

MiCollab Advanced Messaging NEC SV7000 or NEAX 2400 with LAN MCI Integration Technical Note

For version 9.2 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 are familiar with its procedures and terminology. It also assumes that you are familiar with the features and programming of the NEC SV7000 or NEAX 2400 telephone system.

This document describes how to integrate MiCollab AM with an SV7000 or NEAX 2400 telephone system using the NEC Message Center Interface (MCI). The MCI integration is an outband data link integration.

In the TCP/IP LAN based implementation of the MCI, a TCP/IP network connection between the NEC and the Call Server is used as an alternative to the RS-232 serial link version of the MCI interface.

The MCI LAN connection between the NEAX and MiCollab AM is used to send calling- and called-party information to MiCollab AM. Analog station or T1 ports programmed into a UCD hunt group and connected to MiCollab AM voice ports are used for voice and DTMF signaling.

Incoming calls to MiCollab AM are directed to the UCD pilot number, the UCD reports the calling information to the MCI software, and a data packet with call type information is sent over the MCI TCP/IP connection, while ringing is sent to the associated analog port.

MiCollab AM matches the data packet with the ringing analog port and answers the call with the appropriate dialog. Message-waiting indicator (MWI) operation is also performed through the TCP/IP network connection.

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 with the NEC NEAX with LAN MCI 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
Do not Disturb	Yes

Table 3. Integration features supported for NEC NEAX with LAN MCI

Feature	Supported	Notes
Automatic subscriber logon	Yes	
ANI/CLI	Yes	Note 1
<i>Announce busy</i> greeting on forwarded calls	Yes	
Call screening	Yes	
Caller queuing	Yes	
DNIS/DDI	Yes	Note 1
End-to-end DTMF, attendant console	Yes	
End-to-end DTMF, proprietary telephones	Yes	
Fax ports	Yes	Note 2
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	Yes	
Overflow from MiCollab AM to attendant	Yes	
Overflow to MiCollab AM from attendant	Yes	
PBX-provided disconnect signaling	Yes	Note 3
Revert to operator from personal greeting	Yes	

Transfers, blind	Yes
Transfers, fully supervised	Yes
Transfers, monitored	Yes
Trunk ID for call routing	Yes

NOTES

1. Using NEAX 2400 level 6200 version F or SV7000
2. Requires a separate fax port or fax server
3. Using loop-current disconnect provided by the PBX analog linecard

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.

- No error or alarm condition is generated on either the NEAX or the MiCollab AM system when the MCI data link is disrupted.
- Calls to stations in Do Not Disturb (DND) forward to MiCollab AM as busy forwarded calls. For this reason, subscribers should not use DND and the *Announce Busy* feature of MiCollab AM at the same time.
- MiCollab AM subscribers without telephone extension devices must not have the MWI feature enabled in their mailboxes.
- Calls to any UCD group within the same tenant are reported to the MCI serial link and to MiCollab AM. Data packets from non-MiCollab AM UCD groups generate errors in MiCollab AM. To avoid invalid UCD data being sent to MiCollab AM, program the UCD hunt group for MiCollab AM into a separate tenant of the telephone system.
- Use only analog PBX linecards that support open loop disconnect signaling.
- MiCollab AM voice ports must be members of the UCD group to receive calling- and called-party information from the MCI port.
- Do not enable the Message Waiting Set capability for station users—Message Waiting and Message Reminder Set features must be disabled. If both MiCollab AM and end users are able to set and clear message waiting (MW), conflict and confusion is the result.
- 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 [Changing the Network Binding Order on the MiCollab AM Platform](#).

Additional Considerations for NEAX 2400

- Do not assign a phantom number as the pilot number of the UCD group. Instead, assign the first port of the UCD group as the pilot number. Use of a phantom pilot number does not allow data to be sent to the MCI port.
- Direct calls from the attendant console to MiCollab AM are not reported to the MCI port.
- A maximum of 20 ports may be included in any UCD group. If the MiCollab AM system you are installing has more than 20 ports, it is possible to create additional UCD groups as overflow groups. These groups can be associated using the AUOG command.
- Reorder tone is sent to any extension attempting to transfer a caller to the attendant in Night Mode, unless a station has been programmed in the PBX as the Attendant Night Transfer Target using the ASID command.

- If the attendant does not answer an unsupervised transfer within the predetermined time set for Transfer Call Recall, the call is sent back to the originating port and the caller hears the system greeting.

Additional Considerations for NEAX 2400 with 4200 Software

- The MCI data link provides only one data packet per call. Program automated attendant ports and voice mail ports into separate UCD groups so that calls transferred from the automated attendant hunt group forward from stations to the UCD voice mail hunt group.
- Calls to MiCollab AM from a virtual extension appear to MiCollab AM as a call from the prime extension.
- Blind transfers to the operator are not allowed and are recalled immediately to the port attempting the transfer. Program MiCollab AM to ensure that no blind transfers are attempted to the attendant console.

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 the telephone system and for MiCollab AM.

Telephone System Requirements

- One of the following PBX types:
 - SV7000 with R19 or later
 - NEAX 2400 UMG with Release 4004 or later
 - NEAX 2400 MMG with Release 4003 or later
 - NEAX 2400 IMG with Release 5202 or later
 - NEAX 2400 SIM with Release 5201 or later
 - Message Center Interface (MCI)
 - One loop start station for each MiCollab AM port to be configured
 - Use 16LCQ or 16LCBE cards, or their equivalent, because of their ability to provide open loop-current disconnect signaling. The LCQ card provides a fixed 128-194 ms. open on disconnect and the LCBE card open loop disconnect duration is programmable.
- OR
- A PA-24DTR digital trunk interface configured as T1 loop start stations, which will provide up to 24 channels to MiCollab AM; configure this board for D4 (SF), AMI, ABAB signaling

NOTE You can use a combination of analog and digital ports.

MiCollab AM Requirements

- A properly configured system server platform running Microsoft Windows 2012 R2, Windows 2016 (Server with Desktop Experience), or Windows Server 2019 (Server with Desktop Experience) with its network interface configured for TCP/IP
- MiCollab AM 9.2 – consult the Mitel web site for the current software patches and service pack information.
- Mitel software key diskette or feature file with the NEC NEAX MCI LAN (TCP/IP) integration enabled
- One or two 10 MB, 100 MB, or 1000 MB (gigabit) network interface cards with cables
- One Dialogic port or T1 channel for each MiCollab AM voice port to be integrated
- Uninterruptible power supply and surge protection device (recommended)

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 programming information on this telephone system, refer to the appropriate NEC System Command, Data Specification, and Feature manuals that are specific to the telephone system you are installing.

The programming examples in this section assume that you are programming the telephone system from a MAT terminal. Refer to the appropriate NEC manual for specific information on hardware configuration, software commands, and system data specifications.

Configuring the TCP/IP Connection for the MCI Link

Use the ASYDL command to configure the telephone system's IP address, subnet mask, and gateway address as shown in the following table.

Each eight-bit index shown in the table constitutes one octet (eight-bit field) in the address or mask.

For example:

If the telephone system's IP address were expected to be 255.100.18.1, you would set all of the bits at index 515 to 1 (11111111, or 255 in decimal notation).

Table 4. Configuring the IP address, Subnet Mask, and Gateway

System Data	Index	Description	Octet 1	Octet 2	Octet 3	Octet 4
SYS 1	515	IP Address	X			
SYS 1	516			X		
SYS 1	517				X	
SYS 1	518					X
SYS 1	519	Subnet Mask	X			
SYS 1	520			X		
SYS 1	521				X	
SYS 1	522					X

SYS 1	523	Gateway Address	X
SYS 1	524		X
SYS 1	525		X
SYS 1	526		X

Programming the MCI Port

Use the ASYD command to assign system data necessary for the MCI port. Follow the recommendations in the following table to program the system data necessary to configure the MCI port for MiCollab AM.

Table 5. ASYD System Data Programming for the MCI Port

System Data	Index	Bits	Value	Description
SYS 1	27	7	0	Immediate Ring Back Tone Sending
SYS 1	28	0-4	0	MCI Guard Timer Not Required
SYS 1	28	5	1	Message Waiting by MCI
SYS 1	29	1-4	n/a	Assign to the I/O Port associated with MCI
SYS 1	34	1-4	0	RS-232C parity and stop bits (none)
SYS 1	60	3	0	UCD Queuing
SYS 1	61	5	1	Call Waiting Display UCD in service
SYS 1	68	0	0	Operating Method for Busy Stations
SYS 1	70	0	1	Called Number Display when fwd to ATT-CON
SYS 1	70	6	1	Separate UCD Announcement
SYS 1	78	0-1	1	Display Station Numbers
SYS 1	117-121	0	1	Assign MCI Data for Printer (see Index 29)
SYS 1	246	3	1	MCI Expansion 0=Normal 1=Expanded
SYS 2	3	0	1	SMDR In Service
SYS 2	6	0	1	MCI Service when Terminating to UCD Group
SYS 2	7	1	1	MCI Service when Terminating to ATT-CON

After you configure the values in the previous table, use the AIOC command to assign function and attribute data to the MCI port. Then, using the ASYDL command as shown in the following table, specify the data format that the port should use.

Table 6. AIOC System Data Programming for the MCI Port

System Data	Index	Bits	Value	Description
SYS 1	833	0	1	LAN Interface
SYS 1	833	1	1	IMX Format
SYS 1	834	0	1	MC0 for LAN Mounted
SYS 1	834	1	0	MC1 for LAN Not Mounted

Programming the MiCollab AM Ports

Install, or locate in the PBX, the analog station card used to service the MiCollab AM stations.

- Use the **ASDT** command to assign station numbers to the station card.
- Assign the Telephone Equipment Class (TEC) as 3 and assign a default Service Feature Class and Restriction Class to each port.
- Choose an easily remembered number for the first station number because it is the pilot number of the UCD group that subscribers dial to reach MiCollab AM.
- Assign station numbers for the remaining ports in consecutive ascending order. You must perform these steps for each MiCollab AM port.

Programming the UCD Group

Use the **ASHU** command to assign the MiCollab AM ports to a UCD station hunt group. If necessary, program the MiCollab AM UCD group into a tenant separate from all other non-MCI UCD groups to prevent MiCollab AM from receiving invalid MCI packets from other non-related UCD groups.

A maximum of 20 ports may be included in any UCD group. If the MiCollab AM system you are installing has more than 20 ports, it is possible to create additional UCD groups as overflow groups. Associate these groups using the **AUOG** command. Add the MiCollab AM stations to the UCD group in ascending order.

The first MiCollab AM station number is the pilot number of the hunt group.

Programming the Subscriber Stations

Program the subscriber extension system data using the **ASYD** command, the Service Restrictions using the **ASFC** command, and the subscriber stations using the **ASDT** command.

Allow Call Forwarding-Don't Answer, Call Forwarding-Busy and Call Forwarding-All for all MiCollab AM subscribers. Allow subscribers to receive MW from MiCollab AM and disallow subscribers the ability to send MW from their stations.

It may be necessary to adjust transfer recall timers and call forward timers in system data to meet the requirements of each individual application.

Completing the Telephone System Programming

Verify your work and that the programming is correct by listing or printing your programming changes. Test the MiCollab AM stations for ringing, dial tone, and disconnect supervision. Verify that the MCI link can successfully transmit and receive data packets with calls to the MiCollab AM UCD group.

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** dropdown list, select **NEC**.
 - d From the **Model** dropdown list, select **NEAX 2400**.
 - e From the **Integration Type** dropdown list, select **MCI LAN (TCP/IP)**.
- 2 Click **Next**. The **Board Options** dialog box appears.
- 3 Depending on the type of Aculab card you have installed, configure the board options. Refer to the appropriate Spare Parts document for more information on the Aculab card you are installing.
- 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.
- 7 In the **Integration Options** dialog box, configure the options as follows:
 - a In the **Local Integration Settings** section, select the **Required Parameters** view.
 - b In the **PBX IP Address or Computer Name** field, enter the IP address or FQDN that was assigned during the telephone system programming
- 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 UCD hunt group access code you configured in the section, [Programming the UCD Group](#) earlier in this document. 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 **Board** tab, and then click the **Add** button. The **Board Options** dialog box appears.

- a Depending on the type of Aculab card you have installed, configure the board options. Refer to the appropriate *Spare Parts document* for more information on the Aculab card you are installing.
 - b Click **OK**.
- 4 Select the **Switches** tab and click the **Add** button. The **Switch Integration Data Setup** dialog box appears.
 - a From the **Manufacturer** dropdown list, select **NEC**.
 - b From the **Model** dropdown list, select **NEAX 2400**.
 - c From the **Integration Type** dropdown list, select **MCI LAN (TCP/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.
 - b In the **PBX IP Address or Computer Name** field, enter the IP address or FQDN that was assigned during the telephone system programming
- 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 UCD hunt group access code you configured in the section, [Programming the UCD Group](#) earlier in this document. This is the pilot number that users dial to reach MiCollab AM.
 - d Click **OK**.
- 11 In **MiCollab AM Configuration**, verify that 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 connected to the PBX.

NOTE The operating system gives precedence to the first network connection in the list followed by the remaining connections based on their position in the list.

The instructions in this section ensure that the binding order is correct when you set up the integration. However, if you replace a NIC on the MiCollab AM server platform later, the platform's operating system registers the new adapter at the bottom of its binding order. Restoring the original binding order should correct any problems caused by the change.

IMPORTANT The following procedure shifts the binding order of the network interface cards. To determine which NIC is associated with a specific network connection, right-click the connection in the **Network Connections** window, and then select **Properties**.

Windows Server 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 / 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.