



IntelliMix Room

Audio Processing Software

Manual for Shure IntelliMix Room DSP software. Learn how to install, activate, and manage IntelliMix Room to bring crystal-clear audio to all of your rooms.

Version: 11.1 (2025-L)

Table of Contents

IntelliMix Room Audio Processing Software	4	Metering and DSP Blocks	19
What is IntelliMix® Room?	4	Matrix Mixer	19
Required Software and Hardware	4	Crosspoint Gain	19
How to Purchase IntelliMix Room	5	Routing Channels	20
Free Trial	5	Route Far-End Signals to Loudspeakers and Other Sources	20
Supported Hardware Systems	5	When to Rename Output Channels	21
System Requirements	6	Apply DSP Blocks	21
Optimize Windows for Conference Room Audio Processing	7	Parametric Equalizer	21
Installation Guide	7	Acoustic Echo Cancellation	24
Install IntelliMix Room	7	Noise Reduction	25
Uninstall IntelliMix Room	8	Compressor	25
Install with Mass Deployment Tools	8	Delay	26
IntelliMix Room Firewall Changes	9	Automatic Gain Control (AGC)	26
Update IntelliMix Room	10	AI Denoiser	26
Activate IntelliMix Room	10	Deverb	27
How IntelliMix Room Licenses Work	10	Receive Stereo Audio	27
Renew a License	11	Use Call Status	29
Move a License to a New PC	11	Mute Sync	30
Deactivate Licenses	12	Mute and Fader Groups	31
License Server Details	12	Adjusting Input levels	31
Create Audio Routes to IntelliMix Room	12	Pre- and Post-Gain Metering	31
Use Room Setup	14	When to Use the Input and Automixer Gain Faders	32
Use Designer's Auto Route	15	Automix Modes	32
Set Audio Devices in Videoconferencing Software	17	Automix Properties	32
Schematic View	18	Automixer Direct Out Tap Points	33
Adjusting Settings	19	Network Setup Examples	34
Customizing the Workspace	19	Security	35
		Set Up the 802.1X Protocol for a Device	36

Security Testing	37	Troubleshooting	40
Monitor and Control with External Systems	37	Send Software Logs to Get Help	42
Monitor Shure Devices with Crestron XiO Cloud	37	Reset	42
Compatibility with Dante Domain Manager	38	Specifications	42
Use Command Strings	39		

IntelliMix Room Audio Processing Software

What is IntelliMix[®] Room?

IntelliMix Room is a software-based DSP for AV conferencing. It's designed to run on the same device as videoconferencing software, reducing the amount of equipment in the room.



This page focuses on how to deploy the IntelliMix Room software DSP to [supported systems](#) or other third-party compute devices.

Related Products

- [IntelliMix Room Kits](#)
- [IntelliMix Foundation System](#)

Important: The [IntelliMix Room software DSP](#) available from Shure's website is not for Room Kits or the Foundation System. The compute included with Room Kits and Foundation Systems runs a separate version of IntelliMix Room that is updated automatically through the Windows update process.

Required Software and Hardware

IntelliMix Room requires other software and hardware to work in your room. You'll need the following:

Software:

- **Videoconferencing software** (such as Zoom or Microsoft Teams) installed on the same PC as IntelliMix Room
- **Optional:** Shure Designer software installed on a separate computer and connected to the same network as IntelliMix Room.
 - Designer offers routing and control for groups of Shure devices.
 - Do not run IntelliMix Room and Designer on the same computer.

Hardware:

- **Dante-enabled microphone**, such as a Shure MXA920, MXA710, or MXA310
 - IntelliMix Room is optimized for [Shure Microflex Ecosystem mics](#), but you can route any Dante-enabled mic to it

- **PC** or other physical device optimized for running IntelliMix Room (no virtual machines)
 - Refer to the [System Requirements](#) for supported hardware systems.
- **Other room components** such as displays, cameras, loudspeakers, switches, Cat5e cables, and meeting control interfaces

How to Purchase IntelliMix Room

To purchase, contact your local Shure sales representative (find yours at shure.com). For each installation, you can choose from 8 or 16 channels of IntelliMix DSP.

After purchasing, you'll receive an email with instructions for creating a software.shure.com account, where you can find your license ID. The license ID activates all purchased installations.

Alternatively, you can purchase an [IntelliMix Foundation System](#) with IntelliMix Room and Microsoft Teams Rooms installed.

Next steps:

- [Install IntelliMix Room](#) on all devices.
- Discover and [activate](#) all IntelliMix Room installations using Shure Designer software or the room setup feature.
- [Apply DSP](#) and [route audio](#) for each installation using Designer.

Free Trial

Try out a 90-day trial of IntelliMix Room. The software runs exactly like a purchased version during the trial period. You don't need an internet connection to start the trial.

To start a free trial:

1. Download the latest version at shure.com/imxroom.
2. Follow the instructions to install the software.
3. Choose the 90-day trial option when the software prompts you to add a license ID.
4. To purchase, go to shure.com/imxroom. You can preserve any settings from your trial version.

Supported Hardware Systems

Shure now offers the [IntelliMix Foundation System](#), a Compute and Touch Panel kit for Microsoft Teams Rooms with IntelliMix Room already installed. You can deploy the Foundation System with an [IntelliMix Room Kit](#) or with [your own AV devices](#).

If you use a different platform to run IntelliMix Room, the following hardware systems are thoroughly tested and supported by Shure.

IntelliMix Room Supported Systems

Product	Computer	Certifications
Crestron UC-C100-T	ASUS Mini PC PB60-B Dell OptiPlex 7080 XE	Microsoft Teams Rooms
Crestron UC-C100-Z	Dell OptiPlex 7080 XE	Zoom Rooms
Lenovo ThinkSmart Core	Lenovo ThinkSmart Core	Microsoft Teams Rooms

Product	Computer	Certifications
		Zoom Rooms
Logitech Teams Rooms for Windows	Lenovo ThinkSmart Core	Microsoft Teams Rooms
Logitech Zoom Rooms for Windows	Lenovo ThinkSmart Core	Zoom Rooms
Poly Studio Large Room Kit	Lenovo ThinkSmart Core	Microsoft Teams Rooms Zoom Rooms

Shure cannot guarantee the performance of IntelliMix Room if you choose to run it on an unsupported system. If you choose to install it on an unsupported system, you should:

- Check that the PC meets all system requirements.
- Validate IntelliMix Room's performance before deploying to many PCs.

System Requirements

These are the system requirements for installing IntelliMix Room on a third-party compute device.

Important:

- Performance may vary on unsupported systems even if they meet all of these system requirements. Refer to [Supported Hardware Systems](#) for help choosing a device to run IntelliMix Room.
- Don't install Designer or SystemAPI on the same PC as IntelliMix Room.
- Virtual machines are not supported.
- **Processor:**
 - Intel (64 bit)
 - 8th generation Core i5 or better
 - 2.0 GHz or better
 - 4 physical cores or better
 - 6 threads (logical processors) or better
 - AVX2 instruction set
 - FMA instruction set
- **Memory:**
 - 8 GB RAM
- **Storage:**
 - Solid State Drive (SSD) required
- **Supported Windows Editions:**
 - Windows 10 Pro
 - Windows 10 Education
 - Windows 10 Pro Education
 - Windows 10 Enterprise
 - Windows 10 IoT Enterprise
 - Windows 11 Pro
 - Windows 11 Education
 - Windows 11 Pro Education
 - Windows 11 Enterprise
 - Windows 11 IoT Enterprise
- **Supported Windows Versions**
 - Windows 11 24H2

- Windows 11 23H2
- Windows 11 22H2
- Windows 10 22H2
- Windows 11 21H2
- Windows 10 21H2
- **Internet Connection:**
 - Required for initial license activation

Optimize Windows for Conference Room Audio Processing

These are the recommended Windows settings for conference room audio processing:

- Disable Cortana.
- Disable notifications from Windows and installed programs.
- Use the high performance power plan in Power Options.
 - Make sure this plan uses active cooling in the advanced power options.
- Disable all Sleep and Hibernate settings.

Additionally, follow these system best practices:

- Reboot the computer regularly.
- Avoid hosting multiple displays from the computer running IntelliMix Room. This can impact performance.
- Disconnect unused USB devices.
- Remove software with high CPU loads, such as games or streaming apps.
- Make sure the computer's BIOS is updated.
- Check that Ethernet, Wi-Fi, and display drivers are updated.

Installation Guide

Install IntelliMix Room

Before installing, make sure you have admin rights for all devices.

1. Purchase IntelliMix Room at shure.com/imxroom and download the .exe.
2. Launch the installation file and follow the steps.
3. Choose network interface cards (NICs) to use for Shure control, Dante audio, and licensing.
 - The Shure control NIC must match the control NIC used by Designer.
 - **Important:** Choose a permanent, non-removable NIC for [licensing](#). This setting can't be changed after installation.
4. Choose which PC optimizations to make. For the best audio performance, choose all options.
5. After the installation finishes, follow the steps to restart the PC.
6. Right-click the icon in the system tray to [activate or deactivate your license](#), [start room setup](#), or find settings.

How to Choose a Licensing NIC

During installation, the software prompts you to choose a NIC (network interface card) to use for licensing identification. Licensing NIC requirements:

- The NIC must be permanent and not removable. Do not use NICs that could be removed, such as a USB-to-Ethernet adapter or a docking station.
- The NIC doesn't need an internet connection. It is used as a unique identifier for licensing identification.

During license activation, IntelliMix Room uses any available path to the internet. That path can be separate from the licensing, control, and Dante NICs.

To see the current licensing NIC, click the IntelliMix Room icon in the system tray of the PC running IntelliMix Room. Go to Settings > Licensing.

This setting cannot be changed after installation.

Manage Shure Control and Dante Audio NICs

IntelliMix Room sends 2 types of data over the network: Shure control data and Dante audio data.

Shure control NIC:

- Choose the network that Designer uses.
- Used for device discovery and control

Dante audio NIC:

- Choose the same network as other Dante devices to send audio between devices.
- Cannot use Wi-Fi
- Used to carry Dante digital audio

When installing IntelliMix Room on a third-party device, you will be asked to choose a network for each one. You can use the same NIC for Shure control and Dante audio, or use 2 different NICs to separate the traffic.

To change NIC settings later: Click the IntelliMix Room icon in the system tray and go to Network. On an IntelliMix Foundation Compute, [switch to the administrator account](#) to see the system tray.

To change Designer's NIC, go to Designer preferences.

Uninstall IntelliMix Room

Before uninstalling, make sure you have admin rights and an internet connection for all devices.

1. On the PC running IntelliMix Room, right-click the icon in the system tray. Select Activate/Deactivate.
2. Follow the steps to deactivate your license. After the license is deactivated, uninstall IntelliMix Room like any other software.

Install with Mass Deployment Tools

You can deploy IntelliMix Room using standard software deployment tools. See below for available command line and silent install arguments.

Optional CLI Arguments

- `/S` : Silent mode. Installer runs without GUI and implements default options. If there is an existing version installed, the installer uses the existing settings unless parameters listed below are provided.
- `/express`: Installer runs with only a progress bar UI and keeps all previous settings.
- `/nicindex=[integer]`: NIC index to use for both Shure control and Dante audio network capabilities.
 - `/nicindex_control=[integer]`: NIC index to use for Shure control network capabilities.
 - `/nicindex_audio=[integer]`: NIC index to use for Dante audio network capabilities.
- `/nicipaddress=[integer]`: NIC IP address to use for all IntelliMix Room network capabilities.
 - `/nicipaddress_control=[integer]`: NIC IP address to use for Shure control network capabilities.
 - `/nicipaddress_audio=[integer]`: NIC IP address to use for Dante audio network capabilities.
- `/nicid=[UUID]`: NIC UUID to use for all IntelliMix Room network capabilities.
 - `/nicid_control=[integer]`: NIC UUID to use for Shure control network capabilities.
 - `/nicid_audio=[integer]`: NIC UUID to use for Dante audio network capabilities.
- `/licindex=[integer]`: NIC index to use for licensing identification. Also used to get MAC address.
- `/licipaddress=[IP ADDRESS]`: NIC IP address to use for licensing identification. Also used to get MAC address.

- `/licid=[UUID]`: NIC UUID to use for licensing identification. Also used to get MAC address.
- `/licmac=[mac address]`: NIC MAC address (without -) to use for licensing identification.

Installation and IntelliMix Room Settings

- `/norestart`: Do not reboot the system after installation. Default behavior of the software is to reboot, and rebooting is required to implement certain Windows optimizations.
- `/analyticsoptout=[true|false]`: Opt out of analytics data collection.
- `/crashreportoptout=[true|false]`: Opt out of crash log file upload.

Windows Optimizations

- `/skiptooptimizations`: Skip all optimizations.
- `/disablecortana=[true|false]`
- `/disablepushnotifications=[true|false]`
- `/optimizepowerplan=[true|false]`
- `/neversleep=[true|false]`

Installer Default Settings

Option	Default Value	Notes
NIC index	0	The 0th found NIC using the lookup <code>GetEnabledNetworkAdaptersIds</code>
Analytics opt out	False	Users have data collection enabled by default.
Crash reporting opt out	False	Users have crash reporting enabled by default.
Disable Cortana	True	
Disable push notifications	True	
Optimize power plan	True	
Never sleep	True	

IntelliMix Room Firewall Changes

During installation, the software modifies your firewall to allow access for all Shure .exes:

- Shure_IntelliMix_Room.exe
- Shure PTP.exe
- Shure mDNSResponder.exe
- common_server.exe
- apec3.exe

These changes are required to run the software.

Allowing FlexNet Operations

If a device can't connect with the Flexera Cloud License Server after allowing the process through the firewall, allow this domain on your network: flexnetoperations.com.

Ports, Protocols, and Firewall Rules

For information about IP ports and protocols or firewall rules, go to:

- [IP Ports and Protocols for Shure Devices](#)
- [Firewall Rules for Shure Software Applications](#)

Update IntelliMix Room

Check your current version in Designer, ShureCloud, or by clicking the IntelliMix Room icon in the system tray.

To update, follow the steps that match your system:

IntelliMix Foundation Compute

IntelliMix Room is automatically updated during nightly Windows maintenance when a new version is available.

To update manually:

1. Turn on the compute and make sure it has an internet connection. The software automatically checks for updates within 15 minutes of booting up.
2. Use the touch panel to sign in to the administrator account.
3. Go to **C:\Program Files\Shure\downloads** and look for the IntelliMix Room .exe file with the new version. If there is no newer version, the folder will be empty.
4. Run the .exe file to launch the installer. The software installs the new version and will prompt you to restart the compute to finish the update.

Third-Party Device Running IntelliMix Room

Right-click the IntelliMix Room icon in the system tray and select Check for updates.

Activate IntelliMix Room

To activate IntelliMix Room on a device, go to Windows system tray > Right-click logo > Activate/Deactivate. If you're running IntelliMix Room on an IntelliMix Foundation Compute, you don't need to activate the license.

The [room setup feature](#) also activates the software license on a device.

IntelliMix Room must be installed on a device before you can activate that license.

Required for activation:

- Available license
- License ID (find in your purchase confirmation email or in your account at software.shure.com)
- Internet connection for device running IntelliMix Room

How IntelliMix Room Licenses Work

IntelliMix Room uses licenses to manage software features and terms. Different license lengths are available to fit your needs.

[Talk to your Shure sales representative](#) to learn more.

Definitions

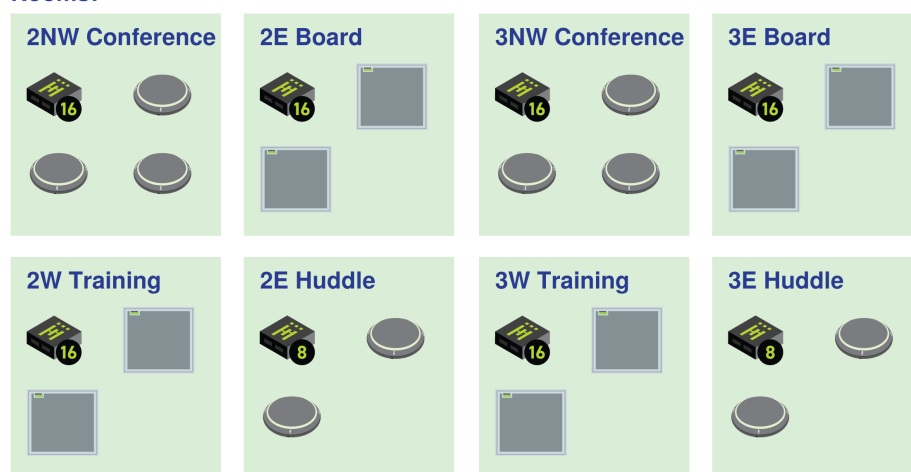
- **Installation:** A single instance of IntelliMix Room software installed on a device.
- **License:** Applied to each installation of the software and required to pass audio. Options:
 - 8 channels of IntelliMix DSP
 - 16 channels of IntelliMix DSP
- **License ID:** A 12-digit code used to activate all of your purchased installations. When you purchase a group of licenses from Shure, this code is in the purchase email. The license ID is also in your account at software.shure.com.

License ID: 1JK9374HYT7U

Licenses:

- Six 16-channel
- Two 8-channel

Rooms:



Sample License Workflow

1. Decide how many 8-channel and how many 16-channel licenses you need. Purchase at shure.com/imxroom.
2. Install IntelliMix Room on all devices.
3. Activate each license with the room setup feature or from the Windows system tray.

Renew a License

To renew your IntelliMix Room licenses, [contact your Shure sales representative](#).

When you renew, your license ID stays the same. You won't need to make any changes and all installations continue running normally.

What Happens When My License Expires?

After an initial grace period, you will hear periodic audio interruptions that remind you to renew your license.

You will receive email reminders to renew your license near the expiration date.

Move a License to a New PC

After purchasing, you might need to install IntelliMix Room on a new PC. Make sure all devices have an internet connection before moving a license.

Important: Before decommissioning the old PC, follow the steps below to deactivate the IntelliMix Room license.

To move a license to a new PC:

1. Right-click the icon in the system tray. Select Activate/Deactivate.
2. Follow the steps to deactivate your license.
3. Install IntelliMix Room on the new PC.
4. When prompted, use the same channel count and license ID as the old PC. The license is now reassigned to the new PC.

Deactivate Licenses

When you deactivate the license for IntelliMix Room, the software stops passing audio. Make sure the PC has an internet connection before deactivating.

After deactivation, the license is available for another installation of IntelliMix Room.

To deactivate licenses:

1. On the PC running IntelliMix Room, right-click the icon in the system tray. Select Activate/Deactivate.
2. Follow the steps to deactivate your license.
3. Use deactivated licenses for other installations of IntelliMix Room as needed.

In some situations, you must [contact Shure support](#) to deactivate a license. Contact Shure if:

- PC isn't accessible anymore
- NIC has been replaced
- SSD is installed on a different PC

License Server Details

To see information about available licenses and your account, sign in at software.shure.com. Use the username and password you set up during purchase.

IntelliMix Room initially requires an internet connection to activate your license, but it doesn't require one after activation.

When you receive an IntelliMix Room license from Shure, some of your information is collected and stored.

The information stored includes the following:

- User ID
- First name
- Last name
- Email address
- Contact information (phone number, fax number)

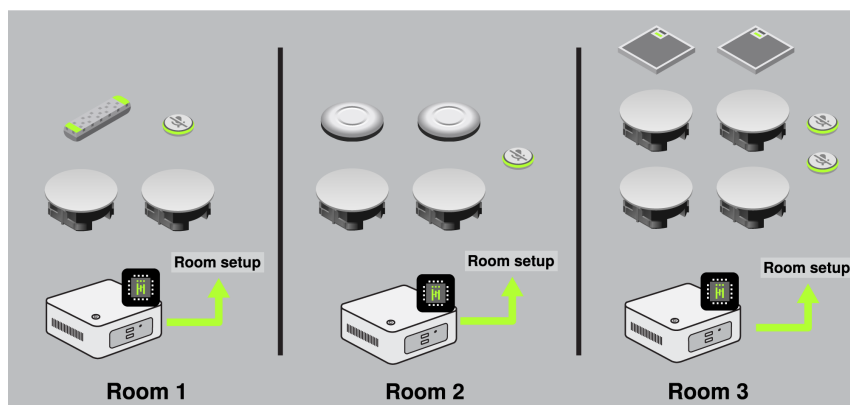
This information is stored in data centers that are in Santa Clara, CA and Elk Grove Village, IL.

Create Audio Routes to IntelliMix Room

After installing and activating IntelliMix Room, the next step is to route audio. There are 3 ways to create routes to other devices.

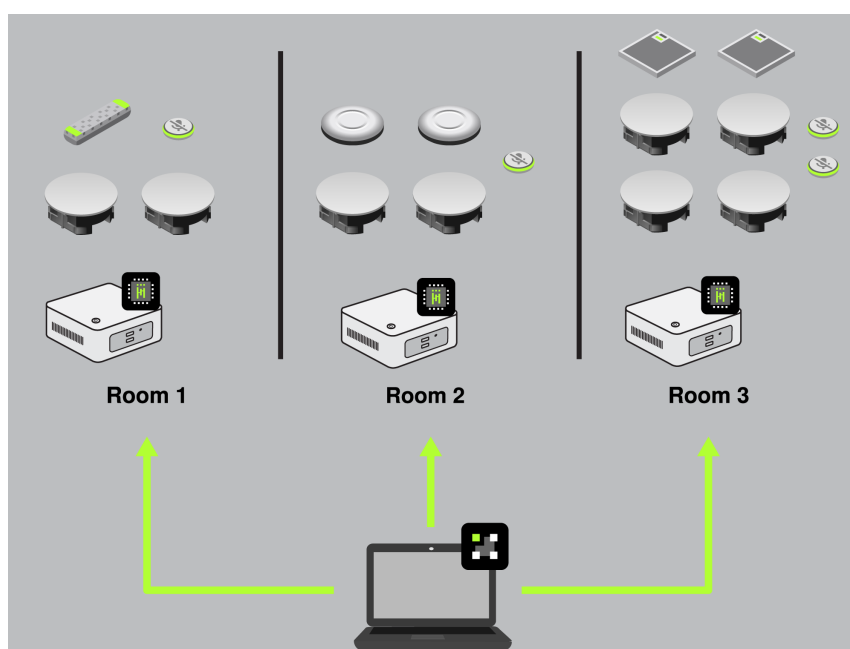
Note: These options are for IntelliMix Room installations on third-party compute devices. See the [IntelliMix Foundation System user guide](#) or the [IntelliMix Room Kits user guide](#) if you are routing audio with one of those systems.

Option 1: [Use the room setup feature](#)



- Creates audio and mute control routes between Shure devices
- Sets up devices with Shure's recommended settings (like Designer's auto route feature)
- Activates license for IntelliMix Room
- Use Designer to access all Shure device settings
- Run after installation or start from Windows system tray

Option 2: [Use Designer's auto route feature](#)

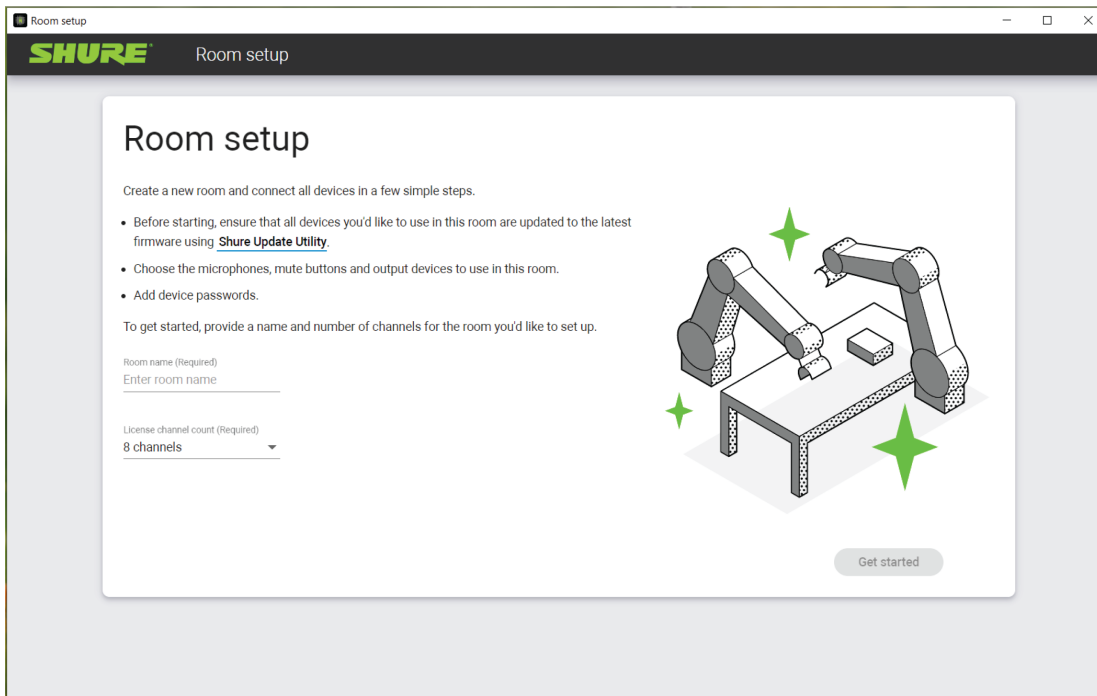


- Auto route feature creates audio and mute control routes between Shure devices
- Sets up devices with Shure's recommended settings
- Activate license from Windows system tray for each installation of IntelliMix Room
- Full access to Shure device settings
- Create and manage many rooms with Shure devices

Option 3: Route audio with Dante Controller

- Create audio routes to any Dante device
- Use Designer to access all Shure device settings

Use Room Setup



Room setup is a feature in IntelliMix Room that helps you activate the software and set up other Shure devices in the room. The feature:

- Activates the license for 1 installation of IntelliMix Room
- Finds other Shure devices on the network
- Creates audio/mute control routes and optimizes audio settings (like [Designer's auto route process](#))
- Sets device passwords

Room setup makes it simple to set up a group of Shure devices in a space. Use room setup to route audio and apply Shure's recommended settings to a group of devices.

Compatibility

- Available in IntelliMix Room version 4.0 and newer
- Finds and routes to other [Microflex® Ecosystem devices](#)
- Room setup is not available in the version of IntelliMix Room installed on the IntelliMix Foundation Compute.

Before You Begin:

- Update Shure devices to the latest firmware using [Shure Update Utility](#)
- Check that devices are connected to the same network as IntelliMix Room
- Have your license ID ready (find in your confirmation email)

How to Start Room Setup

- In the Windows system tray, right-click IntelliMix Room > Room setup.
- Alternatively, select the checkbox for room setup after installing IntelliMix Room.

How Does Room Setup Work?

Room setup is a quick way to connect a group of Shure devices in a space. Follow these steps to:

- Activate IntelliMix Room
- Create audio and mute control routes
- Apply Shure's recommended settings to devices

The overall process is:

1. Enter a room name and license information to activate the installation. You need an internet connection to activate the installation, but not to start a free trial.
2. IntelliMix Room finds other Shure devices on your network. Choose the devices you want to connect to this installation of IntelliMix Room. Devices include:
 - Microphones
 - Mute buttons
 - Networked loudspeakers

You can also route audio to the PC's outputs or Shure ANI devices.

3. Add a password for devices. You can set a common password or use existing device passwords.
4. IntelliMix Room activates the installation, creates audio routes, optimizes audio, and sets device passwords.

After room setup finishes, you may need to:

- Adjust levels and DSP settings using Designer.
- [Route audio to IntelliMix Room from your videoconferencing software.](#)
- Route audio to non-Shure devices using Dante Controller.
- Make test calls to check the system.

Use Designer's Auto Route

Designer's auto route speeds up the process of connecting systems with 1 audio processor and at least 1 microphone. Auto route also creates mute control routes in rooms with MXA network mute buttons. When you select Auto route, you can direct Designer to:

- Create audio routes and mute control routes
- Adjust audio settings
- Turn on mute synchronization
- Enable LED logic control for applicable devices

The settings are optimized for your particular combination of devices. You can adjust settings further, but auto route gives you a good starting point. Auto route works with any device in Designer.

To use auto route:

1. Place all relevant devices in a design.
2. Select Auto route. Designer optimizes microphone and DSP settings for your equipment combination.

If you remove or add devices, select Auto route again.

Note: The auto route process clears any manual routes you may have made in your design.

After auto routing a room, check and adjust settings to fit your needs. You may need to:

- Delete unnecessary routes.
- Check levels and adjust gain.
- Check that AEC reference signals are correctly routed and received in a test call.

- Fine-tune DSP blocks.
- Adjust your processor's matrix mixer routes.

If you want to auto route an online room, turn on online room editing in **File > Designer preferences**.

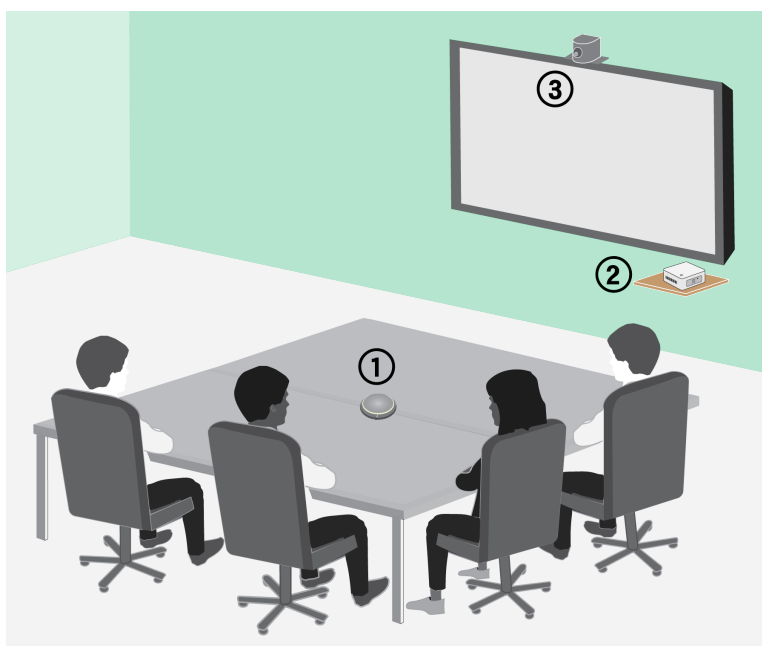
Note: Changes to an online room may cause audio to briefly drop out.

Refer to Designer's [Troubleshooting section](#) for help with routing.

Designer Setup Example

This example uses Shure Designer 6.0 software to set up a small conference room with:

1. MXA310
2. Computer with 8-channel IntelliMix Room and videoconferencing software installed
3. Display and camera



You can use other combinations of devices with IntelliMix Room, but the setup process in Designer is similar.

Step 1: Install and Connect

1. Install IntelliMix Room on the computer in the room. Install the MXA310 and any other devices.
2. Connect a different computer running Designer to the same network.
3. Open Designer. Check that you're connected to the correct network in **File > Designer preferences**.
4. Open a new design and drag an MXA310 and IntelliMix Room into the design.
5. Select an 8-channel IntelliMix Room license when prompted.

Step 2: Route Audio and Apply DSP

1. Select Auto route. Designer creates audio routes from the MXA310 to IntelliMix Room. You can also route audio manually.
2. Check the audio routes, matrix mixer routes, and other settings to make sure they fit your needs.
3. Select Deploy and connect to send the settings to the installed devices. Designer walks you through associating the design devices with the online devices.

Note: If you're using a non-Shure Dante devices, use Dante Controller to create audio routes with IntelliMix Room.

Step 3: Listen and Adjust

1. Before making a test call, [activate the license](#) for each installation of IntelliMix Room. You can do this before or after routing in Designer.
2. Open the videoconferencing software on the computer in the room. In the settings, choose **IntelliMix® Room Echo Cancelling Speakerphone** as the speaker and microphone.
3. Place a test call with the whole system. Have the far-end caller tell you how your signal sounds and make adjustments in Designer as needed:
 - Microphone: [Your room] > MXA310. Make changes to coverage and mic channel levels in the MXA310 device window.
 - DSP: [Your room] > IntelliMix Room. Make changes to DSP settings and matrix mixer routing in the IntelliMix Room device window.

Find IntelliMix Room in Designer

IntelliMix Foundation Compute: Each compute appears as a separate device.

IntelliMix Room on third-party device: Each installation of IntelliMix Room appears as a separate device. Each installation's name matches the computer's network name.

Name	Status	Model	Room	IP address	Firmware
IMX-Compute-DESKTOP-2RB37RU	Online	IMX-Compute	Untitled room-1	169	6.5.0.51
MXA920-R-f18a2d	Online	MXA920-R	Untitled room-1	169	6.4.61.0
IMX-RM-PCNIPILC	Offline	IMX-Room	5-S-conf	169	6.1.0.33

IntelliMix Foundation Compute and IntelliMix Room installation in online devices list

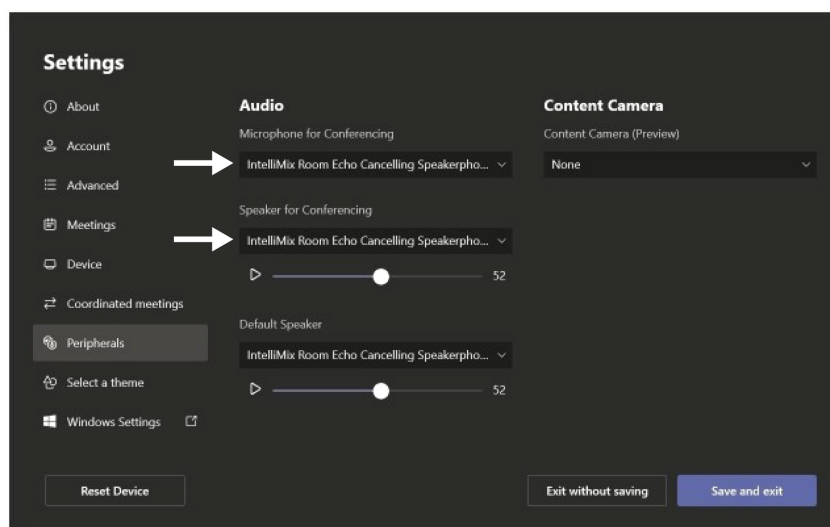
To find any online installations, go to Online devices.

If you can't find some installations:

1. Go to the computer that won't appear in Designer.
2. Click the IntelliMix Room icon in the system tray.
3. Make sure IntelliMix Room is using the same Shure control NIC as Designer.

Set Audio Devices in Videoconferencing Software

Select **IntelliMix Room Echo Cancelling Speakerphone** as the speaker and the microphone in your videoconferencing software. Do the same thing in the computer's sound settings.



- The microphone setting sends the room's mic signal to the videoconferencing software.
- The speaker setting sends a far-end signal from the videoconferencing software to IntelliMix Room.
 - This is how IntelliMix Room gets an AEC reference and a signal for local sound reinforcement.

Schematic View

The schematic view in Designer shows a device's entire audio signal chain, with the ability to adjust settings and monitor signals. The schematic views for the P300, ANIUSB-MATRIX, and IntelliMix Room look slightly different because each device has a different mix of inputs and outputs.



Example of the P300's schematic view

Adjusting Settings

Right-click an input, output, or processing block to access the following options:

Channel Settings

Setting	Function
Copy / paste	Copy and paste settings between items. For example, set the equalizer curve on the USB output, and then use the same setting for the analog output. Or, copy the gain and mute status from one input channel to several others.
Mute / unmute	Mutes or activates the channel
Enable / disable	Turns processing on or off (does not apply to matrix mixer or automixer)
Edit	Opens the dialog to adjust parameters. You can also double-click a block to edit it.

Right-click in a blank area to access global settings:

- Mute/unmute all input channels
- Mute/unmute all output channels
- Close all open dialogs

Customizing the Workspace

Create a custom environment to monitor and control a set of inputs, outputs, and processing blocks from a single screen.

There are 2 ways to break out dialogs:

- Right-click > Edit
- Double-click the input, output, or processing block.

Open as many dialogs as you need to keep important controls available.

Metering and DSP Blocks

A meter appears underneath each input and output to indicate signal levels (dBFS).

DSP blocks have a color when they are turned on. When off, they are gray. Use these tools to troubleshoot audio signals and verify connections and levels.

Matrix Mixer

The matrix mixer routes audio signals between inputs and outputs for simple and flexible routing:

- Send a single input channel to multiple outputs
- Send multiple input channels to a single output

Crosspoint Gain

Crosspoint gain adjusts the gain between a specific input and output, to create separate submixes without changing input or output fader settings. Select the dB value at any crosspoint to open the gain adjustment panel.

Gain staging: Input fader > crosspoint gain > output fader

Routing Channels

Connect inputs and outputs by selecting the box where they intersect.

Route Far-End Signals to Loudspeakers and Other Sources

The far-end signal from your videoconferencing software is sent to the virtual audio input. Use the matrix mixer to route the far-end signal to the appropriate destination.

When stereo audio is on, the virtual audio input has left channel and right channel signals.

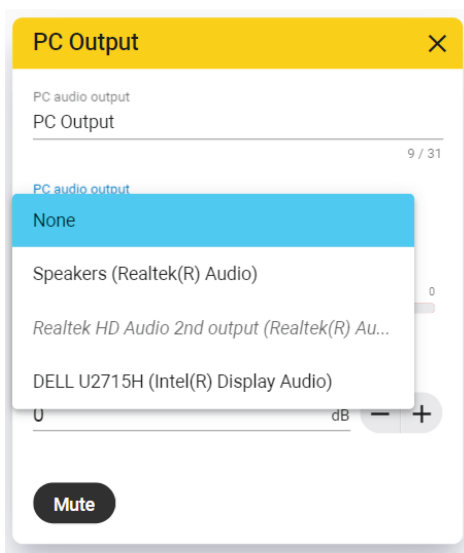
1. Open the installation of IntelliMix Room in Designer. Go to Matrix mixer.
2. Find the virtual audio input signal in the list.

Clear all routes				
	Dante Output 1	Dante Output 2	Dante Output 3	Dante Output 4
Mic Input 6	☐ 0	☐ 0	☐ 0	☐ 0
Mic Input 7	☐ 0	☐ 0	☐ 0	☐ 0
Mic Input 8	☐ 0	☐ 0	☐ 0	☐ 0
Automix	☐ 0	☐ 0	☐ 0	☐ 0
Dante Input 1	☐ 0	☐ 0	☐ 0	☐ 0
Dante Input 2	☐ 0	☐ 0	☐ 0	☐ 0
Dante Input 3	☐ 0	☐ 0	☐ 0	☐ 0
Dante Input 4	☐ 0	☐ 0	☐ 0	☐ 0
Dante Input 5	☐ 0	☐ 0	☐ 0	☐ 0
Dante Input 6	☐ 0	☐ 0	☐ 0	☐ 0
Dante Input 7	☐ 0	☐ 0	☐ 0	☐ 0
Dante Input 8	☐ 0	☐ 0	☐ 0	☐ 0
Virtual Audio Input	☒ 0	☐ 0	☐ 0	☐ 0

3. Check the box where the virtual audio input and the destination intersect. You can also adjust crosspoint gain here.

Common destinations:

- **PC audio output (3.5 mm or HDMI connector):** To pick an output, go to Schematic view and double-click PC Output. Choose an output from the menu. Display speakers connected by HDMI cable or the 3.5 mm connector are common options.



- **Dante outputs (networked loudspeakers or Shure ANI, for example)**

When to Rename Output Channels

Applies to IntelliMix Room version 4.2 and newer

If you need to rename any of IntelliMix Room's output channels (known in Dante Controller as transmit channels), make changes before routing audio from IntelliMix Room to other sources. In Designer, these are the channels labeled as Dante Output 1-8.

Renaming output channels after creating audio routes can cause mismatched routes in version 4.2 and newer. For details about how to fix broken routes, refer to our [FAQ about Dante transmit channel names](#).

You can rename these output channels in Designer or Dante Controller.

Apply DSP Blocks

Designer's auto route feature automatically applies DSP blocks.

To adjust DSP blocks manually:

1. Open a room that has an IntelliMix Room installation.
2. Double-click the installation to open the device tab.
3. In the schematic view, click a DSP block to open the settings window. You can also access DSP blocks from the Inputs and Outputs views.

Parametric Equalizer

Maximize audio quality by adjusting the frequency response with the parametric equalizer.

Common equalizer applications:

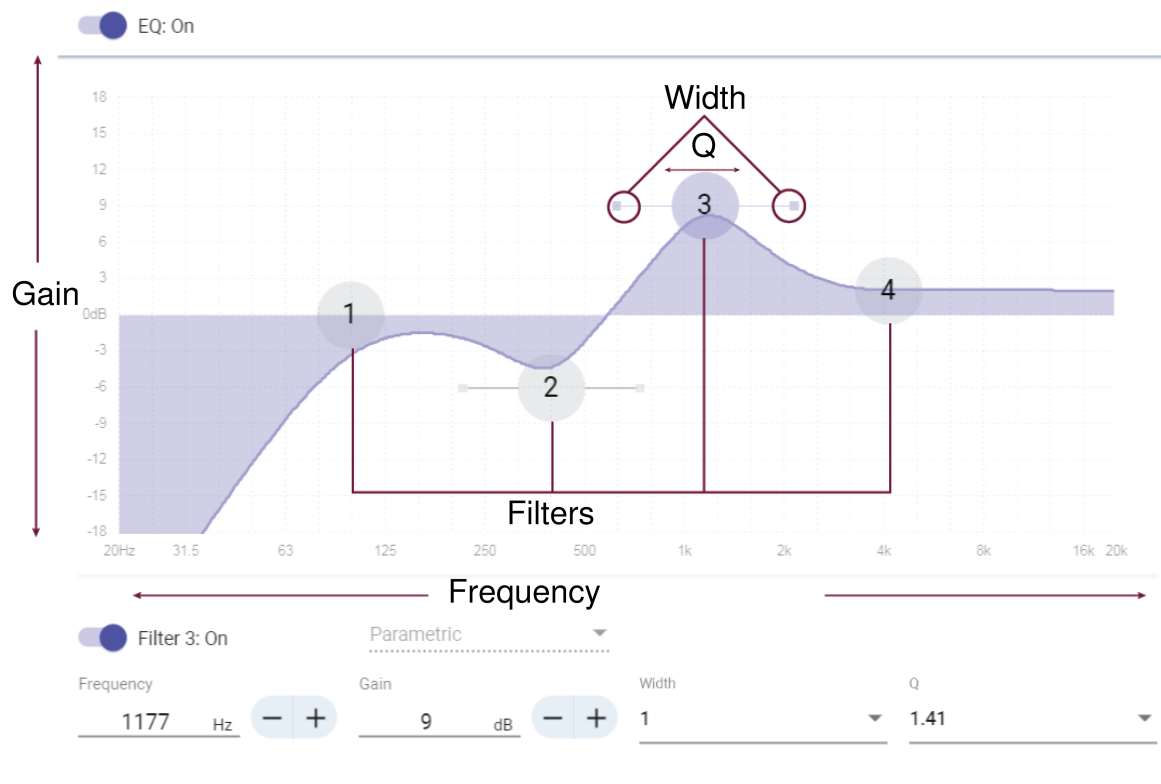
- Improve speech intelligibility
- Reduce noise from HVAC systems or video projectors
- Reduce room irregularities
- Adjust frequency response for reinforcement systems

Setting Filter Parameters

Adjust filter settings by manipulating the icons in the frequency response graph, or by entering numeric values. Disable a filter using the checkbox next to the filter.

PEQ Filter Settings

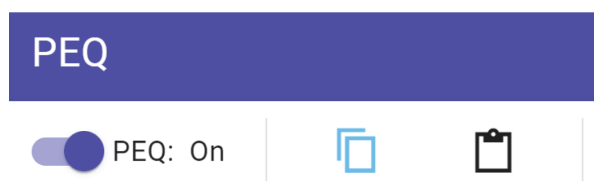
Setting	Function
Filter Type	Only the first and last band have selectable filter types. Parametric: Attenuates or boosts the signal within a customizable frequency range Low Cut: Rolls off the audio signal below the selected frequency Low Shelf: Attenuates or boosts the audio signal below the selected frequency High Cut: Rolls off the audio signal above the selected frequency High Shelf: Attenuates or boosts the audio signal above the selected frequency
Frequency	Select the center frequency of the filter to cut or boost
Gain	Adjusts the level for a specific filter (+/- 18 dB)
Q	Adjusts the range of frequencies affected by the filter. As this value increases, the bandwidth becomes thinner.
Width	Adjusts the range of frequencies affected by the filter. The value is represented in octaves. Note: The Q and width parameters affect the equalization curve in the same way. The only difference is the way the values are represented.



Copy and Paste Equalizer Channel Settings

Use to quickly apply the same PEQ setting across multiple channels.

1. Select the PEQ of the desired channel.
2. Click copy.
3. Select the channel to apply the PEQ setting to and click paste.



Equalizer Applications

Conferencing room acoustics vary based on room size, shape, and construction materials. Use the guidelines in following table.

Uses for EQ

EQ Application	Suggested Settings
Treble boost for improved speech intelligibility	Add a high shelf filter to boost frequencies greater than 1 kHz by 3-6 dB
HVAC noise reduction	Add a low cut filter to attenuate frequencies below 200 Hz

EQ Application	Suggested Settings
Reduce flutter echoes and sibilance	Identify the specific frequency range that "excites" the room: 1. Set a narrow Q value. 2. Increase the gain to between +10 and +15 dB, and then experiment with frequencies between 1 kHz and 6 kHz to pinpoint the range of flutter echoes or sibilance. 3. Reduce the gain at the identified frequency (start between -3 and -6 dB) to minimize the unwanted room sound.
Reduce hollow, resonant room sound	Identify the specific frequency range that "excites" the room: 1. Set a narrow Q value. 2. Increase the gain to between +10 and +15 dB, and then experiment with frequencies between 300 Hz and 900 Hz to pinpoint the resonant frequency. 3. Reduce the gain at the identified frequency (start between -3 and -6 dB) to minimize the unwanted room sound.

EQ Contours for IntelliMix Room

Use the built-in equalizer contours to quickly apply EQ changes to any of the Dante input channels. Applying both EQ contours and other channel EQ filters has a cumulative effect, meaning that the EQ changes stack on top of each other.

Listen to and test your system as you make EQ changes.

Off: Turns off any active EQ contours

MXA920: 150 Hz, -6 dB low-cut filter

MXA710 Low Shelf: 300 Hz, -6 dB low-shelf filter

MXA910 High Pass: 300 Hz low-cut filter

MXA910 Low Shelf: 960 Hz, -10 dB low-shelf filter

MXA910 Multi-Band: 200 Hz low-cut filter, parametric 450 Hz, -10 dB, 2.87 Q, ½ octave parametric, 900 Hz, -10 dB, 2.87 Q, ½ octave parametric

MXA310 Low Cut: 180 Hz low-cut filter

Acoustic Echo Cancellation

In audio conferencing, a far-end talker may hear their voice echo as a result of a near-end microphone capturing audio from loudspeakers. Acoustic echo cancellation (AEC) is a DSP algorithm which identifies the far-end signal and stops it from being captured by the microphone to deliver clear, uninterrupted speech. During a conference call, the AEC works constantly to optimize processing while far-end audio is present.

When possible, optimize the acoustic environment using the following tips:

- Reduce loudspeaker volume
- Position loudspeakers farther from microphones
- Avoid pointing loudspeakers directly at microphone coverage areas
- If the microphone is providing AEC from the automix output, turn off AEC on the processor. Designer's auto route applies these settings automatically.

Select a Reference Signal for AEC

To apply AEC, provide a far end reference signal. For best results, use the signal that also feeds your local reinforcement system.

- **P300:** Go to Schematic and click any AEC block. Choose the reference source, and the reference source changes for all AEC blocks.
- **MXA710, MXA901, MXA910, MXA920:** Route a far-end signal to the AEC Reference In channel.
- **IntelliMix Room:** Go to Schematic and click an AEC block. Choose the reference source. Each block can use a different reference source, so set the reference for each AEC block. When stereo audio is on, you can set different left and right channel reference sources as needed.

Designer's auto route process automatically routes an AEC reference source. However, you should check that Designer chooses the reference source you want to use.

Note: Always send an AEC reference signal to microphones with AEC processing, even if you are using a separate DSP for AEC. Designer's auto route feature automatically creates these routes.

AEC Settings

Reference Meter	Use the reference meter to visually verify the reference signal is present. The reference signal should not be clipping.
ERLE	Echo return loss enhancement (ERLE) displays the dB level of signal reduction (the amount of echo being removed). If the reference source is connected properly, the ERLE meter activity generally corresponds to the reference meter.
Reference	Indicates which channel is serving as the far end reference signal.
Non-Linear Processing	The primary component of the acoustic echo canceller is an adaptive filter. Non-linear processing supplements the adaptive filter to remove any residual echo caused by acoustic irregularities or changes in the environment. Use the lowest possible setting that is effective in your room. Low: Use in rooms with controlled acoustics and minimal echoes. This setting provides the most natural sound for full duplex. Medium: Use in typical rooms as a starting point. If you hear echo artifacts, try using the high setting. High: Use to provide the strongest echo reduction in rooms with bad acoustics, or in situations where the echo path frequently changes.

Noise Reduction

Noise reduction significantly reduces the amount of background noise in your signal caused by projectors, HVAC systems, or other environmental sources. It is a dynamic processor, which calculates the noise floor in the room and removes noise throughout the entire spectrum with maximum transparency.

Settings

The noise reduction setting (low, medium, or high) represents the amount of reduction in dB. Use the lowest possible setting that effectively lowers noise in the room.

Compressor

Use the compressor to control the dynamic range of the selected signal.

Threshold

When the audio signal exceeds the threshold value, the level is attenuated to prevent unwanted spikes in the output signal. The amount of attenuation is determined by the ratio value. Perform a soundcheck and set the threshold 3-6 dB above average talker levels, so the compressor only attenuates unexpected loud sounds.

Ratio

The ratio controls how much the signal is attenuated when it exceeds the threshold value. Higher ratios provide stronger attenuation. A lower ratio of 2:1 means that for every 2 dB the signal exceeds the threshold, the output signal will only exceed the threshold by 1 dB. A higher ratio of 10:1 means a loud sound that exceeds the threshold by 10 dB will only exceed the threshold by 1 dB, effectively reducing the signal by 9 dB.

Delay

Use delay to synchronize audio and video. When a video system introduces latency (where you hear someone speak, and their mouth moves later), add delay to align audio and video.

Delay is measured in milliseconds. If there is a significant difference between audio and video, start by using larger intervals of delay time (500-1000 ms). When the audio and video are slightly out of sync, use smaller intervals to fine-tune.

Automatic Gain Control (AGC)

Automatic gain control adjusts channel levels to ensure consistent volume for all talkers, in all scenarios. For quieter voices, it increases gain; for louder voices, it attenuates the signal.

Automatic gain control is post-fader, and adjusts the channel level after the input level has been adjusted. Enable it on channels where the distance between the talker and the microphone may vary, or in rooms where many different people will use the conferencing system.

Target Level (dBFS)

Represents the level that you want the gain to reach. This level is different from adjusting the input fader according to peak levels to avoid clipping. Suggested starting points:

- P300: -32 dBFS
- MXA910: -37 dBFS
- IntelliMix Room: -32 dBFS

Maximum Boost (dB)

Sets the maximum amount of gain that can be applied

Maximum Cut (dB)

Sets the maximum attenuation that can be applied

Tip: Use the boost/cut meter to monitor the amount of gain added or subtracted from the signal. If this meter is always reaching the maximum boost or cut level, adjust the input fader so the signal is closer to the target level.

AI Denoiser

The AI denoiser identifies and reduces the level of noises such as typing, shuffling papers, or slamming doors. When the denoiser detects noise, it reduces the noise so your voice comes through clearly.

The denoiser adjusts for random noises that aren't always present in your audio signal, whereas noise reduction helps control constant background noise. For best results, use both the denoiser and noise reduction.

Use the meter to check that the denoiser is actively suppressing noise. The denoiser is applied to the automix output signal.

How it Works

Shure trains the AI denoiser with thousands of audio files. These include speech samples, noise samples, and samples that have mixtures of speech and noise. During this training, the denoiser learns how to identify patterns of speech and non-speech content in the frequency spectrum. It can then identify and preserve the speech content and reduce the non-speech content.

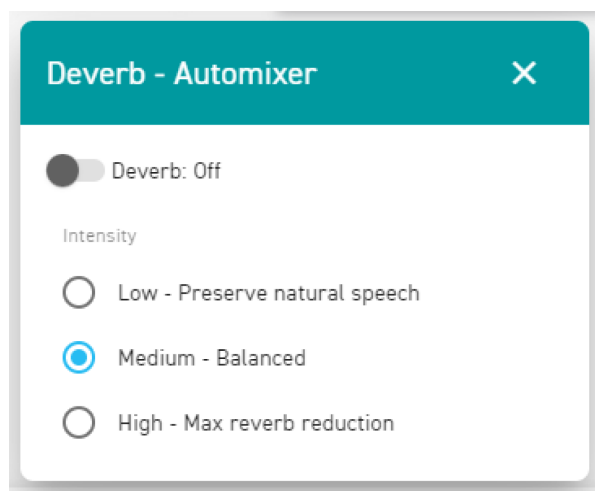
AI training or listening only happens at Shure's labs. You will receive any improvements to the AI denoiser algorithm when you update to the latest software version.

Settings

Settings indicate how much the denoiser lowers the level of noises. High significantly reduces noises, while low minimally reduces noises. Using the denoiser can affect speech levels if noise and speech happen at the same time. The effect varies with the type of noise and how loud it is.

Listen to and test the different settings to find one that works best in your space.

Deverb



Deverb helps improve the signal going to the far end by reducing the amount of reverb. Use deverb in rooms that:

- Have lots of hard, reflective surfaces
- Don't have proper acoustic treatment

To turn on deverb, open IntelliMix Room in Designer and go to Schematic > Deverb. Deverb is available on the automix output signal.

Choose from 3 intensity options: low, medium, or high.

For best results, make a test call with your videoconferencing software and have someone on the other end tell you how your signal sounds as you test each deverb setting.

Receive Stereo Audio

IntelliMix Room can receive stereo audio signals from videoconferencing software. You can then route the left and right channel signals to the appropriate sources and create a stereo experience for people in the room.

Compatibility

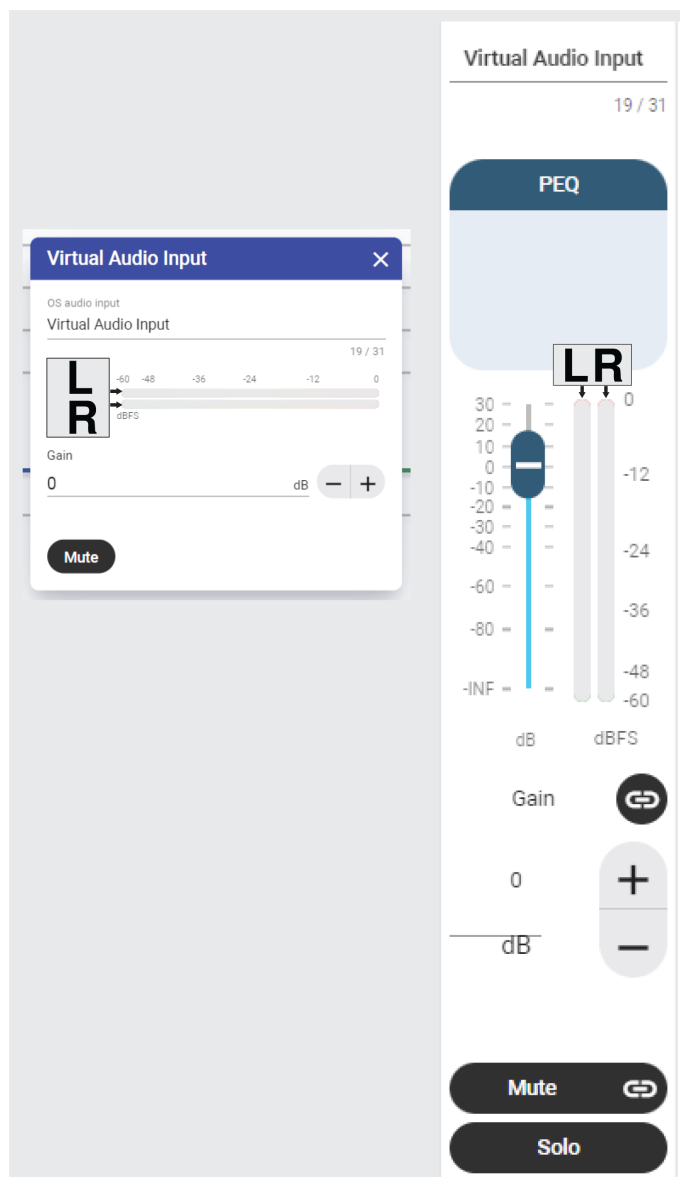
- Stereo audio is only available on 8-channel installations of IntelliMix Room. Contact Shure to switch a 16-channel license to an 8-channel license.
- Version 5.x or newer required for IntelliMix Room and Designer software.

Turn On Stereo Audio

1. Check that IntelliMix Room and Designer meet the compatibility requirements.
2. Find the installation of IntelliMix Room in Designer's online devices list. Double-click to open the settings.
3. Go to **Settings > General**.
4. Turn stereo audio on.

Route Stereo Audio

The stereo left and right signals from your videoconferencing software come to IntelliMix Room's virtual audio input. The virtual audio input shows 2 gain meters for the left and right channel signals. There is 1 gain fader for the left and right channel signals.



In the matrix mixer input list, there is a Virtual Audio Input L signal and a Virtual Audio Input R signal. By default, these are sent to Dante outputs 1 and 2.

Clear all routes			
	Dante Output 1	Dante Output 2	Dante Output 3
Mic Input 7	☐ 0	☐ 0	☐ 0
Mic Input 8	☐ 0	☐ 0	☐ 0
Automix	☐ 0	☐ 0	☐ 0
Dante Input 1	☐ 0	☐ 0	☐ 0
Dante Input 2	☐ 0	☐ 0	☐ 0
Dante Input 3	☐ 0	☐ 0	☐ 0
Dante Input 4	☐ 0	☐ 0	☐ 0
Dante Input 5	☐ 0	☐ 0	☐ 0
Dante Input 6	☐ 0	☐ 0	☐ 0
Dante Input 7	☐ 0	☐ 0	☐ 0
Dante Input 8	☐ 0	☐ 0	☐ 0
Virtual Audio Input L	☒ 0	☐ 0	☒ 0
Virtual Audio Input R	☐ 0	☒ 0	☒ 0

Use Dante Controller or Designer to route the left and right channel signals to the appropriate loudspeakers in the room.

Stereo audio also gives you the option to [select left and right AEC reference sources](#). Go to Schematic > AEC to set them.

Use Call Status

Designer's call status feature uses microphone LEDs to show if you're in a videoconferencing call or not. This is a room-level feature, so it applies to all microphones in the same Designer room.

To use call status:

1. Put all microphones and processors (ANUSB-MATRIX, IntelliMix Room, or P300) in the same Designer room.
2. Select Auto route to create audio and mute control routes. You can also route audio manually.
3. Go to [Your room] > Settings > Call status to turn on call status.

When call status is on:

- Microphone LEDs off = Not in a call
- Microphone LEDs on = In a call

Call status is compatible with the following codecs:

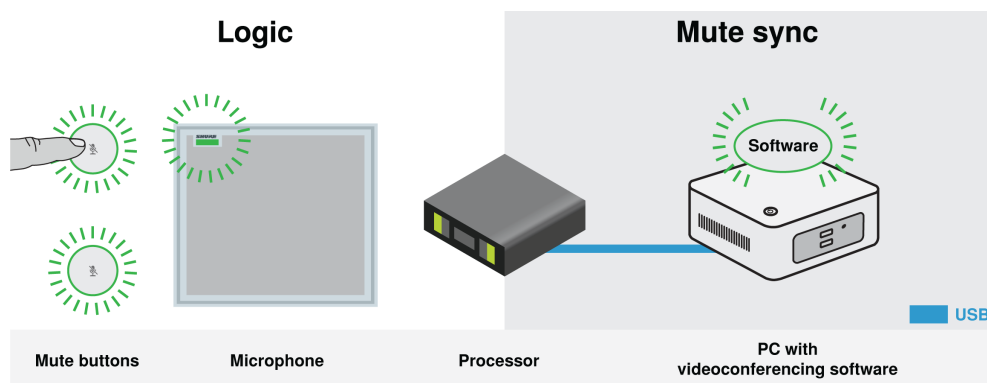
- Microsoft Teams
- Microsoft Teams Rooms
- Zoom Client for Meetings
- Zoom Rooms

Note: If your codec is running on a computer with a Chrome operating system, call status will not work.

Mute Sync

It's important to be able to see if a room is muted or unmuted during a call. You want devices to show the same mute status as the videoconferencing software. Shure devices use logic and mute sync to make this happen.

- **Logic:** Aligns mute status across Shure devices in the room. The processor (such as a P300, IntelliMix Room software, or an ANIUSB-MATRIX) is the controller.
- **Mute sync:** Aligns mute between the processor and the videoconferencing software, which is on a computer connected to the processor by USB. The processor's automix output is muted or unmuted to change the mute status of the system.



When mute sync is working correctly, you can mute a device (mute button or microphone mute button) or the videoconferencing software to mute the room.

To use mute sync:

1. In Designer, create audio and mute control routes between devices in the room.
2. Connect a computer with videoconferencing software to the processor's USB port.
3. Turn on mute sync and logic:
 - Processors: [Your device] > Settings > Mute control
 - Microphones without physical mute button: Logic is always on
 - MXA310 and MXA mute button: Settings > Logic control > Mute control function > Logic out

Designer's auto route process configures all necessary mute sync and logic settings for you.

Compatible Shure Logic Devices

- P300 (Also mutes [supported soft codecs](#) connected by USB)
- ANIUSB-MATRIX (Also mutes [supported soft codecs](#) connected by USB)
- IntelliMix Room software (Also mutes [supported soft codecs](#) connected by USB)
- MXA901
- MXA902
- MXA910
- MXA920
- MXA710
- MXA310
- Network Mute Button
- ANI22-BLOCK
- ANI4IN-BLOCK
- Logic-enabled MX microphones connected to ANI22-BLOCK or ANI4IN-BLOCK
 - MX392
 - MX395-LED
 - MX396
 - MX405/410/415

For help with specific mute sync implementations, [see our FAQs](#).

Mute and Fader Groups

You can link channels to each other to create groups for muting and fader controls. Typically, you might create 1 group for inputs and 1 group for outputs.

Link channels by clicking  for the channels and the controls that you want linked. For example, if channels 1, 2, and 3 are linked for Mute, muting any of those individual channels mutes all of the linked channels.

Adjusting Input levels

The Inputs tab controls a channel's gain before it reaches the matrix mixer. However, you should also adjust the source's gain before it reaches IntelliMix Room.

To monitor a source's input level before IntelliMix Room processing: Set metering to **Pre-gain** in the Settings menu.

1. Check the source level before it reaches IntelliMix Room. Verify that the networked microphones or other Dante sources are operating at nominal output levels.
2. Adjust gain in the Inputs tab.
 - This gain stage adjusts the signal level before it reaches the matrix mixer.
 - Mix the levels as high as possible so that the loudest channel does not reach the peak level (0 dB) on the meter.

Pre- and Post-Gain Metering

The 2 metering modes allow you to monitor signal levels before and after the gain stages.

Input Metering

- **Pre-gain:** Displays the pre-fader signal level. If signals are too low or clipping, adjust them at the source.
- **Post-gain:** Displays the post-fader signal level, so the meters reflect gain adjustments on input faders. This meter does not include automatic gain control or any other processing.

Output Metering

- **Pre-gain:** Displays signal levels after input gain has been applied, but before the output faders. This meter includes input faders, digital signal processing blocks, automixing, and crosspoint gain.
- **Post-gain:** Displays the post-fader signal level sent to each output. This meter includes gain adjustments made on the output faders.

When to Use the Input and Automixer Gain Faders

There are 2 different gain faders that serve different purposes:

Input Gain (Pre-Gate)

To adjust, go to Inputs. These faders affect a channel's gain before it reaches the automixer and therefore affect the automixer's gating decision. Boosting the gain here will make the channel more sensitive to sound sources and more likely to gate on. Lowering gain here makes the channel less sensitive and less likely to gate on.

Automixer Gain (Post-Gate)

To adjust, go to Automixer. These faders adjust a channel's gain after automixer's gating decision. Adjusting the gain here will not affect the automixer's gating decision. Only use these faders to adjust the gain of a channel after you are satisfied with the automixer's gating behavior.

Automix Modes

To select an automix mode, go to:

- **MXA710, MXA910, MXA920:** [Your device] > IntelliMix > Properties
- **P300 and IntelliMix Room:** [Your device] > Automixer > Properties

Gating

Gating mode delivers fast-acting, seamless channel gating and consistent perceived ambient sound levels. The off attenuation setting is applied to all inactive channels, regardless of the number of active channels.

Gain Sharing

Gain sharing mode dynamically balances system gain between open and closed channels. The system gain remains consistent by distributing gain across channels to equal one open channel. The scaled gain structure helps to reduce noise when there is a high channel count. When fewer channels are used, the off attenuation setting is lower and provides transparent gating.

Manual

Manual mode sums all active tracks and sends the summed signal over a single Dante output. This provides the option to route an individual signal for reinforcement or recording, without enabling automixing. The settings from the faders in the standard monitoring view apply to the summed output.

Automix Properties

Note: Not all settings are available on all automixers.

Leave Last Mic On

Keeps the most recently used microphone channel active. The purpose of this feature is to keep natural room sound in the signal so that meeting participants on the far end know the audio signal has not been interrupted.

Gating Sensitivity

Changes the threshold of the level at which the gate is opened

Off Attenuation

Sets the level of signal reduction when a channel is not active

Hold Time

Sets the duration for which the channel remains open after the level drops below the gate threshold

Maximum Open Channels

Sets the maximum number of simultaneously active channels

Priority

When selected, this channel gate activates regardless of the number of maximum open channels.

Always On

When selected, this channel will always be active.

Send to Mix

When selected, sends the channel to the automix channel.

Solo

Mutes all of the other channels

Automix Gain Meter

When enabled, changes gain meters to display automix gating in real time. Channels that gate open will display more gain than channels that are closed (attenuated) in the mix.

Mic Optimization Mode (P300 only)

Select the microphone that is used with the automixer for best performance. For best results, auto route with Designer (this automatically selects the correct mic optimization mode).

Use the Off setting when using a Shure Microflex Wireless system, or traditional wired microphones.

Automixer Direct Out Tap Points

In the Automixer tab, use the menus below each channel to choose where the signal to the matrix mixer should come from. All options include input channel gain, mute, solo, and PEQ.

Automixer Direct Tap Out Points

Setting	Function
Pre-Processing/Pre-Gate	Sends a signal without AEC, noise reduction, automixer gating, or AGC to the matrix mixer.

Setting	Function
Post-Processing/Pre-Gate	Sends a signal with AEC and noise reduction but without automixer gating or AGC to the matrix mixer.
Post-Processing/Post-Gate	Sends a signal with automixer gating, AEC, and noise reduction but without AGC to the matrix mixer.
Pre-Processing/Post-Gate	Sends a signal with automixer gating but without AEC, noise reduction, or AGC to the matrix mixer.

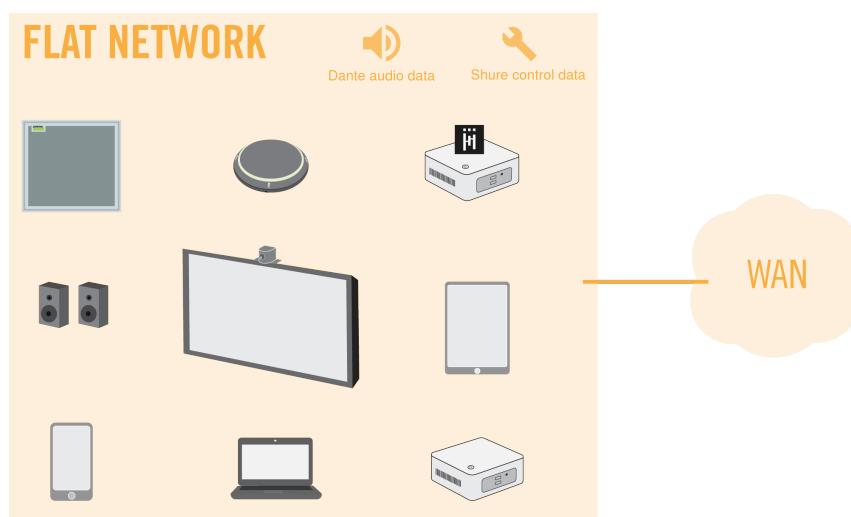
Note: Direct out tap points are not available on all Shure automixers.

Network Setup Examples

IntelliMix Room works with many different types of networks. Here are some of the most common network setups:

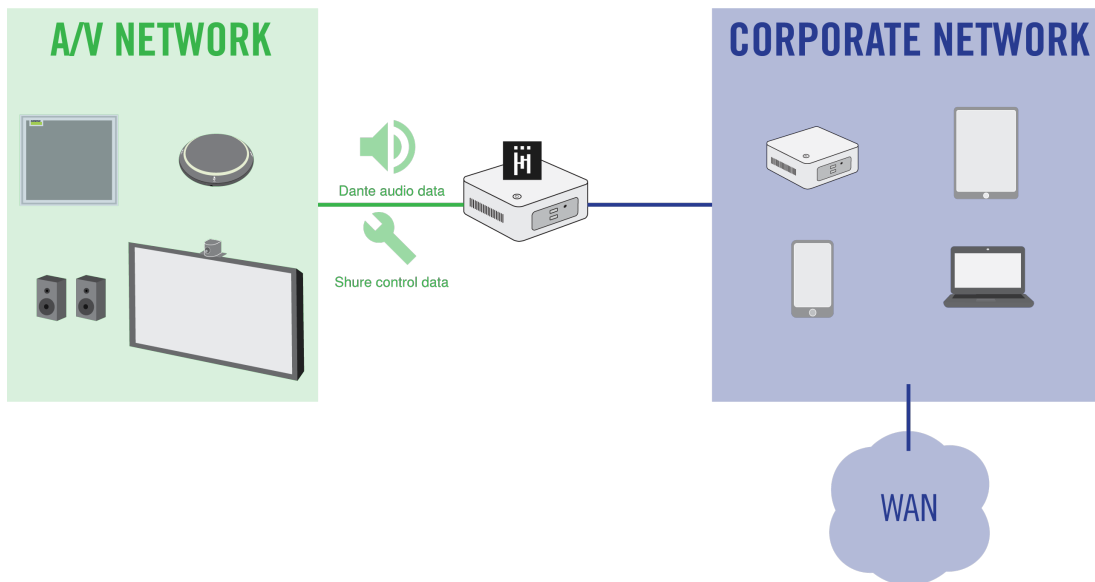
- **Flat Network**

- All A/V and corporate devices are on the same network.
- Use one network for Shure control and Dante audio data.



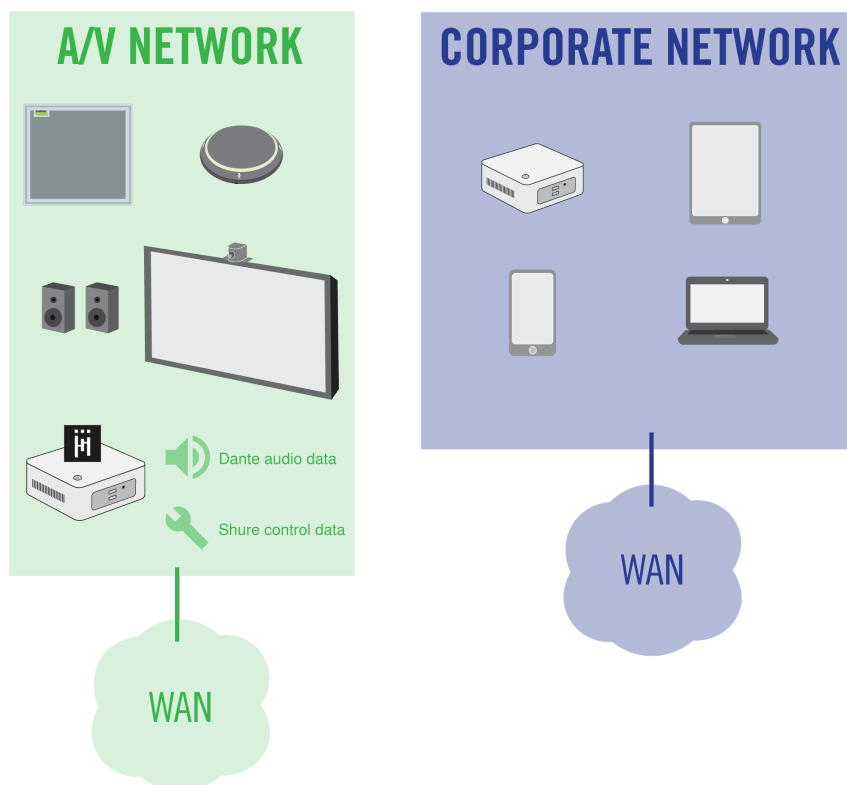
- **Corporate and AV Network**

- All A/V devices are on a separate network from the corporate network.
- The computer running IntelliMix Room uses the A/V network for Dante audio and Shure control data.
- The computer uses a wired connection to the corporate network for internet. USB 3.0 to gigabit Ethernet adapters are a common way to connect to 2 NICs.
- [Crestron's USB-to-Ethernet adapter for audio isolation](#) is designed for UC-C100 kits and IntelliMix Room.



- **Corporate and AV Network with Separate Internet Connections**

- IntelliMix Room and all other A/V devices are on a separate network that has its own internet connection, which is completely separate from the corporate network.
- Use the A/V network for both Dante audio and Shure control data.



Security

Set Up the 802.1X Protocol for a Device

Select Shure devices support the IEEE 802.1X port access protocol for network authentication.

Important: To use the 802.1X security protocol with Shure devices, set the network switch to multiple host authentication. You must also make accommodations to allow the audio network interface to connect to the network. The audio network interface doesn't support the 802.1X protocol.

Setting up 802.1X is a two-part process.

To set up 802.1X, you will need:

- Details about your authentication server's EAP method
- Any required credentials or certificates for that method, for example:
 - MD5 and PWD
 1. User ID and passphrase
 - TLS and PEAP
 1. User ID and passphrase
 2. Certificate (with certificate types) in the .PEM format
- Any passwords to access the devices if they are password locked

Step 1: Configure Settings on Test Network

1. Connect the device to your test network and discover it using Designer.
2. Initialize the device if necessary. Open the device and go to **Settings > Network > 802.1X**.
3. Choose your EAP method from the menu.
4. Enter any required credentials and load any necessary certificates.
5. Press **Save** to save the 802.1X settings to the device.
6. Enable 802.1X and select **Reboot later**.

Step 2: Connect to a Credentialed Network

1. Connect your device to the credentialed network.
2. Ensure that Designer is connected to the credentialed network.
3. Go to **Settings > Network > 802.1X** and enable 802.1X. Reboot the device for the 802.1X settings to take effect.
4. If the device doesn't appear in Designer after the reboot, reconnect to the test network and check all 802.1X settings for the selected EAP method.

Turn Off or Clear 802.1X Settings

You can turn off 802.1X settings temporarily, or clear them from the device. Open the device and go to **Settings > Network > 802.1X**

- **Disable:** Click the 802.1X switch to turn off 802.1X settings. Click the switch again to enable 802.1X.
- **Clear:** Click **Clear 802.1X settings** to remove 802.1X settings from the device.

Note: Resetting to factory default clears all 802.1X settings.

Change 802.1X Settings

You may need to change a device's 802.1X settings if the enterprise's 802.1X settings are changing. The best way to do this is to change the 802.1X settings on the devices, and then make changes to the authentication server.

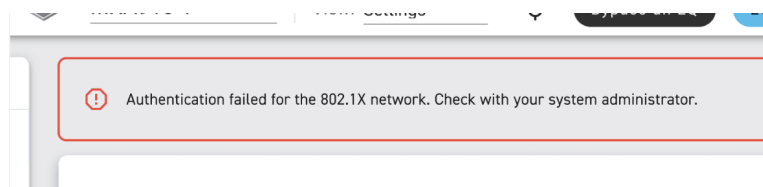
To change device settings:

1. While still connected to the credentialed network, find the device in Designer and go to Settings > Network > 802.1X.
2. Make changes and click Save.
3. Make any changes to the authentication server.
4. Reboot your devices. The devices should connect to the credentialed network with the updated 802.1X settings.

Troubleshooting 802.1X Setup Issues

If the device doesn't appear in Designer on the credentialed network, there's a problem with the device's 802.1X settings. To troubleshoot, take the device off the credentialed network and connect it to the test network. You can make any necessary changes to the 802.1X settings, and then reconnect to the credentialed network.

If you attempt to enable 802.1X on a device, but the authentication fails, you will see this notification:



If this occurs, check with your system administrator.

Security Testing

Shure IntelliMix Room underwent penetration testing by a reputable third-party security assessment company. The test results placed IntelliMix Room above the average of all applications tested. Going forward, Shure will continue to internally and externally test the security of IntelliMix Room. For more information, please contact productsecurity@shure.com.

Monitor and Control with External Systems

Monitor Shure Devices with Crestron XiO Cloud

With IntelliMix Room version 4.0 and newer, you can monitor installations in Crestron XiO Cloud. You can also monitor other Shure devices that are routed to IntelliMix Room. These connected devices are called "peripherals" in XiO Cloud.

Supported Devices:

- IntelliMix Room version 4.0 and newer
- MXA920 firmware 1.3.276 and newer
- MXA910 firmware 4.7.13 and newer
- MXA902 firmware 5.x and newer
- MXA710 firmware 1.5.12 and newer
- MXA310 firmware 4.7.8 and newer
- MXN5-C firmware 1.5.12 and newer
- MXA Network Mute Button firmware 1.5.15 and newer

To get started:

1. In the Windows system tray, right-click IntelliMix Room > Retrieve cloud API info.
2. Check that the port listed in the dialog is open. If the port is closed, click Open. The port range is 4006 - 49151.

3. In XiO Cloud, enter the following information to monitor IntelliMix Room and connected Shure devices: Required Information to Enroll Devices in Crestron XiO Cloud

Information	Where to find it
Computer's IP address with network connection to XiO Cloud Gateway	Computer's network settings
Token for each IntelliMix Room installation	Go to the Windows system tray and right-click IntelliMix Room > Retrieve cloud API info. Copy the token into XiO Cloud.
Port for each IntelliMix Room installation	Go to the Windows system tray and right-click IntelliMix Room > Retrieve cloud API info. Copy the port information into XiO Cloud.
Serial numbers for: Each IntelliMix Room installation Any connected Shure devices	IntelliMix Room: Go to the Windows system tray and right-click IntelliMix Room > Settings. Connected Shure devices: Designer: Online devices > [Your device] > Settings Web application: Settings

Firewall Rules for Using Crestron XiO Cloud

Inbound or out-bound?	Display name	Program	Protocol	Local port	Local address
Inbound	Shure Sys-temApi	C:\Program Files\Shure\SystemAPI\Standalone\SystemAPI_Bin\win64\shure-system-api-server-win.exe	TCP	4006 - 49151	Any

Refer to [Crestron's documentation](#) for more help with XiO Cloud.

Compatibility with Dante Domain Manager

This device is compatible with Dante Domain Manager software (DDM). DDM is network management software with user authentication, role-based security, and auditing features for Dante networks and Dante-enabled products.

Considerations for Shure devices controlled by DDM:

- When you add Shure devices to a Dante domain, set the local controller access to Read Write. Otherwise, you won't be able to access Dante settings, perform a factory reset, or update device firmware.
- If the device and DDM can't communicate over the network for any reason, you won't be able to control Dante settings, perform a factory reset, or update device firmware. When the connection is reestablished, the device follows the policy set for it in the Dante domain.
- If Dante device lock is on, DDM is offline, or the configuration of the device is set to Prevent, some device settings are disabled. These include: Dante encryption, MXW association, AD4 Dante browse and Dante cue, and SCM820 linking.

Refer to [Dante Domain Manager's documentation](#) for more information.

Note: IntelliMix Room is not compatible with Dante's device lock feature.

How to Recover IntelliMix Room from Inaccessible Dante Domains

If Dante Domain Manager isn't accessible, you can manually remove the IntelliMix Room installation from the domain. DDM can become inaccessible if an installation of IntelliMix Room gets moved from one network to another and it doesn't get removed from the Dante domain first.

To remove the installation from the domain:

1. Stop the IntelliMix Room service (Task manager > Services > Right-click IntelliMix Room > Stop).
2. Clear the contents in

C:\ProgramData\Shure\IntelliMixRoom\dalconfig

3. Restart the IntelliMix Room service. This clears the domain credentials and also resets other Dante settings.

Dante Flows for Shure Devices

Dante flows get created any time you route audio from one Dante device to another. One Dante flow can contain up to 4 audio channels. For example: sending all 5 available channels from an MXA310 to another device uses 2 Dante flows, because 1 flow can contain up to 4 channels.

Every Dante device has a specific number of transmit flows and receive flows. The number of flows is determined by Dante platform capabilities.

Dante Flows for Shure Devices

Dante Platform	Shure Devices Using Platform	Transmit Flow Limit	Receive Flow Limit
Brooklyn II	ULX-D, SCM820, MXWAPT, MXWANI, P300, MXCWAPT	32	32
Brooklyn II (without SRAM)	MXA920, MXA910, MXA902, MXA710, AD4, AD600, APXD2	16	16
IP Core	MXA920-V3, MXA902-V3, MXA901	32	32
Ultimo/UltimoX	MXA310, ANI4IN, ANI4OUT, ANIUSB-MATRIX, ANI22, MXN5-C	2	2
DEP	ANIUSB-MATRIX-V3, MXN-AMP, MXN5-C-V3, MXN-6	2	2
DAL	IntelliMix Room	16	16

[Learn more about Dante flows in our FAQs](#) or from [Audinate](#).

Use Command Strings

To control IntelliMix Room with third-party control systems, turn on command strings in Designer. You must choose an open port on the computer running IntelliMix Room to send and receive command strings.

Default port: 2202

Port range: 1025-65534

1. In Designer, open the installation of IntelliMix Room you want to control and go to **Settings > Services**.
2. Turn on command strings.
3. Enter an available port to send and receive the command strings. Make sure that the port isn't being used by any other programs installed on the computer.

To test if the port is available:

- Send a command to IntelliMix Room. Make sure you are targeting IntelliMix Room's control IP address.
- If you don't receive a response, the port is being used by another program.
- Try a different port number and send the command until you receive a response.
- For best results, install all software on the computer before choosing a port for command strings. Adding new software after setting up command strings can change how the computer's ports are used, which can affect command strings.

A complete list of command strings is available at shure.com/docs/commandstrings/intellimixroom.

Troubleshooting

IntelliMix Room Troubleshooting

Problem	Solution
Dante transmit channel routes break after I change the channel's name in Designer or Dante Controller (IntelliMix Room version 4.2 and newer)	Before you route audio from IntelliMix Room to other sources, first make any necessary changes to the channel names. For detailed instructions, refer to our FAQ about Dante transmit channel names in version 4.2 and newer.
IntelliMix Room installations won't show up in Designer	1. On the device running IntelliMix Room, click the system tray icon. Check that the installation is using the same Shure control network as Designer. 2. Check if other Shure devices appear in Designer. If they do, open the Windows Task Manager and go to Services. Restart IntelliMix Room. 3. Open Dante Controller. Check if the installation appears in Dante Controller. 4. If the installation appears in Dante Controller, check firewall settings. Make sure it's not blocking any Shure traffic. 5. Contact Shure support if it still doesn't appear in Designer.
Licenses won't activate in Designer	1. Check that the device running IntelliMix Room has an internet connection. This is required for license activation.

Problem	Solution
	- Go to your account at software.shure.com and check that you have enough licenses. If you don't have enough licenses or need a different channel count, purchase more from shure.com/imx-room. - Contact Shure support.
Clicked IntelliMix Room icon in system tray and the screen loads continuously	This means IntelliMix Room isn't running properly. Try the following solutions: - Open the Windows Task Manager and go to Services. - Check if IntelliMix Room is running. If it's stopped, right-click to start the service. If it's running, right-click to stop the service and then restart it. - Restart the computer and reopen from the system tray. - Check if you can discover this IntelliMix Room installation in Designer or Dante Controller. If you can't discover the installation, uninstall it and then reinstall. - Contact Shure support if it still doesn't run correctly.
IntelliMix Room won't pass audio	- Open the installation in Designer and check that it's unmuted. - Check if the installation has a license that isn't expired. If it has a valid license, check the audio signal chain for inputs that are muted or routed incorrectly. - If it doesn't have a license, find your license ID and activate the license. Make sure the device with IntelliMix Room has a working internet connection to activate the license. Find the license ID in your purchase email or in your account at software.shure.com. If you don't have enough licenses or need a different channel count, purchase more from your Shure sales representative. - Check that the installation has the same channel count as what is available in your account for that license ID. For example, if your installation has 8 channels, but your license ID only has one 16-channel license available, you need to purchase an 8-channel license. - On the device running IntelliMix Room, try to access software.shure.com. If you can't access it, try visiting another website. If you can, your firewall could be blocking traffic from

Problem	Solution
	the cloud license server. Adjust settings to allow traffic from Shure. If you can access it, contact Shure support. The firewall is not interfering with the cloud license server.
Far end hears wispy echo sounds coming from room using IntelliMix Room	This is likely caused by latency introduced to the signal chain after the AEC reference signal. We have observed devices like soundbars or displays adding extra latency to the signal after it leaves IntelliMix Room. This difference between the AEC reference signal and what comes through the speakers causes problems for the echo canceler's training, and results in a wispy sound. To fix this problem, delay your AEC reference signal so that it's closer to the signal coming out of the speakers. 1. Using the matrix mixer, route the far-end signal (virtual audio input) to an unused Dante output. 2. Set this Dante output as the AEC reference signal. 3. Add delay to the Dante output. Start with 50-100 ms, and listen for echo artifacts on the far end. To provoke the artifacts, a single talker on the far end should make sibilant sounds ("Psst" or "Shhh") and observe the echo coming back. 4. Continue to increase or decrease the delay until the echo artifacts disappear from the perspective of the far-end participant.

Send Software Logs to Get Help

For help, send the software logs to Shure.

1. On the PC with IntelliMix Room, right-click the IntelliMix Room icon in the system tray.
2. Select Report a problem. Follow the steps to send the software logs to Shure.

Reset

Restore factory defaults: Resets all application and license settings to the factory defaults. Network settings remain the same.

Specifications

Control Software
Shure Designer

Digital Signal Processing

Automatic mixing, matrix mixer, acoustic echo cancellation (AEC), noise reduction, automatic gain control, compressor, delay, AI denoiser, equalizer (4-band parametric) , mute, gain (140 dB range)

Frequency Response

Dante Digital Audio or Virtual Audio Device	20 to 20,000 Hz
--	-----------------

Sampling Rate

Dante Digital Audio or Virtual Audio Device	48 kHz
--	--------

Bit Depth

Dante Digital Audio	24 bit
Virtual Audio Device	24 bit

Audio Signal Type

Virtual Audio Input	Stereo audio on	Left and right stereo channels
	Stereo audio off	Sums to single mono channel
Virtual Audio Output		Dual mono channels
PC Input		Sums to single mono channel
PC Output		Dual mono channels

Latency

Not including Dante latency

Auxiliary Dante Inputs to Dante Out	17.9 ms
Dante Mic Inputs to Dante Out (AEC enabled)	24.6 ms
Dante Mic Inputs to Dante Out (AEC and NR disabled)	17.9 ms
AI Denoiser Enabled	76 ms
Deverb Enabled	70.7 ms
AI Denoiser and Deverb Enabled	76 ms

Acoustic Echo Cancellation Tail Length

Up to 300 ms