



**Meeting Exchange Express<sup>®</sup> 1.0**  
**Installing and Configuring**  
S6100 Audio Conferencing Server

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# Chapter 1: Getting Started

The S6100 Audio Conferencing Server can be purchased as a turn-key solution. In this configuration, the server is built and configured by Avaya manufacturing. Alternately, sites can choose to install the S6100 Audio Conferencing Software onto hardware that they have purchased separately, but that meets the configuration requirements defined in this document.

The information in this document guides you through hardware set up, software installation, and the initial configuration required on the S6100 Audio Conferencing Server.

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## Audience

This document is for the people tasked with installing and configuring the audio conferencing server components:

- Technical support representative
- Authorized Business Partners

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## Related Documentation

The following documents can add to your understanding of the hardware used for the S6100 Audio Conferencing Server.

- [\*IBM eServer xSeries 336 Hardware Maintenance Manual and Troubleshooting Guide\*](#)
- *User's Manual for the AudioCodes TP-260 UN SIP, Document #: LTRT-68002*
- *Administration and Maintenance Guide for S6100 Audio Conferencing Server 1.0*

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## Overview of the process

Prior to installation, perform a Site Assessment to collect site-specific information. This information is entered in the [Electronic Preinstallation Worksheets](#) (EPW). The person completing the EPW provides the resulting files to the Installer.

The server installation involves the steps detailed the following chapters. These include:

1. Obtaining a copy of the [Electronic Preinstallation Worksheets](#) on page 9 (EPW)
2. [Configuring Server Hardware](#) on page 11

**⚠ Important:**

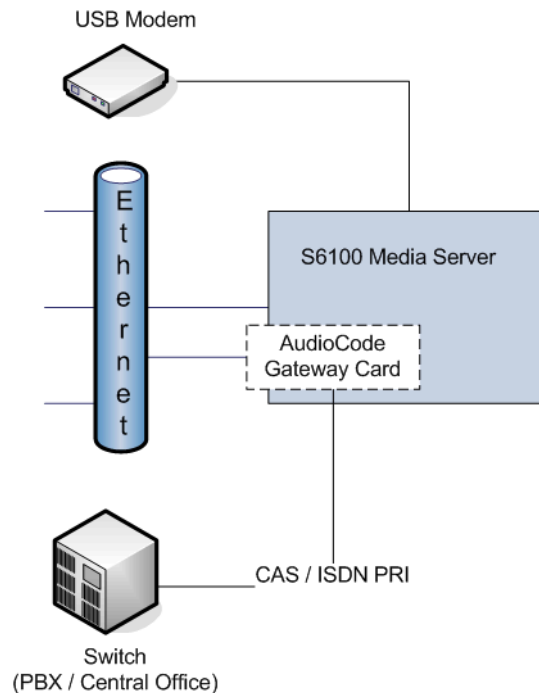
If the customer provides the hardware, the hardware must align with the specifications documented in this chapter.

3. [Installing Meeting Exchange Express Edition](#) on page 29
4. [Installing the Server On Site](#) on page 55

[Figure 1](#) shows an example installation.

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**Figure 1: S6100 Audio Conferencing Server Hardware components**





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## Electronic Preinstallation Worksheets

Prior to installing the S6100 Audio Conferencing Server collect site specific data. Use this data to populate the Electronic Preinstallation Worksheets (EPW).

- The **Configuration EPW** collects information used to configure the operation of the audio conferencing server and application. This EPW collects data for the system, bridge, routing, key maps, prompts, and reports. Use your browser to access the current version of the Configuration EPW.
- The **Trap Receiver EPW** collects information used to configure the audio conferencing system to deliver SNMP traps to particular SNMP monitoring systems. Use your browser to access the current version of the Trap Receiver EPW.

The latest versions of the EPW are available on [support.avaya.com](http://support.avaya.com). The EPWs produce XML files which are provided to the Installer. The Installer uses these files during the configuration process to import the site data into the administrative web application.

### Tips for completing the EPW

- Use Microsoft InfoPath 2003, a standard component of Microsoft Office 2003 to edit the EPW.
- Use the context sensitive help to obtain field descriptions.
- Any section left blank use the default values for the system.
- Some sections of the configuration can either be added or replaced. When you replace the data, the entered information serves as the new default data.
- Remember to save the file!

---

## Pre-Installation Checklist

Before installing the S6100 Audio Conferencing Server, ensure that you have the following items available to build the server:

- IBM x336 server and required hardware.
  - dual 72 GB 3.5" hot swappable SCSI hard disk drive
  - dual 3.2 GHz Central Processor Units (CPU)
  - 2 Gigabytes of RAM
  - a second redundant power supply
  - an additional low profile Dual Port Ethernet adaptor card
  - an optional AudioCodes TP-260 PCI card.

## Getting Started

- S6100 Audio Conferencing Server Installation CD
- Service Laptop
- Crossover cable
- XML file generated by the Electronic Pre-Installation Worksheets (EPW), or the worksheets themselves.



**Tip:**

Download the EPW files from [support.avaya.com](http://support.avaya.com).

- License file

**Note:**

The License File is not required for installation. However, the server can not provide conferencing functionality without a license file.

# Chapter 2: Configuring Server Hardware

The S6100 Audio Conferencing Server is built using a standard IBM x336 server. During the manufacturing process, Avaya adds several components to allow the server to function as a teleconferencing bridge.

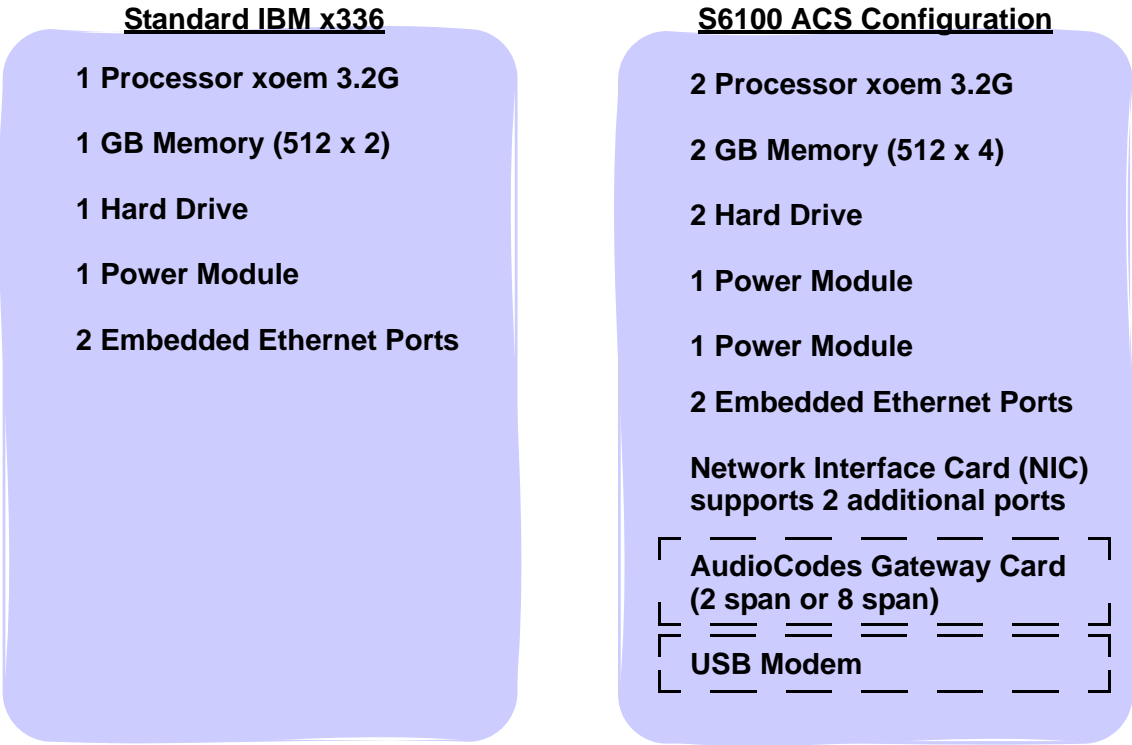
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## Server Hardware

[Figure 2](#) shows the components in a standard IBM x336 and in the S6100 Audio Conferencing Server. The broken line indicates optional components.

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**Figure 2: Standard IBM x336 and S6100 Server Configuration Comparison**



## Required hardware

[Table 1](#) identifies the approved hardware for the S6100 Audio Conferencing Server. Part numbers are provided for sites purchasing hardware independent of the audio conferencing software

**⚠ Important:**

Customer provided hardware must meet the specifications in this chapter.

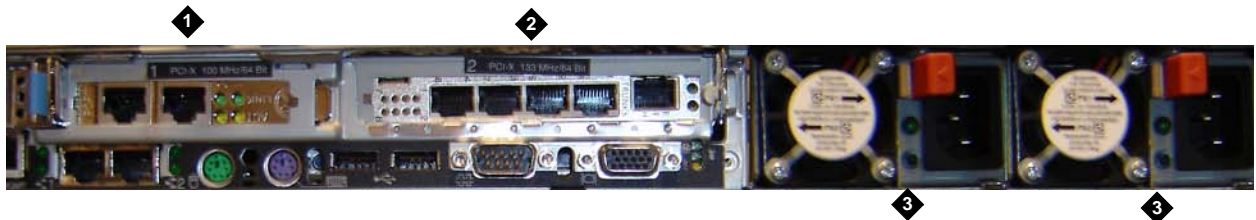
**Table 1: S6100 Audio Conferencing Server Required Hardware**

Description	Part Number	Qty
X336 Server <sup>a</sup> : Xeon 3.2GHz/800MHz,2MB L2, 2x512MB, O/Bay HS U320, 585W, Rack	IBM 883725G	1
xSeries 3.2 GHz/800MHz, 2MB L2, Upgrade with Xeon Processor and EM64	IBM 25R8905	1
IBM 73.4 GB Hot-Swap U320 10K SCSI SSL Drive	IBM 90P1301	2
NetXtreme 1000 T+ Dual Port Server Adapter <sup>b</sup>	IBM 73P4201	1
585W Power Supply	IBM 90P5280	2
1 GB (2x512MB) PC2-3200 ECC DDR SDRAM RDIMM Kit	IBM 73P2865	1

a. The IBM 336 Server has two PCI-X expansion slots located on the rear of the server chassis. These are labeled Slot1 and Slot 2, as shown in [Figure 3](#).

b. The NetXtreme card must be installed in PCI-X Slot 1 on the rear of the server. This card provides nicTeam fail over functionality.

**Figure 3: IBM 336 expansion slots**



**Figure notes:**

1. PCI Slot 1: Half-length PCI-X expansion slot, 100 MHz PCI bus frequency. Reserved for the NetExtreme dual port ethernet adapter.

**Note:**

Use a half-size face plate to correctly fit the NetExtreme dual port ethernet adapter into slot 1.

2. Slot 2: Full-length PCI-X expansion slot, 133 MHz PCI bus frequency. Accommodates the optional Audiocodes TP-260.
3. AC and DC LEDs.

---

## Optional hardware

The following table lists hardware options for the S6100 Audio Conferencing Server. Part numbers are provided for sites that want to purchase hardware independent of the audio conferencing software.

**Table 2: S6100 Audio Conferencing Server Optional Hardware**

Description	Part Number	Qty
USB Modem	Multi-Tech MT5634ZBA	1
Audiocodes Gateway card <sup>a</sup>	AudioCodes TP-260/SIP	1
Gateway Ethernet Cable has RJ45 connectors.		1
Gateway trunk splitters with RJ48 connectors.		4

a. The AudioCodes Gateway card is placed into PCI-X Slot2, Refer to [Figure 3](#) for placement.

---

## Bios and RAID Settings

S6100 Audio Conferencing Servers manufactured by Avaya arrive preconfigured with the correct Bios and RAID settings. However, these settings must be verified prior to performing the steps in [Chapter 3: Installing Meeting Exchange Express Edition](#).

---

## Accessing the Configuration Setup Utilities

The server comes with two system-level configuration setup utilities:

- Configuration Setup Utility - used to verify or edit Bios settings on the server.
- LSI Logic Setup Utility - used to verify or edit RAID settings on the server.

### Use this procedure to access the Configuration Setup Utility:

1. Connect the laptop to the server so that you can monitor the power on process.

The monitor displays screens in quick succession. The first screen is the [Startup message](#).

#### Startup message

```
IBM BIOS - (c) Copyright IBM Corporation 2004                CP: 28
Symmetric Mutliprocessing System
Intel Xeon 3.2 GHz
2 Processors Installed

>> BIOS Version 1.11 <<
```

2. Closely watch the screens to access the Setup Utilities described in [Verifying or Setting the System Bios](#) and [Verifying or Setting the RAID](#).

---

## Verifying or Setting the System Bios

#### Note:

This procedure is based on Bios 1.11, if your system contains a later Bios version then the screens may vary. Ensure the settings are consistent with this procedure.

This release requires these BIOS versions:

- System Bios = 1.11 or higher
- SCSI Bios = MPTBios-IME 5.04.06
- Network Bios = NetExtreme v.7.6.6

Use this procedure to verify and set the System Bios:

1. Ensure that a laptop is attached to the server.
2. Power on the server.
3. Watch carefully as the system displays the start up screens.

4. Wait until you see the [Startup menu](#) prompts, as shown in the following illustration.

### Startup menu

```
IBM BIOS - (c) Copyright IBM Corporation 2004                CP: 26
Symmetric Mutliprocessing System
Intel Xeon 3.2 GHz
2 Processors Installed
02048 MB Installed Memory

Press F1 for Setup
Press F2 for Diagnostics
Press F12 to select boot device

>> BIOS Version 1.11 <<
```

5. Press F1 to interrupt the startup process to access the Configuration Utility.

The system displays several informational messages. Wait until the system displays the [Configuration/Setup Utility Menu](#).

### Configuration/Setup Utility Menu

```
Configuration/Setup Utility

- System Summary
- System Information
- Devices and I/O Ports
- Date and Time
- System Security
- Start Options
- Advanced Setup
- Event/Error Logs

Save Settings
Restore Settings
Load Default Settings

Exit Setup
```

#### Tip:

Use the arrow keys to move through the menu options and press Enter to select.

6. Select **Load Default Settings** to set the system back to factory installed default settings.

## Configuring Server Hardware

- The system displays [Load Default Settings](#)

### Load Default Settings

Load Default Settings
Current Settings will be changed to their default values. Press <Enter> to continue.

- Press Enter.
- Select **System Summary**.

The system displays the [System Summary](#).

### System Summary

System Summary
- <b>Processor Summary</b> Installed Memory 2048 MB Diskette Drive A Not Installed Primary Master Device CD_ROM Primary Slave Device Not Installed Secondary Master Device Not Installed Secondary Slave Device Not Installed Mouse Not Installed System Memory Type DDR II

- Verify that **Installed Memory** is set to a minimum of 2048 MB.
- Select **Processor Summary**.

The system displays the [Processor Summary](#) menu.

### Processor Summary

Processor Summary
- <b>CPU IDs</b> - Processor Speeds - L2 Cache Sizes

- Select CPU IDs

The system displays the [CPU IDS](#) dialog.

### CPU IDS

CPU IDs
<b>Processor 1 F43</b> Processor 2 F43



13. Verify that the [CPU IDS](#) dialog lists two Processors as shown above.
14. Press Esc to return to [Processor Summary](#).
15. Select Processor Speeds.

The system displays the [Processor Speeds](#) dialog.

### Processor Speeds

Processor Speeds
<b>Processor 13.2 GHz</b> Processor 23.2 GHz Front-side Bus800 MHz

16. Verify that the Processor 1 and Processor 2 speeds are the same and are at least 3.2 GHz.
17. Press Esc to return to [Processor Summary](#).
18. Select L2 Cache Sizes.

The system displays the [L2 Cache Sizes](#).

### L2 Cache Sizes

L2 Cache Sizes
<b>Processor 1 2048 KB</b> Processor 2 2048 KB

19. Verify that Processor 1 and Processor 2 are both set to the same size. The size must equal 2048 KB or greater.
20. Press Esc to return to the [Processor Summary](#).
21. Press Esc to return to [System Summary](#).
22. Press Esc to return to the [Configuration/Setup Utility Menu](#).
23. Select **System Information**.

The system displays the [System Information](#).

### System Information

System Information
- Product Data

## Configuring Server Hardware

### 24. Select **Product Data**.

The system displays the [Product Data](#) dialog.

#### Product Data

Product Data
<b>Machine Type/Model</b> 1883725U System Serial NumberKPCZM02 System UUID NumberF6601778DE1DB21184AAA8885C3B2395 System Board Identifier2CJZWMO0029 System Asset Tag Number  Bios Version1.11 Bios Date07/19/05 Bios Build LevelAPE128AUS  Diagnostics VersionVersion1.05 Diagnostics Date04/12/05 Diagnostics Build LevelAPYT09AUS

25. Verify that the **Bios Version** is at 1.11 or greater.

26. Verify that the **Diagnostics version** is at 1.05 or greater.

27. Press Esc to return to [System Information](#).

28. Press Esc to return to the [Configuration/Setup Utility Menu](#).

29. Select **Devices and I/O Ports**.

The system displays [Devices and I/O Ports](#).

#### Devices and I/O Ports

Devices and I/O Ports
<b>Serial Port A</b> [ Port 3F8, IRQ 4 ] Serial Port B [ Disabled ] -Remote Console Redirection  Mouse [ Not Installed ] Planar Ethernet 1 [ Enabled ] Planar Ethernet 2 [ Enabled ] Planar SCSI [ Enabled ] PCI Slot 1 [ Enabled ] PCI Slot 2 [ Enabled ]  Diskette Controller [ Disabled ] Diskette Drive A [ Not installed ]  -Video - IDE Configuration Menu - System MAC Addresses

30. Verify that the settings match those shown in [Devices and I/O Ports](#).

**Note:**

If the system only has one serial port, then you will not see “Serial Port B” on the [Devices and I/O Ports](#) dialog.

31. Select **Remote Console Redirection**.

The system displays the [Remote Console Redirection](#) dialog.

### Remote Console Redirection

Remote Console Redirection
<b>Remote Console Active</b> [ Disabled ] Remote Console COM Port[ COM 1 ] Remote Console BAUD Rate[ 115200 ] Remote Console Data Bits[ 8 ] Remote Console Parity[ None ] Remote Console Stop Bits[ 1 ] Remote Console Text Emulation[ ANSI ] Remote Console Keyboard Emulation[ ANSI ] Remote Console Active After Boot[ Disabled ] Remote Console Flow Control[ Disabled ]

32. Set **Remote Console Active** to **Disabled**.

 **Tip:**

The system ignores the other fields on this screen when **Remote Console Active** is **Disabled**.

33. Press Esc to return to [Devices and I/O Ports](#).

34. Press Esc to return to the [Configuration/Setup Utility Menu](#).

35. Select **Date and Time**.

The system displays the [Date and Time](#) dialog.

### Date and Time

Date and Time
Time [ 17:10:39 ] Date [ 01/17/2006 ]

36. Set the **Time** and **Date** to the current local time.

37. Press Esc to return to the [Configuration/Setup Utility Menu](#).

## Configuring Server Hardware

### 38. Select **System Security**.

The system displays the [System Security](#) dialog.

#### System Security

System Security
- Power-on Password

### 39. Select **Power on Password**.

The system displays the [Power-on Password](#) dialog.

#### Power-on Password

Power-on Password
<pre>Enter your new Power-on password twice. <b>Enter Power-on Password</b>[           ]   Enter Power-on Password Again[           ]  Change Power-on Password Delete Power-on Password  Warning: Allowing the system to reboot unattended with password SET could cause the keyboard and mouse to be unusable in certain operating systems.  Allow for unattended boot with password[ On ]</pre>

### 40. Ensure that the system settings match those displayed in [Power-on Password](#).

#### Note:

The **Power-on Password** must be blank.

### 41. Press Esc to return to [System Security](#).

### 42. Press Esc to return to the [Configuration/Setup Utility Menu](#)

43. Select **Start Options**.

The system displays the [Start Options](#) dialog.

**Start Options**

Start Options
<p><b>- Startup Sequence Options</b></p> <p>Planar EthernetPXE/DHCP[ Planar Ethernet 1 and 2 ]            PCI Device Boot Priority[ Planar SCSI ]            Disketteless Operation[ Enabled ]            Keyboardless Operation[ Enabled ]            Keyboard NumLock State[ Off ]            USB Legacy[ Enabled ]            USB Disk[ Enabled ]            Boot on POST/BIOS Error[ Enabled ]            Boot Fail Count[ Enabled ]            Rehook INT 19h[ Enabled ]            Virus Detection[ Disabled ]</p>

44. Ensure that the system settings match those displayed in [Start Options](#).

45. Select **Startup Sequence Options**.

The system displays the [Startup Sequence Options](#).

**Startup Sequence Options**

Startup Sequence Options
<p>Primary Startup Sequence:</p> <p><b>First Startup Device</b>[ CD ROM ]            Second Startup Device[ Hard Disk 0 ]            Third Startup Device[ Disabled ]            Fourth Startup Device[ Disabled ]</p> <p>Wake On LAN[ Disabled ]</p> <p>Wake on Lan Startup Sequence:</p> <p>First Startup Device[ Network ]            Second Startup Device[ Diskette Disk 0 ]            Third Startup Device[ CD ROM ]            Fourth Startup Device[ Hard Disk 0 ]</p>

46. Ensure that the system's settings match those in [Startup Sequence Options](#).

 **Tip:**

The default First Startup Device setting is "CD ROM". This setting causes the system to automatically boot using a CD. You will need to ensure that the CD ROM drive is empty prior to a system boot.

## Configuring Server Hardware

47. Press Esc to return to [Start Options](#).
48. Press Esc to return to the [Configuration/Setup Utility Menu](#).
49. Select **Advanced Options**.

The system displays the [Advanced Setup](#).

### Advanced Setup

Advanced Setup
Warning: Items on the following menu control advanced hardware features. If they are configured incorrectly, the system might malfunction.
<b>System Partition Visibility</b> [ Hidden ]
- Memory Settings
- CPU options
- PCI Bus Control
- Baseboard Management Controller (BMC) Settings

50. Ensure that the system settings match those in [Advanced Setup](#).
51. Select **Memory Settings**.

The system displays the [Memory Settings](#) dialog.

### Memory Settings

Memory Settings
<b>DIMM 1 and DIMM 2</b> [ Enabled ]
DIMM 3 and DIMM 4[ Enabled ]
DIMM 5 and DIMM 6[ Enabled ]
DIMM 7 and DIMM 8[ Enabled ]
Memory Configuration[ Flat ]

#### Note:

If the system default settings were not loaded, then DIMM 5, DIMM 6, DIMM 7, and DIMM 8 will display the setting, "Sockets are empty."

52. Verify that each of the installed memory chips is enabled, as shown by the **DIMM1 and DIMM2** settings in [Memory Settings](#).
53. Ensure that **Memory Configuration** is set to **Flat**.
54. Press Esc to return to [Advanced Setup](#).

55. Select **CPU Options**.

The system displays the [CPU Options](#).

**CPU Options**

CPU Options	
System Cache Type	[ Write Back ]
Hyper-Threading Technology	[ Enabled ]
Prefetch Queue	[ Enabled ]
Execute Disable Bit	[ Disabled ]

56. Ensure that the system settings match those shown in [CPU Options](#).

57. Press Esc to return to [Advanced Setup](#).

58. Select **PCI Bus Controller**.

The system displays the dialog, [PCI Bus Control](#).

**PCI Bus Control**

PCI Bus Control	
PCI MLT	[ 40h ]
PCI Interrupt Booting	
PCI ROM Control	

59. Ensure that the system settings match those shown in [PCI Bus Control](#).

60. Press Esc to return to [Advanced Setup](#).

61. Select the **Baseboard Management Controller Settings**.

The system displays the [Baseboard Management Controller \(BMC\) Settings](#).

**Baseboard Management Controller (BMC) Settings**

Baseboard Management Controller (BMC) Settings	
BMC Firmware Version	01.06
BMC POST Watchdog	[ Disabled ]
BMC POST Watchdog Timeout	[ 5 Minutes ]
System-BMC Serial Port Sharing	[ Enabled ]
BMC Serial Port Access Mode	[ Shared ]
Reboot System on NMI	[ Enabled ]
- BMC Network Configuration	
- BMC System Event Log	

62. Ensure that **BMC Post Watchdog** is set to **Disabled**, as shown in [Baseboard Management Controller \(BMC\) Settings](#).

63. Press Esc to return to [Advanced Setup](#).

64. Press Esc to return to the [Configuration/Setup Utility Menu](#).

## Configuring Server Hardware

### 65. Select **Save Settings**.

The laptop displays the [Save Settings](#) dialog.

#### Save Settings

Save Settings
Current settings will be saved. Press <Enter> to continue.

### 66. Press Esc to return to the [Configuration/Setup Utility Menu](#).

### 67. Select **Exit Setup**.

The laptop displays the [Exit Setup](#) dialog.

#### Exit Setup

Exit Setup
Do you want to exit the Setup Utility?  <b>Yes, exit the Setup Utility.</b> No, return to the Setup Utility.

### 68. Select **Yes, exit the Setup Utility**.

The system exits the graphical interface and restarts. Continue with the procedure documented in [Verifying or Setting the RAID](#).

---

## Verifying or Setting the RAID

Use this procedure to verify and set the RAID.

1. Ensure that a laptop is attached to the server.
2. Power on the server.
3. Watch carefully as the system displays the start up screens.



4. Wait until you see a screen with the “Press Ctrl-C to start LSI Logic Setup Utility...” prompt, as shown in [Start up Prompt for the RAID Setup Utility](#).

### Start up Prompt for the RAID Setup Utility

```
Broadcom NetXtreme Ethernet Boot Agent v7.6.6                CP: 1E
Copyright (C) 2000-2004 Broadcom corporation
All rights reserved.

Broadcom NetXtreme Ethernet Boot Agent v7.6.6
Copyright (C) 2000-2004 Broadcom corporation
All rights reserved.
LSI Logic Corp. MPT IME BIOS
Copyright 1995-2003 LSI Logic Corp.
MPTBIOS-IME-5.04.06
I Build

Press Ctrl-C to start LSI Logic Setup Utility ...
```

5. Press **Ctrl + C**.

The system displays the “[Invoking LSI Logic Setup Utility](#)” shown below.

### Invoking LSI Logic Setup Utility

```
Broadcom NetXtreme Ethernet Boot Agent v7.6.6                CP: 1E
Copyright (C) 2000-2004 Broadcom corporation
All rights reserved.

Broadcom NetXtreme Ethernet Boot Agent v7.6.6
Copyright (C) 2000-2004 Broadcom corporation
All rights reserved.
LSI Logic Corp. MPT IME BIOS
Copyright 1995-2003 LSI Logic Corp.
MPTBIOS-IME-5.04.06
I Build

Please wait, invoking LSI Logic Setup Utility ...
```

## Configuring Server Hardware

- Wait until the system displays the [SCSI Setup Utility](#).

### SCSI Setup Utility

```
LSI Logic MPT SCSI Setup Utility Version MPTBIOS-IME-5.04.06 CP: 1E
<Boot AdaperList> <Global Properties>
LSI Logic Host Bus Adapters

AdapterPCIDev/PortIRQNUMBootLSI LogicRAID
BusFuncNumber Order ControlStatus
<LSI1030 4 8>400011Yes0 EnabledOptimal
```

#### Tip:

In the [SCSI Setup Utility](#) dialog, the adapter setting is “LSI1030”, the LSI Logic Control setting is “Enabled”.

- Verify that the list contains only one entry under **Adapter**.
- Verify that **LSI Logic Control** is set to “Enabled”.

#### Note:

If the LSI Logic Control is not Enabled, call Avaya Services.

- Press Enter to scan for devices.

The system displays [Adapter Properties](#).

### Adapter Properties

```
LSI Logic MPT SCSI Setup Utility Version MPTBIOS-IME-5.04.06 CP: 1E

Adapter Properties

AdapterPCIDev/
BusFunc
<LSI1030 4 8>

    <Device Properties>
    <RAID Properties>    <Synchronize Whole Mirror>
Host SCSI ID[ 7]
SCSI Bus Scan Order[ Low to High (0..Max)]
Removable Media Support[ None]
CHS Mapping[ SCSI Plug and Play Mapping]
Spinup Delay (secs)[ 2]
Secondary Cluster Server[No]
Termination Control[Auto]
<Restore Defaults>
```

10. Select **Device Properties**.

The system displays the [Device Properties List](#).

**Device Properties List**

```

LSI Logic MPT SCSI Setup Utility Version MPTBIOS-IME-5.04.06 CP: 1E

Device Properties
SCSI Device IdentifierMB/SecMT/SecDataScanScan
ID          Width ID  LUNS > 0
 0  IBM-ESXMAP3367NC  FNC101320 [160] [16] [Yes] [Yes]
 1  IBM-ESXMAP3073NC  FNB411320 [160] [16] [Yes] [Yes]
 2  - 320 [160] [16] [Yes] [Yes]
 3  - 320 [160] [16] [Yes] [Yes]
 4  - 320 [160] [16] [Yes] [Yes]
 5  - 320 [160] [16] [Yes] [Yes]
 6  - 320 [160] [16] [Yes] [Yes]
 7  LSI1030320 [160] [16] [Yes] [Yes]
 8  IBM 25P3495a S320 11320 [160] [16] [Yes] [Yes]
 9  - 320 [160] [16] [Yes] [Yes]
10  - 320 [160] [16] [Yes] [Yes]
11  - 320 [160] [16] [Yes] [Yes]
12  - 320 [160] [16] [Yes] [Yes]
13  - 320 [160] [16] [Yes] [Yes]
14  - 320 [160] [16] [Yes] [Yes]
15  - 320 [160] [16] [Yes] [Yes]
    < | >
    
```

11. Verify that the system detected **ID 0** and **ID 1**. These values represent the drives.

12. Press ESC to return to [Adapter Properties](#)

13. Select **RAID Properties**.

The system displays [Raid Properties](#).

**Raid Properties**

```

                                RAID Properties
-----
LSI Logic MPT SCSI Setup Utility Version MPTBIOS-IME-5.04.06
<Next Array> <Delete Array> <Add/Delete HotSpare> <Activate Array>
RAID PropertiesArray:IMSCSI ID: 0 Size (MB): 6988

SCSI Device IdentifierArrayHotStatusPredictSize
ID  Disk?Spare Failure (MB)

 0  IBM-ESXSGNS073C3ESTT02FNJP83YesNoPrimary No69878
 1  IBM-ESXSMAT3073NCYesNo0k No69878
    
```

14. Verify that the two devices are present and the **Array Disk** for each is set to “Yes.”

15. Press ESC twice to exit to [Adapter Properties](#).

## Configuring Server Hardware

16. Press ESC to the [SCSI Setup Utility](#).
17. Press ESC the system displays the [Exit Menu](#).

### Exit Menu

```
Adapter and/or device property changes have been made
<Cancel Exit>
Exit Setup Utility
<Save Changes. Exit menu>
<Discard changes. Exit menu>
```

18. Select the applicable exit option.

#### **Important:**

When you changed settings, select “<Save Changes.Exit menu>”. This option returns you to the [SCSI Setup Utility](#). When you press Esc from the [SCSI Setup Utility](#), you return to the [Exit Menu](#) and the <Save Changes> option is no longer enabled.

19. Select **<Exit Setup Utility>** and the system initializes.

---

## Installing the Optional Gateway Board

Information on the optional AudioCodes Gateway board is in [Chapter 5: Integrating an Optional Switched Circuit](#) on page 61.

Follow the procedure documented in [Installing the TP-260 Board](#) on page 62.

# Chapter 3: Installing Meeting Exchange Express Edition

When the customer purchases a turn-key solution, the Meeting Exchange Express Edition software is installed on the S6100 Audio Conferencing Server prior to delivery. However, when the hardware was purchased independently from the software, then you will use the procedure in this chapter to install the Linux operating system and audio conferencing software on the media server.

---

## Process Overview

The S6100 Audio Conferencing Server requires audio conferencing software. The software can only be installed on a server that meets the specifications described in [Chapter 2: Configuring Server Hardware](#) on page 11.



### Important:

When installing a S6100 Audio Conferencing Server that was pre-loaded with the conferencing software, you can skip to the procedures in [Configuring the network, manually](#) on page 49.

Once the hardware is ready, follow these procedures to install the software:

1. [Preparing the Service Laptop](#) involves setting the network interface on the laptop and attaching the service laptop to the server.
2. [Installing the Audio Conferencing Software](#) guides you through each screen of the installation software, including [Loading the Audio Conferencing Software](#) and [Logging on to the server](#).
3. [Configuring the Server](#) involves [Using Meeting Exchange® Express Edition as Install Engineer](#) to import the site configuration and verify the server configuration.

## Preparing the Service Laptop

Use the procedures in this section to prepare the service laptop to install the audio conferencing software.

---

### Preparing the laptop for crossover to server

To prepare the service laptop for crossover to the server, set the network interface on the laptop to these values:

- IP Address: 192.11.13.5
- Subnet Mask: 255.255.255.252

 **Tip:**

If you enter an IP Address and the service laptop can not connect to the server, clear the Address Resolution Protocol (ARP) cache on the laptop before entering a new IP address.

#### Use this procedure to clear the ARP cache on the laptop:

1. Click **Start > Run** to open the Run dialog box.
2. Type `command` and click **OK** to open a MS-DOS Command Line window.
3. Type `arp -d 192.11.13.6` and press **Enter** to clear the Address Resolution Protocol (ARP) cache in the laptop. The system displays either:
  - The command line prompt when the cache is cleared.
  - The phrase: **The specified entry was not found.**

This phrase shows when the specified IP address does not currently appear in the ARP cache.

---

### Accessing the media server

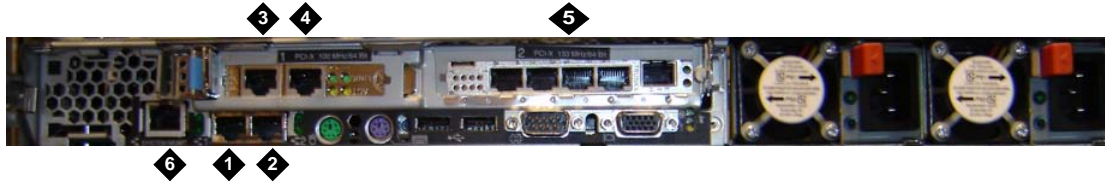
Complete these steps to access the media server:

1. Use a cross connect cable to connect the laptop to the services port [Eth1] on the back of the media server, as shown in [Figure 4](#).
2. Plug in the ethernet connections as shown in [Figure 4](#).

**Note:**

The S6100 supports Network Interface Card Teaming or *nicTeam*. This NIC fail over functionality requires at least two interfaces connected to one or more network switches on the same subnet. This feature is only supported on systems installed with the Broadcom NetXtreme drivers.

**Figure 4: Ethernet Connections.**



**Figure notes:**

1. **Port 1: Customer LAN.**
2. **Port 2: Service LAN, laptop (Eth 1).**
3. **Port 3: Failover to Customer LAN.**
4. **Port 4: Failover to Customer LAN.**
5. **(Optional) Media Gateway Card. See [Figure 17: TP-260](#) on page 61 for description of ports.**
6. **Do not use this port.**

**⚠ Important:**

Connect each Customer LAN connection, eth0, eth2, eth3, to a different switch in order to protect against a single switch failure or single point of failure.

**⚠ Important:**

After turning on power to the system, wait at least 3 minutes before starting a Telnet session.

## Configuring Telnet for Windows 2000/XP

Use a telnet session to access the information on the CD.

You can configure the Microsoft Telnet application to send a carriage return (CR) and line feed (LF) whenever you press Enter. The installation program interprets this as two key presses. When you run Windows 2000/XP, you need to correct this before you copy the Remaster Program to the hard disk drive.

To configure telnet for Windows 2000/XP, perform the following steps:

1. Click **Start > Run** to open the **Run** dialog box.
2. Type `telnet` and press **Enter** to open a Microsoft Telnet session.
3. Type `display` and press **Enter** to see the current settings.

The system displays, “**Sending both CR & LF**”.

4. Type `unset crlf` and press **Enter**.

The system displays the message, “**Sending only CR**”.

You are now ready to use Telnet to connect to the audio conferencing server.

---

## Installing the Audio Conferencing Software

After connecting all devices, install the required software on the audio conference server by completing these steps:

1. [Turning on the media server](#) on page 32
2. [Loading the Audio Conferencing Software](#) on page 33
3. [Logging on to the server](#) on page 38

---

## Turning on the media server

To turn on the media server:

1. Place the CD with the S6100 conferencing software in the CD-ROM drive on the media server.

**Note:**

Immediately insert the CD in the drive

---

**Figure 5: S6100 Audio Conferencing Server, Front View.**



---

Watch the monitor as the system boots. The system displays a message, containing the bios version. Review this message carefully.

This release requires these BIOS versions:

- System Bios = 1.11 or higher
- SCSI Bios = MPTBios-IME 5.04.06
- Network Bios = NetExtreme v.7.6.6



**▲ Important:**

Bios is preconfigured. Immediately contact your Avaya service representative if the system displays a Bios version that is not supported.

---

## Loading the Audio Conferencing Software

This section identifies the procedure to load the audio conferencing software onto the S6100 Audio Conferencing Server.

**Note:**

Use a telnet session to access the information on the CD.

1. Start a telnet session according to the procedure in [Configuring Telnet for Windows 2000/XP](#) on page 31.
2. Use the telnet session to open a connection to the audio conferencing server.
3. Enter this command at the telnet prompt:  
`open 192.11.13.6`
4. Press **Enter** to view the first software installation screen:

```

                                     What do you want to do?

The hard drive is currently Partitioned
Choose One

  <X> InstallInstall of Upgrade Software
  < > ShellBoot to Rescue Bash Shell
  < > InstallReboot the server

                                     <  OK  >

```

**Note:**

To navigate installation screens, use the arrow keys to move to an option and press the space bar to select the option. Press **Enter** to submit the screen.

**▲ Important:**

Version 1.0 of the S6100 Audio Conferencing Server does not support upgrade.

5. Type "x" in the parenthesis ( ) next to the Install option.

## Installing Meeting Exchange Express Edition

### 6. Select **OK**.

If the system contained an earlier release of the audio conferencing software, the system displays this warning:

```

                                W A R N I N G

The hard drive on this system appears o already have a
partition structure defined.  If you select continue, all data
On this drive will be lost.

Do you wish to proceed?

                                < Yes >                < No >

```

### 7. Select **Yes**.

The installation program displays a prompt like this one:

```

                                Select Release Version

Select Crystal Build

                                <X> Crystal-2.0.16.0Build

```

#### **Note:**

The software version (build number) will vary. The installer is responsible for selecting the correct version.

### 8. Select **OK**.

The installation program prompts you to set the date and time:

```

Set Date and Time Now?

                                < Yes >                < No >

```

9. Select **Yes**.

The installation program prompts you to initialize the date and time:

```

[ Date/Time Initialization ]
Choose Timezone

Date: 01_/11_/2006

Time: 11_:26_

NTP Server: _____

[OK] [SKIP]

<Tab>/<Alt-Tab> between elements | <Space> selects | <F12> next screen
    
```

- a. Use Tab to select the **Date** and **Time** fields.
- b. Set the **Timezone** setting.
- c. Set the **NTP Server** field.

**Note:**

If the NTP Server information is not available, leave the field blank.

- d. Select **OK**.

The installation program displays this prompt:

```

Set IPAddress for NIC<s>
Now?
  < Yes >    < No >
    
```

## Installing Meeting Exchange Express Edition

10. Select **Yes** if the IP information for the site is available at this time.

The installation program displays the [Configure Network Information](#) screen.

### Configure Network Information

```
[ Configure Network Information ]

Hostnameserver1 _____
DNS Domain _____
DNS Server _____

InterfaceTypeAddressNetmaskEnable
eth0 [ ] _____ [X ]
eth1 [ ] 192.11.13.6255.255.255.252 [X ]
eth2 [ ] _____ [ ]
eth3 [ ] _____ [ ]

Default Gateway _____

[OK] [SKIP]
```

#### Note:

The Interface names correspond to the physical ports (see [Figure 4: Ethernet Connections](#), on page 31). This table shows the corresponding values:

Interface	Port
eth0	1
eth1	2
eth2	3
eth3	4

- Set the **Hostname** to the name of your server, such as "Server 1".
- Set the values for the **eth0 IP Address** and **Netmask** of the customer LAN.
- Set the Enable field for **eth0** to "X".

#### Important:

Do not edit the value in the **eth1** field. This port is reserved for the Avaya support subnet (192.11.13.6) and the services laptop. Leave the settings for eth2 and eth3 blank. These are used for NIC fail over.

#### Important:

To enable nicTeam the network switches ports must be on the same subnet as the S6100 and the switch ports must be set to "Auto Negotiate."

 **Tip:**

Settings in this dialog can be configured using the Electronic Preinstallation Worksheets. See [Configuring the Server](#) on page 42.

d. Select **OK**.

The installation program displays this message:

```
Making /dev/sda Bootable
Installing RP on /dev/sda6
```

 **Tip:**

The installation process can take up to twenty minutes.

Once the installation completes, the system momentarily displays this message:

```
IBMX336 Build of S6100-#-##-# Complete
Packages Included: SYSTEM CORE CRYSTAL
```

After the system displays the message, the server automatically ejects the CD and the initializes.

 **Important:**

The server can take up ten minutes to initialize. During this time the system is configured with a firewall and other security mechanisms, so the S6100 can only be accessed through HTTP or SSH.

 **Important:**

If this server contains the Audiocodes card, configure the card using the directions in [Chapter 5: Integrating an Optional Switched Circuit](#) on page 61.

---

## Logging on to the server

**⚠ Important:**

The version of WebLM used by the 1.0 release of the S6100 requires a Mozilla web browser such as FireFox in order to obtain the license file. Future versions of the S6100 will support this function using Microsoft Internet Explorer.

To license the server,

1. Use a web browser to go to this URL:

[http://server\\_ip\\_address/WebLM/](http://server_ip_address/WebLM/)

2. Log in to the Web License Manager (WebLM) with this user name and password.

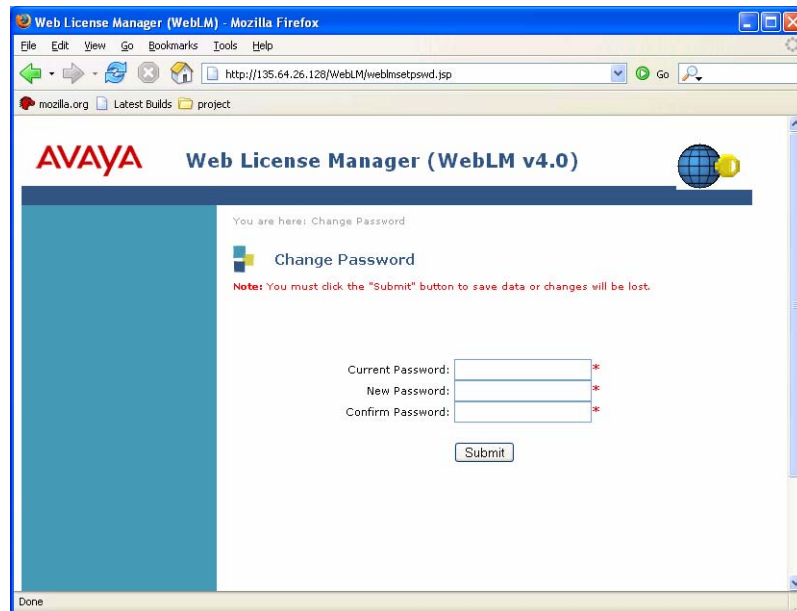
Username: admin

Password: weblmadmin

The Web License Manager prompts you to change the password.

---

**Figure 6: WebLM Change Password screen**



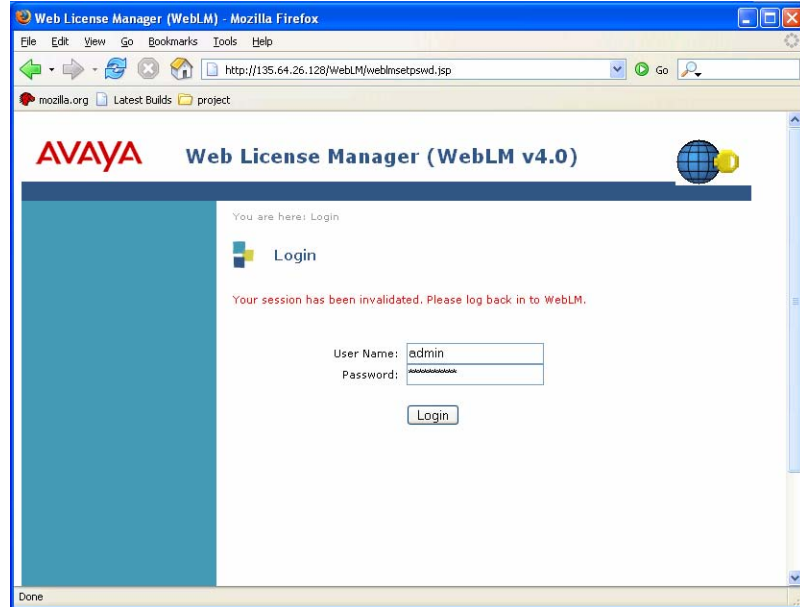
3. Enter the Current Password.
4. Enter a New Password.

**📌 Tip:**

Reenter the current password. If you decide to change the password, notify Avaya technical support so that they can retain a record of the change.

5. Enter the new Password again into the Confirm Password field.
6. Click **Submit** to display the login screen again.

**Figure 7: WebLM Change Login screen**



7. Enter the Username and Password.

---

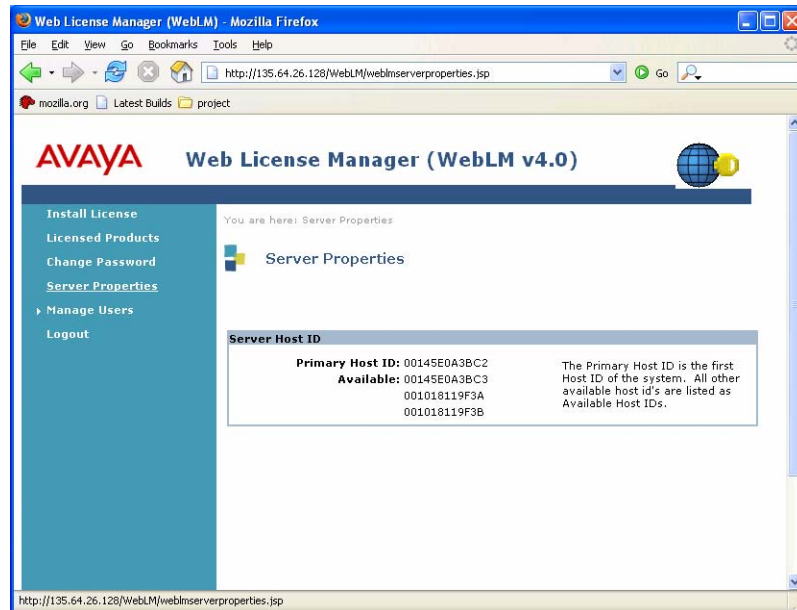
## Licensing the Server

After you logon to the server, use this procedure to install the license file:

1. Examine the server properties by selecting **Server Properties** from the menu.

---

**Figure 8: WebLM Server Properties screen**



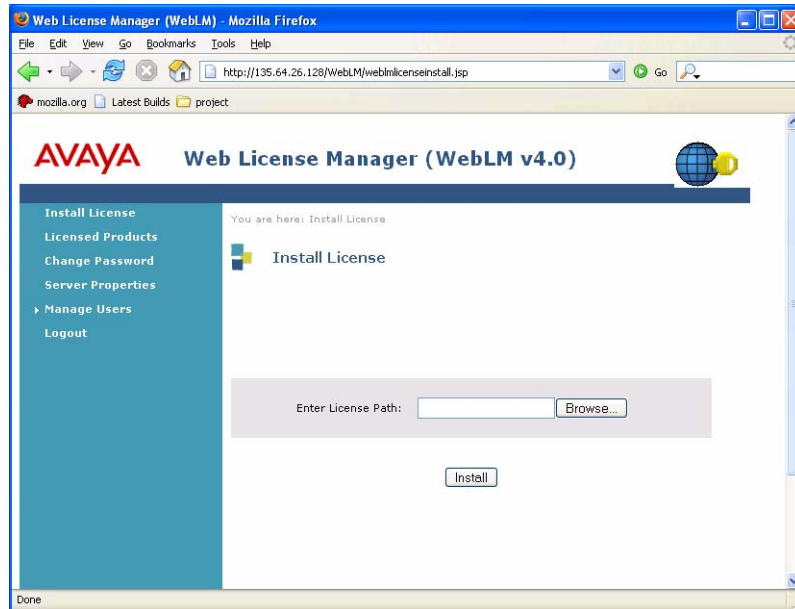
**Note:**

You need the Primary Host ID to obtain a license file from services. S6100 licenses are subject to the Avaya Remote Feature Activation (RFA) process. For more information, go to <http://support.avaya.com> and search for "RFA".

2. Click **Login** to display the Install License screen.



Figure 9: WebLM Change Install License screen

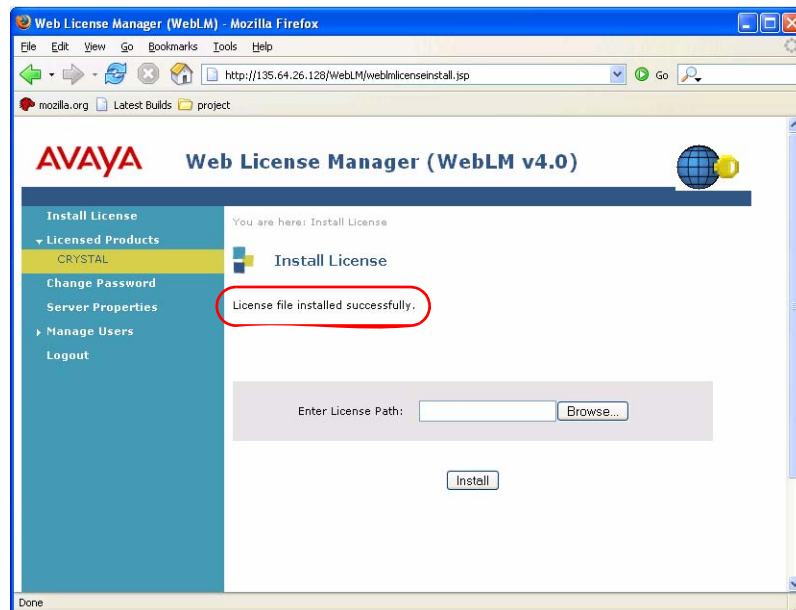


3. Browse to the path of the license file on the services laptop.

4. Click **Install**.

The system displays the **Install License** screen, with a note saying the license file is installed.

Figure 10: WebLM Install License Screen



## Installing Meeting Exchange Express Edition

5. Select **Logout** to exit from WebLM.
6. Use SSH to log in to the S6100.
7. Acquire administrator privileges and initialize the system using this command:

```
sudo init 6
```

 **Important:**

The server can take up ten minutes to initialize.

8. Logon to the server. See [Licensing the Server](#) on page 40.
9. Select **License Products > Express\_Edition** to verify the license details.

At this time, you can perform the final software configuration and testing. For more information about these final steps see [Configuring the Server](#) on page 42.

---

## Configuring the Server

The most efficient way to configure the system is [Using Meeting Exchange® Express Edition as Install Engineer](#). Use the web interface to import the Electronic Pre-Installation Worksheets.

 **Important:**

If the network information was not available when the EPW were completed, manually configure the system. For instructions, see [Configuring the network, manually](#) on page 49 before completing the procedures in this section.

---

## S6100 Configuration Files

[Table 3: Configuration Files](#) describes the configuration requirements for S6100 Audio Conferencing Server installations.

**Table 3: Configuration Files**

File	Format	Description
Crystal Network	XML	This file sets the database tables that define the network of functional elements that make up the Crystal platform.
Core Services	XML	This file sets the core service database tables that govern the core services such as alarming, logging, and licensing.

*1 of 2*

**Table 3: Configuration Files (continued)**

File	Format	Description
Conference Service	XML	This file sets the database tables that govern the overall conference service.
License File	XML	This file contains the license for the Crystal platform and is the format defined by WebLM.
Process Table	Text	This file governs the Remote IPC between components. The Event Handler, Software Media Server, and other components in the conferencing engine use this file.
Gateway	Text	This file contains the configuration for the AudioCode gateway card. It is in the System.ini file format defined by AudioCode.

**2 of 2**

## Using Meeting Exchange<sup>®</sup> Express Edition as Install Engineer

Access the Meeting Exchange Express Edition web pages by pointing the Web browser to:

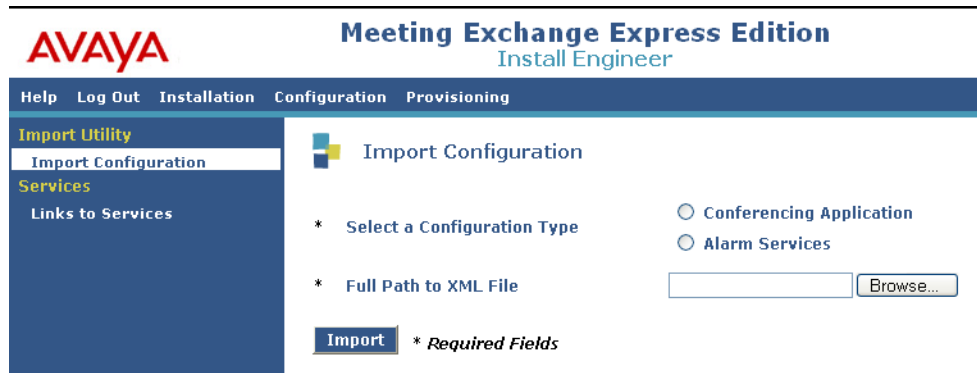
`http://<ip_address>/mx/`

where *<ip\_address>* is the IP address of the computer where the audio conferencing application is installed. This ip address is site specific.

The system displays the Logon dialog.

1. Log in as the Installation Engineer.
  - a. **Email Address:** `initial_installer@noemail.com`
  - b. **Password:** `InitialInstaller`
2. Select **Import Configuration** from the Import Utility menu to display the [Meeting Exchange Express Edition Import Configuration](#).

Figure 11: Meeting Exchange Express Edition Import Configuration



3. Select **Conferencing Application**.
4. Click **Browse** and select the xml file created from the [Electronic Preinstallation Worksheets](#).
5. Click **Import**.
6. Select **Services > Link to Services** from the menu to display the **Link to Services** web page. Use the buttons on this page to navigate to the standard Core Services interfaces used to establish the logs, alarms, and fault settings.
7. Verify the configuration against the values collected on the [Electronic Preinstallation Worksheets](#) by viewing the values on the Configuration screens.

## Testing the configuration

Configuration is complete once the settings are imported and verified.

Perform these final steps:

1. Reboot the server.
2. Connect a network crossover cable from the services laptop to the S6100.
3. Change the laptop IP to the same subnet as the S6100.
4. Verify that the S6100 Audio Conferencing Server is correctly installed and configured by using a softphone to call the S6100.
  - a. Enter a sip number such as, `1111<'S6100 IP address>`. For example,  
`1111@123.123.123.123`  
Where 123.123.123.123 is the IP address of the local network.

 **Tip:**

If you hear “System capacity has been exceeded” then the he S6100 is not licensed and you will need to follow the procedure, [Licensing the Server](#) on page 40.

b. Use these default security codes to enter the conference:

- Moderator: 12345
- Participant: 22345

**Note:**

If the default security codes do not work, contact customer support.

c. After the system plays the conference entry message, use the [Meeting Exchange Express Edition Keypad Commands](#) to confirm that you correctly configured the conference system. For example, if you press “#8” the system should play a message saying that there is one caller in the conference.

**Table 4: Meeting Exchange Express Edition Keypad Commands**

Keypad	Option
*0	Help
*1	Dial Out
*2	Recording
*4	Change Options
*5	Turn On Lecture
#5	Turn Off Lecture
*6	Mute Self
#6	Unmute Self
*7	Turn on security
#7	Turn off security
*8	Play Names / Rollcall
#8	Play Participant Count
*9	Process Blast Dial
**	Play Available Options
##	Hang Up Conference

## Configuring Email Notification

When you configure email notification, the system generates and sends a confirmation email message for each new account you create on the system.

1. Gather this information for the site:
  - Mail server IP address
  - Email address the customer selected.
  - SMTP mail server address
  - Customized email template
2. Access the Meeting Exchange Express Edition web pages and log on as the Installation Engineer.
  - a. **Email Address:** `initial_installer@noemail.com`
  - b. **Password:** `InitialInstaller`
3. Click **Configuration** on the menu located across the top of the Meeting Exchange Express Edition screen.
4. Populate **Mail Server IP Address** with the IP Address of the customer's mail server.
5. Click **Submit**.
6. Modify the `Mail-service.xml` file to add in the valid email address and smtp address provided by the customer. This file requires that you log onto the system with root privilege.
  - a. Use PuTTY or TelNet to access the system as **craft**.
  - b. Move to the following directory. Use this command

```
cd /usr/share/jboss-4.0.2/server/avaya/deploy/
```
  - c. Backup the original file before making changes. Use this command:

```
cp mail-service.xml mail-service.xml.org
```
  - d. Open the file for editing by typing this command, "`vi mail-service.xml`".
  - e. Edit the file to add in the valid email address and smtp address provided by the customer. The **bold** lines in this example file show the lines that require changes.

**Note:**

The mail.smtp.host value is the value entered through the web for the Mail Server IP Address.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE server>
<!-- $Id: mail-service.xml,v 1.5 2003/08/27 04:34:12 patriot1burke Exp $ -->

<server>
  <!-- ===== -->
  <!-- Mail Connection Factory -->
  <!-- ===== -->

  <mbean code="org.jboss.mail.MailService"
    name="jboss:service=Mail">
    <attribute name="JNDIName">java:/Mail</attribute>
    <attribute name="User">nobody</attribute>
    <attribute name="Password">password</attribute>
    <attribute name="Configuration">
      <!-- Test -->
      <configuration>
        <!-- Change to your mail server protocol -->
        <property name="mail.store.protocol" value="pop3"/>
        <property name="mail.transport.protocol" value="smtp"/>

        <!-- Change to the user who will receive mail -->
        <property name="mail.user" value="nobody"/>

        <!-- Change to the mail server -->
        <property name="mail.pop3.host" value="pop3.nosuchhost.nosuchdomain.com"/>

        <!-- Change to the SMTP gateway server -->
        <property name="mail.smtp.host" value="smtp.nosuchhost.nosuchdomain.com"/>

        <!-- Change to the address mail will be from -->
        <property name="mail.from" value="nobody@nosuchhost.nosuchdomain.com"/>

        <!-- Enable debugging output from the javamail classes -->
        <property name="mail.debug" value="false"/>
      </configuration>
    </attribute>
  </mbean>
```

## 7. Edit the email template.

- a. Send a copy of [ReservationConfirmationAnytime.txt](#) to the customer so they can customize the wording.



### Tip:

To reduce calls to support, include a list of the DTMF commands available to conference participants in the template. For a list of commands see, [Table 4: Meeting Exchange Express Edition Keypad Commands](#) on page 45.

### ReservationConfirmationAnytime.txt

```
Welcome to the Conferencing System

A demand conference has been established for you on this system.

Please use this account for your conferencing needs.

Please take a note of the following information which you will need to join the
conference:

The Conference Name is: %CONFERENCE_NAME%.

Your Conferee Pass Code is %CONFEREE_PIN%.

Your Moderator Pass Code is %MODERATOR_PIN%.

At the time of your conference:

1a. For people with TDM Handsets (most of us) the Dial in Number is <ENTER DIAL
NUMBER HERE>

1b. For people with SIP Phones, the URL is <ENTER SIP URL HERE>

1c. For people with SIP headsets via proxy <ENTER PROXY HERE>, use <ENTER SIP
PROXY HERE>

2. At the voice prompt, enter your moderator or participant passcode

3. If you mislay or forget your pass codes contact <ENTER INDIVIDUAL TO CONTACT
HERE>
```

b. Edit `/usr/crystal/config/ReservationConfirmationAnytime.txt` to match the text provided by the customer. Alternately, you can use `vi` to copy the file to the directory.

8. Start the mail service: `service sendmail start`.

### Note:

This must be done with super user privilege.

9. Verify the email notification configuration by using the web interface to create a reservation.

## Testing the configuration of email notification

You can verify the email server configuration by using the Email Test Utility and by inspecting the log files for clues to the problem.



## Testing the Mail Server configuration

Use the Mail Server Test utility to send an email to a Mail Server. This command line utility allows you to specify the recipient address and mail server address to ensure that the Mail Server is reachable from the installation machine.

At the command line type this command:

```
/usr/crystal/eMailTestUtility.sh -<email address> -M <ip address>
```

Where:

-<email address> is the email address of the recipient.

-M <ip address> is the IP Address of the mail server.

-h displays the help file with additional options.

The system displays all errors on the console and writes the errors to the log files described in [Debugging the Notification System](#).

## Debugging the Notification System

Log files stored in /usr/crystal/logs/ relate to email notification issues.

- /usr/crystal/logs/notification.log
- /usr/crystal/logs/notification-errors.log

Log files stored in /var/log track problems sending email messages.

- maillog

---

# Configuring the network, manually

If the network information was unavailable when the EPW was complete, configure the network settings using the procedures in this section.

Follow these procedures to manually configure network settings:

1. Open an SSH session from the services laptop using PuTTY. Refer to the Administration Guide for the procedure.
2. [Logging In to Linux](#).
3. [Configuring Network Settings](#)
4. [Verifying the Network Configuration](#)

---

## Logging In to Linux

At start up, the system displays a dialog that prompts you to log in.

```
RedHat Enterprise Linux ES release 4 (Nahant)
Kernal 2.6.9.5.ELsmp on a i686
<S6100> login:
Username:
Password:
```

1. Type “craft” in the Username field.
2. Type “craft01” in the Password field.

Continue with [Configuring Network Settings](#).

---

## Configuring Network Settings

Once the S6100 Audio Conferencing Server hardware setup is complete, configure the network by entering commands at the prompt.

Follow these steps to configure the network settings:

1. Use the procedure in [Logging In to Linux](#).
2. Wait for the system to display the command line prompt.
3. Type:

```
sudo ipChange.sh [-i] [-m] [-g] [-d] [-e] [-f] [-n] [-o] [-p] [-t] [-h]
```

Where:

Switch	Sets this value:
-i	IP address
-m	netmask
-g	gateway
-d	DNS server 1 - Applied to DNS 1, 2 and 3
-e	DNS server 2 - Applied to DNS 2 and 3
-f	DNS server 3 - Applied to DNS 3
-n	NTP server 1 - Applied to NTP 1, 2, and 3
-o	NTP server 2 - Applied to NTP 2, and 3

**Switch Sets this value:**

- p NTP server 3 - Applied to NTP 3
- t DNS domain search, one quoted list, domains separated by white space
- h help

**Note:**

After you run the ipChange script, these services are restarted: network, httpd, jboss-4.0, and ipcb.

**Example for a system configured for Unattended conferencing with one DNS server**

```
/usr/ipcb/bin/ipChange.sh \
-i <ip address> \
-m <netmask address> \
-g <gateway address> \
-d <DNS server 1 address> \
-n <NTP server 1 address> \
-t "<DNS domain> <DNS domain> <DNS domain> "
```

**Example for a system configured for Unattended conferencing with three DNS and three NTP servers**

```
/usr/ipcb/bin/ipChange.sh \
-i <ip address> \
-m <netmask address> \
-g <gateway address> \
-d <DNS server 1 address> \
-e <DNS server 2 address> \
-f <DNS server 3 address> \
-n <NTP server 1 address> \
-o <NTP server 2 address> \
-p <NTP server 3 address> \
-t "<DNS domain> <DNS domain> <DNS domain> "
```

---

## Verifying the Network Configuration

Use the DNS server address to ping the server to verify that the network is correctly configured.

Type this command at the prompt:

```
ping <dns address>
```

## Installing Meeting Exchange Express Edition

Once you verify that the network is configured, you can:

- Use the procedures in [Integrating an Optional Switched Circuit](#) on page 61 to add optional hardware.
- Follow the procedures for [Installing the Server On Site](#) on page 55.

### Tip:

The S6100 has problems dialling out to or referring in a URI configured with the domain name (e.g. sip:2345@avaya.com) rather than IP address (e.g. sip:2345@135.64.26.116). Administrators and installers can map the required domain name to the explicit IP address of the proxy in the /etc/hosts file. For example, if an installation requires that all URIs use a domain name "example.com", then edit the /etc/hosts file to route all calls to an Avaya proxy at the appropriate IP address.

```
000.111.22.3 example.com
```

---

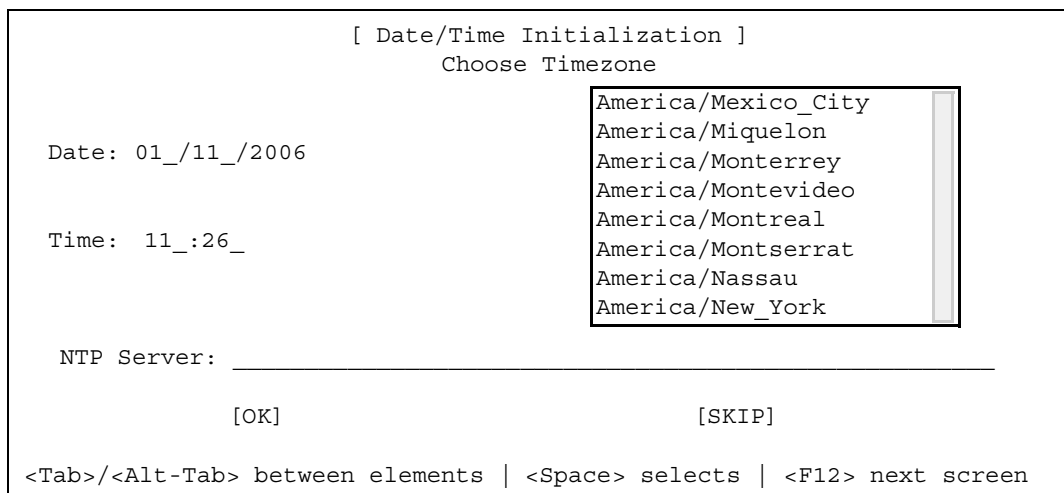
## Changing the system date and time

You can change the system date and time using the the data/timezone can be set with the 'dateconfig' utility.

1. Log onto the system as sroot.
2. At the command line, type:

```
sudo dateconfig
```

The installation program prompts you to initialize the date and time:



```
[ Date/Time Initialization ]
Choose Timezone

Date: 01_/11_/2006

Time: 11_:26_

NTP Server: _____

[OK] [SKIP]

<Tab>/<Alt-Tab> between elements | <Space> selects | <F12> next screen
```

3. Use Tab to select the **Date** and **Time** fields.
4. Set the **Timezone** setting.
  - a. Select **OK**.

---

## Restarting the S6100 Audio Conferencing Server

You must restart the S6100 Audio Conferencing Server after making any configuration changes to the Meeting Exchange Express Web interface.



### **WARNING:**

During a system restart, the conferencing service is unavailable. Any active conferences terminate without warning to participants.

There are two options for restart:

- [Rebooting the server](#)
- [Using ipcb to restart the server](#)

---

### Rebooting the server

The most straightforward way to restart the S6100 Audio Conferencing Server is to simply reboot the bridge. System reboot takes approximately three minutes, during which time the system is unusable.

---

### Using ipcb to restart the server

The quickest, and least disruptive, way to restart the S6100 Audio Conferencing Server is with by starting ipcb.

1. Log on to the bridge using SSH (via putty).
2. Enter the following command:

```
lc restart ipcb
```

This takes ten seconds to recover. Non-voice services, such as the web interface and the database are not disrupted and remain usable.

---

## S6100 Audio Conferencing Server Installation Checklist

1. Ensure that the system is running all processes.
2. Bulk upload the Customer profile and associated On Demand Conference (On Demand only).
3. Login [Using Meeting Exchange® Express Edition as Install Engineer](#).
4. Configure the system using Meeting Exchange Express interface.
5. Place a call to the system using an IP phone and enter a conference using a moderator code.
6. Place a call to the system using an IP phone and enter a conference using a participant code.
7. Use the ipinfo command to verify that the conference opened and that the callers are present in the conference. One caller is present as moderator, the other as participant.
8. Verify that each caller can be heard when he speaks in the conference.
9. Initiate the mute and unmute DTMF from the moderator and the participant. Verify the mute status of each by speaking into the conference. Use the ipinfo command to verify your findings.
10. Disconnect both participants and verify that the system drops the calls.
11. Place a call into the system using an IP phone and enter the conference with the participant passcode.
12. Place a call into the system using an IP phone and enter the conference with the moderator passcode.
13. Record the name of each participant when entering the conference
14. Request the playback as the moderator.
15. Disconnect all participants from the conference.
16. Ensure that the system is running all processes.
17. Use the ipinfo command to verify that the system closed the conference.

# Chapter 4: Installing the Server On Site

The S6100 Audio Conferencing Server is built and configured prior to delivery to a site. On site set up is a simple process. First slide the server into the rack and secure connections, then connect any peripheral devices and communication ports.

---

## Positioning the Server in the Rack

The S6100 Audio Conferencing Server slides into a standard rack.

**! CAUTION:**

The S6100 Audio Conferencing Server requires a two person lift.

1. Follow the directions in the *[Rack Installation Instructions](#)* shipped with the server.

**▼ Tip:**

Install the rack-mount rail before you attempt the next step.

2. Slide the S6100 Audio Conferencing Server into the rack as shown in [Figure 12](#).

---

**Figure 12: Slide the server into the rack**



3. Secure the server in the rack by tightening the screws.
4. Plug in the power cords to the server.

---

## Establishing Connections

After [Positioning the Server in the Rack](#), connect the peripheral devices, ethernet ports, and power cords. [Figure 13](#) and [Figure 15](#) show the input and output connectors on the front and back of the server.

---

**Figure 13: S6100 Front View: Connections and LEDs**

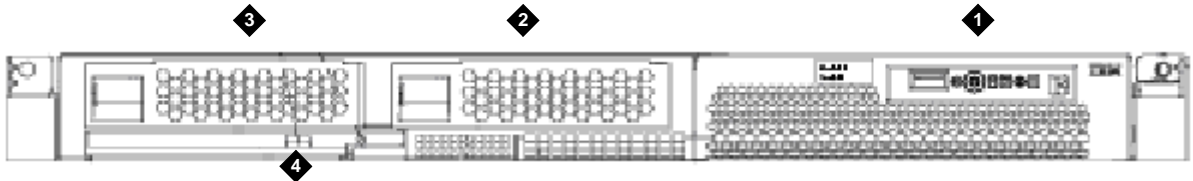


Figure notes:

1. System Error LED panel (See [Figure 14](#) for detail).
2. Hard disk drive
3. Hard disk drive
4. DVD-ROM drive and DVD-ROM eject button

---

[Figure 14](#) shows the LEDs on the system error panel.

---

**Figure 14: S6100 System Error LED Panel**

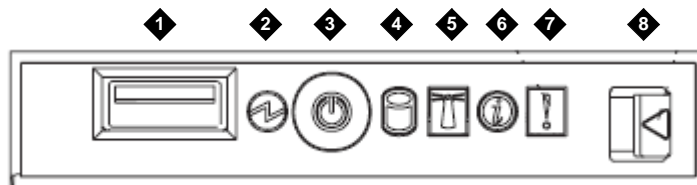


Figure notes:

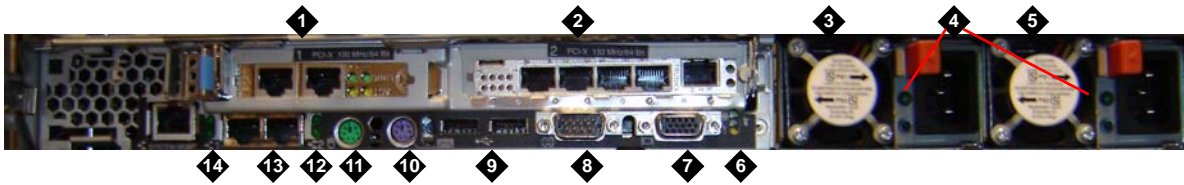
1. USB Connector
2. Power LED (green)
3. Power control button
4. Hard disk drive activity LED (green)
5. Location LED (blue)
6. Information LED (amber)
7. System error LED (amber)
8. Release latch to access the light path LED panel

---

[Figure 15](#) shows the rear view of the S6100 Audio Conferencing Server.



Figure 15: S6100 Rear View: Connections and LEDs



## Figure notes:

1. PCI slot 1
2. PCI slot 2
3. Power supply 2
4. AC and DC LED
5. Power supply 1
6. Power, Location, and System Error LEDs
7. Video port
8. Serial port
9. USB ports
10. Keyboard port
11. Mouse port
12. Ethernet LEDs
13. Dual GB Ethernet ports
14. Ethernet LEDs

[Table 5](#) identifies the designation on the server, for each connector used for external interfaces.

Table 5: External Interface Connectors

Connector Designation	Description
J11	Dual GB Ethernet. Port 1 and 2 are labeled
J16	Mouse Connection
J17	Keyboard Connection
J18	USB 1
J19	USB 2
J29	Serial Port
J37	Video Monitor connection

**⚠ Important:**

If the audio conferencing software was not installed prior to delivery, follow the procedures in [Installing the Audio Conferencing Software](#) on page 32.

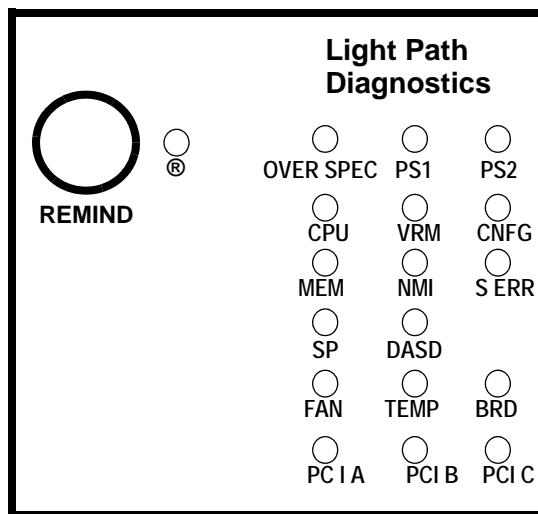
## Using the Light path diagnostic panel

Light path diagnostics are a feature of the IBM xSeries 336 hardware, which is the basis of the S6100. Use this panel to determine the system status.

Press the release latch on the right side of the front panel to slide the light path diagnostic panel out of the panel. The [Figure 16](#) shows the LEDs and [Table 6: Light Path Diagnostic Panel LEDs](#) provides a brief description of each.

For additional information on light path diagnostics refer to the [IBM eServer xSeries 336 Hardware Maintenance Manual and Troubleshooting Guide](#).

**Figure 16: Light Path Diagnostic panels**



The light path diagnostic panel contains a number of LEDs that can be used to diagnose system errors.

**Table 6: Light Path Diagnostic Panel LEDs**

LED	Description
None	Undiagnosed error or service processor failure.
OVER SPEC	The power supply is using more power than the allowed maximum rating.
PS1	Power supply 1. Lit—failure or removal Flashing—invalid power supply configuration.

**1 of 2**

**Table 6: Light Path Diagnostic Panel LEDs (continued)**

LED	Description
PS2	Power supply 2. Lit —failure or removal Flashing—invalid power supply configuration.
CPU	Microprocessor. Lit —failure. The LED next to the failing microprocessor is on. Flashing—invalid microprocessor configuration.
VRM	VRM. Lit —failure. The LED next to the failing VRM might be on. Flashing—invalid VRM configuration.
CNFG	Configuration. Flashing—invalid configuration exists. The error LED next to the failing component might also flash.
MEM	Memory. Lit —failure. The LED next to the failing DIMM is on. Flashing—invalid DIMM configuration.
NMI	Non-maskable interrupt occurred.
S ERR	A soft error occurred.
SP	Service processor failure.
DASD	Hard disk drive. Lit —failure. The LED on the failing drive is lit when supported.
FAN	Fan. Lit —failure or slow operation of fan. The LED next to the failing FAN is on. Flashing—invalid fan configuration. <b>Note:</b> The TEMP LED might also be lit.
TEMP	Temperature exceeded a threshold level. <b>Note:</b> The FAN LED might also be lit.
BRD	Battery fault or system board error.
PCI A	PCI bus A has encountered an error.
PCI B	PCI bus B has encountered an error.
PCI C	PCI bus C has encountered an error.
<b>2 of 2</b>	

---

## Accessing the Administrative Tools

You can perform common S6100 Audio Conferencing Server administrative and maintenance functions using the conferencing software installed on the system. This software provides a Web-based interface known as the Meeting Exchange Express Edition web pages.

 **Tip:**

The S6100 Audio Conferencing Server *On-line help* documents the web-based configuration screens. Refer to Document number 04-200633, *Administration and Maintenance Guide for the S6100 Audio Conferencing Server 1.0* for additional details.

**Note:**

Only users with Installer or Administrator accounts can log on to the web-based Administration interface.

To access the Meeting Exchange Express Edition web pages:

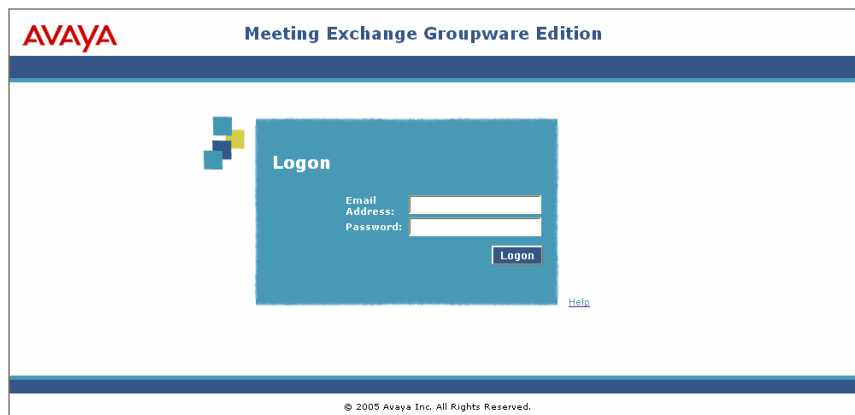
1. Point the Web browser to:

`http://<ip_address>/mx/`

where `<ip_address>` is the IP address of the computer where the audio conferencing application is installed.

The system displays the [Login dialog](#):

### Login dialog



2. Enter the logon information for account of the administrator or installer:
  - a. **Email Address:**
  - b. **Password:**
3. Click **Logon**.

 **Tip:**

The online help pages provide information on using the Meeting Exchange Express Edition web-pages.

# Chapter 5: Integrating an Optional Switched Circuit

This chapter describes the hardware features, installation, and configuration procedures for the optional AudioCodes TP-260/SIP gateway board. The gateway board enables the S6100 Audio Conferencing Server to process incoming calls from switched circuit networks. Once you add this board to the media server, customers can easily integrate existing PSTN T1/E1 users into their IP network.

---

## Overview

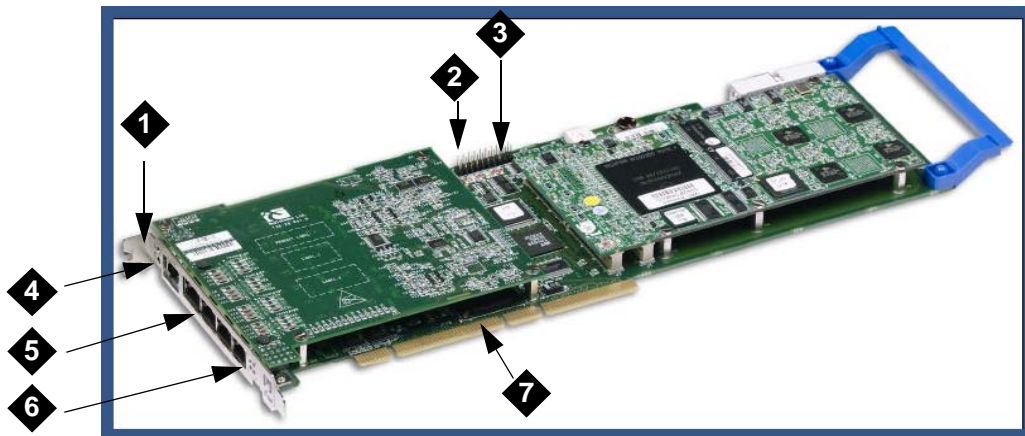
The AudioCodes TP-260/SIP PCI Board, [Figure 17](#), can be installed in the S6100 Media Server to act as a gateway. When installed, the board occupies one 3V3 PCI Signaling, 64 bit universal PCI expansion resource slot. This board draws DC power from the Server PCI.

**Note:**

Complete information on TP-260 is available from the manufacturer in the *AudioCodes TP-260 UN SIP User's Manual* Document #: LTRT-68002.

---

**Figure 17: TP-260**



**Figure notes:**

1. Ethernet LEDs.
2. Reset button
3. Internally-located base board LED
4. Ethernet RJ-45 connector
5. Four T1/E1 RJ-48c trunk connectors
6. E1/T1/J1 LEDs
7. PCI adapter

## Part numbers

Before you start, ensure that you have all of the parts identified in the Bill of Materials (BOM).

---

## Installing the TP-260 Board

The rest of this chapter details the hardware preparation, installation, and configurations.



### **CAUTION:**

Gateway board installation must be performed by an authorized, technical support representative.



### **VOLTAGE ALERT:**

Prior to installation of the gateway board, always connect the chassis to a safety ground. Ground according to the laws and regulations of the country in which the installation is performed.



### **ELECTROSTATIC ALERT:**

Electronic Components on the PCB are sensitive to static electricity. Use anti-static grounding straps and mats to reduce the risk of damage caused by ESD when installing or servicing electronic equipment.

## Unpacking the boards

Follow this procedure to unpack the board components:

1. Remove each item from the box and examine for any obvious physical damages.

The TP-260 Gateway board is shipped in a box, along with the following items:

Component	Qty
TP-260 board sealed in Antistatic bag	1
Trunk Splitter Cables	4
CD / Documentation	1
Printed documents	1

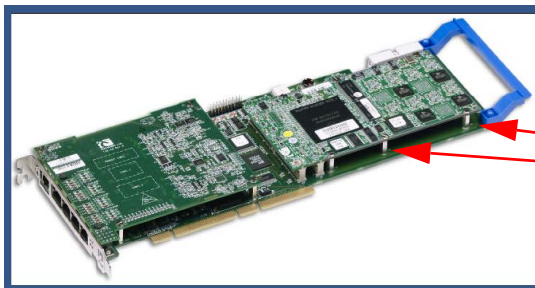
If you notice any damages, log your observations, and immediately report the problem to management so that proper action can be taken.

### Important:

If you see any physical damage on the board or packing, return board to factory for replacement, with remarks.

2. Ensure that the antistatic bag seal in which TP-260 Gateway board is packed is not broken.
3. Remove the board gently, from the antistatic bag.
4. Remove the handle from the PCI Board by unscrewing the two screws shown in [Figure 18](#).

**Figure 18: TP-260 Handle removal**



Two screws are located at either end of the handle. The screw head faces the solder-side of the board.

5. Record the following board information:

- Serial Number of Trunk Pack Board
- Serial Number of Media Processing Board
- Serial Number of PCI Base Board

## Integrating an Optional Switched Circuit

- MAC Address of the Board
  - Product Serial Number of the board
6. Store a copy of the AudioCodes packing list.

---

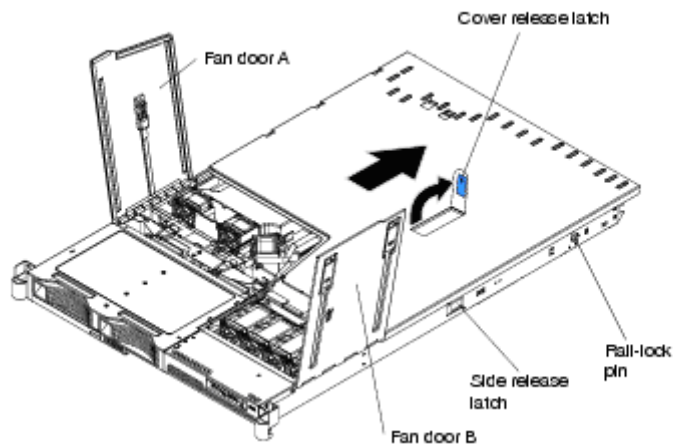
## Installing the Gateway Board in the S6100

Follow these steps to install the gateway board in the media server.

1. Verify that the server power is switched off before installing Gateway Board.
2. Pull the slot board holder latch on the rear side of the server, before installing the board.
3. Open the server cover.
4. Reference [Figure 19](#) while following these instructions:
  - a. Open Fan Door-A and Fan Door-B by pushing the latches in the direction of the arrows printed on the latches located on the fan doors.
  - b. Release the Server Top Cover latch by lifting it and sliding it in the direction shown in [Figure 19](#). The cover can now slide and is unlocked from the side latch holes located on either side of the server.
  - c. Lift the cover from the server.

---

**Figure 19: Server: TOP Covers**



---

Notice the two PCI resource slots in [Figure 20](#). Both slots use riser board to mount PCI adapter boards. Slot 2 on the adapter assembly comes with a riser board mounted. Use this riser board to mount AudioCodes board.

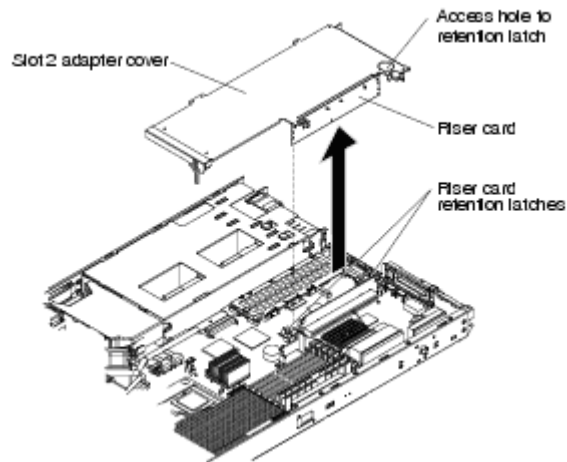


5. Remove the Slot 2 adapter assembly which includes the riser board.

The riser board is connected to the mother board connector on the server.

Push the retention latch sideways on either side of the riser board to eject the riser board from the motherboard. On one side of the retention latch there is an access hole provided to release the retention latch on that side.

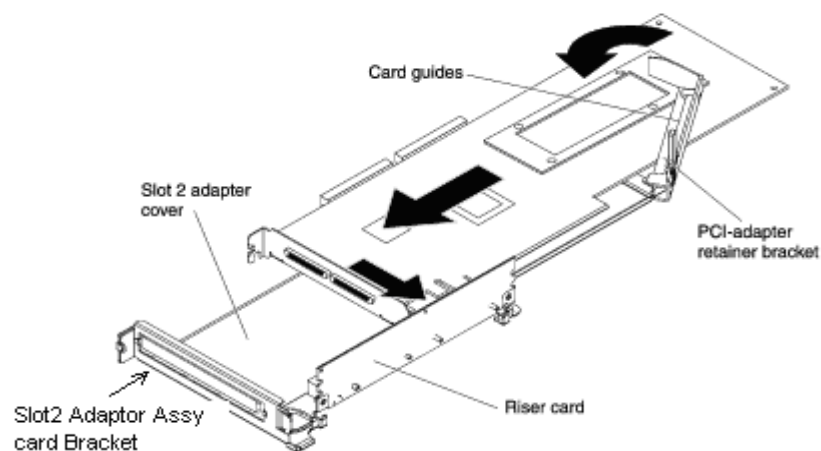
**Figure 20: PCI Slot adapter assembly removal**



There are three components on the Slot 2 adapter riser board assembly:

- Slot 2 Adapter Assembly card Bracket
- Slot 2 Adapter Cover with bracket
- PCI Adapter Retainer Bracket

**Figure 21: PCI Slot 2 Adapter Riser Board Assembly.**



## Integrating an Optional Switched Circuit

6. Remove the Slot2 adapter assembly board bracket by levering it from the top, so the bracket is freed from the locking slot located towards riser board.  
Once removed you can access the TP-260 gateway board connectors, after installing the board on to riser board.
7. Slide the PCI-adapter retainer bracket sideways so that it frees up the space for mounting TP-260 Gateway board, as shown in [Figure 20](#).
8. Insert the TP-260 board into the riser connector mounted on the slot2 adapter assembly as shown in [Figure 20](#).
  - a. Verify that the TP-260 Board Bracket is locked into the slot on the slot2 adapter assembly towards riser board.
  - b. Ensure the TP-260 board is firmly inserted into the riser board PCI connectors.
9. Slide back the PCI-adapter retainer bracket so that the board sits in the retainer bracket groove and locks the board to the slot2 adapter assembly.
10. Install the Slot 2 adapter assembly into the server slot 2 as shown in [Figure 20](#).
11. Ensure that the slot 2 assembly riser card is firmly inserted into the server motherboard connectors.
12. Push back retention latches sideways so that the latch firmly locks and holds the slot 2 adapter assembly.

---

## Connecting external connection

Connect the ethernet and trunk cables.

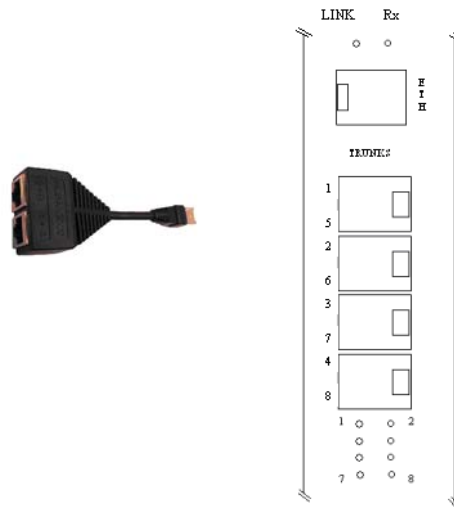
1. Plug the Ethernet cable from TP-260 to the 100BaseT Ethernet Switch that the server is connected too.

 **Tip:**

During the initial configuration process, use a crossover cable to this port and connect the other end to the PC/Laptop where BootP Application is installed. See [Installing and Configuring BootP](#) on page 68.

The TP-260 board provides four T1/E1 RJ-48c trunk connectors. One RJ-48c connector terminates a splitter cable allowing connection of two trunk ports with RJ45 connectors. Therefore the four RJ-48c port connections make it possible to terminate eight E1/T1 trunks via the cable splitter.

---

**Figure 22: Splitter Cable and Trunk sockets**



---

2. Ensure that the trunk cables are connected to correct ports on the splitter cable.

From top to bottom, the:

- first trunk socket terminates trunk ports 1 and 5
- second trunk socket terminates trunk ports 2 and 6
- third trunk socket terminates trunk ports 3 and 7
- fourth trunk socket terminates trunk ports 4 and 8.

Use trunk splitter cables to terminate trunk ports independently from the board.

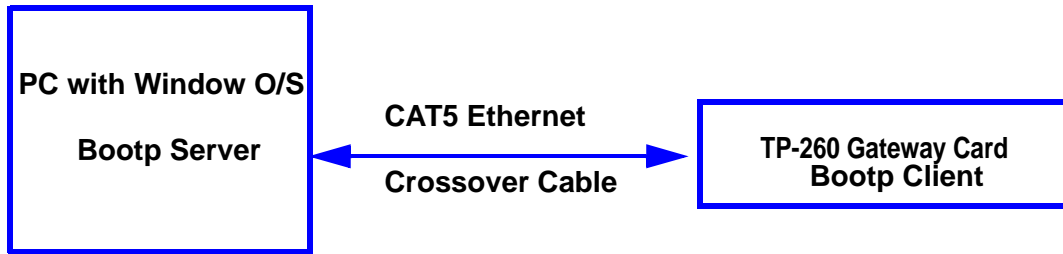
The Trunk Splitter has two labels: “1-4” and “5-8”. The splitter cable labeled 1-4 carries trunk ports 1, 2, 3, and 4 depending on the splitter cable position. For example, if the splitter cable is on the socket labeled 1, 5 which is below the ethernet cable on Gateway card, the splitter cable carries trunk port 1 on the socket labeled 1-4 and trunk port 5 is on label 5-8.

---

## Configuring the Gateway

To configure the AudioCodes gateway board, you first connect the media server to a laptop or PC. The laptop or PC must run the Microsoft Windows XP or Windows 2000 operating system. On the connected computer, install the AudioCode BootP Server Application. Once installed, this application detects all the BootP Clients, including the AudioCodes Gateway card.

Figure 23: AudioCodes Gateway board configuration



## Installing and Configuring BootP

Before installing the BootP application configure the service laptop for a static IP Address. For example:

IP Address	10.1.10.55
Default Gateway	10.1.10.254
Subnet Mask	255.255.255.0

Install and configure the BootP application by performing these steps:

1. Double-click the setup.exe file located in the BootP application folder provided on the TP-260 Software/Tools CD.

The installation process places the a bootp shortcut on the desktop.



2. Double-click the bootp shortcut to start the application. The application displays [Figure 24: AudioCodes BootP/ TFTP Server](#).

Figure 24: AudioCodes BootP/ TFTP Server

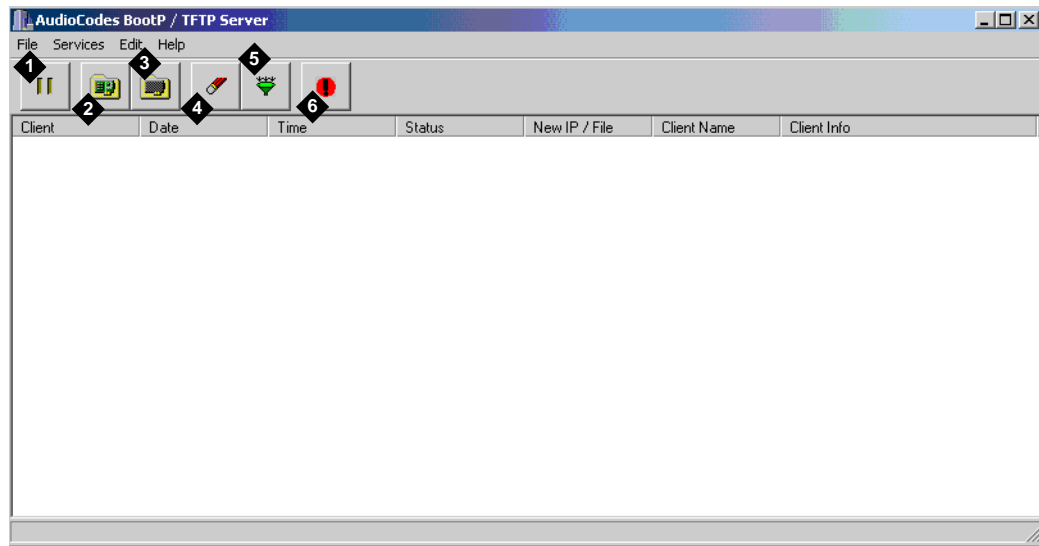


Figure notes:TFTP Server Buttons

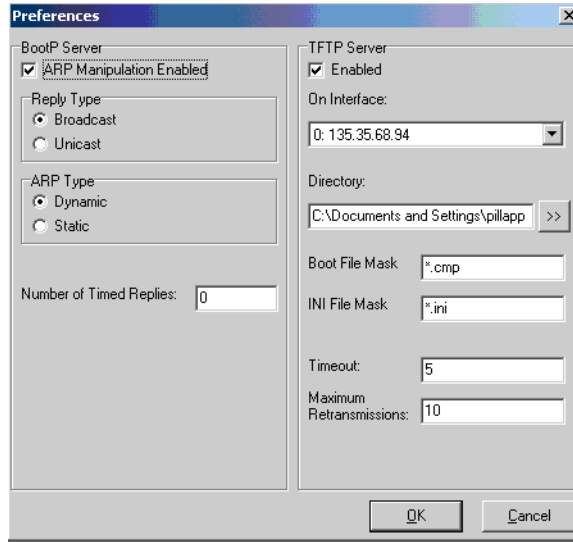
- |                              |   |
|------------------------------|---|
| 1. <b>Pause</b>              | When you select this button, replies are not sent to BootP Request messages. When this button is not selected, then the system replies to all BootP Request messages received from Bootp Clients. |
| 2. <b>Edit Client Button</b> | Click this button to enter Client Configurations.   |
| 3. <b>Edit Templates</b>     | TBD for later use   |
| 4. <b>Clear Log</b>          | Click this button to clear all entries from the log window portion of main application screen.  |
| 5. <b>Filter Clients</b>     | Click this button to prevent logging BootP requests received from disabled clients or from clients that do not have entries in the client table.  |
| 6. <b>Reset</b>              | Click this button to open a window on which you to enter the IP Address for Gateway card that you want to Reset.  |

 **Tip:**

To ensure that the bootP client requests receive responses, ensure that none of the buttons are grey (normal operation).

- 
3. Select **Menu > Edit > Preferences**. The system displays [Figure 25: Preferences](#).

Figure 25: Preferences



4. Edit the BootP server settings on your system to match the BootP settings on the left side of [Figure 25](#).
5. Edit the TFTP server settings by entering the IP address of the laptop and the directory location of the gateway server files. BootP automatically populates the Boot File Mask and Ini file mask settings of the directory.

 **Tip:**

Store only one set of configuration files, one cmp file and one ini file, in the directory so that bootP chooses the correct file.

6. Click **Ok** to save the changes.

---

## Configuring the network

Use the BootP application to configure the AudioCodes Gateway board for the network parameters. These parameters make the TP-260 gateway board accessible through the Web GUI on the site's network. The Web-based GUI enables further configurations on the gateway board.

 **Tip:**

Only use BootP to configure the gateway network parameters.

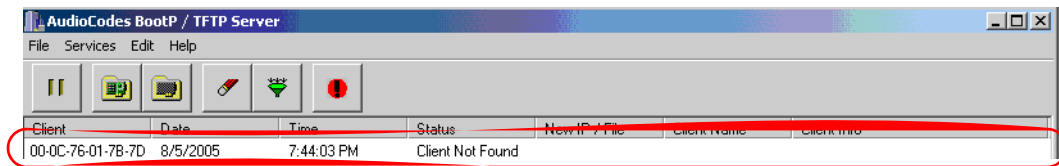
AudioCodes ship the TP-260 cards with the following default network configurations:

**IP Address**            192.168.13.219  
**Default Gateway** 10.1.10.1  
**Subnet Mask**        255.255.0.0

The AudioCodes board power cycles when the server starts.

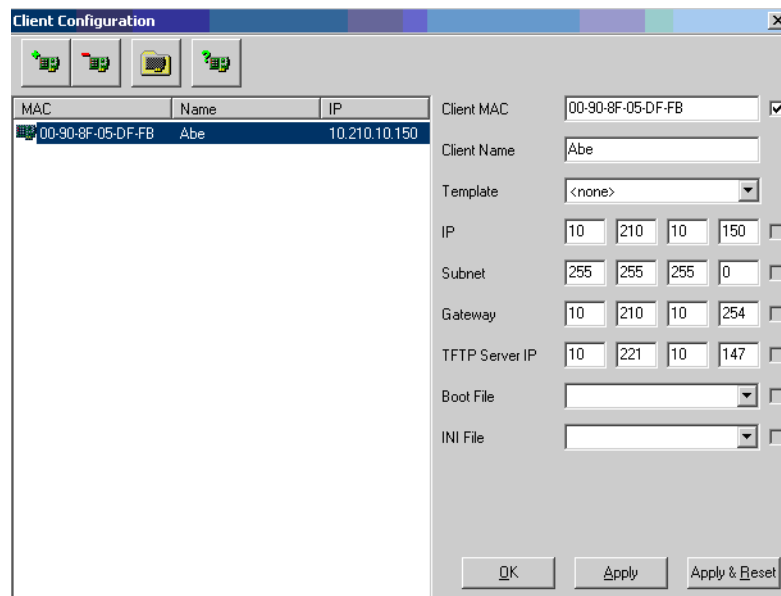
The BootP server application displays a client entry with the corresponding MAC Address, [Figure 26](#). This MAC Address matches the recorded MAC Address of the gateway card.

**Figure 26: Client entry on the BootP dialog**



1. Double-click the client entry to open [Client configuration](#).

**Figure 27: Client configuration**



## Integrating an Optional Switched Circuit

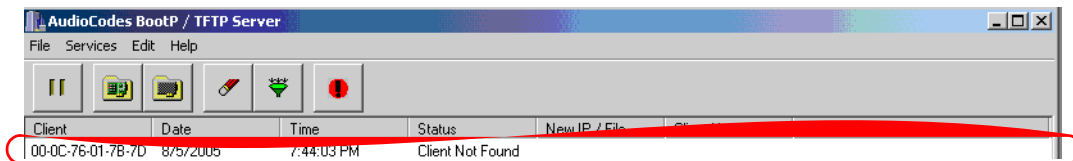
[Table 7](#) describes the [Client configuration](#) parameters.

**Table 7: Client Configuration Parameters**

Client MAC Address	Gateway Card MAC Address
Client MAC	The IP address of the MAC.
Client Name	Name of the computer that will be referred by the bootP Server
Template	<none>
IP	Boards Static IP Address
Subnet	Subnet Mask
Gateway	Boards Gateway IP Address
TFTP Server IP	TFTP Server IP Address
Boot File	*.cmp file which is gateway software image file
INI File	*.ini file which is gateway parameters configuration file

2. Enter the MAC Address of the TP-260 gateway card into the **Client MAC** field.
3. Check the box beside the **Client MAC** field, as shown in [Figure 27](#).
4. Type *<client name>* in **Client name**, where *<client name>* is the name of the client.
5. Leave **Template** as *<none>*.
6. Enter the **IP Address**, **Subnet** mask, and **Gateway** IP Addresses in their respective fields.
7. Enter the IP address of the laptop in the **TFTP Server IP** Field.
8. Click **OK**.
9. Click **Apply**.
10. Click **Reset**.
11. Wait approximately 15 seconds or so and then close this window.
12. Restart the S6100 and Audio Gateway card. Notice the [Log entry](#) that displays the client information in the log window on BootP.

### Log entry





**⚠ Important:**

Verify that you are only accessing the gateway card. The MAC Address on Gateway board must match the MAC Address or the client on the log received by the BootP application.

Continue with [Downloading the Gateway Software](#).

---

## Downloading the Gateway Software

Some software files need to be loaded onto the Gateway Board for normal operation. This section describes the software files and the procedure.

### File overview

Depending on the gateway application, some of these files might not be required.

- \*.cmp The cmp file contains the software for the Gateway card. Load this file when you are changing the version of Gateway software.

SoftwareTP260\_UN\_SIP\_F4.40.240.454.CMP is a compressed image of the Gateway OS+SIP+ISDN Stacks.

**⚠ Important:**

Always check the release notes and use the current version of the gateway software, TP260\_UN\_SIP\_F#.##.###.###.CMP.

**Note:**

The cmp file remains the same for different trunk configurations.

- \*.ini The ini file contains all the gateway card configuration parameters. Some of these parameter values are independent of the gateway application and some of these parameters are configured using the Meeting Exchange Express Edition software. Load this file when changing configuration parameters that are required, such as T1 or E1.

**📄 Tip:**

The <board>.ini file contains all settings required for proper operation in E1 - Euro ISDN configuration.

**⚠ Important:**

The “Disconnect on Broken Connection” must be disabled for the S6100 to operate properly. See [Figure 31: AudioCodes General Parameters](#) on page 78.

- \*.dat (call progress Tone, CPT) The dat file is a region specific, telephone exchange dependent file. This file contains the call progress tones levels and frequencies that the VOIP Gateway uses.

## Integrating an Optional Switched Circuit

### Tip:

M2K\_usa\_tones contains PSTN Tones which is compatible with US PSTN tones.

### Note:

Tone files vary depending on the geographic location. For example the dial tone or busy tone in the United States might not be compatible with German PSTN standards.

- \*.dat (CAS file) The CAS.dat file contains specific CAS protocol definitions, which support CAS signaling.

### Note:

For T1 and E1 configurations, see the corresponding parent folder. Currently qualified and released are: T1-N-ISDN, E1-EURO ISDN, or T1-CAS (WINK START). These folders contain all the required configuration files in their respective sub directories: /CAS, /CMP, /CPT, /INI.

## Obtaining the files

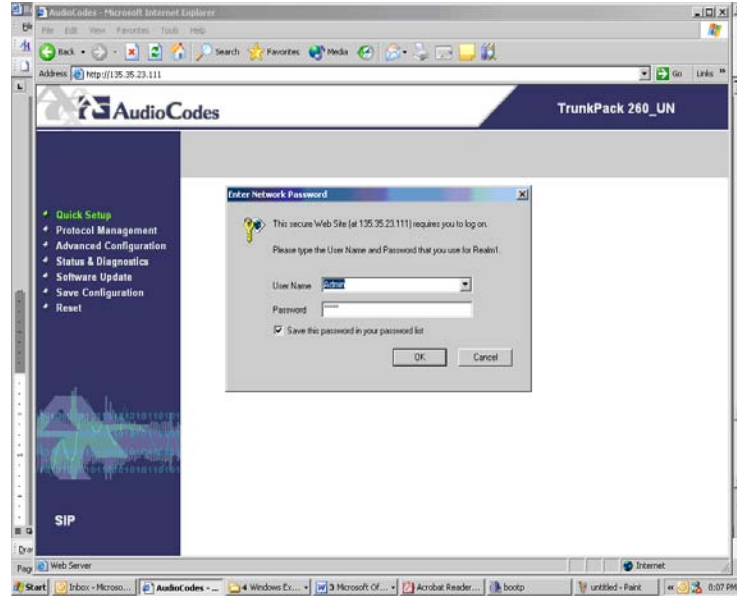
Follow this procedure:

1. Connect the laptop network connections to the same subnetwork as the S6x00 server.
2. Create a directory on the C drive of the laptop, named "Gtwy".
3. Copy the folders from the installation CD onto the laptop to the C:\Gtwy Directory. After copying the CD remove it from laptop.
4. Open the Web browser on the laptop and type the URL address of the Gateway IP Address in the browser. For example:

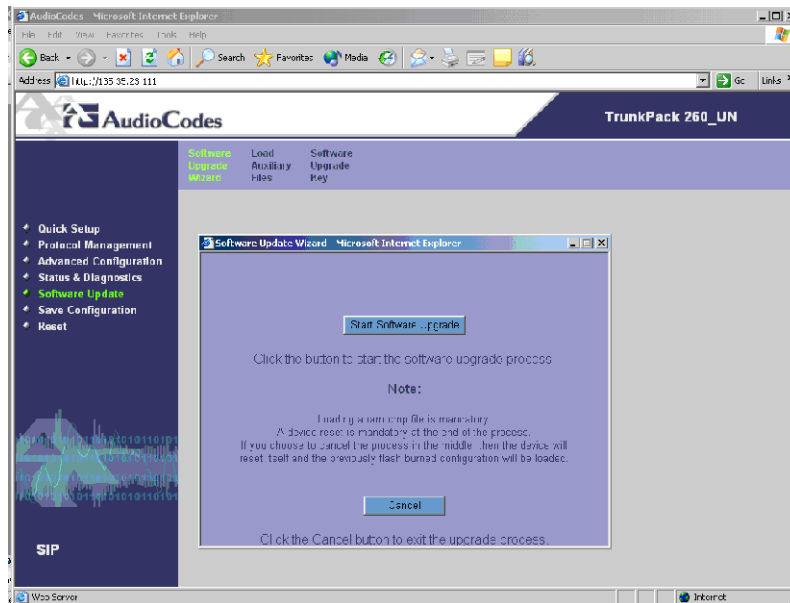
```
http://10.220.10.100
```

where 10.220.10.100 is the IP Address of the gateway card. The browser opens [AudioCodes TrunkPack 260\\_UN](#).

Figure 28: AudioCodes TrunkPack 260\_UN



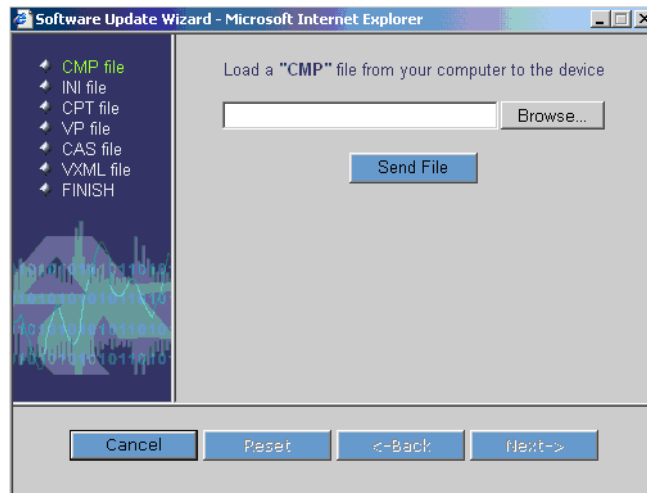
5. Login as **Admin** with the **Password Admin**.
6. Click **OK**.
7. Click **Software Update**.
8. Click **Software Update Wizard** to download the software into the gateway card. The browser starts the wizard in this figure



## Integrating an Optional Switched Circuit

9. Click **Start Software Wizard** and the system proceeds to download the software into gateway card. The browser displays the [Software Update Wizard](#).

**Figure 29: Software Update Wizard**



- a. Click **Browse** and point to the gateway software, TP260\_UN\_SIP\_F#.###.###.cmp file located in folder C:\Gtwy\...\cmp file on laptop drive.
- b. Click **send file**. Wait until a new window displays requesting the ini file type.
- c. Click **Browse** and point to C:\Gtwy\...\ini file on the laptop drive.

**Note:**

The installation CD contains three folders: E1-Euro ISDN, T1-N ISDN, and T1 CAS. Select the folder which contains the files for the gateway configuration that you are installing. This information should be in the pre-installation checklist.

- d. Click **Send File**.
- e. Wait until the system displays a prompt that requests the cpt file type.
- f. Click **Browse** and point to C:\Gtwy\...\cpt file on laptop drive.
- g. Click **Send File**.
- h. Wait until the system displays a prompt that requests the vp file type.
- i. Click **Next**. A new window requests the CAS File type.
- j. Select **Next** if you do not need the CAS file. T1-ISDN and E1-EURO ISDN do not require the CAS file. Wait until a new window displays requesting the VXML file type.
- k. Select **Next** since you are not configuring the Web-related Configuration.
- l. Click **Finish**, **SAVE Configuration**, and **RESET** the board.

---

At this stage you have downloaded all the configuration files for the Gateway card.

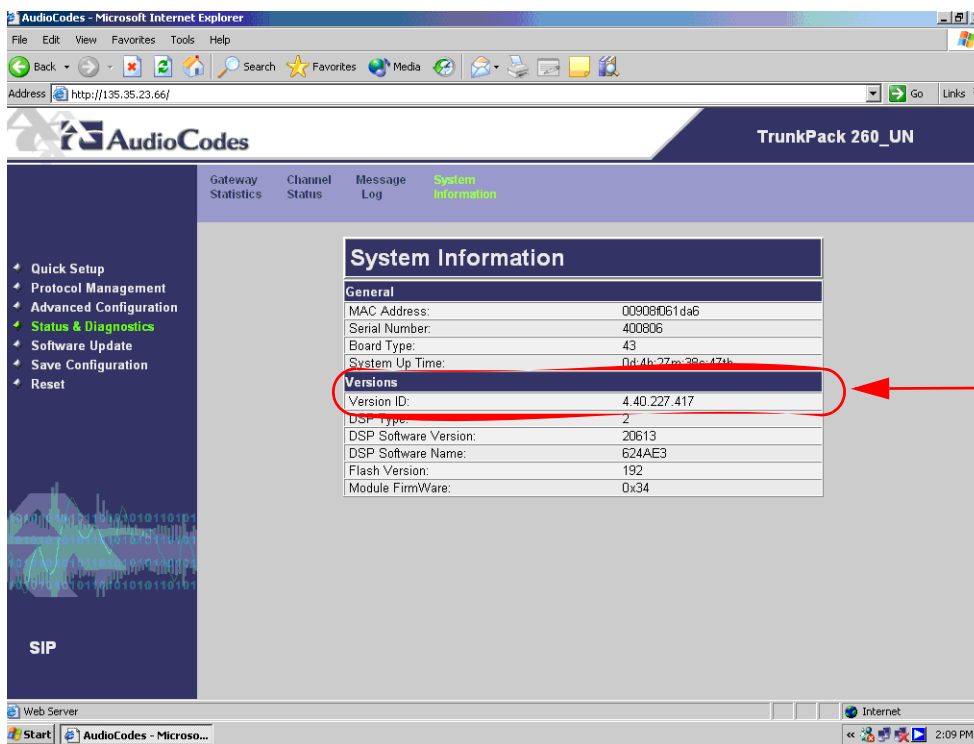
10. Wait 3 minutes and then use the web browser to start Audiocodes.
11. Verify that the software loaded correctly by using the procedures in [Checking the software](#).

## Checking the software

Use the Web GUI and follow these steps to verify the AudioCodes software version.

1. Click **Status & Diagnostics** on the menu.
2. Click **System Information** on the top menu. The system displays [AudioCodes System Information](#).

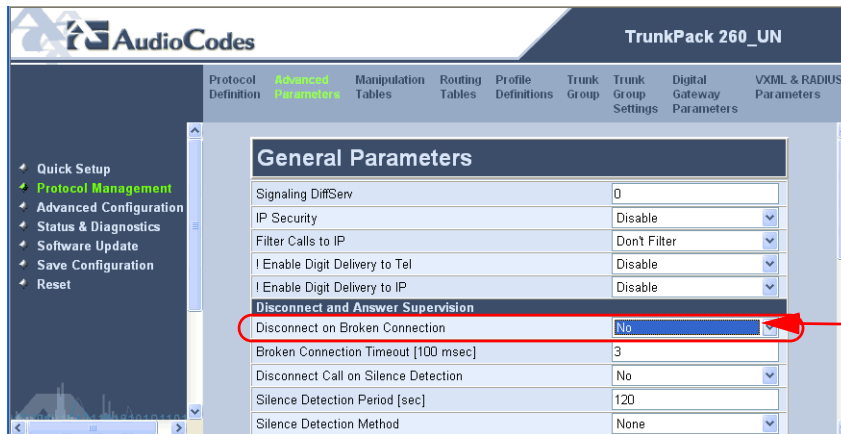
**Figure 30: AudioCodes System Information**



3. Verify that the Version ID matches the software that you loaded.

4. Click Protocol Management on the menu.
5. Click Advanced Parameters on the top menu. The system displays [Figure 31: AudioCodes General Parameters](#).

Figure 31: AudioCodes General Parameters



6. Verify that **Disconnect for Broken Connection** is set to "No".

7. Select **Advanced Configuration** from the left pane.
8. Select Network Settings from the menu.
9. Verify the **Ethernet Ports** Information to ensure that **Port 1 Duplex Mode** and **Port 1 Speed** are each set to "**Forced Mode Value.**"
10. Select **Trunk Settings** from the menu.
11. For E1-ISDN configurations verify that the **Q931 Layer Response Behavior** is set to "**0x80**".

# Chapter 6: Using the S6100 with Communication Manager

This chapter describes how to configure the S6100 Audio Conferencing Server to work with Communication Manager (CM), with or without SIP Enabled Server (SES). In most environments this networking is in a secure environment using Transport Layer Security (TLS).

The examples in this chapter use the following information:

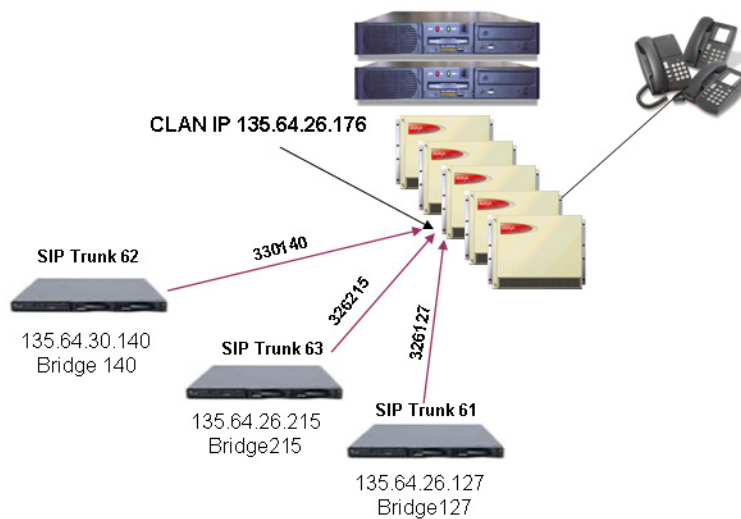
Bridge Name	IP Address	CM SIP trunk	CM SIP signal group	CM Extension	SES
Bridge127	135.64.26.127	61	61	326127	N
Bridge140	135.64.30.140	62	62	330140	N
Bridge215	135.64.26.215	63	63	326215	Y
Bridge116	135.64.26.116	60	60	326116	Y

---

## Configuring connectivity to the CM

You can connect the S6100 Audio Conferencing Server to the Avaya Communication Manager.

### Dial plan for systems connecting directly to the CM



---

## Configuring the SIP Agent on the S6100

1. Log on [Using Meeting Exchange® Express Edition as Install Engineer](#).
2. Select **Bridge Configuration > SIP Agent**.
  - a. Preface the sip address setting with “sips”. Define the port and transport.
  - b. Surround the **Contact** field entry with angle brackets, <>.
  - c. Do not configure the Proxy because this configuration is not using the SES.



### SIP Agent

* SIP Address	<input type="text" value="sips:326127@135.64.26.127:5061;transport=tls"/>
* Differentiated Service TOS Value	<input type="text" value="4"/>
* Ethernet VLAN Value	<input type="text" value="10"/>
Contact	<input type="text" value="&lt;sips:326127@135.64.26.127:5061;transport=tls&gt;"/>

**Note:**

When testing, use the command, “`lc restart ipcb`” to invoke the changes to these settings without restarting the server.

---

## Configuring Communication Manager

Follow these steps to configure connectivity from Avaya Communication Manager to the S6100 Audio Conferencing Server.

1. Add a Node Name for the S6100 by entering **change node-name IP**.
2. Select a CLAN or G700 for connection to the S6100. Note its node-name.
3. Add one or two signaling groups. For each Signaling Group, set the:
  - **Group Type** to “sip”
  - **Near-end Node Name** to value set in step 2, i.e. “CLAN”. This value is resolved through the hosts file on the CM.
  - **Far-end Node Name** to the same setting used in step 1, i.e.S6100. This value is resolved through the hosts file on the CM.



- **Near-end Listen Port** to “5061” for TLS or to “5060” for non-TLS.
- **Far-end Listen Port** to “5061” for TLS or to “5060” for non-TLS.
- **Far-end Network Region** to the codec set referred to in step 1.
- Verify the **Transport Method** is set to “TLS” or “TCP”.

**Signaling Group screen**

```

SIGNALING GROUP

Group Number: 2                Group Type: sip
                               Transport Method: tls

Near-end Node Name: C-LANI      Far-end Node Name: Bridge127
Near-end Listen Port: 5061      Far-end Listen Port: 5061
Far-end Network Region:
Far-end Domain:

Bypass If IP Threshold Exceeded? n

DTMF over IP: rtp-payload      Direct IP-IP Audio Connections? y
                               IP Audio Hairpinning? y

Session Establishment Timer(min): 3
    
```

4. Add one or two Trunk groups:

- The **Group Number** is the Trunk Group Number.
- The **Signaling Group** is the group associated with the Trunk Group.
- The **Number of Members** for each group s the number of SIP channels supported on this trunk.

**Note:**

If the Number of Members is set to “0”, you will not be able to administer the members for this trunk group correctly.

### Trunk Group screen

```
TRUNK GROUP
Group Number: 61                Group Type: sip                CDR Reports: y
  Group Name: CM=Bridge127      COR: 1                        TN: 1                TAC: 198
  Direction: two-way           Outgoing Display? n
  Dial Access? n               Busy Threshold: 255           Night Service:
  Queue Length: 0
  Service Type: tie             Auth Code? n
                                   Signaling Group: 61
                                   Number of Members: 100

TRUNK PARAMETERS
  Unicode Name? y
                                   Redirect On OPTIM Failure: 5000
  SCCAN?n                       Digital Loss Group: 18
```

5. Add a **Station Extension**. On the **Station screen**:

- Set the **Extension** to the extension number associated with the S6100.
- Set the **Type** to “6408D+”
- Set the **Port** to “X”.
- Set the **Name** to the bridge name associated with the server, i.e, “Bridge127” in the following figure.

### Station screen

```
add station 326127
                                STATION
Extension: 326127                Lock Messages: n                BCC: 0
  Type: 6408D+                   Security Code:                   TN: 1
  Port: X                         Coverage Path1:                  COR: 1
  Name: Bridge127                 Coverage Path2:                  COS: 1

                                Hunt-to Station:

STATION OPTIONS
  Loss Group: 2                    Personalized Ringing Pattern: 1
  Data Module? n                   Message Lamp Ext: 326127
  Speaker Phone: 2-way              Mute Button Enabled? y
  Display Language: english

                                Media Complex Ext:
                                IP Softphone: n
                                Remote Office Phone? m
```

6. Associate the station with the trunk.

- Set the **Application** to “OPS” for off-pbx extensions.
- Set the **Trunk Selection** to the trunk used for this extension, “61” in this example.
- On Page 2, set the **Mapping Mode** to “Both” to match all settings.

**Station Mapping screen**

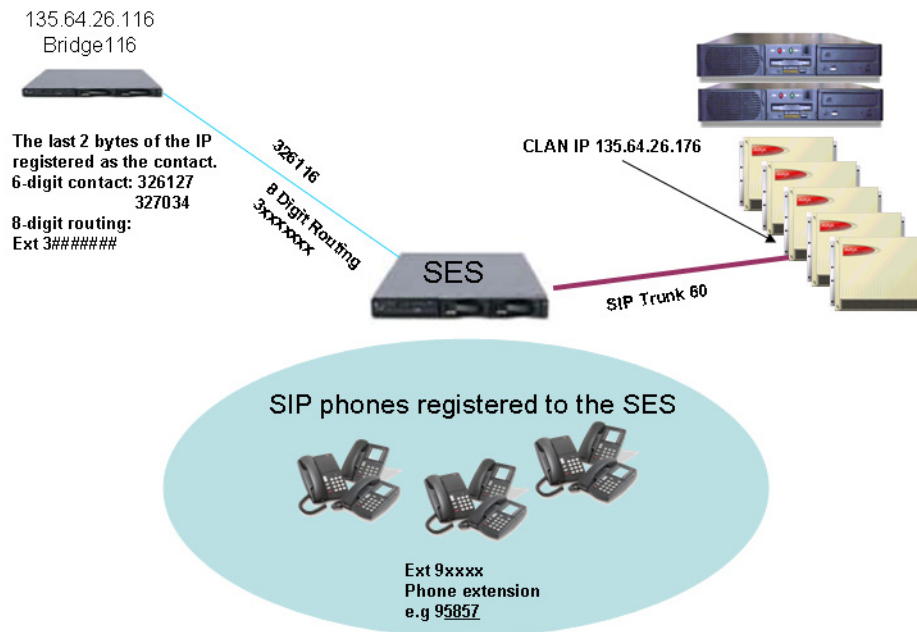
change off-pbx-telephone station-mapping 326127					Page 1 of 2
STATIONS WITH OFF-PBX-TELEPHONE INTEGRATION					
Station Extension	Application	Dial Prefix	Phone Number	Trunk Selection	Configuration Set
<b>326127</b>	<b>OPS</b>		-326127	<b>61</b>	<b>1</b>
change off-pbx-telephone station-mapping 326127					Page 2 of 2
STATIONS WITH OFF-PBX-TELEPHONE INTEGRATION					
Station Extension	Call Limit	Mapping Mode	Calls Allowed	Bridged Calls	
<b>326127</b>	<b>2</b>	<b>both</b>	<b>all</b>	<b>both</b>	

---

## Configuring connectivity to the CM with the S6100 is registered with SES

You can connect a S6100 Audio Conferencing Server registering with a SIP Enabled Server (SES) to the Communication Manager.

### Dial Plan for systems registering with a SES



---

## Configuring the SIP Agent for SES

1. Log on [Using Meeting Exchange® Express Edition as Install Engineer](#).
2. Select **Bridge Configuration > SIP Agent**.
  - a. Preface the sip address setting with "sips". Define the port and transport.
  - b. Leave **Contact** blank.

## SIP Agent



### SIP Agent

* SIP Address	<input type="text" value="sips:326127@135.64.26.127:5061;transport=tls"/>
* Differentiated Service TOS Value	<input type="text" value="4"/> ▼
* Ethernet VLAN Value	<input type="text" value="10"/> ▼
Contact	<input type="text"/>

#### Note:

When testing, use the command, “`lc restart ipcb`” to invoke the changes to these settings without restarting the server.

3. Select SIP Proxies and click the Add button.
4. Edit the [SIP Proxy](#) such that:
  - There is an entry in the To and From fields.
  - The SIP URI uses a port/transport.
  - You add the Username and password to the SES configuration.

## SIP Proxy



### Add SIP Proxy

* Proxy URI	<input type="text" value="sip:135.64.27.178:5061;transport=tls"/>
* Contact	<input type="text" value="sip:326116@135.64.26.116:5061;transport=tls"/>
* To	<input type="text" value="sip:326116@avaya.com:5061;transport=tls"/>
* From	<input type="text" value="sip:326116@avaya.com:5061;transport=tls"/>
* User Name	<input type="text" value="326116"/>
* Password	<input type="text" value="32611600"/>
* Registration Period (seconds)	<input type="text" value="60"/>

\* *Required Fields*

---

## Using the Integrated Management interface to configure SES



### Tip:

For additional information on SES, refer the document number 03-600768, *Installing and Administering SIP Enablement Services 3.1.1*.

Use the Integrated Management interface to configure SIP Enabled Server (SES).

1. Log in to the Integrated Management Interface using the craft login.
2. The system prompts you to Suppress alarm origination. Click **Yes**.
3. Select **Launch Administration Web Interface** and select **Users > Add User**. The system displays the [Add User Profile](#) screen.

## Add User Profile

### Add User

Primary Handle*	<input type="text" value="326116"/>
User ID	<input type="text" value="326116"/>
Password*	<input type="password" value="*****"/>
Confirm Password*	<input type="password" value="*****"/>
Host*	<input type="text" value="135.64.27.178"/> ▼
First Name*	<input type="text"/>
Last Name*	<input type="text"/>
Address 1	<input type="text" value="dublin"/>
Address 2	<input type="text" value="dublin"/>
Office	<input type="text"/>
City	<input type="text"/>
State	<input type="text"/>
Country	<input type="text"/>
Zip	<input type="text"/>
Add Media Server Extension	<input type="checkbox"/>

Fields marked \* are required.

**Add**

4. Type the **User ID** and **Password** that matches the proxy configuration on the S6100.
5. Type the IP address of the SES system in **Host**.
6. Enter other information for the environment.
7. Click **Update**.

---

## Configuring SES to not authenticate the SIP registration for S6100

Use the trusted host command when you do not want the SES to authenticate the SIP registration for a S6100 Audio Conferencing Server.

```
add trusted host [trustedhost -a trustedHostName -n node [-c
'comment']]
delete trusted host [trustedhost -d trustedHostName -n node ]
other options [trustedhost -hLN]
```

Where:

- h Help
- a Add new third party trusted host (usually the S6100)
- c Optional comment when adding a third party trusted host
- d Delete a third party trusted host
- L List all third party trusted hosts
- n CCS host name to receive trusted host (often the SES)
- N List all CCS host names
- v Verbose

For example, type:

```
trustedhost -a 135.64.27.111 -n 135.64.27.178 -c bridge111
```

Where:

135.64.27.111 is the IP address of the S6100.

135.64.27.178 is the IP address of the SES.

List all servers which are trusted hosts by typing:

```
trustedhost -L
```

 **Tip:**

Remember to use the **Update** button in the Integrated Management Interface to save changes



---

## Adding a media server map

Use the Integrated Management interface to add a media server map.

1. Log in to the Integrated Management Interface as Craft.
2. The system prompts you to Suppress alarm origination. Click **Yes**.
3. Select **Launch Administration Web Interface** and select **Media Servers > List**. The system displays a list of media servers.
4. Locate the server and click **Map**.
5. Click **Add Another Map**.
6. Enter a **Name**.
7. Enter the SIP URI SIP Agent Config in **Pattern**.
8. Click **Add**.

---

## Configuring Communication Manager



**Tip:**

For additional information related to SIP trunking and signaling on the CM, refer to document number 5550245-206, *SIP Support in Avaya Communication Manager*.

Follow these steps to configure connectivity from Avaya Communication Manager to the S6100 Audio Conferencing Server.

1. Add a Node Name for the S6100 by entering **change node-name IP**. This value is the SES.
2. Select a CLAN or G700 for connection to the S6100. Note its node-name.
3. Add one or two signaling groups. For each Signaling Group, set the:
  - **Group Type** to “sip”
  - **Near-end Node Name** to value set in step 2, i.e. “CLAN”. This value is resolved through the hosts file on the CM.
  - **Far-end Node Name** to the same setting used in step 1, i.e. SES. This value is resolved through the hosts file on the CM.
  - **Near-end Listen Port** to “5061” for TLS or to “5060” for non-TLS.
  - **Far-end Listen Port** to “5061” for TLS or to “5060” for non-TLS.
  - **Far-end Network Region** to the codec set referred to in step 1.
  - Verify the **Transport Method** is set to “TLS” or “TCP”.

## Signaling Group screen

```
add signaling-group

Group Number: 60          Group Type: sip
                          Transport Method: tls

Near-end Node Name: C-LAN1      Far-end Node Name: ses
Near-end Listen Port: 5061      Far-end Listen Port: 5061
Far-end Network Region:
Far-end Domain:

Bypass If IP Threshold Exceeded? n

DTMF over IP: rtp-payload      Direct IP-IP Audio Connections? y
IP Audio Hairpinning? y

Session Establishment Timer(min): 3
```

#### 4. Add one or two Trunk groups:

- The **Group Number** is the Trunk Group Number.
- The **Signaling Group** is the group associated with the Trunk Group.
- The **Number of Members** for each group is the number of SIP channels supported on this trunk.

#### Note:

If the Number of Members is set to "0", you will not be able to administer the members for this trunk group correctly.

## Trunk Group screen

```

TRUNK GROUP

Group Number: 60                      Group Type: sip          CDR Reports: y
  Group Name: CM=Bridge127            COR: 1                  TN: 1          TAC: 198
  Direction: two-way                  Outgoing Display? n
  Dial Access? n                      Busy Threshold: 255     Night Service:
  Queue Length: 0
  Service Type: tie                   Auth Code? n
                                       Signaling Group: 60
                                       Number of Members: 100

TRUNK PARAMETERS

Unicode Name? y

                                       Redirect On OPTIM Failure: 5000

SCCAN?n                               Digital Loss Group: 18
    
```

### 5. Add a **Station Extension**. On the **Station screen**:

- Set the **Extension** to the extension number associated with the S6100.
- Set the **Type** to "6408D+"
- Set the **Port** to "X".
- Set the **Name** to the bridge name associated with the server, i.e, "Bridge116" in the following figure.

## Station screen

```

add station 326116

                                STATION

Extension: 326116                Lock Messages: n        BCC: 0
  Type: 6408D+                  Security Code:          TN: 1
  Port: X                        Coverage Path1:         COR: 1
  Name: Bridge116               Coverage Path2:         COS: 1

                                Hunt-to Station:

STATION OPTIONS
  Loss Group: 2                  Personalized Ringing Pattern: 1
  Data Module? n                Message Lamp Ext: 326127
  Speaker Phone: 2-way          Mute Button Enabled? y
  Display Language: english

                                Media Complex Ext:
                                IP Softphone: n
                                Remote Office Phone? m
    
```

## Using the S6100 with Communication Manager

6. Associate the station with the trunk.

- Set the **Application** to “OPS” for off-pbx extensions.
- Set the **Trunk Selection** to the trunk used for this extension, “60” in this example.
- On Page 2, set the **Mapping Mode** to “Both” to match all settings.

### Station Mapping screen

change off-pbx-telephone station-mapping 326127						Page 1 of 2
STATIONS WITH OFF-PBX-TELEPHONE INTEGRATION						
Station Extension	Application	Dial Prefix	Phone Number	Trunk Selection	Configuration Set	
<b>326116</b>	<b>OPS</b>		-326127	<b>60</b>	<b>1</b>	
change off-pbx-telephone station-mapping 326127						Page 2 of 2
STATIONS WITH OFF-PBX-TELEPHONE INTEGRATION						
Station Extension	Call Limit	Mapping Mode	Calls Allowed	Bridged Calls		
<b>326116</b>	<b>2</b>	<b>both</b>	<b>all</b>	<b>both</b>		

# Chapter 7: Upgrading Meeting Exchange Express Edition

You can upgrade the S6100 system software using an installation CD or via the web.

---

## Using a CD for the upgrade

1. Insert the CD in the drive of the S6100 system.
2. Log into the S6100 using an ssh terminal utility such as putty or using the system console. If you use:
  - the system console, then log in as “sroot”.
  - a terminal utility, then log in as “craft” and gain root access by typing the “su - sroot” command.

3. Mount the CD by entering this command:

```
mount -t iso9660 /dev/cdrom /mnt/cdrom
```

4. To run the upgrade, type this command:

```
./rebuild file://mnt/cdrom/Releases/
```

5. To unmount the CD, type:

```
umount /mnt/cdrom
```

6. Reboot the system:

```
reboot
```

7. When the stem completes initialization, log in, and enter this command:

```
lilo
```

## Upgrading via the Web

To upgrade via the web, do the following:

1. Make the contents of the installation CD available via a web server.
2. Log into the S6100 using an ssh terminal utility such as putty or using the system console. If you use:
  - the system console, then log in as “sroot”.
  - a terminal utility, then log in as “craft” and gain root access by typing the “su - sroot” command.

3. To run the upgrade, type this command:

```
./rebuild http://<ip address>/<path to CD>/web/Releases/
```

where the *<ip address>/<path to CD>/* is a valid path to the “Releases” directory.

4. Reboot the system:

```
reboot
```

5. When the system completes initialization, log in, and enter this command:

```
lilo
```

---

## Verifying the System Configuration

After any upgrade, verify the contents of the configuration files in the following 2 directories after performing an upgrade:

- /usr/ipcb/config
- /usr/crystal/config

Use the procedures in [Configuring the Server](#) on page 42 to verify the configuration settings.

# Appendix A: Troubleshooting

This section describes common problems and suggested resolutions. Information in this section is intended for use by Tier 3 and Tier 4 technicians.

---

## General Issues

This section discusses general problems and also problems that are common to the operating system.

---

### Identifying the system status

Technicians can use the release latch on the front panel to slide out a panel, which displays LEDs indicating the system status. Refer to [Using the Light path diagnostic panel](#) on page 58 for additional information.

---

### Using the life-cycle command to verify server processes

Use the following life-cycle commands to verify all expected processes are running on the server:

**Table 8: Life-cycle command syntax**

Type this:	Expected output:
<code>lc list</code>	Listing of all services listed with the life-cycle manager
<code>lc status all</code>	The status of all services listed with the life-cycle manager.
<code>lc status &lt;service name&gt;</code>	The status of the specified service.
<code>lc status ipcb</code>	A list of conference processes.
<code>lc status dbx</code>	The status of the database translator.
<code>lc status postgresql</code>	The status of the conferencing database.

---

**1 of 2**

**Table 8: Life-cycle command syntax (continued)**

Type this:	Expected output:
<code>lc status jboss</code>	The status of the jboss environment.
<code>lc status httpd</code>	The status of the web server.

**2 of 2**

**Note:**

The life-cycle command may automatically restart some processes that are manually stopped with [kill](#). Before using the `kill` command, deactivate the life-cycle with this command:

```
service lcinit stop
```

---

## Obtaining Debug Information

The log files provide a key source of information. Additionally, you can use many Linux commands for troubleshooting.

[Table 9](#) lists commands that can assist you with resolving problems.

**Table 9: Common Linux Commands**

Type this command:	To:
<code>df -k</code>	determine if the system is running low on disk space.
<code>ifconfig -a</code>	list Ethernet interfaces.
<code>hostname</code>	find the name of the computer.
<code>ipcs -qa</code>	find the number of IPC messages used by each queue. The number in the "QNUM" column represents the number of messages waiting in a queue.
<code>kill</code>	stop a process.
<code>man -k &lt;keyword&gt;</code>	search for help on a topic, using a given keyword.
<code>netstat -s</code>	get detailed statistics, including dropped packets, for IP, UDP, ICMP, and other protocols.
<code>ping &lt;ip address&gt;</code>	test connectivity to another system on the network.
<code>ps -eaf</code>	list running processes.

**1 of 2**



**Table 9: Common Linux Commands (continued)**

Type this command:	To:
<code>sar 5 5</code>	list available CPU.
<code>uname -a</code>	determine which kernel is running.
<code>uptime</code>	identify the length of time a computer is running.
<code>who</code>	determine which users are logged on to the computer.
<code>who -b</code>	view the last reboot, date, and time.
<b>2 of 2</b>	

[Table 10](#) lists log files that can be helpful in diagnosing common problems.

**Table 10: Log Files**

Directory	File	File description
<code>/usr3/ipcb/logs</code>	various	Log files for S6100 Audio Conferencing Server.
<code>/usr2/ipcb/</code>	various	Raw, daily billing files.
<code>/var/log</code>	messages	The Linux system log.
<code>/var/log/</code>	dmesg	The Linux boot up log.

---

## Restarting a Program

Usually, let the bridge software automatically start and stop its down processes. However if you need to manually restart a process, manually stop the process first.

Use the “kill” command to stop a process. This command requires the process ID number. To obtain the process ID number, use the “ps -eaf” command to list processes and locate the one you want to stop.

There are two ways to start a process. First, the init process automatically restarts the process. Alternately for debugging purposes, type the command to start the process.

### Tip:

Avaya does not recommend manually starting a process because the process might require command line parameters. Therefore manually starting a process must be done in consultation with the development staff.

## Not able to create new files

Systems that are unable to create new files exhibit the problem in several ways. Usually the system might not be able to perform these functions:

- Write new log messages
- Edit a file

Administrators can use the `df` command with the `k` switch to determine if the system is running low on disk space.

```
df -k
```

When a files system is more than 80% full, free up space by removing old log or core files.

---

## System Configuration Problems

This section describes problems related to installation or configurations.

---

## Slow System Performance

When the response time of the system is slow, take these actions:

1. Use this command to check the amount of free CPU time:

```
sar 5 5
```

Idle time must be 50% or more. When the idle time is less than 50%, list all running processes by typing:

```
ps -eaf
```

**Note:**

The idle percentage is an unreliable way of determining the system load. A better indicator, is to verify that DTMF digits are handled promptly by making a test call to the system.

2. Look for the processes that use the most cumulative CPU.

 **Tip:**

The system might be trying to handle more calls than is optimal when the `softms` process is using the most CPU time.

---

## System does not accept calls

Follow this procedure:

1. Use SSH to communicate with the system to ensure that the system is on the network and running.

2. List current processes:

```
ps -eaf | grep ipcb
```

3. Verify that the listed processes include:

- initipcb
- eventhandler\_dbx
- sipagent
- msdispatcher
- softms
- serverComms

4. Check the log files stored in /usr3/ipcb/log for reasons why the system is not accepting the calls. Use this command:

```
tail -f /usr3/ipcb/log/<logfile_name>
```

Some clues might include processes which are repeatedly stopping and restarting or SIP stack errors.

5. Verify that /usr/ipcb/config/processTable.cfg contains the processes listed in step 3.

---

## System capacity exceeded

If you hear the prompt, "System capacity is exceeded" then:

1. Verify the license is installed.
2. Check that the system is not exceeding the existing license allocation.

---

## Operation failed due to system error

If you hear the prompt, "Operation failed due to system error. Goodbye." then:

1. Log in to the web interface as administrator.
2. Check that the **URI to Service Map** contains valid URI patterns..

## VoIP programs restarted?

You can search the log file for the date you suspect the program restarted. For example, if you suspect that the VoIP programs restarted on July 28, follow these steps.

1. `. cd /usr2/ipcb/log`
2. `grep start system.log.Jul28`
3. Look for messages in the log which say “INIT started process...” and the date and time that occurred.

---

## Network Problems

This section describes some common network-related problems.

---

### Debug a Network Problem

Use these guidelines to determine the cause of a problem on the network.

1. Ensure that the software media server can communicate with the network.
  - a. Log on to a bridge.
  - b. Use the “ping” command to test communication with another computer on the network.

If you get an error saying “Network is unreachable” refer to [Network is unreachable](#) on page 101 before continuing.

2. Verify the IP address of both computers that are experiencing communication problems.
  - a. Use the “ifconfig -a” command.
  - b. Ignore the “lo” loop back device”.
  - c. Look for “inet” parameter, “ct” device, and “eth0” device.

3. Verify that all interfaces are configured for 100 MBit, full-duplex using this command:

```
mii-tool
```

This tool can also be used to configure the speed of the interfaces. To get help with this command type:

```
mii-tool --help
```

4. Use “netstat” while trying to communicate with the system.

If communication is working, the system displays a line describing a socket from the source computer to the destination (bridge computer). If successful, the state of the socket is “ESTABLISHED”.

**Note:**

This step applies to TCP/IP communication not UDP.

**Note:**

When debugging a VOIP configuration refer to [System does not accept calls](#) on page 99.

5. View /var/log/messages file to determine if there are any errors related to network communication problems.

If all the configuration files and parameters look favorable, there might be a message format difference between the sending and receiving computers.

Use some type of packet sniffer program to debug the network problem. See [How can I capture or monitor IP traffic?](#) on page 103.

## Network is unreachable

Verify network connectivity by following this procedure:

1. List all Ethernet interfaces, by typing this command:

```
ifconfig -a
```

This command must return more than “lo” loop back. When it returns only the loop back, or displays the message “Network is unreachable”, install the driver for your Ethernet interface.

When the command returns:”eth0”, “net0”, “ct”, or another network interface that has the state “DOWN”, configure the Network interface.

- a. Confirm that the Ethernet cable is firmly connected to the back of the server and to the router/switch/hub.
- b. Verify the port on the router/switch/hub is enabled and correctly configured.

When the command returns:”eth0”, “net0”, “ct”, or another network interface that has the state If the state is “Up”:

- c. Verify the IP address of the interface is correct.
- d. Test communication with other computers in the network by using the ping command. For example:

```
ping 10.221.10.254
```

## Troubleshooting

2. Verify that all physical interfaces use the correct Broadcom drivers:

```
ethtool -i eth[0-2]
```

For example:

```
ethtool -i eth0
```

returns:

```
driver: bcm5700
version: 8.2.18
firmware-version: 5721-v3.29a
bus-info: 0000:06:00.0
```

3. Verify that the Broadcom drivers are available on the system:

```
lsmod | egrep bcm5700
```

If the drivers are not available, then install them from the CD.

4. If the problem remains, reboot
5. If the problem remains after rebooting, contact support.

---

## Network is unreachable: Firewall

Verify that you can get through the firewall.

Meeting Exchange expects to open these inbound ports:

```
tls port 5061
```

Meeting Exchange expects to open these output ports:

```
udp ports 42000 through 42599
```

Administrators can verify that these ports are open in the firewall by using these commands:

Port	Command	Description
SIP	<code>iptables -L   egrep "506[0,1]"</code>	The printout should designate all ports as "ACCEPT".
RTP	<code>iptables -L   egrep "42000"</code>	The printout should designate ports 42000 - 42599 as "ACCEPT".

---

## How can I capture or monitor IP traffic?

Use a second system to monitor IP traffic.

- The second system can run Ethereal or tcpdump.
- Connect this system to an mirrored port on the Ethernet switch/router/hub.
- That port must be a mirror of all traffic sent to the VoIP system.

You can use the tcpdump utility included with the Linux platform to monitor IP traffic.

Command	Result
<code>tcpdump --help</code>	Display of utility documentation.
<code>tcpdump -i ct -w ~/sip.dmp -X -s0 \$HOSTNAME and port 5060</code>	Trace of SIP traffic is stored in a file /home/sroot/sip.dmp.
<code>tcpdump -r ~/sip.dmp -A   less</code>	Read the file containing the captured packet information.

---

## Audio Problems

This section provides procedures for trouble shooting common audio problems.

---

### No Audio

When a call appears to connect, but no audio is heard, follow this procedure:

1. Check the SIP telephone configuration used by the person who reported the problem.
2. Verify the correct media server program is running on the server:
  - softms for the media server
3. Check the system configuration file, system.cfg.

---

## Debug Process

The debug process is named “ipcbdbg”. This utility is stored in /usr/ipcb/bin and can only be run as sroot user.

Use this command to turn on full debug logging for all processes:

```
ipcbdbg f all t
```

The log is stored in /usr3/ipcb/log/debug.log.

Use this command to turn off debug logging:

```
ipcbdbg f all w
```

 **Important:**

To avoid system overload, only run debug mode for short periods of time.

---

## Error Messages

This section provides guidelines for handling error messages.

---

### SIP Utility Errors

#### **Message: Can't print a message of %d chars.**

The system sends this message when a conference user enters a series of digits that are to be spoken back to the user. There is a limit of 2-5 digits. When there are 6 or more digits, the system displays this error message.

#### **Test Procedure**

1. Use a call script that requires entering digits that the system will repeat to the user.
2. Enter 6 or more digits.
3. Look in the error log file.



**Message: Media Server is not in the process table****Test Procedure**

1. Stop the life-cycle monitor with this command:  

```
service lcinit stop
```
2. Kill initipcb if it is running.
3. Edit the processTable.cfg and inserting “#” at the beginning of the mediaServer line to change it to a comment line.
4. Start the initipcb process while logged in as “sroot”.

**Message: DEBUGPROCESS Couldn't find appendto interface**

1. Stop the audio conferencing software if it is already running.
2. Make a backup copy of processTable.cfg in the config directory.
3. Edit processTable.cfg to delete the list of interfaces after a process such as the line for softms.
4. Verify the activity of the initipcb process by typing:  

```
ps -eaf | grep initipcb
```

  
Kill the process if it is running.
5. Start the audio conferencing software by run initipcb from the command line while logged in as “root”.
6. Check the error logs to find the messages that aid in the debug process.

**Message: Error Couldn't find DSP send to interface**

1. Stop the life-cycle monitor with this command:  

```
service lcinit stop
```
2. Kill initipcb
3. Open a copy of processTable.cfg for editing.
4. Delete “eventHandler” from the list of interfaces located on the line for the softms.
5. Save the processTable.cfg.
6. Run initipcb.
7. Check the error log.

**Message: Error Couldn't find the init process Key**

1. Stop the life-cycle monitor with this command:  

```
service lcinit stop
```

## Troubleshooting

2. Kill `initipcb` if it is running.
3. Open a copy of `processTable.cfg` for editing.
4. Change the “`initipcb`” line to a comment.
5. Run `initipcb`.
6. Check the error log.

### **Message: Error Creating IPC on start up: %s, strerror(errno)**

1. Stop the life-cycle monitor with this command:  

```
service lcinit stop
```
2. Kill `initipcb` if it is running.
3. Write a C program that creates as many message queues as possible until the program receives an error.
4. Run that program on the S6100 Audio Conferencing Server.
5. Start `initipcb`.
6. Check the error log.

### **Message: Error: msgctl() failed. Errno=%d. quid=%d**

You will not usually see this error message. The system displays this message when you exhaust the number of available messages in the system. Contact technical support.

### **Message: Error: msgctl() failed. Errno=%d. quid=%d**

Failed to read the size of a message queue. You may be able to create this error by:

1. Start the audio conferencing software.
2. Wait about 30 seconds.
3. Delete a message queue using “`ipcrm -q`” and the appropriate message queue key.
4. Place a VOIP call.
5. Check the error message log.

### **Message: Error: msgsnd() failed. Errno=%d destKey=0x%x q=%d total send errors %d**

1. Stop the audio conferencing software.
2. Write a C program to send numerous `R_U_ALIVE` message to a process such as `eventHandler`. Have the program continuously send this message, as fast as the program can.
3. Place a VOIP call.
4. Check the error log.

**Message: [%d] Unknown event queue to process[%d]**

1. Write a C program that sends an R\_U\_ALIVE message with an invalid source message queue ID.
2. Use that program to send a message to a process such as the SIP agent.
3. Check the error log.

**Message: No entry for the process %s**

1. Stop the life-cycle monitor with this command:  
`service lcinit stop`
2. Kill initipcb.
3. Open processTable.cfg for editing.
4. Change the “mediaServer” line to a comment.
5. Start initipcb.
6. Check the error log.

**Message ipcbinit is not in the processTable**

1. Stop the life-cycle monitor with this command:  
`service lcinit stop`
2. Kill initipcb.
3. Open processTable.cfg for editing.
4. Change the “initipcb” line to a comment.
5. Start initipcb.
6. Check the error log.

**Message: started process=<%s> with pid=<%d>,. Args=<%s/%s>**

Usually this message is not an error, rather it is informational indicate that a process started.

To create this message:

1. Stop the life-cycle monitor with this command:  
`service lcinit stop`
2. Kill a process such as eventHandler.
3. Initipcb automatically restarts the process in about 33 seconds.
4. Look at the error log.

### **Message: unable to start process=<%s>**

While the audio conferencing software is running:

1. Rename an executable file such as eventhandler:

```
mv /usr/ipcb/bin/eventhandler /usr/ipcb/bin/eventhandler.backup
```

2. Kill the eventhandler process.
3. Wait over 33 seconds for the process to be restarted.
4. Look in the error log file.

### **Message: process <%s> not responding at %d tries**

See [Message: unable to start process=<%s>](#).

### **Message: select() error=%d**

Usually, the system does not display this message. Contact technical support.

### **Message: sleeping another %x seconds**

This message informs the user that the init process is waiting before it polls a running processes. The system displays this message when the init process is interrupted while waiting for a select statement. Interruption of the init process can occur if a signal is sent to initipcb while the audio conferencing software is running.

1. Stop the life-cycle monitor with this command:

```
service lcinit stop
```

2. While logged in as “root” enter:

```
“kill -1”
```

followed by the process number for initipcb.

3. Repeat step 2 several times. Wait a few seconds between repetitions.
4. Check the error log.

### **Message: unknown queue id responded %d**

1. Write a C Program to send a response to an R\_U\_ALIVE message using an invalid message queue ID.
2. While the audio conferencing is running, use the test program to send the bad message.
3. Check the logs.

**Message: restarting process**

1. Stop the life-cycle monitor with this command:  
`service lcinit stop`
2. Kill a process such as eventHandler.
3. Initpcb automatically restart the process in about 33 seconds.
4. Look at the error log.

**Message: Killed process=<%s> with pid=<%d>**

Usually the system sends this message as information when initpcb kills a process. The system displays the message in two cases:

1. When the audio conferencing software is stopping.
2. When a process fails to respond to an R-U-Alive message.

**Note:**

To see this error message stop the audio conferencing software and look at the log file.

**Message: Can't kill missing process=<%s> with pid = <%d>**

1. Start the audio conferencing software.
2. In another window enter: `cd /usr/ipcb/bin.`
3. Stop the life-cycle monitor with this command:  
`service lcinit stop`
4. Kill the eventhandler.
5. In the other window start eventhandler using the debugger: `gdb eventhandler.`
6. Set a break point at main using "`b main`"
7. Type: `Run`  
The breakpoint creates the eventhandler process and halts the eventhandler.
8. Initpcb attempts to send R\_U\_ALIVE messages which in turn does not receive a response from the eventhandler.

 **Tip:**

Type "`tail -f`" to watch the log file.

9. Wait about 10 seconds after the first "not responding" message and exit the debugger to end the eventhandler process.
10. Later when ipcbinit tries to kill the eventhandler, that process is already gone and the system displays the expected error.

### **Message: Error %d when killing process**

This message usually does not occur. Contact Technical Support.

### **Message: Error %d in waitpid**

This message usually does not occur. Contact Technical Support.

### **Message: Process %s id %d exited normally with exit status %d**

1. Write a C program to perform only these commands:

```
main()  
{  
    exit(1);  
}
```

2. Stop the audio conferencing software.
3. Replace a real process such as eventhandler with the test process by renaming the executable to eventhandler while saving the original eventhandler executable.
4. Start the audio conferencing software.
5. Look for the message in the error log.

### **Message: Process %s kd %d kill by signal**

1. While the audio conferencing software is running, kill a process such as the eventhandler using “kill -15”.
2. Look at the error log.

### **Message: Process %s kd %d kill by signal**

1. While the audio conferencing software is running, kill a process such as the eventhandler using “kill -19”.
2. Look at the error log.

### **Message: invalid message=%x**

1. Write a C program to send a message with an illegal message type such as -1.  
Have that program get the message queue ID from a command line parameter.
2. Use the test program to send the bad message to each process in the system.
3. Look at the error log.

# Appendix B: Environmental Requirements

This section identifies the [Operating conditions](#), [Thermal management](#), and [Power requirements](#) for the S6100 Audio Conferencing Server.

---

## Operating conditions

During normal operation the S6100 Audio Conferencing Server requires the following ambient condition.

Condition	Limits
Air Temperature	10 Degrees to 24 Degrees Centigrade 50 Degrees to 75 Degrees Fahrenheit
Altitude	0 to 2133 Meters (6998 Feet)
Humidity	8% to 80%
Acoustic Noise Emission	Maximum 6.9 db



**Important:**

The front and rear sides of the server must have approximately five inches of free space. This space allows the air flow and exhaust in and out of the server.

---

## Thermal management

The following table shows the maximum heat dissipated from the server, during normal operation with the Audiocodes card installed.

Description	Typical	Maximum
Heat produced from the server	1000 BTU/hour (300 Watts)	1878 BTU/ hour (550 Watts)

## Environmental Requirements

 **Tip:**

The dual poTo ensure proper cooling and airflow, replace all the server covers in their original places before turning on the server.

 **WARNING:**

Operating the server for extended periods of more than 30 minutes with the server cover removed, might damage server components.

---

## Power requirements

IBM x336 Server with single AC redundant power module sources about 585 Watts power. The power module can accept a wide range of AC input voltages as described in [Table 11](#).

 **Important:**

The S6100 ships with two AV power supplies.

The power cord from the server connecting to the AC wall socket can source power greater than that required ([Table 11](#)). The power cord rating recommendation is at least 1000 KVA.

**Table 11: Power Requirements**

Input AC parameter	Minimum	Maximum
Low range of AC Input Voltage	100V AC	127V AC
High Range of AC Input Voltage	200V AC	240V AC
Input Power Requirement	172 KVA	550 KVA



# Appendix C: Conferencing Profiles

[Table 12](#) outlines the features for each supported conference profile.

**Table 12: Conference Profiles**

Feature	Simple Demand; No Dialout	Demand with Moderator Hangup	Full Featured Demand with Recording	NRP & Wait Options, No Recording
DEMAND	ON	ON	ON	ON
ROLL_CALL	OFF	OFF	ON	ON
ENTER_TONE	ON	ON	ON	ON
LEAVING_TONE	ON	ON	ON	ON
NAME_ANNOUNCEMENT_ON_ENTRY	OFF	OFF	ON	ON
NAME_ANNOUNCEMENT_ON_EXIT	OFF	OFF	ON	ON
RECORDING_REQUIRED	OFF	OFF	ON	OFF
AUTO_GENERATE_PASS_CODES	ON	ON	ON	OFF
MODERATOR_CONTROLLED	ON	ON	ON	ON
PLAY_WAIT_FOR_MODERATOR	OFF	OFF	ON	ON
BLOCK_DIAL_OUT	ON	OFF	OFF	OFF
NOTIFY_CONFIRMATION_INVITATION	ON	ON	ON	ON
NOTIFY_CHANGE	ON	ON	ON	ON
AUTOMATICALLY_DIAL_IN_ATTENDEES	OFF	OFF	ON	OFF
PROMPT_MODERATOR_FOR_BILL_CODE_ON_ENTRY	OFF	OFF	ON	OFF
PROMPT_MODERATOR_FOR_GREETING_ON_ENTRY	OFF	OFF	ON	OFF
HANGUP_ON_LAST_MODERATOR_EXIT	OFF	ON	ON	OFF
PROMPT_PARTICIPANTS_FOR_NAME_ON_ENTRY	OFF	OFF	ON	ON

Table 12: Conference Profiles (continued)

Feature	Simple Demand; No Dialout	Demand with Moderator Hangup	Full Featured Demand with Recording	NRP & Wait Options, No Recording
MODERATOR_MUST_BE_FIRST_PARTICIPANT	OFF	OFF	ON	ON
ALLOW_MODERATOR_MODIFY_OPTIONS	OFF	OFF	ON	OFF
FIRST_PERSON_GREET	OFF	OFF	ON	OFF
AUTO_EXTEND_PEOPLE	OFF	OFF	ON	OFF
AUTO_EXTEND_DURATION	OFF	OFF	ON	OFF
BLAST_DIALOUT_VERIFY_PARTICIPANT	OFF	ON	ON	ON
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