

# **MiCollab Advanced Messaging Aculab Prosody X PCI Express (PCIe) Linecard Installation and Replacement Spare Parts Document**

For version 6.1 and above

## Notice

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# Preface

This document is written for Mitel certified MiCollab Advanced Messaging (MiCollab AM) technicians who are experienced with MiCollab AM and are familiar with its procedures and terminology. This book assumes you are familiar with MiCollab AM and the Microsoft Windows® operating system.

This installation guide consists of the following parts:

- An Overview of the Aculab Prosody X PCI Express linecards
- Aculab PCI Express linecard specifications and configurations
- Preparing the linecard for service
- Preparing the Call Server for service
- Installing the linecard
- Cabling the linecard to the telephone 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.

For more detailed documents, refer to the following list of references:

Table 1. References

Document Type	Document Title
Server Documentation	System Administration Guide
Server Documentation	System Installation Guide Chapter: <i>Removing and Installing Dialogic and Aculab Software Support Components</i>
Spare Parts Documentation	Hardware Warranty Program Guide
Spare Parts Documentation	Installation and Replacement Guides for Aculab/Dialogic

## 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: [connect.mitel.com/connect](https://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.

## Frequently Used Terms

Table 2. Frequently Used Terms

Terms	Description
<b>System Server</b>	<p>Term refers to an organization's computer platform(s) that have MiCollab AM software installed and handles the core system functions such as storing messages, database.</p> <p>It can also refer generically to the System Server platform, the Call Server platform, or both. The term is most often used to describe a software or hardware installation or configuration practice where the role of the server platform is not specifically expressed.</p>
<b>Call Server</b>	<p>Term refers to an organization's computer platforms that have MiCollab AM software installed and serve as the interface to the system (PBX). The Call Server(s) interface with the System Server for the purpose of accessing messages, and database.</p>

# Overview

This document explains how to install or replace Aculab Prosody X PCI Express E1/T1 High Capacity Digital Access telephony interface cards, referred to as a Prosody X PCIe linecard, in a MiCollab AM Call Server platform. The information in this document pertains to platforms running MiCollab AM version 5.0 SP3 and later.

The Aculab Prosody X PCIe linecard is a full media TDM telephony linecard with on-board DSP that provides call and signaling control of an E1 or T1 telephony interface. It supports a wide range of signaling protocols including: DPNSS, CAS, and Q.sig. The Prosody X PCIe E1/T1 linecard is used to integrate MiCollab AM with a telephone system using one of these supported signaling protocols.

Mitel recommends that you read this document in its entirety before beginning the installation process.

**NOTE** The information in this document applies to Aculab Prosody X PCI Express, also referred to as PCIe linecards. For more information on Aculab hardware or software, visit their web site at [www.aculab.com](http://www.aculab.com)

## Before You Begin

Review this section before performing any of the procedures in this document. This section provides important information about electrostatic discharge and the tools and equipment required to complete the installation.

## Electrostatic Discharge (ESD) Warning

Computer components are extremely sensitive to electrostatic discharge (ESD). You must wear an anti-static wrist strap and install the linecard at an ESD-safe workstation. Do not open the static-protective container until necessary. Before removing the linecard from the static-protective container, touch the container to a grounded, unpainted metal surface for at least two seconds (this drains the static electricity from the container and from your body). Turn off and unplug your computer before removing the case.

## Gathering Tools and Equipment

Before you begin disassembling the MiCollab AM platform, verify that you have the following required tools and equipment:

- MiCollab AM Installation Media
- One or more Aculab Prosody X PCIe linecards
- CTbus cable to connect multiple linecards



- One high impedance (120-Ohm) PBX line interface cable with an RJ-45 for each Prosody X PCIe linecard you are installing. If you are using a 75Ω BNC connection to the telephone system, you must use a BNC/RJ45 adapter.
- License (feature) key to enable the correct number of lines

# Planning an E1 or T1 Application

## About E1 and T1

MiCollab AM supports a variety of H.100 bus telephony linecards to implement E1 or T1. Each E1 format carries data at the rate of 2.048 megabits per second, provides 30 voice channels per span, and is in used in public telephone networks throughout the world (except in North America and Japan). Each T1 format carries data at the rate of 1.544 megabits per second, provides either 23 or 24 voice channels per span depending on your configuration. This format is typical in public telephone networks throughout North America and Japan. E1 and T1 circuits are used in private networks as well, including computer telephony integrations, around the world. To implement E1 or T1 successfully using Aculab PCI cards, you must be familiar with the definitions and guidelines provided in this document.

## About the H.100 Bus

To support MiCollab AM, Mitel sells PCIe linecards that exchange data with one another through a H.100-compliant resource bus. The H.100 standard specifies a hardware design that supports signals from several earlier resource bus specifications including CTbus, SCbus, MVIP, and others.

Each telephony linecard in the Call Server platform is equipped with an H.100 connector, to which a H.100 bus cable is attached, connecting each telephony linecard's H.100 bus together through the bus cable. Because the MiCollab AM software is designed to work without terminated resource buses, it is not necessary to add a terminator pack of any sort to either end of the H.100 bus cable or to change the termination settings on any H.100 bus linecard in the system.

**NOTE** The terms CT bus and H.100 are often encountered together. H.100 refers to the specific variant of the CT bus specification used in PCIe linecards.

## About PCI Express (PCIe) Cards

Before you begin, verify that the Call Server platform in which you are installing the linecard is compatible with the PCIe slot requirement of the Prosody X PCIe card. The Aculab Prosody X PCIe linecard is a full length x4 form factor PCI Express board that requires 25W of power. The Prosody X linecard can be installed only in an x4 or greater PCI Express chassis slot. An x4 or greater slot must be able to support a minimum of 25W per the PCI Express Card Electromechanical Specification Revision 1.0a or higher.

# Technical Specifications of the Prosody X PCIe Linecards

Table 3 lists the technical specifications for the Aculab Prosody X PCIe linecards approved for use with MiCollab AM.

**NOTE** Your local telephone company may require some of these specifications. For example, in the United States, some telephone companies require an FCC registration number if the linecard is connected directly to central office (CO) lines. Contact your local telephone company for its requirements.

Table 3. Aculab Prosody X PCIe E1 Technical Specifications

Functionality	Specification
Number of Ports (Channelization)	1-4 E1/T1 trunks per board 1-30 (E1 channel order) 1-24 (T1 channel order); the correlation between channelization and MiCollab AM ports is determined by the linecard identification number.  E1/T1 is software selectable.
FCC Registration (USA)	US: STC XD NA N PMXPCIX
Ringer Equivalence (REN)	NAN
USOC Jack Type	RJ45 for E1 or RJ 48c for T1
Impedance	Software selectable 75Ω or 120Ω (An RJ45 to BNC adapter is required for a 75Ω BNC connection)
Cables	BNC or RJ45
Protocols	DPNSS, CAS, Q.sig, T1 (robbed bit)
Physical Features	Description
Board format	Full size single slot
Bus Type	PCIe SIG 1.1 x4 slot
CT Bus	H.100

Power Consumption	25W (x4 lane or greater)
Timing synchronization	On board
Other Equipment (Required if you are connecting directly to the PSTN)	A CSU is required for T1. A DSU may also be required depending on the capabilities of the CSU. The CSU must have an RJ-45 connector to connect to the Prosody linecard.

Please contact Aculab Technical Support for additional technical specifications, or visit the Aculab website: [www.aculab.com](http://www.aculab.com)

# Installing the Aculab Software

Aculab software is installed automatically with the MiCollab AM installation. However, you must select the Aculab hardware support component on the Select Hardware Support Components dialog box during setup.

The software is installed as a hardware support component of the MiCollab AM Server software found on the Installation Media. The Aculab software is typically installed at the time of the initial Call Server software installation. However, if it was not been previously installed, you must install it by re-installing the MiCollab AM Server software.

If you are upgrading from a previous version of MiCollab AM, you may have to un-install a previous version of Dialogic® software before you begin the installation. If the MiCollab AM InstallShield Wizard detects an existing version of Dialogic software during the setup process, the installation is aborted and you are prompted to un-install all Dialogic software first.

For more information on removing previous versions of Dialogic software, refer to MiCollab AM help or the topic, *Removing and Installing Dialogic and Aculab Software Support Components* from *System Installation Guide*.

**IMPORTANT** If you are removing Dialogic and Aculab software and you are not installing another version of Dialogic software, you must re-install MiCollab AM software after you un-install any previous version of Dialogic software.

# Installing the Aculab Prosody X PCIe Linecards

Once the MiCollab AM and Aculab software is installed on the Call Server platform, you can:

- Install the linecard(s) into the platform.
- Configure the IP address of the linecard's Ethernet port in Windows® Network Connections.
- Configure the on-board network IP address in the **Aculab Configuration Tool**.
- Complete the configuration of the linecard properties in the **Aculab Configuration Tool**.
- Add it to the **Boards** tab of **MiCollab AM Configuration**.
- Connect the linecard to the telephone system.

## Confirming the Linecard Identification Number

The serial number of the Prosody X linecard is used to uniquely identify each board installed in the system. The serial number is located on the upper back edge of the board and has the format of P/N ACXXXX S/N **XXXXXX** WONXXX. The six digits following the S/N are used as the identifier when configuring the linecard.

If your Call Server has more than one installed linecard, make note of the linecard identification number of each linecard to clarify the process of connecting the ports to the telephone system later.

## Installing the Linecard into the Platform

There are no physical jumpers or switches to set on the Prosody X PCIe linecard. Certain Call Server platforms may require you to remove the slot retainer bracket from the inside edge of the linecard before you install it. Remove the two retaining screws that secure it, if necessary.

**IMPORTANT** Make a note of each linecard serial number before you install the card into the system. If there are multiple linecards be sure to note which linecard is in each PCIe slot.

### To install the Prosody X linecard:

- 1 Shut down the Call Server services, and then shut down the operating system.
- 2 Power off the server, and then remove the power cord from the chassis.
- 3 Locate an appropriate PCIe slot in the Call Server chassis, install each Prosody X PCIe card, seat it firmly, and then secure it with an end plate clip or screw.

**IMPORTANT** The PCIe slot you select must be an x4 (4 lane) slot or higher.

4 Do one of the following:

Table 4. Aculab installation options

If the Aculab card you added is...	Then...
The only linecard in the system	An H.100 cable is not required
The first linecard installed in the platform	Attach the first (end) H.100 Bus connector on the H.100 Bus cable to the H.100 Bus connector on the Aculab card.  The connectors on the card and the cable are designed to fit together in one direction only.
Neither the first nor last linecard installed in the platform	Attach the nearest H.100 Bus connector on the H.100 Bus cable to the H.100 Bus connector on the first telephony linecard.
The last linecard installed in the platform	Attach the last (opposite end) H.100 Bus connector on the H.100 Bus cable to the H.100 Bus connector on the last telephony linecard.

**IMPORTANT** Always connect both ends of the H.100 bus cable to linecards in the platform. Use the intermediate connectors to connect any intermediate linecards, and then tuck any unused connectors down between the cards. Leaving an end connector flagging loose and unused can create interference on the H.100 bus.

## Adding the Linecard to Windows Device Manager

Once the Prosody X linecard is installed and the Call Server is restarted, the Windows **New Hardware** wizard automatically detects the new hardware on startup and adds the appropriate Aculab device drivers to the **Device Manager**.

**NOTE** Windows detects the linecard as an Ethernet Controller.

# Assigning Network Addresses on the Prosody X-card

The Prosody X PCIe linecard has an onboard dual Ethernet port that services both a network interface connection and an onboard network switch. You must assign an IP address to both the network interface connection and the onboard network switch.

**NOTE** When you have completed this procedure, you may need to re-arrange the binding order of your network interface cards in the system so that the Prosody X Ethernet ports appear last in the network binding order. For more information, refer to the section, [Changing the Network Binding Order on the MiCollab AM Platform](#).

Assign the Prosody X Ethernet addresses to a subnet and TCP/IP address scheme that is different from that of the current network address scheme of the LAN to which MiCollab AM is connected. If you have more than one Prosody X card installed, address each one with unique subnets and IP addresses that do not conflict with the network address scheme of the LAN.

There are two IP addresses per Prosody X card that you must configure; the Network Connection IP address (Windows Network Connections Configuration), and the on-board computer IP address of the Prosody X (Aculab Configuration Tool).

**IMPORTANT** Because network address schemes vary from one company LAN to another, Mitel can only make recommendations on how to address the Aculab Prosody X linecard. Ultimately, the decision on what addresses to use is the responsibility of the network administrator.

An efficient method of providing a new subnet and IP address scheme for the Prosody X linecards is to use the subnet mask, 255.255.255.252. Two valid IP addresses within the subnet are XXX.XXX.XXX.1 and XXX.XXX.XXX.2. (The numbers in the fourth or least significant octet of the IP address are 1 and 2.)

For example, if you have three Prosody X cards installed in the system, all three require separate TCP/IP addresses that do not conflict with the network address plan of the LAN on which the Call Server communicates.

## Prosody X Card Number 1

Network Connection IP address:	172.40.100.1
Prosody X on-board computer IP address:	172.40.100.2
Subnet Mask	255.255.255.252

## Prosody X Card Number 2

Network Connection IP address:	172.40.101.1
Prosody X on-board computer IP address:	172.40.101.2
Subnet Mask	255.255.255.252

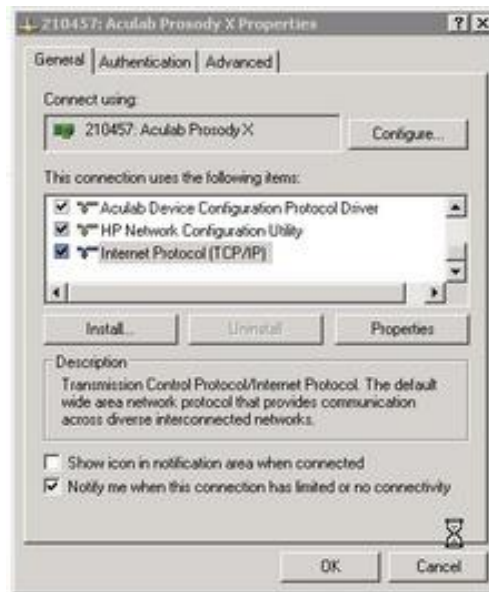


## Prosody X Card Number 3

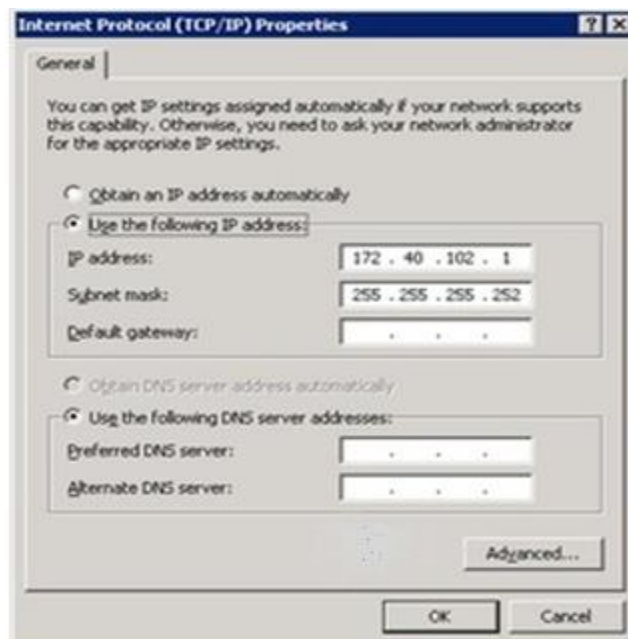
Network Connection IP address: 172.40.102.1  
Prosody X on-board computer IP address: 172.40.102.2  
Subnet Mask 255.255.255.252

To assign the TCP/IP address of the Network Connection IP Address:

- 1 Select **Start > Control Panel > Network Sharing Center**, and then click **Change adapter settings**.
- 2 Double-click the **Prosody X** connection. The **Connection Status** dialog box displays.



- 3 Click **Properties**, and then double-click the **Internet Protocol Version 4 (TCP/IPv4)** protocol. The Connection Properties dialog box displays.



- 4 Select the **Use the Following IP address** radio button, enter a TCP/IP address, subnet mask, and then click **OK**.

**NOTE** If you are using the previous example to create your TCP/IP addresses for the Prosody X card, enter the address ending in 1 or XXX.XXX.XXX.1, and then the subnet mask 255.255.255.252 for each of the Prosody X linecards you are installing. Remember that the third octet (XXX.XXX.XXX.X) of each linecard address must also be unique.

- 5 Click **OK** again, and then click **Close** to exit the dialog boxes.
- 6 Close the **Network Connections** window.

## Changing the Network Binding Order on the MiCollab AM Platform

MiCollab AM uses the primary (public) network interface card (NIC) in the platform for all network communications. It must use the first network connection in the network binding order. MiCollab AM may be a member of two different local or wide area networks (LANs or WANs) or have multiple network interface cards (NIC) installed and in use for other purposes. You must make sure that the Prosody X linecard does not interfere with the normal network operation of the Call Server.

Follow the instructions in this section to ensure that the binding order of your network interface cards is correct. When you install the Prosody X PCI linecard the binding order of the installed NIC's should not change, but it is important to note the current binding order before you install the card, and then check the binding order again once the Prosody X linecard is installed. Restoring the original binding order should alleviate any problems caused by the change.

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

## Windows Server 2008 R2 with Service Pack 1

To change the binding order of multiple NICs:

- 1 From the taskbar, select **Start > Settings > Control Panel**.
- 2 In the Control Panel, double-click **Network and Sharing Center** (use small icons).
- 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.

**NOTE** The operating system gives precedence to the first connection in the list. It then assigns priority to the remaining connections based on their positions in the list. The Prosody X Ethernet linecards must be the last connections in the binding list.

- 7 Click the up arrow button to the right of the Connections list as many times as needed to move the connection to the top of the list.
- 8 Click **OK**, and then close the Network Connections window and the Control Panel.

## Windows Server 2012 R2

### To change the binding order of multiple NICs:

- 1 From the taskbar, click **Start > Control Panel**.
- 2 In the **Control Panel**, click **Network and 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**.

# Configuring the Prosody X Linecard with the Aculab Configuration Tool (ACT)

Once you have finished assigning the Network Connection address and verified the network binding order, you can open the Aculab Configuration Tool and finish configuring the Prosody X card for use with MiCollab AM.

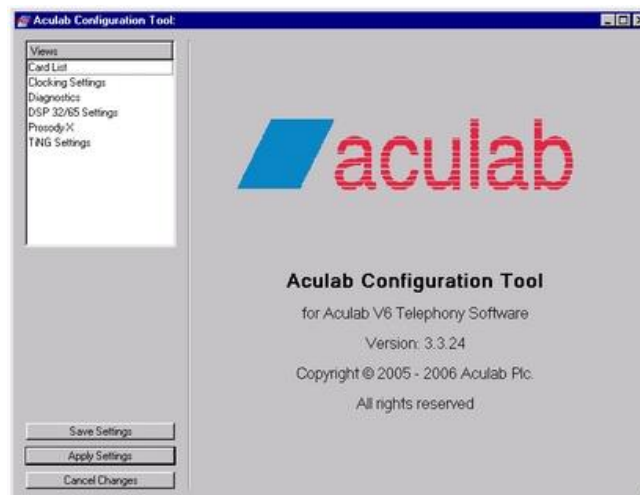
Once the linecard is successfully configured and in service it appears in the Prosody X Page of the ACT as "In Service." It also appears in the Card List of the ACT.

The Prosody X linecards do not appear in the Card List view until:

- The card is physically installed
- The Aculab software is installed correctly
- The Aculab Resource Manager and Aculab Startup service are both running
- The Prosody X is assigned a TCP/IP address
- The Prosody X card is "In Service"

## To configure the Prosody X linecard with the Aculab Configuration Tool:

- 1 Select **Start**, right-click **My Computer**, and then select **Manage**.
- 2 Double-click **Service and Applications**, and then double-click **Services**.
- 3 Verify that the **Aculab Resource Manager Service** is started. If it is not started, right-click the **Aculab Resource Manager Service**, and then select **Start**.
- 4 Close the **Windows Computer Management** window once the service is started.
- 5 Select **Start** > **All Programs** > **Aculab** > **v6** > **ACT**. The **Aculab Configuration Tool** displays.



- 6 Click **Prosody X**. The Prosody X Page displays. If the linecard(s) display with their corresponding serial numbers, skip to **Step 9**. Otherwise, continue to **Step 7**.
- 7 Typically, an installed linecard displays on this page with its serial number. If the ACT did not pre-register the serial number of the card, and the **Aculab Resource Manager Service** is running, click **Add**. The **ACT Adding Prosody X Card** dialog box displays.



- 8 Enter the board serial number you previously recorded when you installed the card, and then skip to **Step 10**.
- 9 Double-click an individual linecard to open the **ACT Editing Prosody X Card** dialog box for that card.

**NOTE** The linecards display in the order they are assigned within the system. In this example, the first card with serial number 187959 provides the first telephony ports for MiCollab AM, and so on.



- 10 Select the **Boot Card** box, and then enter **callserver** as the security key.
- 11 Enter the TCP/IP address and the subnet mask. If you are using the previous example to configure the addresses, enter the XXX.XXX.XXX.2 TCP/IP address, and then enter the subnet mask 255.255.255.252.
- 12 Click **Apply**, and then click **OK** to confirm the changes. The linecard initiates a **Discovery** state, and then works its way to the **In Service** state on the Prosody X Page.
- 13 Repeat **Steps 9-12** for each linecard you are installing.
- 14 From the Views list, click the **Card List**. Verify that each Prosody X card that reaches the **In Service** state on the **Prosody X Page** also displays in the section List.
- 15 MiCollab AM cannot auto-detect the Prosody X linecard if the card does not reach the "In Service" state. If the linecard fails to reach the **In Service** state, reboot the server and allow the system to restart completely before checking the Card List again. If the linecards fail to go **In Service** after a successful server restart:
- 16 Verify the Network Connection IP address.
- 17 Verify the ACT configuration is correct for each card.
- 18 Verify that that the two IP addresses assigned to each linecard are on the same subnet.
- 19 Verify the **Aculab Resource Manager** and **Aculab Startup Service** are both running in the Windows Service Manager.

**NOTE** Aculab Prosody X PCIe linecards that are configured correctly, yet continuously fail to reach an **In Service** state, may be indicative of a power resource limitation on the server platform. For more information, contact Mitel Technical Support.

# Configuring MiCollab AM for the Prosody X linecard

Once the Prosody X linecard is configured in the Aculab Configuration Tool and the linecard displays on the ACT Prosody X Page as **In Service**, and displays in the Card List, you can add it to the MiCollab AM Boards tab using the Auto-Detect wizard.

## To Auto-Detect the Prosody X PCIe linecard:

- 1 Select **Start > Programs > MiCollab AM Desktop**, and then double-click **MiCollab AM Configuration**. MiCollab AM Configuration displays on the Main tab.
- 2 Click the **Shutdown** button to shut down MiCollab AM.
- 3 Click the **Boards** tab, and then click the **Auto Detect** button.
- 4 The **Auto-Detect** wizard starts, and then finds each Prosody X linecard that is installed, and "In Service."
- 5 The wizard prompts you to select the type of interface. Click **Yes** if you are connecting to a T1 interface. Click **No** if you are connecting to an E1 interface.
- 6 The Prosody X PCIe linecards are added to the Boards list. If other boards were previously assigned, the Prosody X cards are assigned line numbers based on existing boards in the system.
- 7 Continue with the MiCollab AM installation and configuration process. Make sure to select the correct telephone system, integration, and assign the correct integrations and switch sections to the lines in the **Lines** tab.

For more information on Installing MiCollab AM and configuring the integration, see *System Installation Guide*, *System Administration Guide*, and the related *Integration Technical Note*.

# Cabling Aculab Prosody PCIe Cards to the Telephone System

After the Prosody X PCIe linecard is installed in the chassis, you can cable the card to the telephone system.

The first (bottom) connector on the end plate is a dual Ethernet port. The remaining four RJ45 connectors are dual E1/T1 telephony ports from 1 through 4 in ascending order for a total of four circuits per board (Figure 1). The first telephony port is the second port from the bottom, next to the Ethernet port.

**NOTE** The PCIe linecard has a maximum capacity of four E1/T1 circuits per board. The end plate is fitted with only the number of E1/T1 ports you ordered when you purchased the linecard.

## To connect the Aculab telephony ports to the telephone system:

Connect the PBX line interface cables to the E1/T1 RJ-45 line interface connectors on the Aculab card. Refer to Table 5 and Figure 2 for the correct pin-outs and plug configuration.

**NOTE** If you are using a 75 ohm BNC connection you must use a BNC to RJ45 adapter.

Table 5. E1/T1 adapter cable, RJ45 or RJ48c plug to RJ 45 connectors

RJ45 Plug Pins	Signal	E1 RJ45 or T1 RJ48	Direction	Cross-over cable (Exchange End)
1	1 RX tip (T)	1	IN	4
2	2 RX ring (R)	2	IN	5
3				
4	4 TX tip (T)	4	Out	1
5	5 TX ring (R)	5	Out	2
6				
7				
8				
Shield		Shield	Shield	

**NOTE** if you are using a 75 ohm BNC connection you must use a BNC to RJ45 adapter.



Figure 1 shows a fully equipped 4-port Prosody X PCIe end plate. The end plate is configured only with linecard is equipped for two E1 ports, only Trunk 0 and Trunk 1 are equipped on the end plate.

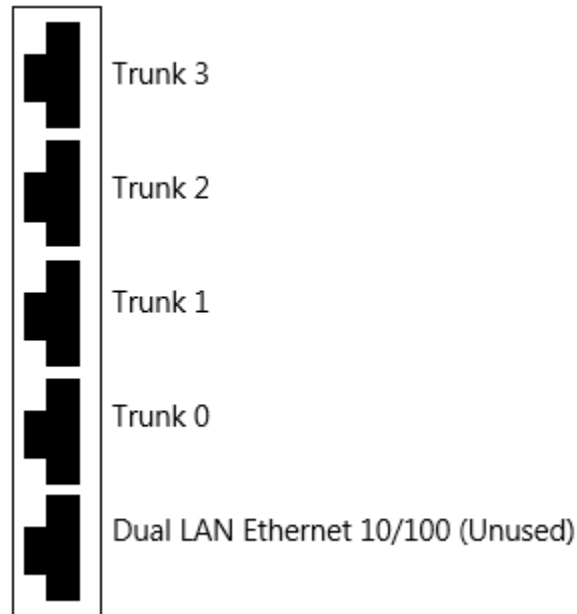


Figure 1. Prosody X PCIe End Plate

The following illustration provides the RJ45 and RJ48C plug pin-out.

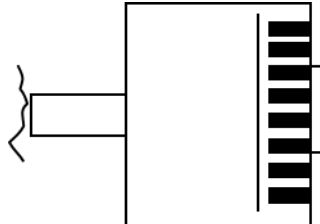


Figure 2. Pin-out of the RJ-45 Connector