

Hybrid Meeting Practices Guide

IEEE-SA S&SI SMDC Hybrid Meeting Ad Hoc

Version 2.0

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1. Introduction and scope

This document provides guidelines and recommended practices for the conduct of Standards Committee meetings when the participants in the same meeting are located in more than one physical location. While intended for use in Standards Committee meetings, they may also apply in other types of meetings where remote attendance is desired, such as conferences or other committee meetings. The practices described here reflect multiple meeting sizes and types, and are gleaned from experiences across multiple Standards Committees and individuals; therefore, they may reflect different ways of performing the same function.

This document describes different meeting sizes and gives setup recommendations for each of them. It then discusses facilities such as wireless access, internet, and room audiovisual (A/V) equipment, along with software tools for effective meetings. Roles for meeting leaders, consistency practices, and preparation—both immediately prior to the meeting and during registration—are provided. Finally, as an aid to the reader, references to practices used by existing Standards Committees, as well as examples of helpful equipment are given.

It is important to remember that all of these are given as examples and not specific rules or recommendations. These practices are intended to serve as exemplary resources for individuals planning and running meetings. Leaders and participants in meetings should use their own judgement in selecting practices and equipment.¹

Finally, this document is intended to reflect growing knowledge of practices. Please contact hybridmtg-guide@ieee.org if you have a particularly effective practice to share, or if you find errors or helpful clarifications to the document.

2. Meeting sizes and types

The size and type of meeting will influence the set-ups and practices best suited to hybrid interaction. The size of the meeting impacts not only the room size and configuration, but also the necessary audio-visual and microphone needs, as well as the appropriate level of speaker/queue control.

Note that these guidelines are intended for hybrid meetings where a significant number of participants are both in-person and remote. Hybrid meetings are also sometimes referred to as mixed-mode meetings, but the term “hybrid” will be used in this document. Many of the guidelines are also useful in cases where either only a few participants are remote, or when most are remote. The meeting participants will need to use their judgement and should consider the needs for all participants to have a voice and vote on any actions. Different groups have differing constraints on infrastructure and may (or may not) meet with multiple groups running in parallel. These considerations will generally drive groups to adapt the model best to their meeting style; however, the intent of this document is to provide some examples that have been shown to work well.

¹ References to specific tools and equipment, or the developers of those tools and equipment, are examples made for information only and are not an endorsement by any IEEE SA Standards Committee, the IEEE SA, or IEEE. Comparable tools or equipment may provide the same functionality.

A high-quality meeting will engage in-person and virtual participants with an inclusive experience for everyone involved. While the experiences will differ, they will each offer full access to hear and be heard in the discussion and allow the chair to conduct an orderly business meeting. The meeting should provide a consistent experience with equal access to information, participation opportunities, and effective communication. The following attributes are important to this experience:

- **Clear audio:** Clear and reliable audio to and from all participants is essential for communications. This is true regardless of meeting size and is a function of not only equipment, but also meeting style and discipline by the participants, regarding the hybrid nature of the meeting. For example, in-person participants need to remember to speak so that microphones can pick them up, while remote participants need to be cognizant of background noise and use good quality microphones or headsets.
- **Reliable connectivity:** stable and reliable internet connectivity are crucial both from the site and at the remote user's site. Those in the facility should consider backup options and contingency plans in case connectivity is disrupted. For example, having all presentations uploaded can provide a backup to an audio-only meeting should internet bandwidth be disrupted. Additionally, while the meeting coordinators cannot ensure remote video, remote attendees should remember to ensure sufficient connectivity at their ends if they wish to be full participants.
- **User-friendly technology:** While there are many options available in both hardware and software for conducting hybrid meetings, it is important that whatever is chosen is easy to use and familiar to the participants—particularly those running the meeting. Provide tutorial information for participants to help them navigate and utilize the technology effectively.
- **Inclusive engagement:** It is particularly easy for participants to get lost in the shuffle of hybrid meetings. “Out of sight, out of mind” means that meeting facilitators (chairs, etc.) must take extra efforts to maintain queues, assure clear communication about order and voting, and sometimes reach out to the unseen audience to check consensus, clarity, or participation.
- **Well-managed time and agenda:** Hybrid meetings often make it more difficult to gather attendees, since they may be in multiple places. A well-managed agenda and time schedule aids this process. This is particularly important when the meeting participants span multiple time zones.

Throughout the pandemic, there has been great progress in conducting remote meetings, and since it has become possible for participants to also meet in-person, hybrid meetings have been evolving as well. In this document, we intend to share some practices and suggestions from across multiple standards groups. We expect that a process of continuous improvement will take place, and these processes will be added to and augmented as that improvement occurs.

2.1 Meeting configurations by size of room/number of attendees

While the ideal situation is a microphone at every desk, most situations involve a compromise.

Compromises come in the forms of:

- a) Centralized microphone locations (either as a speakerphone or a stand-microphone)
- b) Floating, hand-passed microphone(s) (passed by individuals)
- c) Floating, hand-passed microphone(s) (with someone as a monitor)

- d) Devices that combine microphones with rotating cameras that comprise a video conferencing system

In all cases, it is important that the room has only a single audio system to prevent feedback. Participants in the room logged onto the meeting system should be encouraged to log on with audio disconnected from the conference tool. Only the speaker/presenter or room audio system, if used, should be connected to the web conference tool from the room. This is important to avoid feedback.

Additionally, the conference facility should have sufficient internet and power to the meeting room to accommodate attendees. Sections 3.1.1 and 3.1.2 discuss guidelines for networking needs. Power arrangements are beyond the scope of this document, but meeting organizers are reminded to consider this, especially for longer meetings.

The following sections provide guidance for how to effectively use these.

2.1.1 Small meeting configurations

For small meetings of approximately up to 30 total participants (generally up to 20 in person), a room configuration with a telephone speakerphone or portable USB/Bluetooth laptop speakerphone (for example, the Jabra Speak 510, Speak2 55, or similar devices) may be sufficient. The speakerphone should be placed in a central location. In the absence of a good speakerphone, wireless microphones may be used. Generally, at least two are preferable, so that the chair may always have one.

In such smaller settings, specialized in-room audio, with a mixer connected as its own conference session is generally unnecessary, and a single speaker may be used for the remote participants.

If a U-shaped table configuration is used, attention needs to be paid to allow people access to walk into the “U” to approach the speakerphone, or an additional wireless microphone may be desired to aid in passing.

When wireless microphones are used, they should be interfaced to the web conferencing tool similarly to when a larger meeting room is used, directly into the PC audio. There are several possibilities. For example, the Focusrite Scarlett Solo (<https://focusrite.com/en/audio-interface/scarlett/scarlett-solo>) or similar USB-Microphone audio interface may be used. Generally, an additional mixer board as those used in larger rooms will not be needed.

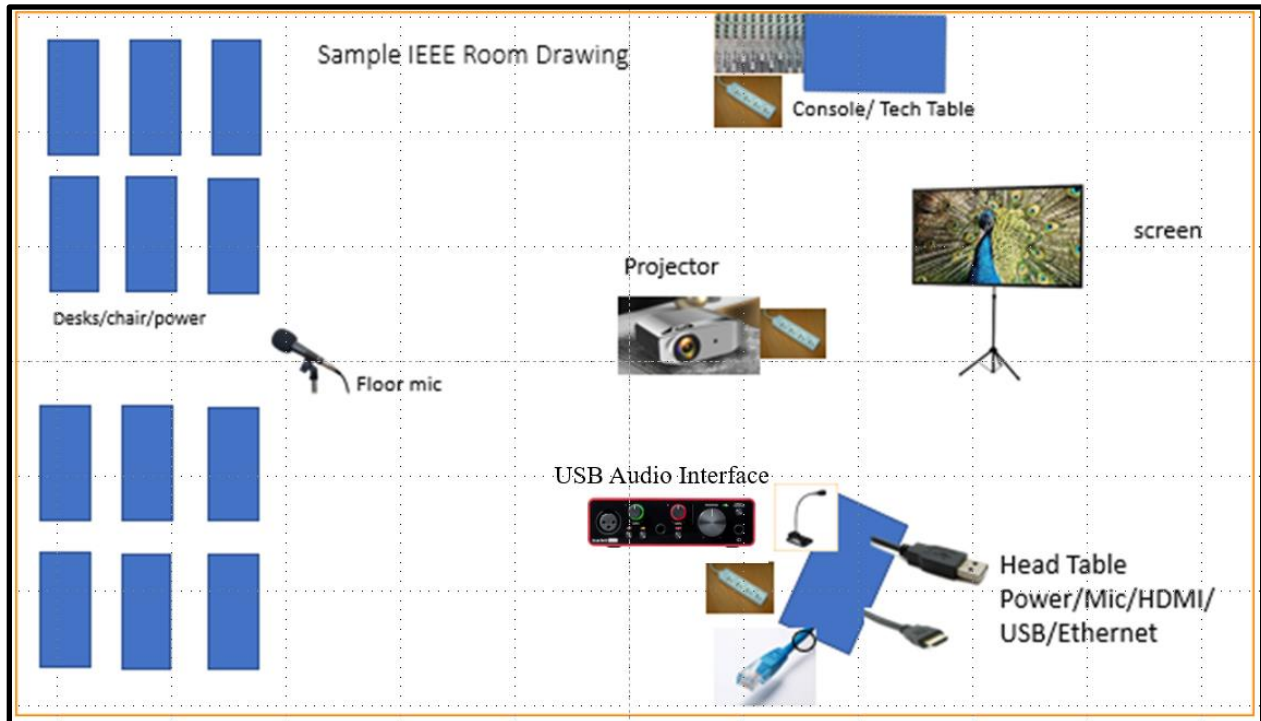
2.1.2 Medium meeting configurations

For medium-sized meetings of approximately 35 to 100 total participants (with at least 20 present), a more traditional meeting room style is preferable. A meeting room setup like a mid-sized in-person meeting may be used, but with additional space at the head table (or front of the room) beyond what would typically be found. Successful configurations have used a schoolroom setup with a three-person head table, a single projector and screen, and at least one table microphone for the head table and at least one floor microphone for questions from the floor. The figure below shows an example layout for a medium sized meeting.

The head table microphone would generally be used by the chair and an in-room presenter, and the third seat would be for an assistant to the chair, such as a chat queue monitor.

In a meeting of this size, the use of a room audio system is preferable, and participants should queue at the floor microphone to speak. A USB audio interface (see above) is useful and allows integrating to most venue audio systems. The room audio system would consist of room speakers, a sound (mixer) board, and microphones. Because multiple microphones are used, a mixer board is preferred to integrate the microphones and may be supplied by the A/V staff at a venue.

It is helpful to have a portable (wireless) microphone in addition to the fixed floor microphone to pass and facilitate conversation. It may be useful to have a volunteer to pass the wireless microphone, especially if the discussion is spirited.



Some audio-conferencing systems include wireless microphones that can be located around the room, which may aid in handling the room.

2.1.3 Large meeting configurations

Large meetings of more than 100 people are similar to the medium size meeting configuration, only with more seats at the head table and a need to accommodate multiple fixed floor microphones for discussion. For large meetings, classroom-style seating is recommended.

Control of a large meeting group often involves multiple officers, so a head table may have five or more seats, and should have at least two table microphones. One or two projectors and screens are necessary, and often, facility for an additional monitor for the head table is helpful since the room projection is often larger and behind the head table. The additional monitor may be a floor-mounted display in front of the head table, or may be a portable second monitor configurable from the chair's laptop computer and may be provided by participants. It is often helpful to provide the head table with

wired ethernet access to avoid contention with the large room for network connections essential to the meeting's progress.

Multiple fixed microphones should be in the meeting room in strategic locations. (e.g., at the speaker podium, on the table where other speakers may be sitting, and in the audience. If the room is configured with multiple aisles, locate a fixed microphone towards the front of each aisle.)

Each microphone should include the ability to mute, as two open microphones in close proximity can create feedback.

3. General facilities' needs

3.1 Networking

3.1.1 Wi-Fi/local networking

Hybrid meetings need wireless internet access at a minimum to succeed. When negotiating with a host hotel, share the number of expected attendees with the hotel and contract the bandwidth from the hotel that is required. Explain that all attendees will be using the internet connection during the meeting.

If the audio/video or telephony equipment does not support wireless internet, then wired internet should be provided in the meeting room. As stated earlier, in larger rooms, wired internet connected to both the meeting chair and the computers providing room audio and video is helpful to avoid issues.

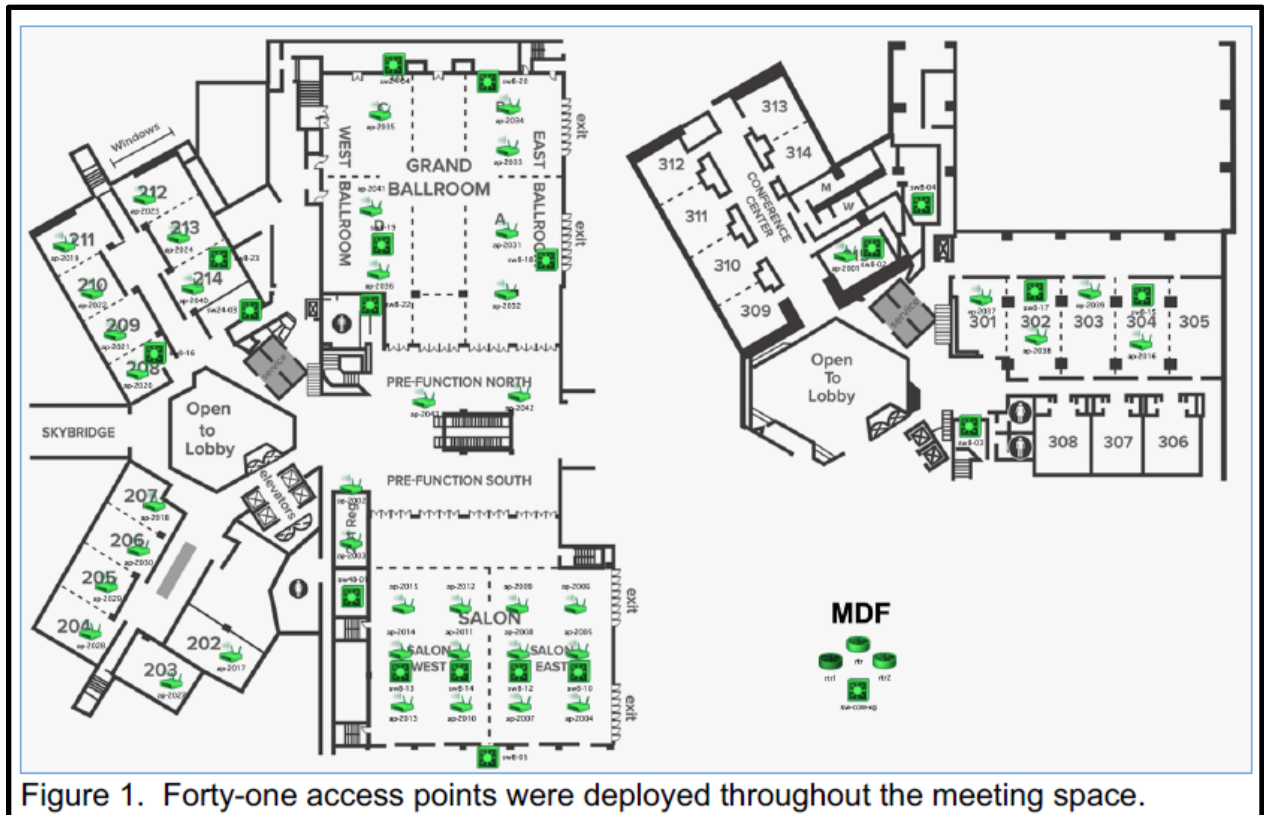
It cannot be understated how important the local meeting room network is to the hybrid meeting's success. Web conferencing tools, downloads, and communications essential to integrating remote users with the in-person meeting will rely on this network. Sufficient network bandwidth for a large fraction of simultaneous users and meetings is an essential ingredient for success. In the case of small meetings (less than 30 people at a site), the hotel network may suffice, but beyond that, trained staff should be consulted, and the meeting planners should be involved in planning the network. Larger groups may consider long-term relationships with a network provider.

If multiple meeting rooms are used, it is important to consider the interaction of the various rooms on a wireless network. Even though individual meetings are small, running multiple concurrent wireless meetings in adjacent rooms can have similar traffic impacts to a large meeting. Ideally, the network is designed to handle high traffic in each room simultaneously. In large ballrooms, multiple wireless access points may be used to provide coverage for many users all accessing the network at the same time.

It is recommended that the network connections in meeting rooms be checked ahead of time, and the venue given the opportunity to correct any issues found either in the wired or wireless infrastructure. This can involve both a test and a follow-up visit (to check remedies) prior to the meeting itself.

The figure below shows an example configuration used in a standards development meeting serving between 400 and 500 participants with between 15 to 20 simultaneous meetings. In this case, the group provided their own network infrastructure. Note that even in the small rooms there is a wireless access point per room, and in the larger rooms, there are multiple access points. It is important to plan for multiple devices per user, usually at least two. In this case there were, for example, 1100 unique devices

on the wireless LAN, slightly more than twice the number of participants. As the figure shows, forty-one access points were deployed, approximately one per twenty-five devices.



3.1.2 Internet (connection to the outside world)

The site should be provisioned with sufficient bandwidth to support any downloads and to support simultaneous access. Running some conference tools can increase bandwidth needs, and running video to participants is especially bandwidth intensive. It is recommended not to run video either for remote users, or in-person unless it has been previously tested and bandwidth is sufficient. The examples here are without personal video.

In most meetings, use of the venue Wi-Fi may be adequate, but should be tested prior to the meeting. Many venues are willing to accommodate groups needing improved internet service. Testing prior to the meeting, particularly with load simulators and a remote user can identify problems before they become a disruption to the meeting.

The meeting example given represents heavy internet use in a standards meeting. For the meeting example given (500 individuals, up to 20 rooms), the site was provided with a gigabit ethernet link, and up to 500 Mb/s of bandwidth provisioned. Bandwidth utilization is shown below. Peak internet speeds of nearly 400 Mb/s were observed, with a 95th percentile of almost 200 Mb/s. Internet traffic is prone to fluctuation and dependent on meeting activity, and, as one might expect, tends to follow the flow of the meeting day. While the resulting bandwidth amounted to a peak of about 1 Mb/s per individual, it is probably more useful to consider the peak bandwidth per meeting room, or per access point—which is more on the order of 20 Mb/s per meeting room, or 10 Mb/s per access point.

Prior to a meeting, the internet facilities of the venue should be tested. Network speed may be tested by connecting to a number of applications (e.g., [ookla speedtest](https://www.speedtest.net/), fast.com, or [google all offer speed tests](https://www.google.com/speed/)). Another important parameter to consider is latency. Latency may be tested by a 'ping test' and latency results are often available from the same sites that support speed tests. More advanced testing can monitor for packet loss, to assure minimal packet loss during the meeting. If network loading is a concern, load testing tools can be used to simulate heavy traffic and measure the networks ability to handle the load (several of these are available for free; see <https://www.g2.com/categories/load-testing-tools/free>). However, a test with a remote user and one or more remote users on the expected meeting platform (e.g., WebEx, Zoom, or other) is an important qualifying criteria, making sure that audio (and if used, video) interfaces are clear and consistent. Tests should span enough time to give confidence of a stable connection, and should be conducted with sufficient time prior to the meeting to fix any problems, e.g., at a site visit or days before the meeting itself.



Figure 3. External Bandwidth: 48 hours.

3.1.3 On-Site support

The local host of the hybrid meeting should try to connect equipment about 30 minutes in advance of the meeting. If the hybrid meeting cannot be started, then the hotel or meeting host should have on-site support available to quickly assist. In larger meetings with multiple rooms, support is not needed full time in each room, but is generally sufficient to have support available on call for the group as a whole.

3.2 Room A/V

For in-person attendees, a projector and screen should be provided. The projector should have multiple connections available (e.g., HDMI, USB, USB-C, etc.). In hybrid meetings where the individuals in the meeting room can access the conference tool, projecting is still useful in creating a shared experience; however, the need for multiple screens and high resolution can actually be less than meetings without web conferencing because details can be scrutinized in detail on local computer displays.

3.3 Special equipment

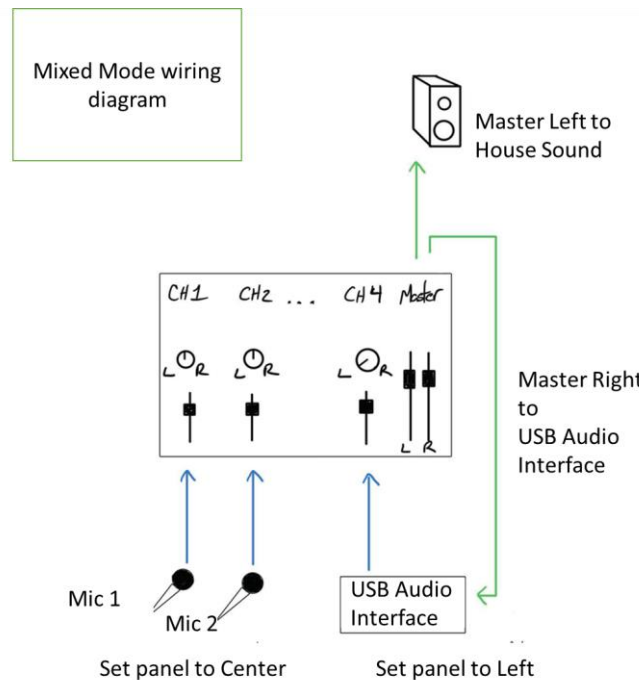
Connection requirements for the A/V equipment should be determined in advance. Many laptop computers do not have USB or HDMI connections by default. At least two computers should be brought to the meeting so that there is a backup laptop to host the meeting if the main laptop has connection problems. Prior to the meeting, the interfaces needed for display and connection to audio should be made clear to those who wish to connect. In situations where the equipment may vary significantly from session to session (or room-to-room), a “ready room” to pre-vet configuration problems may be useful.

3.4 Example setups

Common element of all setups in this example:

- In-room sound system (speakers, soundboard, etc.)
- A USB-audio interface box (for example, Scarlett Solo or similar interface)
- In-room projector (HDMI) and screen
- In-room microphone (connected to sound system)
- In-room Wi-Fi for participants
- In-room Ethernet for presenter
- Presenter lap-top with:
 - HDMI (for video)
 - USB for audio (connected to USB audio interface box)
 - Ethernet

The sound board and USB audio interface box will typically be connected as shown below:



The presenter computer will typically be connected to the network via Wi-Fi or, if provided, wired Ethernet (preferred), and may be connected to the room projector via HDMI interface in the

conventional manner. If the display is driven from the web conferencing tool, there is no need to switch computers with a change in presenter; a new presenter may simply share their screen into the web conference. Audio from the web conference is likewise connected into the USB Audio interface as shown above.

For smaller meeting rooms with fewer attendees, a speakerphone setup may be used effectively without the necessity of a mixer, USB audio interface, or room microphones and monitor speakers.

3.5 Huddle/breakout rooms

It is often advantageous (especially for larger, multi-track meetings) to provide one or more small rooms or areas where individuals might have an opportunity to confer in small groups. These may be used both for individuals who need to break and confer with colleagues not at the meeting, as well as for ad hoc and breakout sessions which did not have a formal room scheduled for them. In these cases, a small room, suitable for groups of four to six around a single table and provided with a speakerphone is beneficial. Such rooms may benefit from a video monitor, but it is not essential. Meeting staff should monitor access and maintain a system for informing participants of the availability of such rooms.

4. Software tools

The necessity for remote meetings has seen a dramatic increase in the use and the utility of remote access conferencing tools. Participants are advised to consider using the latest version of tools, as the advancements have been substantial. Participants are also encouraged to share their learnings with the larger community, as best practices are continually evolving. Some successful tools are listed below.

4.1 Conferencing tools support

Conferencing tools are available through IEEE-SA and are also often available with donated time from participants and their affiliations. Preferences on tool functionality are often personal. While many tools are available, familiarity of the participants with a tool is a major success factor and should be considered in choices.

4.1.1 Web meeting options

IEEE-SA can provide a free WebEx account to each working group with an active PAR. If the working group does not already have a WebEx account, the working group chair should contact the IEEE-SA Program Manager for the project at least a week before the WebEx account is needed. See <https://ieeesa.imeetcentral.com/webex/>.

IEEE-SA WebEx accounts are licensed to an individual, so the login information should not be shared by more than one person.

WebEx includes an option to collect attendee information in advance using an optional registration URL link. For example, you can collect the first name, last name, company, and affiliation of each attendee. The Registration option is under Advanced Options on the “Schedule a meeting” page.

Registration ⓘ

 Required

Registration form
[Customize registration form](#) | [Preview form](#)

Approval rules

Automatically accept all requests

Automatically accept requests that follow approval rules ⓘ
[Set up approval rules](#)

Registrant number
 Maximum number of registrants

WebEx will show a Registration Link URL that can be posted on websites and shared via email. When the meeting participants click on the link, they will see a form in their web browser like the one below. In this example, we added “Affiliation” as an additional question. After completing the form, the participant will receive a meeting invitation by email automatically.

Register now!

Complete this form to register for the meeting. An asterisk (*) indicates required information.

*** Name**

*** Email**

*** Company Name**

*** Affiliation**

Register

WebEx by default will send the meeting password with meeting invitations. If you need to limit distribution of the password (for example to only those participants who have made a registration fee), mark the checkbox labeled “Exclude password”. Note that email invitations will not include the meeting password or the numeric meeting password. You will need to communicate these passwords by other means to the people you have invited.

Exclude password



Exclude password from email invitation

Volunteers may offer to host meetings on alternate platforms (e.g., Microsoft Teams, Google Meet, Zoom, and more). Be sure to poll the volunteers in advance to confirm that most can use the alternate platform selected.

4.1.2 Basic conferencing versus webinar tools

Basic portable audio conference systems can connect to a laptop using a USB or Bluetooth connection, and are suitable for small meeting rooms with 30 or less in-person participants. It is reasonable to expect that a participant up to 8 meters away can be heard. Wireless internet is usually OK for the laptop hosting the audio conference. Several self-contained low-cost USB or Bluetooth-connected speakerphones are available on the market. Examples vary in features and include devices such as the Jabra Speak 510, VTech Communications VCS752, or similar.

More advanced audio and/or video meeting devices with microphone arrays can support larger room sizes with up to 60 people. The microphone built into these devices allows participants up to 12 meters away to be heard. Wired internet may be recommended for the laptop computer using this device if video is enabled unless the wireless internet is confirmed to be configured optimally. A backup audio-only device should be available if internet bandwidth drops unexpectedly.

4.2 Administration tools

4.2.1 Attendance & registration

Attendance can be taken using the conference tool and paper lists for those in the room. IEEE-SA provides online attendance tools (e.g., IMAT) which are easily accessible and lend themselves to hybrid meetings. Because attendance shows up in multiple places (paper, IMAT, and conference tool), it may be desirable to correlate the multiple lists to get an accurate record of the attendance.

4.2.2 Voting & polling

Voting and polling in hybrid meetings with a significant number of remote attendees is best conducted as though all participants were remote, i.e., use the same tool to collect all votes, whether the participants are in-person or remote. It should be noted that avoiding votes, i.e., making decisions without objection, is not only a recommended shortcut to the voting and polling process—avoiding it altogether—but also produces and represents the broad consensus that standards strive for.

For groups where the voting membership is different from simply “anyone in attendance”, you will need to have the current voting lists from your group leadership available. Maintaining these lists is outside the scope of this document.

Voting can be accomplished using polling embedded in the conference tool, such as Webex or Zoom, or with dedicated voting tools like DirectVoteLive (available through your IEEE-SA program manager). Please note that specific steps may vary slightly depending on the version and settings of the software

you are using. What follows is a brief step-by-step guide. For more information, see the manual for the particular tool and version you are using:

Webex:

- Start a Webex meeting and ensure that all participants are present.
- When it is time for a vote, ask the participants to raise their virtual hands to indicate their vote preference.
- As the host, you can monitor the raised hands and record the votes manually.
- Alternatively, you can use the Webex Polling feature to create a multiple-choice poll and ask participants to vote through the poll options.

Zoom:

- Begin a Zoom meeting and ensure that all participants are in attendance.
- For a simple vote, you can ask participants to use the "Reaction" feature to raise their hands virtually. To do this, participants can click on the "Participants" button at the bottom of the Zoom window and select the "Raise Hand" option.
- As the host, you can keep track of the raised hands visually and record the votes manually.
- Zoom also offers polling features for voting. To use this, click on the "Polls" button in the meeting controls and create a poll with the voting options. Participants can then select their preferred option.

DirectVoteLive/dedicated voting tools:

DirectVoteLive is a dedicated voting tool designed for remote meetings and is used independently of video conferencing platforms like Webex and Zoom. IEEE-SA offers support for DirectVoteLive, which has been used successfully in larger groups. DirectVoteLive can be used regardless of the meeting form (in-person, hybrid, or remote), as an augment to a manual voting process. For setup and information on how to use DirectVoteLive, contact your IEEE-SA program manager.

A brief description of how to use DirectVoteLive is given below:

- Log in to DirectVoteLive.
- Create the motions or questions within the DirectVoteLive platform.
- Share the meeting link or invite participants to join the voting session.
- During the meeting, participants can access the voting session through the provided link and cast their votes electronically.
- The voting results can be displayed in real-time, and you can monitor the outcome.

Regardless of the method used, remember to communicate the voting process to all participants before the meeting starts, and ensure they are familiar with the tools and features you plan to use. Additionally, make sure to adapt the voting method to your specific meeting requirements and follow any relevant guidelines or bylaws that govern voting procedures for your organization.

Please note that these instructions are based on the general functionalities of the mentioned platforms. Always refer to the official documentation and support resources of Webex, Zoom, or DirectVoteLive for the most up-to-date and detailed instructions on using their specific features.

4.2.3 Practices for running smooth meetings

IEEE-SA has developed a “[Electronic Meeting Guide](#)” to provide IEEE-SA groups conducting electronic meetings with best-practice suggestions for consideration. The guide covers meeting preparation, general teleconference and meeting participation, introductions and roll call, quorum, and post-meeting information.

One important practice particular to hybrid and remote meetings is to remind the participants of the rules regarding not recording the meeting, including no screenshots or transcripts. While these are easily generated by conferencing tools or external applications, recordings of any kind remain against IEEE-SA rules for all but very limited purposes.

5. Team Members

For hybrid meetings, there are some additional functions beyond what is needed for a single-location meeting (either pure virtual or pure in-person). However, for the most part, the meeting team members follow the roles one might use in an electronic meeting, and the guidance in the [Electronic Meeting Guide](#) can be followed.

5.1 Member descriptions

5.1.1 Chair/presiding officer

The presiding officer of the meeting functions much the same as in any meeting, and is responsible for the conduct of the meeting, and ultimately running the meeting. This should be confirmed prior to the meeting, as well as those that the presiding officer will delegate to. While it is preferable that the presiding officer be physically present, with help, a presiding officer can be remote.

5.1.2 Room chair

In the event that the presiding officer is remote, the appointment of a delegate, often a vice-chair, who is present is useful. This individual will maintain order in the room and be able to sense the mood and tone of the local group. It is helpful if this “room chair” has a private chat channel to communicate with the presiding officer.

5.1.3 Queue manager

As in electronic meetings (and explained in the [Electronic Meeting Guide](#)), for meetings of more than a few participants, it is useful to have a dedicated individual monitoring a speaking queue. When the group is larger than ten or more, decorum can be enhanced by having this individual post a speaking queue during discussion. The queue manager is responsible for blending and managing the order of speaking of both those in the room and the remote participants, so they must be present in the room itself, and must be able to monitor the “chat”, “raised hands”, or any other tool used to signal a desire

to speak. While the queue manager maintains the queue, the meeting remains in the hands of the presiding officer who will control order. In cases where there is a “room chair”, the queue manager and the room chair may be the same individual (but they may also be separate). Depending on the division of labor, the queue manager may (as detailed in the [Electronic Meeting Guide](#)) also function as the secretary and record attendance, votes, and straw poll results.

5.2 Advance work

A success factor for hybrid meetings is adequate preparation. Understanding the attendance, checking the setups and systems, and pretesting individual presenter equipment will save valuable meeting time. Even though many venues have facilities for networking, display, and remote access, pretesting is still essential. If deficiencies are found and corrected, they should be retested.

5.2.1 Meeting room sound system checks

As part of meeting room setup, be sure to test the microphones and PA speakers before the meeting well in advance of the meeting start time. This may require that a person not in the room is asked to connect to the meeting software in a test meeting to verify that the room microphones and video (if applicable) are functioning.

5.2.2 Equipment status check

If the projection, speaker, or telephone equipment supports user updates of firmware, make sure that is done prior to the start of the meeting. Some firmware updates may improve compatibility of the equipment with laptop computers used by volunteers to run a meeting.

If the event has multiple working groups meeting, consider having a speaker ready room available the afternoon or morning before the working group meetings begin. The ready room should have one or more of each model of projector, speaker phone, and other meeting room equipment ready for use by the volunteers in a test mode. The ready room should have an internet connection so that remote meeting software (e.g., WebEx) can be tested as well.

The use of a ready room is particularly valuable if the equipment available for each meeting may vary (for example, if projectors, meeting computers or A/V equipment is brought by participants). The ready room allows meeting time to be conserved, not wasting it troubleshooting configuration issues.

Advertise the ready room option in advance in case volunteers need to adjust travel plans to arrive early to try out their laptop computers with the equipment.

5.3 Managing conversations

Hybrid meetings increase the importance of maintaining the function of a single meeting. Off-microphone conversations and sidebar chats in the conference tool are easy distractions that can fragment a meeting and the consensus building process. Therefore, it is important for the chair, meeting leadership, and meeting attendees to remind each other that they are all in the same meeting and that all participants deserve to hear and be heard in the conversations. Below are some helpful tips for managing conversations in the meeting:

- Appoint a queue manager to keep track of the order of speakers in discussion. This can be the chair, but may require a dedicated individual. Repeating a speaking queue in the chat window of the conference tool to both people in the room and online is helpful.
- As chair, keep a more watchful eye on room decorum than you might in an in-person-only meeting. Watch for people speaking from their chairs away from the microphone and repeat comments that are relevant and in order so that those online can hear them.
- Enforce the speaking order, keeping a watchful eye on the need for direct questions and answers.

6. Recommended practices for conference events with meetings of several working groups

When multiple working groups are meeting in a shared location, many facilities can be shared. For example, a ready room or a group of breakout rooms can be shared. Additional consideration should be given to individuals attending multiple sessions within the same venue or meeting series.

Facilitating a hybrid meeting can allow individuals to monitor meetings in another room waiting for a subject to come up, improving efficiency for those who may attend more than one session. Participants may need to be reminded that when they wish to participate in another meeting, they should leave the room of the meeting they are currently in (versus just trying to talk softly in the corner).

7. Other considerations

7.1 Registration fees

If a registration fee is required to cover meeting room expenses, consider charging the same amount for both remote and in-person participants. It may be useful to show meals as a separate registration item.

If one person organizes the WebEx meetings for several working groups, consider giving that person a discount if meeting registration has a fee.

Remote registration for a hybrid meeting should close about a week before the event unless the web meeting information can be distributed automatically, especially if a fee must be collected and a password must be distributed. This should allow the remote meeting information to be distributed in advance of the meeting, and for remote attendees to send email inquiries before the meeting begins. If a person registers the same day the remote meeting is taking place, the volunteers who could help sort out an inquiry would likely be in standards development meetings themselves and would not be able to help.

Especially in the case where contracts were negotiated pre-COVID, meeting fees may need to take into consideration the expectation of attrition penalties in hotel contracts, as hybrid meetings can reduce hotel attendance.

7.2 Contract negotiations

If a hotel contract was signed pre-COVID and has a total number of hotel nights that exceeds the number expected for a hybrid event, consider asking for a reduction in required room nights. As a negotiating option, offer to return to the hotel for another event in one, two, or three years.

7.3 Consistency across event

For a hybrid conference with meetings involving many working groups of a single Standards Committee, it is important that all working groups have the same meeting options; that is, in-person only, hybrid, or remote-only. Use the same password throughout the committee if a password to connect is required.

For a hybrid conference with meetings involving more than one Standards Committee, all working groups within a given Standards Committee should agree to use the same approach for the hybrid event. Each Standards Committee may choose a different method, but it needs to be consistent within the committee so that clear messaging can be posted on the Standards Committee website and sent via email communication. Meeting staff would likely be involved in a meeting with multiple Standards Committees, so they need a single reference for a given Standards Committee on how to share remote meeting information to remote attendees.

8. References

8.1 Helpful equipment resources (examples):

There are several examples of equipment resources that have been reported used by one or more committees. **These are intended to help the reader understand the classes of equipment available and are not to be taken as an endorsement.** Individuals are to use their own judgement in selecting equipment.

Speakerphones:

- VTech Communications VCS752 ErisStation SIP Conference Phone with Two Wireless Mics. (This is used by the IEEE PES Power System Relaying & Control Committee and the IEEE PES Cybersecurity and Communication Committee)
- Jabra Speak 510 (This has been used by the IEEE PES Surge Protective Device Committee.)

Audio interfaces:

- Focusrite Scarlett Solo (This has been used by the IEEE 802 LAN MAN Standards Committee)
- Portable monitors: Dell 14 Portable Monitor - P1424H (This has been used by the IEEE 802 LAN MAN Standards Committee)

9. Updates

This document is intended to reflect growing knowledge of practices. Please contact hybridmtg-guide@ieee.org if you have experienced a particularly effective practice to share, or if you find errors or helpful clarifications for the document.