must have a static IP address. The MiCollab AM server(s) must be on the same subnet or VLAN as Mitel TSW.
- All network connections between Mitel TSW, MiCollab AM, and the network, must be full duplex 100 Mbps.
- The use of traffic-restricted voice mail ports is not compatible with blind transfers. We recommend that you use the monitored (Monitor) transfer type unless the application requires a supervised (T-type) transfer.
- When using reason code diversions from subscriber telephones, diverted calls will always go to the common diversion position. If MiCollab AM is the common diversion position (CDCOI), calls are always diverted there, even if individual diversions (CDINI) have been programmed to divert calls elsewhere.
- The station port boards in each LIM share the same B channel. Each LIM has its own B channel, however. This may have an effect on the capacity of the telephone system and should be considered when planning the structure of the system.
- Station numbers cannot have a 0 as the leading digit. The maximum length of a station number is six digits.
- Because the telephone system performs the call progress detection in this integration and passes call progress as out-of-band events to MiCollab AM, MiCollab AM features that rely on analysis of the incoming audio stream do not function properly under this integration. These features include the following: detection of fax tone and call handling actions such as transfers and callouts to external telephone numbers.
- If ELU32 boards are used, you must use an SPU4 board for DTMF. Keep traffic-handling capacities in mind as you outfit the telephone system.

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 MX-ONE with software version 2.0 or later
Or
Mitel TSW PBX with system software version BC12.1 or later
- One or more IPLU station port boards, each of which provides 32 MiCollab AM ports
Or
One or more ELU32 IP station port boards, each of which provides 16 MiCollab AM ports

MiCollab AM Requirements

- MiCollab AM version 5.0 SP3 or later
- At least one 100 MB or 1000 MB network interface card and cable
- Mitel feature file with the Mitel TSW IP integration enabled and one Virtual SIP license enabled for each port involved in the integration

Programming the Telephone System

Follow the recommendations and programming examples in this section to program MiVoice MX-ONE or Mitel TSW for integration with MiCollab AM. Programming examples show commands and parameters of version 2.0 and BC12.1 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 programming information on this software version or other Mitel TSW software versions, refer to the appropriate *ASB Basic Exchange and Extra Facility* documentation and the Mitel TSW OEM country-specific documentation.

Initiating the Number Series for the IP Based Extensions

Initiate extension numbers in Number Analysis for the MiCollab AM extensions. Use EX as the NUMTYP. Choose directory numbers that are appropriate for your numbering plan.

For example:

```
NANSI:NUMSE=2300&&2331,NUMTYP=EX;
```

To verify your work, type the following command:

```
NADAP;
```

Initiating the IP Station Port Boards

Initiate each IP station port board with a static IP address, board position, subnet mask, and default gateway router IP address.

For example:

```
IPBOI:BPOS=1-2-40,IP=245.17.41.2,MASK=255.255.255.0,ROUTER=245.17.41.1;
```

To verify your work, type the following command:

```
IPBOP:BPOS=ALL;
```

Assigning a Domain to the Entry Gatekeeper

Assign a unique domain name to the LIM containing the IP station port board that functions as the entry gatekeeper. Associate this domain name with the number of the LIM and assign it a limit to control the maximum number of outbound calls that can be active within the domain at one time. This limit is typically equal to 50% of the total number of channel ports involved in the integration, but this figure

should be modified to suit the needs of each site. In addition, set a total number of active calls that can be allowed for each audio codec in use on the site.

IMPORTANT The total number of active calls allowed for all audio codecs should not exceed 75% of the total capacity of all the station port boards that the entry gatekeeper represents. For example, if the entry gatekeeper directs calls to ports on four boards, then the total number of active calls for all audio codecs should not exceed 24.

For example (assuming a 24-port integration):

```
IPGDI:LIM=1,DOMAIN="TelSvr-1",CODLST=C-24&B-24;
```

To verify your work, type the following command:

```
IPGDP:LIM=ALL;
```

IMPORTANT Keep track of this domain name. You need it later when you configure MiCollab AM. Note also that this name is not a Windows domain name, but strictly a label for use by Mitel TSW and MiCollab AM. Finally, note that in systems that include IP-based extensions as well as this integration, the domain associated with the integration must be different from the domain used for the extensions.

Initiating the Generic Extension Definition

Define a common service profile (CSP) for all IP-based Mitel TSW extensions. In this profile, establish an overall traffic restriction level to define the number of simultaneous calls that may be active on the extension lines at one time.

For example:

```
GESPI:CSP=0,TRAF=1100151515,SERV=2071501001300,CDIV=11511110,ROC=023001,NPRES=1010;
```

Initiate a generic definition that can be applied dynamically to the IP-based Mitel TSW extensions. Assign this generic definition to the standard range of directory addresses set aside for IP-based extensions and associate it with the LIM on which the entry gatekeeper board is installed.

For example:

```
GEDII:DIR=2300&&2331,LIM=1,CSP=0;
```

To verify your work, type the following command:

```
GEDIP:DIR=2300&&2331;
```

Creating Individual Extensions

Designate the extensions that to integrate the telephone system with MiCollab AM, associating each extension with the directory address range you have specified.

For example:

```
IPEXI:DIR=2300;
```

```
IPEXI:DIR=2301;
```

```
IPEXI:DIR=2302;
```

```
IPEXI:DIR=2303;
```

```
IPEXI:DIR=2304;
```

```
IPEXI:DIR=2305;
```

To verify your work, type the following command:

```
IPEXP:DIR=ALL;
```

Initiating the Information Computer Function

Initiate the Information Computer Function for the MiCollab AM extensions.

To initiate the information computer function:

- 1 Specify the USER as GENERIC and set the update function (UPDFCN) to YES.

For example:

```
ICFUI:IFCIND=1, USER=GENERIC, UPDFCN=YES;
```

To verify your work, type the following command:

```
ICFUP;
```

- 2 Configure the Information Computer Function to support the transmission of MWI clear and set commands, as follows:

```
ICFUC:MWF=ALL;
```

To verify your work, type the following command:

```
ICFUP;
```

- 3 Initiate the Message Waiting data for the voice mail port. Define the system ID (SID) of the PBX, the DTXT, and group number (DIG) to be called when subscribers press the message-waiting button (MWC) to retrieve messages.

For example:

```
ICMWC:SID=01,DTXT=3000,DIG=3000,KFCN=MWC;
```

To verify your work, type the following command:

```
ICMWP:SID=01;
```

Creating the Hunt Group

Create a hunt group for the integration, according to the steps in the following procedure.

To create the Hunt group:

- 1 Initiate a hunt group and assign the MiCollab AM extensions to the group. Specify the type as Longest Free Hunting and set Queuing to 10. Define the SEL parameter to allow overflow diversion when all ports are busy, if desired.

For example:

```
GHGRI:GRP=3000,LIM=1,SERV=1000,TRAF=15,SEL=110,QUE=10;
```

To verify your work, type the following command:

```
GHDAP:GRP=3000;
```

- 2 Assign the MiCollab AM directory numbers to the hunt group.

For example:

```
GHGMI:GRP=3000,DIR=2300&&2331;
```

To verify your work, type the following command:

```
GHDAP:GRP=3000;
```

- 3 You may want to program the MiCollab AM ports to divert when they are unavailable. For instance, the following programming example would divert calls intended for MiCollab AM to the attendant, if all ports were busy or RNA.

For example:

```
CDINI:DIR=3000,DIV=00; (00=operator)
```

To verify your work, type the following command:

```
CDIDP:DIR=3000;
```

Initiating the Voice Mail Function

Initiate the Voice Mail Port. Add the MiCollab AM directory numbers to the Voice Mail Port.

For example:

```
VMGEI:IFCIND=1,DIR=2300&&2331;
```

To verify your work, type the following command:

```
VMGEP;
```

Programming Message Waiting and Call Diversion for Subscriber Telephones

Apply the commands in the following procedure to configure MWI and call diversion options for MiCollab AM subscribers.

To program message waiting and call diversion for subscriber telephones:

- 1 Use the Key System Function Key Change command to assign an MWI key appearance on each subscriber telephone. Digital subscriber telephones can have a lit MWI key assigned in addition to the *Message Waiting* display on their LCD telephones, and subscribers can then press that key to retrieve messages from MiCollab AM.

For example:

```
KSFKC:DIR=2001&&2299,KEY=2,FCN=MEW;
```

To verify your work, type the following command:

```
KSFKP:DIR=2001&&2299;
```


- 2 Assign the MiCollab AM hunt group as the diversion point for subscribers. Use the CDCOI command to create a common diversion to voice mail for subscribers, or use the CDINI command to create individual diversions.

For example:

CDINI:DIR=2001&&2299,DIV=3000;

To verify your work, type the following command:

CDIDP:DIR=2001&&2299;

For subscribers using IP or generic extensions, use Personal Number Repeated Deflection.

For example:

PELPI:DIR=2001,CHO=1,BSYCHO=2,ANSPOS=2001;

PELPI:DIR=2001,CHO=2,ANSPOS=3000;

If Call Diversion is not programmed, subscribers must use the Follow Me feature to divert calls to MiCollab AM.

NOTE If MiCollab AM is selected as the common diversion position (CDCOI), then ICS calls are always diverted to this position, even if CDINI is programmed to divert calls elsewhere. In other words, reason code diversion always goes to the common diversion position. Refer to the Voice Intercept Messaging online book for more information on programming reason code diversions.

Adjusting the Jitter Buffer Size

Depending on the characteristics of the network, you may need to adjust the size of the memory buffer that the system provides to protect against *jitter* distortion in the voice signals that it processes. The buffer size parameter can be set or modified in increments of ten milliseconds (ms).

For example (to set a buffer size of 150 ms):

ASPAC:PARNUM=191;PARVAL=15;

To verify your work, type the following command:

ASPAP:PARNUM=191;

IMPORTANT Adjust the buffer size carefully. If the buffer is too small, jitter distortion passes through uncorrected; if it is too large, users experience long silences before they hear their calls.

Completing the Mitel TSW Programming

Verify that the programming is correct by using the print command related to each executable command.

Make sure that the following program units are installed in Mitel TSW in accordance with the Line Interface Module (LIM) disposition table, as follows:

- DIR
- MWP
- DIM

- IHAH
- ILP
- IDP
- IHH

Installing the Network Interface

The Ethernet network adapter card and TCP/IP protocol may have been installed during initial installation of the operating system. Alternatively, you can install both the network adapter and the required TCP/IP protocol now. Consult the site system administrator for specific information on how to configure the network environment for the MiCollab AM platform. Refer to the operating system documentation or online help for information on installing network adapter cards and network protocols.

Once the network environment is configured and MiCollab AM has joined the same network as Mitel TSW, verify that MiCollab AM can communicate with the PBX via TCP/IP. At the MiCollab AM Call Server, open a command prompt window. Type the Ping command followed by the TCP/IP address assigned to the PBX. If the TCP/IP protocol and network interface is installed properly, the PBX will reply. The following is an example of how to use the Ping command:

```
C:\>ping 245.17.41.1
Pinging 245.17.41.1 with 32 bytes of data:
Reply from 245.17.41.1: bytes=32 time<10ms TTL=128
Reply from 245.17.41.1: bytes=32 time<10ms TTL=128
Reply from 245.17.41.1: bytes=32 time<10ms TTL=128
```

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 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 **Mitel**.
 - d From the **Model** drop-down list, select **MiVoice MX-ONE**.
 - e From the **Integration Type** drop-down list, select **IP**.
- 2 Click **Next**. 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**.
- 3 Click **OK**. The **Switch Options** dialog box appears.
 - 4 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*.

- 5 Click **OK**. The **Integration Options** dialog box appears.
- 6 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 4. Required Parameters Settings for Integration Options

Field	Required Value
IP Server Address	Enter the IP address of the IPLU board that functions as the entry gatekeeper
IP Server Port	Enter the port MiCollab AM on which listens for incoming IP messages. The default value is 5060 .
Local IP Address to bind on	Enter the IP address of the network interface card (NIC) on the MiCollab AM Call Server platform that supports the media server. If there is only one NIC on the Call Server

	platform, this field typically contains the IP address of that NIC already.
IP Location Connection Port	Enter the TCP port MiCollab AM listens for incoming IP messages. The default value is 5060 .
IP parser qualifier string	Enter the local IP address selected for this integration. This field allows MiCollab AM to select an appropriate IP parser file.
PBX Registration Password	Enter the password that you assigned to the user definitions for the integrated ports.
Media packet size (milliseconds)	Enter the number of milliseconds of audio that should be included in each data packet MiCollab AM sends to the telephone system or receives from it. The default value is 20 milliseconds.
Voice Message System ID (SID)	Enter the system ID (SID) number that you set in the section Initiating the Information Computer Function.
MWI Subscription Period in seconds	Enter the MWI Subscription period in seconds. The default value is 3600 .

- b** In the **Local Integration Settings** section, select the **Proxy Settings** view and configure the following parameters:

Table 5. Proxy Settings for Integration Options

Field	Required Value
Gatekeeper Address	Enter the IP address of the entry gatekeeper you assigned to the Mitel TSW Server.
Secondary Gatekeeper Address	Enter the IP address of the secondary entry gatekeeper you assigned to Mitel TSW.
Domain Name	Enter the domain name of the entry gatekeeper you assigned to Mitel TSW.
Log Directory	Enter the MiCollab AM folder in which integration log files accumulate. The default value is .\log .
Log Size	Enter the maximum log file size. The default value is 2048 .
Log Count	Enter the log count limit. The default value is 10 .
Log Level	Enter the log level limit. The default value is 2 .

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

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

- c** In the **Hunt Group Access Code** field, enter the hunt group code you configured previously in the section, [Creating the Hunt Group](#).

- d** Click **OK**.

- 9** Continue through and complete the configuration. At the end of the configuration, a confirmation dialog box appears. Click **OK**.

- 10** If **MiCollab AM Configuration** does not open automatically after the configuration completes, open **MiCollab AM Configuration**, and select the **Lines** tab.

- 11** 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 IP stations with the IP PBX during system startup.

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

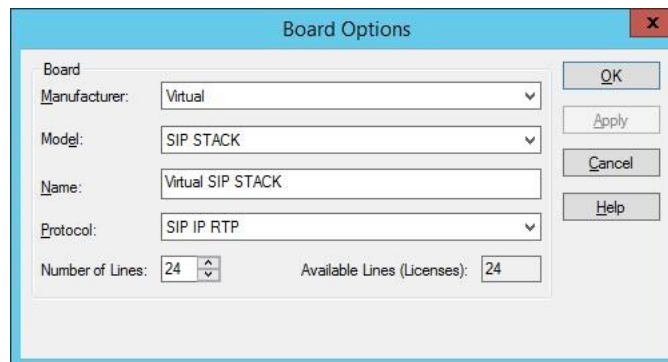
Configuring Existing MiCollab AM for the Integration

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 **Mitel**.
 - b** From the **Model** drop-down list, select **MiVoice MX-ONE**.
 - c** From the **Integration Type** drop-down list, select **IP**.
- 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, configure the options as follows:
- a** In the **Local Integration Settings** section, select the **Required Parameters** view and configure the following parameters:

Table 6. Required Parameters Settings for Integration Options

Field	Required Value
IP Server Address	Enter the IP address of the IPLU board that functions as the entry gatekeeper
IP Server Port	Enter the port MiCollab AM on which listens for incoming IP messages. The default value is 5060 .
Local IP Address to bind on	Enter the IP address of the network interface card (NIC) on the MiCollab AM Call Server platform that supports the media server. If there is only one NIC on the Call Server platform, this field typically contains the IP address of that NIC already.
IP Location Connection Port	Enter the TCP port MiCollab AM listens for incoming IP messages. The default value is 5060 .

IP parser qualifier string	Enter the local IP address selected for this integration. This field allows MiCollab AM to select an appropriate IP parser file.
PBX Registration Password	Enter the password that you assigned to the user definitions for the integrated ports.
Media packet size (milliseconds)	Enter the number of milliseconds of audio that should be included in each data packet MiCollab AM sends to the telephone system or receives from it. The default value is 20 milliseconds.
Voice Message System ID (SID)	Enter the system ID (SID) number that you set in the section Initiating the Information Computer Function.
MWI Subscription Period in seconds	Enter the MWI Subscription period in seconds. The default value is 3600 .

- b** In the **Local Integration Settings** section, select the **Proxy Settings** view and configure the following parameters:

Table 7. Proxy Settings for Integration Options

Field	Required Value
Gatekeeper Address	Enter the IP address of the entry gatekeeper you assigned to the Mitel TSW Server.
Secondary Gatekeeper Address	Enter the IP address of the secondary entry gatekeeper you assigned to Mitel TSW.
Domain Name	Enter the domain name of the entry gatekeeper you assigned to Mitel TSW.
Log Directory	Enter the MiCollab AM folder in which integration log files accumulate. The default value is .\log .
Log Size	Enter the maximum log file size. The default value is 2048 .
Log Count	Enter the log count limit. The default value is 10 .
Log Level	Enter the log level limit. The default value is 2 .

- 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.

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

- c** In the **Hunt Group Access Code** field, enter the hunt group code you configured previously in the section, [Creating the Hunt Group](#).
 - 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.

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 card 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. 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