Cisco Unified MeetingPlace Release 6.1 > Cisco Unified MeetingPlace Audio Server > Troubleshooting the Audio Server System

Excellent sound quality is essential to Cisco Unified MeetingPlace conferences. Improving the sound quality depends on understanding and adjusting for several "real-world" factors:

- Network trunk operating conditions (audio levels, background noise, echo, and so on) are inconsistent throughout the world
- Audio levels differ among speakers in a conference
- Large meetings often have rapidly changing speakers
- Room conditions vary (offices, conference rooms, auditoriums, and so on)

Cisco Unified MeetingPlace considers all these factors, and its Digital Signal Processing algorithms provide the best overall sound quality for a wide range of operating conditions.

Contents

Resolving Sound Quality Problems

Problems with sound quality can be caused by various factors and conditions, including the configuration of trunk types and conference room acoustics. Table: Sound Quality Problems and Solutions describes common sound quality problems and solutions.

Table: Sound Quality Problems and Solutions

Factor	Resolution
Line termination types	Cisco Unified MeetingPlace can work with several trunk types and configurations, but minimizing the equipment between the network and the system is ideal. For example, direct T1 digital connections to the PSTN often produce the cleanest sound quality. If the system is separated from the network by a PBX, or is separated from the PSTN by additional gear, sound quality can be increasingly compromised.

Conference room acoustics	• To improve acoustics in conference rooms, consider the following: • Talk to an acoustic consultant.* Invest in a high-performance acoustic echo canceler. Echo cancelers cancel acoustic echo signals. • Modify conference room decor. For example, add acoustic tiling, window draperies, and flowers to reduce echo.
Room calibration	Even if a room has been equipped for improved acoustics, operating conditions can change significantly from day to day. Room temperature, participant movement, and line connections can all change the acoustic performance of echo canceler gear. We recommend performing room calibration before starting a conference call if the room has previously suffered from bad sound quality.
Background noise	The meeting intelligibility and overall experience may be enhanced if a low background noise level is maintained. To prevent background noise from entering the meeting, participants can use the mute feature when they are not speaking. To activate muting, participants press **#5** on their touch-tone phone. When they want to contribute to the meeting again, muting can be turned off by pressing **#5** again.
Varied line levels	For conferences in which attendees consistently complain about audio volume levels that are too high or too low, Cisco Unified MeetingPlace can be adjusted to help line level mismatches. This problem may occur when rural locations are called and the overall conference audio level is very low. Conversely, loud connections can occur if a short-distance, all-digital connection is provided. A Cisco NCE representative can remotely adjust the conference target levels that are too high or too low. Remember the following information: • If the volume level of a headset user is consistently low and is accompanied by elevated background noise, their headset amplifier module might need new batteries. • If the volume level of a headset user is consistently loud and distorted, their headset microphone boom might be too close to their mouth. Move the microphone boom slightly away from the mouth to lower the volume to comfortable levels. This will also reduce or eliminate distortion.

The sound quality of Cisco Unified MeetingPlace meetings depends on the type of phone used, the type of phone network called on, and the amount and type of ambient noise in the environment from which the call comes.

Phone Type

The phone from which the user speaks to the conference significantly influences sound quality. Table: Phone Types describes how different types of phones affect sound quality.

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Table: Phone Types

Phone	Quality Expectations and Issues
Handset or headset	Excellent. A single user is directly coupled into the conference to produce minimal background noise and strong input signals.
Inexpensive speakerphone	Average. This type of phone works fine when used by a single user in a private office or small conference room. However, voices are occasionally clipped when multiple parties speak.
High quality speakerphone	Good. These phones can handle larger groups in one location. Most units have extension microphones that obtain better coverage for all speakers.
Audio echo canceler device	Excellent. This type produces the finest sound quality results for a room, but often at the highest price.
Cellular and car phones	Average. The speech is highly compressed and occasionally sounds distorted, compared with other devices. Intermittent blackouts can occur as users switch cells. Background noise is a frequent problem.
Air phone	Fair. Speech is often clipped and distorted. Background noise is typically high. Users should mute whenever possible.

Room Setting

The room from which individual participants call during a conference affects the sound quality. Table: Room Conditions describes how various room environments affect sound quality.

Table: Room Conditions

Room Setting	Quality Expectations and Issues
Single office	Excellent. Background noise and acoustic echoes are minimal or nonexistent. For these reasons, speakerphone use should not be a problem.
Open cubicle	Average. Background noise can be significant. For this reason, speakerphone use should be discouraged for this room setting.
Small conference room	Excellent. These rooms in general have minimal background noise and acoustic echo problems. For these reasons, speakerphone use should not be a problem.
Large conference	Average.

room	
	Should not be a problem, but a speakerphone is generally required. With these units, groups of 10 to 15 people can be handled comfortably, although extension microphones are recommended. Check the room for hard surfaces and reflective walls, which produce acoustic echo.
Executive board room	Average. This type of room presents a challenge to audio quality. Board rooms are usually large with highly reflective surfaces. Because acoustic echo problems can be expected, it is highly recommended that audio systems (microphones and speakers) and a high-performance echo canceler are used.
Auditorium	Average. Problems similar to those of the board room, with the added problem of increased ambient noise. The use of high-performance audio equipment is essential.
Lab or switch room	Fair. This environment is the most difficult for sound quality, because of a high level of ambient noise. Muting lines in this room type is highly recommended.

Table: Room Conditions