

MiCollab Advanced Messaging Mitel TSW VM TCP/IP Integration Technical Note

For version 6.1 and above

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Contents

Preface	4
References	4
Documentation	4
Documentation Updates	5
Help	5
Document Conventions	5
Features Supported by this Integration	6
Critical Application Considerations	8
Installation Requirements	10
Telephone System Requirements	10
MiCollab AM Requirements	10
Programming the Telephone System	11
Initiating the Number Series for the Analog Extensions	11
Programming the Category for the Analog Extensions	11
Initiating the Analog MiCollab AM Ports	11
Initiating the Hunt Group	12
Initiating the NIU Port for Voice Mail	12
Initiating the NIU Port Information Computer Function	13
Initiating the NIU Port Voice Mail Function	13
Programming Message Waiting for Subscriber Telephones	14
Programming the Call Diversion for Subscriber Telephones	15
Completing the Mitel TSW Programming	15
Installing the Call Server Network Interface	16
Configuring MiCollab AM	17
Changing the Network Binding Order on the MiCollab AM Platform	18
Completing the Integration	19

Preface

This Integration Technical Note (ITN) is written for dealers who are experienced with MiCollab Advanced Messaging (MiCollab AM) and who are 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 analog extensions in conjunction with the Voice Mail TCP/IP integration, which is an outband TCP/IP integration.

The Mitel TSW Voice Mail TCP/IP interface is an Ethernet LAN connection that uses the TCP/IP protocol to communicate between Mitel TSW and MiCollab AM. Analog extensions are used to provide DTMF signaling and voice communication. Calling-party and called-party information is sent to the Call Server as a TCP/IP packet over the LAN at the same time that a call is sent to an analog extension. The data is matched with the ringing extension and MiCollab AM answers with the appropriate dialog. Message-waiting indicator (MWI) operation is also performed via TCP/IP over the network connection.

Refer to the Mitel *Extra Facility Voice Mail, VM* description for complete details on the VM specifications.

Use this document in conjunction with *System Installation Guide* and *System Administration Guide* and with 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: Refer to *System Installation 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 Mitel TSW VM TCP/IP integration.

Table 1. 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 2. Integration features supported for Mitel TSW VM TCP/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	

DNIS	No	
End-to-end DTMF, attendant console	Yes	
End-to-end DTMF, proprietary telephones	Yes	
Fax Ports	Yes	Note 1
Internal calling party ID for reply	Yes	
Live record, integrated	No	Note 2
Live reply to sender	Yes	
Message notification callouts	Yes	
MWI, set/clear	Yes	
MWI, inband/outband	Outband	
Networking, analog	Yes	
Overflow from MiCollab AM to attendant	Yes	
Overflow to MiCollab AM from attendant	Yes	
PBX-provided disconnect signaling	Yes	
Revert to operator from personal greeting	Yes	
Transfers, blind	Yes	
Transfers, confirmed	Yes	
Transfers, fully supervised	Yes	
Transfers, monitored	Yes	
Trunk ID for call routing	No	
Multiple Integrations	Yes	Note 3

NOTES

1. Requires separate industry standard analog lines
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.

- The Mitel TSW voice mail port number of each analog extension must be assigned correctly to each integrated MiCollab AM port. The integration cannot function if these entries are incorrect. The voice mail port numbers and format (POFMT) are programmable parameters and are defined during the initiation of the voice mail port of Mitel TSW.
- Program the instrument category (ICAT) of the analog extensions that serves MiCollab AM for enhanced global tones and assign them as voice mail ports.
- Mitel TSW requires a static TCP/IP address and must be on the same subnet as the Call Server. It cannot be assigned a lease through a DHCP server. If the customer site is using a DHCP server, a reservation must be made for Mitel TSW.
- 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 traffic matrix (TCMAP) and TRAF parameter of the extension category to restrict voice mail ports from calling other voice mail ports.
- The use of traffic-restricted voice mail ports is not compatible with blind transfers. Mitel recommends that you use the monitor transfer type unless the application requires a T-type supervised transfer.
- If the malicious call trace feature of Mitel TSW is enabled on the voice mail ports, no disconnect packet is sent to MiCollab AM from the NIU port of Mitel TSW.
- When using reason code diversions from subscriber telephones, diverted calls always go to the common diversion position. If MiCollab AM is chosen as the common diversion position (CDCOI), ICS calls are diverted to this position, even if individual diversion (CDINI) has been programmed to divert calls elsewhere.
- Station numbers cannot have a 0 as the leading digit. Non-numeric DTMF tones cannot be used as any character in a station number. The maximum length of a station number is six digits.
- On a MiCollab AM server with two or more network interface cards (NIC), the NIC that supports this integration must not occupy first place in the operating system's binding order. For more information, refer to the section, [Changing the Network Binding Order on the MiCollab AM Platform](#).
- MiCollab AM {ver} 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 Mitel MiTAI or 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)

Installation Requirements

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

Telephone System Requirements

- Mitel TSW with system software version BC10 or later. The following version BC10 patches are required for TCP/IP integration: 87804, 87997, 87998, 88383, and 88407. The following version BC10 patches are required for ANI/CLI information to the GICI port: 86363, 86376, 86377, 86444, and 88445.
- NIU port for TCP/IP network connection. The TCP/IP address of this network interface port must be a static network address.
- A TSR 902 0240/XXXX cable for the network connection between the NIU board and the Ethernet network
- One ELU29 analog extension board provides 16 analog MiCollab AM ports

MiCollab AM Requirements

- Microsoft Windows Server 2008 R2 with Service Pack 1 or 2012 R2.
- MiCollab AM 6.1 – consult the Mitel web site for the current software patches and service pack information (see [References](#) earlier in this document).
- Mitel software key diskette or feature file with the Mitel TSW Analog TCP/IP integration enabled
- An available serial COM port
- One analog Dialogic port for each MiCollab AM voice port to be integrated
- An uninterruptible power supply and surge protection device (recommended)

Programming the Telephone System

Follow the recommendations and programming examples in this section to program Mitel TSW for integration with MiCollab AM. Programming examples show commands and parameters of version BC10 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 Analog 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=3001&&3016,NUMTYP=EX;
```

To verify your work, type the following command:

```
NADAP;
```

Programming the Category for the Analog Extensions

To program the category for the analog extensions:

- 1 Set the Extension Category code for the MiCollab AM ports. Use a separate category for the MiCollab AM ports.
- 2 Program the TRAF parameter of CAT so that MiCollab AM ports are not restricted from calling each other unless the application requires a specific restriction.

For example:

```
EXCCS:CAT=1,TRAF=03151515,SERV=00001000,CDIV=000060000,ROC=000000;
```

To verify your work, type the following command:

```
EXCCP:CAT=1;
```

Initiating the Analog MiCollab AM Ports

Initiate the ELU29 analog extension ports and assign directory numbers for all of the MiCollab AM ports. Choose directory numbers that are appropriate for your numbering plan. ICAT=0015 assigns enhanced

global tones for call progress and loop current disconnect supervision to the ports. ICAT=0014 may also be used for voice ports.

For example:

```
EXTEI:DIR=3001&&3016,EQU=2-1-30-1, TYPE=EL6,CAT=1,ICAT=0015;
```

To verify your work, type the following command:

```
EXDDP:DIR=3001&&3016;
```

Initiating the Hunt Group

To initiate 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=3001&&3016;
```

To verify your work, type the following command:

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

- 3 You can program the MiCollab AM ports to divert when they are unavailable. For example, the following programming command 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 NIU Port for Voice Mail

To initiate the NIU Port for Voice Mail:

- 1 Initiate the NIU board position (BPOS) for the network port. Name the NODE *VOICEMAIL*.

For example:

```
IOBPI:NODE=VOICEMAIL,BPOS=2-1-40;
```

To verify your work, type the following command:

IODDP;

- 2 Initiate the I/O Equipment Position for the network port. Assign a name to the I/O device, assign the TYPE as NETWORK, and the USAGE as OUT.

For example:

IOEQI:IODEV= VOICEMAIL,EQU=2-1-40-4, TYPE=NETWORK,USAGE=OUT;

To verify your work, type the following command:

IODDP;

- 3 Initiate the I/O network connection. Assign the USER as GICI-1, the RPORT as 2555, and the TCP/IP address that was pre-determined by the network system administrator.

For example:

IONCI:IODEV= VOICEMAIL,USER=GICI-1, RPORT=2555,IP=195.100.102.105;

To verify your work, type the following command:

IONCP;

Initiating the NIU Port Information Computer Function

To initiate the NIU port information computer function:

- 1 Initiate the Information Computer Function for the Voice Mail Port. Name the I/O Device *VOICEMAIL* and specify the USER as GICI-1. Set the directory format length (DFMT) to match the directory number length of the extensions, set the update function (UPDFCN) to YES, and set the FILLER to 32 (space).

For example:

ICFUI:IFCIND=1,IODEV= VOICEMAIL,USER=GICI-1, DFMT=4,UPDFCN=YES,FILLER=32;

To verify your work, type the following command:

ICFUP;

- 2 Initiate the Message Waiting data for the voice mail port. Define the system ID (SID) of the PBX, the DTXT, and group number (DIG) that is dialed 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;

Initiating the NIU Port Voice Mail Function

To initiate the NIU port voice mail function:

- 1 Initiate the Voice Mail Function for the NIU port. Set the port format (POFMT) to 3. Set the Voice Mail Functionality (VMF) to EXTN3 if ANI/CLI services is used. If ANI/CLI services are not required, set VMF to EXTN2.

For example:

VMFUI:IFCIND=1,VMF=EXTN3,POFMT=3;

To verify your work, type the following command:

VMFUP;

- 2 Initiate the Voice Mail Port. Add the MiCollab AM directory numbers and the hunt group number to the Voice Mail Port.

For example:

VMPOI:IFCIND=1,DIR=3001&&3016,PORT=001; VMPOI:IFCIND=1,GRP=3000;

To verify your work, type the following command:

VMPOP;

Programming Message Waiting for Subscriber Telephones

To program message waiting for subscriber telephones:

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

For example:

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

To verify your work, type the following command:

KSFKP:DIR=2001&&2299;

- 2 Analog subscriber telephones can receive a pling ring for MWI or a special dial tone. Use the ASPAC command to set either pling ring or special dial tone.

For example:

ASPAC:PARNUM=88,PARVAL=1; (PARVAL=1 sets special dial tone and PARVAL=0 sets pling ring.)

NOTE When PARVAL=0, the *Message Waiting* text message on digital set displays is not available.

- 3 Program the time interval between pling rings when pling is used for message notification. The following example sets the pling interval to fifteen minutes.

For example:

ASPAC:PARNUM=45,PARVAL=90;

To verify your work, type the following command:

ASPAP:PARNUM=45;

Programming the Call Diversion for Subscriber Telephones

To program the call diversion for subscriber telephones:

- 1 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;

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

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

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 Call Server Network Interface

The Call Server's Ethernet network adapter card must be configured to use the TCP/IP protocol. Consult the site system administrator for specific information on how to configure the network environment for the Call Server platform. Refer to the Microsoft Windows documentation or online help system for information on installing network adapter cards and network protocols.

Once the Call Server's network environment is configured, and joined to the same network as Mitel TSW, verify that the Call Server can communicate with the PBX via TCP/IP using the Ping command. At the Call Server, open a command prompt window, and then type the Ping command followed by the TCP/IP address assigned to the PBX. If the TCP/IP protocol and network interface is properly configured, the PBX replies.

The following is an example of how to use the Ping command:

```
C:\>ping 195.100.102.105
Pinging 195.100.102.105 with 32 bytes of data:
Reply from 195.100.102.105: bytes=32 time<10ms TTL=128
Reply from 195.100.102.105: bytes=32 time<10ms TTL=128
Reply from 195.100.102.105: bytes=32 time<10ms TTL=128
```


Configuring MiCollab AM

Once the telephone system is programmed, you must configure MiCollab AM for the integration. During setup, you'll need the following information, specific to this integration, to configure MiCollab AM.

To configure MiCollab AM:

- 1 In the Installation Configuration dialog box, enter the name of your site in the Site Name box, the mailbox length in digits in the Mailbox Length box, and the first port number (POFMT) for the first line in the First Extension box.
- 2 Select **Mitel** as the manufacturer, **MX-ONE** as the model and **Analog TCP/IP** as the integration type.
- 3 In the Switch Section Options dialog box, enter the hunt group access code you configured previously in the section, [Initiating the Hunt Group](#). This is the pilot number that users dial to reach MiCollab AM.
- 4 Verify that communications settings in the Integration Options dialog box match those programmed in Mitel TSW, and then verify the TCP port number is 2555.
- 5 Once setup is complete, go to the Lines tab to verify that the port numbers are assigned to the correct lines, and enable callouts to suit your application. For information on configuring callout settings, see the topic *Configure callout settings*, in the online help system.

The settings related to the telephone system in the Switch Options dialog box are filled in correctly when you select the correct telephone system during setup. You may need to customize other settings in the Switch Sections and Integrations Options dialog boxes to suit the requirements of each application. Refer to the *System Installation Guide* or the online help system for more details about setting these parameters.

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. 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.

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**.

To change the binding order of multiple NICs:

- 1 Go to **Start > Settings > Control Panel**.
- 2 In the Control Panel, double-click **Network Connections** (or **Network and Dial-Up Connections**).
- 3 From the menu bar on the Network Connections window select **Advanced**, and then click **Advanced Settings**.
- 4 On the Adapters and Bindings tab of Advanced Settings, click the network connection that serves MiCollab AM.
- 5 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.
- 6 Click **OK**, and then close the Network Connections window and the Control Panel.
- 7 Shut down and restart the MiCollab AM server platform.

Completing the Integration

Now you are ready to finish installing MiCollab AM. See *System Installation Guide* and *System Administration Guide*, or refer to the MiCollab AM online help system, for instructions. For general information on integrations, you may also wish to consult *Integrating MiCollab AM with the Telephone System*, in *System Installation Guide*, and the topic *Integrate the Telephony Server with the telephone system*, in the online help system.