

logitech®

ROOM DESIGN GUIDE

SETTING UP A VIDEO MEETING SPACE





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Video meetings are increasingly pervasive in organizations of every size and type due to compelling improvements in AV quality, flexibility, ease of use, and affordability—plus the simple fact that face-to-face collaboration through video conferencing is the next best thing to being there in person.

As adoption rates steadily increase, so do expectations about the overall video meeting experience. Proper installation and set-up can mitigate many common pain points, or solve them altogether. The key to achieving professional results is a combination of:



ENVIRONMENT

Optimizing factors such as lighting, background, and furniture to help optimize the overall quality of video meetings.



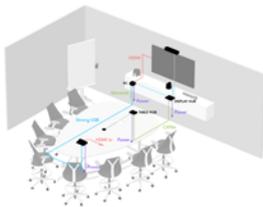
VIDEO COLLABORATION SOLUTIONS

Matching the right video conferencing equipment to the physical meeting space.



BEST PRACTICES

Placing products within the designated space to enable the right mode of work and best meeting experience possible.



ROOM CONFIGURATION

Selecting the correct technology and configuring it properly to provide for rooms that provide the right functionality for the space.



LAYOUT EXAMPLES

Sample design diagrams to demonstrate good product selection and installation in various room configurations and uses.

This guide will help you understand—and be able to proactively control—these essential variables for producing consistent quality video meetings with confidence and ease.

The meeting room environment provides a visual context that can enhance (or diminish) the overall quality of video meetings. Follow these guidelines to achieve professional-quality results and create the best possible user experience.

ROOM PROPERTIES

Whenever possible, choose a meeting space with minimal reflective surfaces, especially exterior windows and other large glass surfaces. Note that some surfaces that appear matte to the eye can still create glare seen by remote users even though not visible in the physical space itself. Meeting room selection should also be informed by the ability to influence lighting, room color, background variables, furniture, and room size/shape.

LIGHTING

An evenly-lit meeting space helps the camera capture the most accurate color, contrast and video definition. With color temperatures typically in the 3000K to 4500K range, the diffused fluorescent fixtures found in many office spaces work well for this purpose.

Any strong light source behind a meeting participant tends to darken the subject and produce an undesirable silhouette, so avoid pointing the camera towards exterior windows or other harsh lighting (like directional spotlights). Bright sunlight can also create sharp contrasts that are challenging for a video camera to render, even when the camera isn't pointed directly towards an exterior window. To help mitigate this issue, consider installing blinds, curtains or shades to better control the lighting situation.



Positioning a subject between the camera and an exterior window or other harsh light source can cause an undesirable silhouette that degrades video quality. Logitech® RightLight™ technology solves backlit and other lighting challenges by optimizing light balance to emphasize faces and render natural-looking skin tones.

COLOR

Room color can affect the visual quality of a video meeting. While not the most exciting, the best option is a solid gray or other neutral color on walls visible to the camera.

Avoid bright colors (such as pure red, blue, and green), which can cause the camera to unintentionally skew flesh tones and other hues. Also avoid bold patterns in the background whenever possible. Cameras generally do not capture patterns well which ultimately leads to visual distractions and a reduced experience.

If energizing the room with color is important for branding, display, or other purposes, use it sparingly and on the wall behind the camera's field of view. Keep in mind, even objects out of the camera's view, such as low seating, can produce color bounce if reflected off nearby walls.



BACKGROUND

To a camera visual clutter is much like complex patterns and should be avoided in the camera's line of sight whenever possible. Examples include unnecessary furniture, table clutter, ornate plants, busy artwork, framed prints with reflective glass, and moving objects (like curtains in a draft). When possible, conceal any wiring needed at the table on the tables underside.

Transparent walls or windows can also be a source of distraction if colleagues on the far end of the call are able to see movement or activity outside the meeting room. Glass walls also pose a privacy issue in that anyone outside can look into the room and watch your meeting. Possible solutions include blinds or curtains, a privacy screen, or frosted glass.

FURNITURE

Regardless of room size, a suitable conference table and appropriate number of chairs help anchor and define the meeting space. Frequently the table size and number of chairs will quickly refine product selection to a few products or sometimes even just a single product.

Furniture should be arranged so that the camera can "see" everyone at the table. This is typically accomplished by positioning the camera and screen at the head of the table and arranging seating on both of the long sides, as shown here:



Effective furniture arrangement in a huddle room/small meeting space.



Effective furniture arrangement in a large conference room.

The shape of the table itself can help maximize the number of people visible on camera. A tapered shape (like a triangle, trapezoid or semi-circular) is best, with the wider end nearest to the screen and camera. Avoid selecting a rectangular table if possible because participants closest to the camera can tend to block from view those seated behind them.

Circular tables can be a good choice for smaller rooms since they don't block the camera's line of sight. If selecting a circular table, be aware that the location of the table legs may limit where people can be comfortably seated. To extend in-room participation, select small high-top tables and light-weight moveable seating that can bring more people into the discussion.

In all cases, be aware of how the camera's field of view frames in-room participants for those outside the room. Furniture close to the camera will necessitate a wider field of view than furniture at a greater distance from the camera.

Logitech surveys business video conferencing users around the globe each year to identify trends and insights that can help continually improve our products. Given that “ease of use” is the most cited factor in the selection of a business video conferencing system, Logitech is intently focused on delivering products that are as intuitive and easy to use as possible.

Each of the following Logitech video collaboration solutions provides purpose-driven attributes and benefits matched to specific room types—from huddle rooms and small conference rooms to large meeting spaces, all with the plug-and-play simplicity our customers value.

Look for [Logitech RightSense™](#) technologies in our video collaboration products that make better video meetings easy and automatic. RightSense proactive technologies are built right into our cameras and audio solutions to make video meetings naturally more beautiful and efficient with no calibration, manual intervention or support required.



LOGITECH RIGHTSOUND™

Logitech RightSound optimizes the human voice and enhances conversational clarity.



LOGITECH RIGHTSIGHT™

Logitech RightSight automatically moves the camera and adjusts the zoom so no one gets left out of the picture. [Click here](#) for more information.



LOGITECH RIGHTLIGHT

Logitech RightLight helps everyone look their best on camera, regardless of lighting conditions.

The latest addition to the video collaboration product line that increases the ease and functionality of meeting spaces is Logitech Tap. Tap is a touch control surface that enhances existing systems such as Logitech MeetUp and Rally products. This accessory enables the native user interface of supported software clients to be just a finger press away.



Mid-sized conference room with Tap meeting room controller and Rally ConferenceCam.

HUDDLE ROOMS/SMALL MEETING SPACES

[Logitech MeetUp](#) is the preferred ConferenceCam for groups of up to six people (or up to eight people with the optional [Expansion Mic for MeetUp](#)) in huddle rooms and small conference rooms. With a super-wide, low-distortion 120° diagonal field of view¹, even those closest to the camera can be seen. The space saving, integrated audio bar provides an exceptional, natural sound experience for all meeting participants. The integrated audio includes a speaker for amplification coupled with a beamforming microphone so that your entire installation can reside with the display and not require complex cabling. With a compact design that minimizes cable clutter, MeetUp fulfills the unique audio and visual requirements for successful meetings in smaller spaces. MeetUp also integrates seamlessly with a dedicated room computer for room based software clients. When paired with these services, adding the optional Logitech Tap meeting room controller provides an intuitive easy to use touch interface at the table or on the wall to join and control a meeting.

¹FOV is measured diagonally. For horizontal and vertical measurements please visit www.logitech.com.

[Logitech Connect](#) is a portable, all-in-one solution designed for small groups of up to six people. With a rechargeable battery, Connect is compact and mobile so you can take it from room to room. Designed for tabletop placement and small spaces, this video conference solution offers a generous 90° diagonal field-of-view with pan and tilt, 4x zoom, and razor-sharp optics making it easy to see everyone in the room.

[Logitech BCC950](#) is ideal for personal use or for small ad hoc meetings with up to four people. An all-in-one device with 1080p video and professional audio, BCC950 delivers HD video from a motorized camera and wideband audio from a full-duplex speakerphone.



MEDIUM/LARGE MEETING SPACES

[Logitech Rally](#) is the flagship video conferencing solution for medium and large meeting spaces of up to 40+ people. Rally sets the standard for video quality, vocal clarity, industrial design, and meeting automation. Modular audio, expansive PTZ capabilities, and Ultra-HD video are combined with Logitech RightSense technologies that automatically frame human figures and optimize color and luminance for human faces. Rally provides an unprecedented level of design and installation flexibility while still maintaining the same level of simplicity that the entire Logitech video collaboration product line contains. The Rally base package fulfills the needs and requirements for most spaces on their own. When additional audio coverage is required you can add one speaker and up to six additional beamforming [Logitech Rally Mic Pods](#).

Rally easily integrates with a dedicated room computer and can be paired with the Tap meeting room controller for simple to use native interface for joining and controlling your meeting.

[Logitech GROUP](#) is the amazingly affordable video conferencing solution for rooms that seat up to 14 people (or up to 20 with optional expansion mics). A familiar speakerphone experience with center of table audio combined with advanced features like acoustic echo cancellation, noise reduction technology, and intuitive controls, it's easier than ever to include everyone in the conversation. For great-sounding audio calls, pair a mobile device with *Bluetooth*® wireless technology to the GROUP speakerphone.



DISPLAY

SINGLE, DUAL DISPLAY, OR MULTIPLE DISPLAYS

Huddle rooms and small meeting spaces can be adequately provisioned with a single flat-panel display. If there is room for an additional screen, one can be used to display the remote participants while the other can be dedicated to shared content. This is particularly helpful in larger rooms so people furthest from the screens can easily see the shared content.

An additional advantage of dual displays is it allows a PTZ camera to be placed at eye level between the two screens. With a single display, the camera is typically situated just below or above the screen.



DISPLAY SIZE

Ideally, the display should be large enough for everyone in the meeting to easily see the shared content on the screen while also in proportion to the conference table and overall meeting space. The optimal display will be capable of displaying both camera video and content video at resolutions and a size that even text is readable. To determine the optimal display size, measure the distance between the wall where the display will mount and the furthest seating position. Divide the distance to the furthest position by 4 and that will give you the recommended minimum height of the screen. If you multiply the screen height by 1.8 then you will have the diagonal size, which is the dimension given for display sizes. Larger can sometimes be better and this is where some discretion may be used, but the method listed above should consistently produce good results.

MOUNTING OPTIONS

Select a display mounting option based on the constraints and preferences for the meeting space. A common choice for larger conference rooms is to mount the display(s) on a wall for a professional appearance and increased visibility for everyone at the table.

When a single display is mounted on a wall, the center of the display should align with the center of the wall and the table. Dual display installations can be positioned either horizontally or vertically. For horizontal mounting, place the displays such that the center of the table aligns with the gap between the two displays. For vertical installations, follow the same rules as with a single display.

Keep camera placement in mind when positioning displays. If the camera is installed too high or too low it renders a suboptimal projection of the people in the room. Similarly, displays that are positioned too wide, too high, or too low can create an unnatural view for remote participants as the people in the room look to the screens. The optimal position for camera and displays is the one that best supports relaxed, natural eye contact between all meeting participants.

If there is a single individual being called then their head should be in the upper third of the image. For this reason, mounting the camera above the display will produce a more natural experience for these types of calls. If there is a group of people on the other side the participants will tend to occupy most, if not all, of the screen and mounting above or below the screen produce roughly the same experience. Remember that the best experience will keep the camera as close to eye level as possible. Eye level is relative to the seating in the room, but for standard seating this is 46-50" (116-127 cm) on average. This means that when mounting the camera below the display, keep in mind that the display will have to be elevated on the wall. If this works in a space is objective based on the users aesthetic desires for the room. When mounting the camera above the display, the bottom of the display should be as close to the surface height of the table as possible. In most cases the top surface of a standard conference room table is 30" (76 cm). This typically puts the camera above eye level, but may still provide for a better experience.

DISPLAY CARTS

Mobile display carts can add portability and flexibility to where video meetings are held. A mobile cart can contain a complete system and be wheeled into open spaces or to different rooms with just a power cable and a networking jack as the only external connections needed. Stationary carts can be a good option in spaces where it is impractical or not possible to permanently install displays and other equipment. Whether mobile or stationary, a suitable cart should provide solid mounting options, cable management accommodations and a sturdy, functional design.

Look for a cart solution that has optional brackets and easy mounting options for the camera, computer, speakers, meeting room controller, power strip and other accessories. The Heckler AV Cart, for example, provides an optional MeetUp Bracket that securely mounts the device directly to the cart while maintaining a clean aesthetic and keeping cables managed. AV carts are available for single or dual displays, plus storage for accessories and mounting for devices such as the computer. When installing components that produce heat while operating, such as a computer, be sure to provide adequate ventilation. When permanently deploying an AV cart in a room, also take into account the shape of the legs and casters to ensure easy movement around the meeting space. You may also want to consider devices to secure the gear to the cart such as Kensington® locks and optional locks for any storage drawers and doors.



Heckler Design offers an AV cart with an optional Logitech MeetUp Bracket.

SETTINGS

Display settings determine important attributes of the video you see on screen, including display resolution, color saturation, and brightness/contrast. Settings should be reviewed and adjusted as needed during installation, in advance of the first live video meeting. In general, displays by default have many settings that process the video and audio in an attempt to optimize them for television. These settings should be disabled or set to the lowest level where disable is not an option, to ensure the best possible performance from your video and audio. If there is a video setting labeled “Game Mode” then this usually is the best performance for video settings with the least processing.

INTERACTIVE DISPLAYS

Interactive displays are touch-enabled video screens. For room layouts designed to support front-of-room collaboration for brainstorming and whiteboard use, an interactive display enables users to digitize their notes, illustrations, and other work enabling better real-time collaboration and to be saved for future access.

A video-enabled interactive display can be used for in-room collaboration as well as video meetings with remote participants. Multiple cloud-based video meeting platforms now support interactive displays for real time annotations and shared content, or even as a meeting controller. With Zoom Rooms, for example, one touch on the screen enables users to easily annotate, draw, highlight, erase, and record meeting content to the Zoom cloud.

CAMERA

The core of any video conferencing solution is the camera itself. The camera should be positioned at an optimal height, distance, and viewing angle in order to see everyone in the room.

Field of View (FOV) determines the side-to-side viewing capacity of the camera lens. This specification varies among Logitech video conference solutions as follows:

✔ [Logitech Rally](#), [Logitech GROUP](#) and [Logitech Connect](#): 90° FOV (diagonal)

✔ [Logitech MeetUp](#): 120° FOV (diagonal)

✔ [Logitech BCC950](#): 78° FOV (diagonal)

The FOV of each Logitech lens is designed for optimal performance in its intended environment. The super-wide, low-distortion 120° diagonal field of view provided by MeetUp, for example, is ideal for huddle rooms where people are seated relatively close to the display and camera.

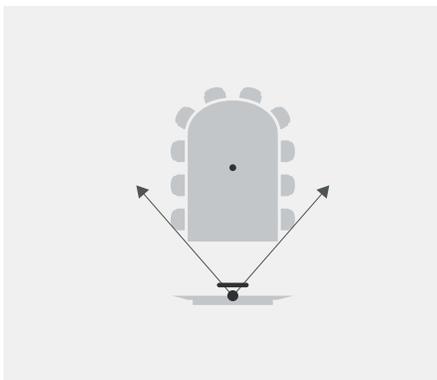
ANGLE

The ideal camera position is eye level, which provides the most natural orientation for face-to-face collaboration. Visual performance can be diminished if a camera is positioned too high (or too low) relative to meeting participants.

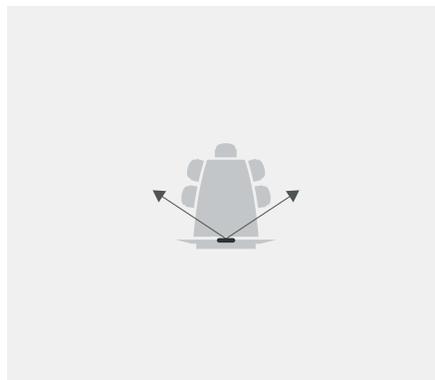
An eye-level camera position may be difficult to accomplish with a single display where the camera must be positioned just above or below the screen. To help address this issue, all Logitech ConferenceCams feature a motorized pan and tilt that can help adjust and fine-tune the viewing angle.

DISTANCE

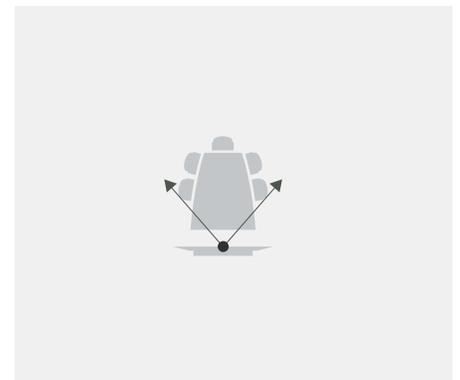
A certain amount of distance is required to take full advantage of a camera's FOV and ensure everyone is in frame. As shown in the diagrams below, the trick is to situate seating in locations that enable the camera to deliver its full potential. Meeting tables designed with one end wider than the other (like a triangle or trapezoid shape) can help include more people within the camera's view.



Rally and GROUP provide a 90° diagonal FOV with motorized pan and tilt, offering ideal coverage for medium and large conference rooms.



MeetUp provides a 120° diagonal FOV that easily accommodates huddle rooms where people sit on either side of the camera.



Connect provides a 90° diagonal FOV for tabletop placement and small spaces.

AUDIO

In addition to outstanding video, highly-intelligible audio is essential to successful video conferencing. Every Logitech video conference solution provides both.

[MeetUp](#), [Connect](#), and [BCC950](#) are all-in-one systems that include both a speaker and microphones. BCC950 features an omnidirectional speakerphone with a 4' radius mic range: Connect offers a 50% wider range with a 6' radius. MeetUp provides an 8' radius range out of the box, which can be extended with an expansion mic an additional 3' radius from where the expansion mic is placed.

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[GROUP](#) enables conference participants to converse within a 10' (3m) radius around the speakerphone and be heard so clearly by remote participants that it seems like conversations are happening in the same room. Optional expansion mics extend the conversation area from 20' to 28' so anyone seated further away from the speakerphone can be clearly heard.

[Rally](#) maximizes audio performance and flexibility with individual mic pods that produce remarkably clear and natural conversational sound. Each mic pod contains multiple beamforming elements and RightSound technology that focuses on active speakers while automatically eliminating acoustic distractions. Up to seven mic pods work together to create consistent audio coverage for every seating position throughout large meeting spaces.

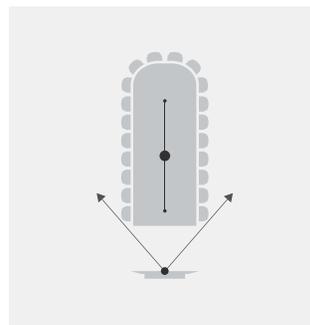
MICROPHONE PLACEMENT

With a 4' radius acoustic range, up to four BCC950 users will experience the best audio performance when seated near the all-in-one unit. Connect delivers the best audio results when 1-6 meeting participants are seated within a 6' radius of the device.

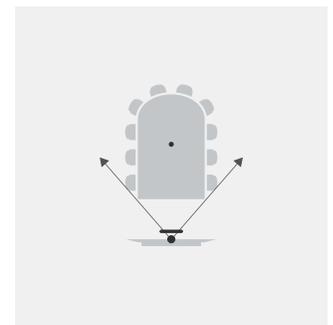
MeetUp features three beamforming mics with an 8' radius that collect sound in the direction it faces. MeetUp cannot pick up sound from behind it, so it should be positioned to face the people in the room. The optional, omnidirectional expansion mic provides a 3' (1m) radius range from where it is placed.

GROUP features a full-duplex speakerphone that provides a center of table 360 degree audio experience with four omnidirectional mics. Beamforming technology helps focus on speech throughout a 10' (3m) radius space (or 28' (8.5m) with optional expansion mics).

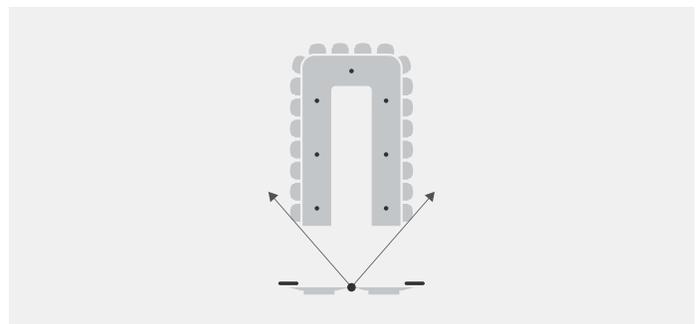
Each Rally Mic Pod provides exceptional conversational clarity throughout a 7.5' radius, effectively serving up to 10 people. Additional mic pods can be easily added to expand audio coverage and provide convenient access to mute controls.



Optional expansion mics extend the conversation area for GROUP from 20' to 28'.



One Rally Mic Pod delivers exceptional acoustic performance for up to ten people.



Rally can be expanded to serve up to 46 people with the addition of optional mic pods.

ACOUSTICAL SUPPORT

Regardless of how good a quality audio system may be, every physical space has intrinsic acoustic properties, many of which can be managed. Types of materials used for room construction and furniture has the greatest impact on room acoustics. Try to avoid rooms with highly reflective surfaces such as metal, stone, glass or similarly hard materials. These materials tend to increase sound reflections that compromise audio quality. Glass windows can allow outside noise to leak in and cause distractions to people in the room and on the other side of the call.

Acoustic ceiling tiles can be very effective in absorbing sound and reducing echo and reverb. Acoustic panels that hang from the ceiling are an effective alternative.

Carpet is an ideal flooring material because it absorbs sound well. Generally, softer and loftier materials absorb sound best.

Acoustic panels can be used to absorb sound and reduce unwanted reflections. In general, the more surface area covered the better. Supplement the sound absorption of acoustic panels with bass traps in the corners of the room for even better results against low frequency problems.



Selecting the most appropriate video conferencing solution for your environment and organizing your physical meeting space are the essential first steps needed to ensure professional-quality video meetings. The final step is to place and configure the equipment in the best possible way to support this goal.

Here are some key considerations and best practices:

COMPUTE

All Logitech video conference solutions are USB peripherals with plug-and-play connectivity to a computer of some form. The most common options are a personal laptop, sometimes referred to in terms of Bring Your Own Device (BYOD), or a dedicated computer of some type permanently installed in the meeting room.

Logitech video collaboration solutions are ideal for BYOD scenarios since they work right out of the box without additional software once everything is plugged in. With USB plug-and-play simplicity, BYOD users enjoy the flexibility to set up ad hoc meetings in any video-enabled meeting space with full access to any application on their own laptop.

Alternatively, many organizations prefer the consistency and convenience of provisioning video meeting spaces with dedicated computer sources. In this scenario, all connections are already made and tested so that everything is always set up and ready to launch a meeting. Users encounter the same experience every time and enjoy the reliability of a pre-configured, consistent experience. Rooms with a dedicated computer can gain additional ease of use by installing the optional Logitech Tap control surface.

PLACEMENT

The primary location for the computer source is either on the meeting table (as with a personal laptop), mounted below the table or behind the display wall. An advantage of positioning the computer near the display is proximity to AC power, Ethernet, and other components to which the computer connects.

Regardless of the chosen location, the computer requires proximity to the camera to connect through the USB cable. Supplied USB cables vary in length from 6.5' to 16' depending on which Logitech solution is acquired. In all cases, a quality Internet connection is required to provide a quality experience with video calls. Due to this requirement, wired Ethernet is recommended over using wireless (WiFi).

When planning the placement of the computer source, consider the connections for the meeting controller (see next section), HDMI cable(s) to the display, USB cables for the camera and speakerphone, Ethernet and power. HDMI and USB extenders are available if the in-box connectors for the camera, speakerphone and meeting controller are not long enough for a specific instance.

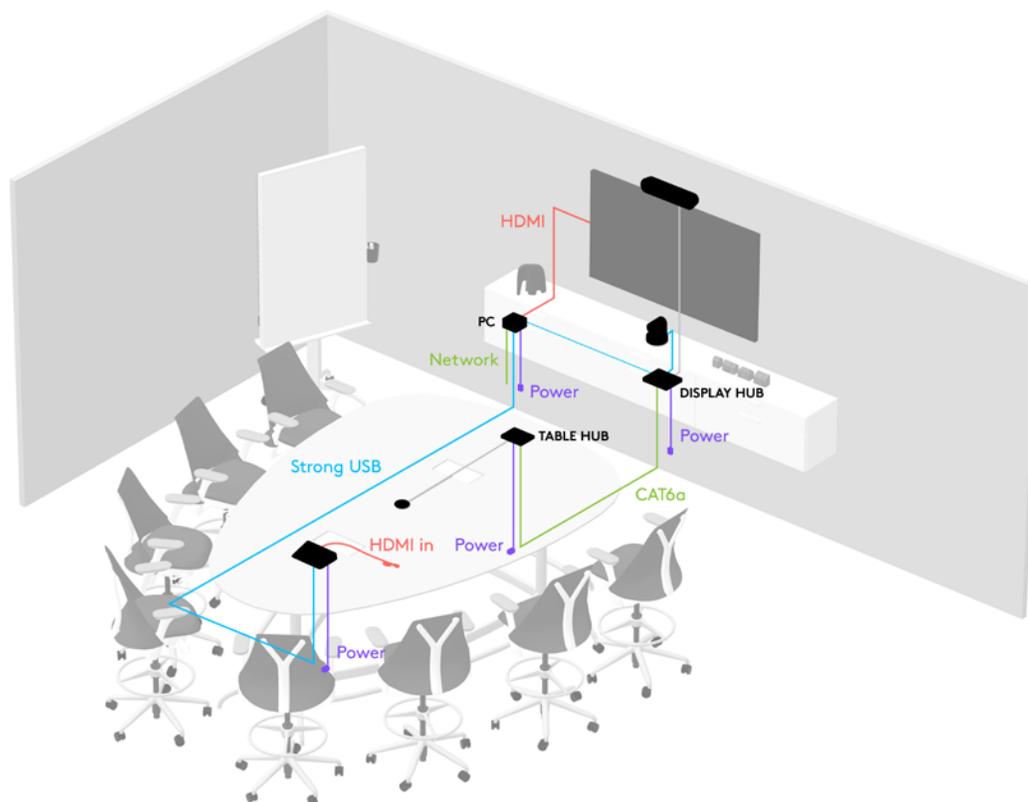


MEETING CONTROLLERS

In addition to the basic components of a video collaboration system (the display, computer source, and either an all-in-one solution or the combination of a camera, mics, and speakers) a meeting controller is also needed. The meeting controller can be either wired or wireless. Product options include a Logitech K400 Plus Wireless Touch Keyboard, a Logitech Tap or wireless tablets.

Tap is a 10" (254mm) touch surface which displays the native interface for video collaboration software. Tap requires a USB connection to the computer, power, and provides an optional HDMI input to enable wired content sharing. Tap can be placed on a table out of the box; additionally there are swivel mount, riser and wall mount optional accessories available. If the supplied USB cable is not long enough, the Logitech Strong USB cable is another option accessory that comes in 33 feet (10m) or 82 feet (25m) forms. Strong USB is an active optical cable that enables the extension of USB 2.0, USB 3.0 and USB 3.1 up to distances of 82 feet (25m). Being optical, the cable does not pass power to power remote devices, but does power itself from the device to which it is connected and therefore does not need any external power supply.

For configurations with a user supplied wireless tablet, power is needed close to the placement of the tablet on the table to avoid a low battery state at an inconvenient moment. Be sure to secure the tablet using a charging dock.

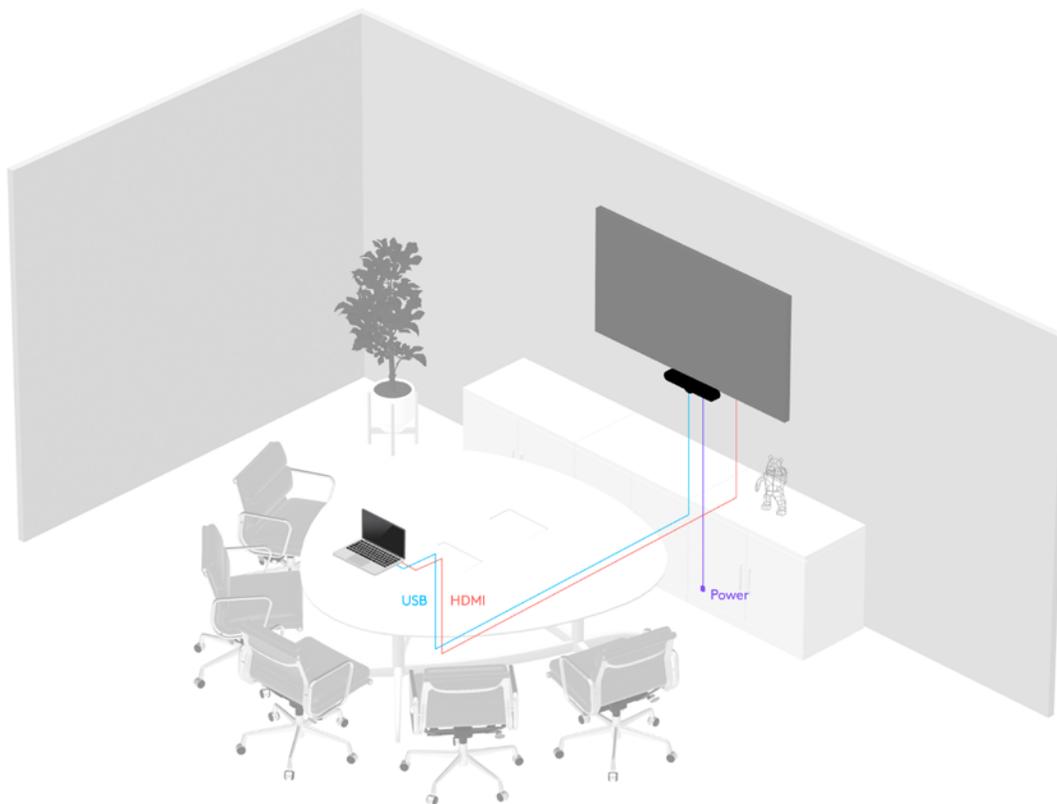


Cabling example of Tap and Rally in a mid-sized meeting room with a dedicated room computer.

CONNECTIONS

At the most basic level, you will need to ensure power is readily available to the video conferencing hardware, display(s), and the computer source.

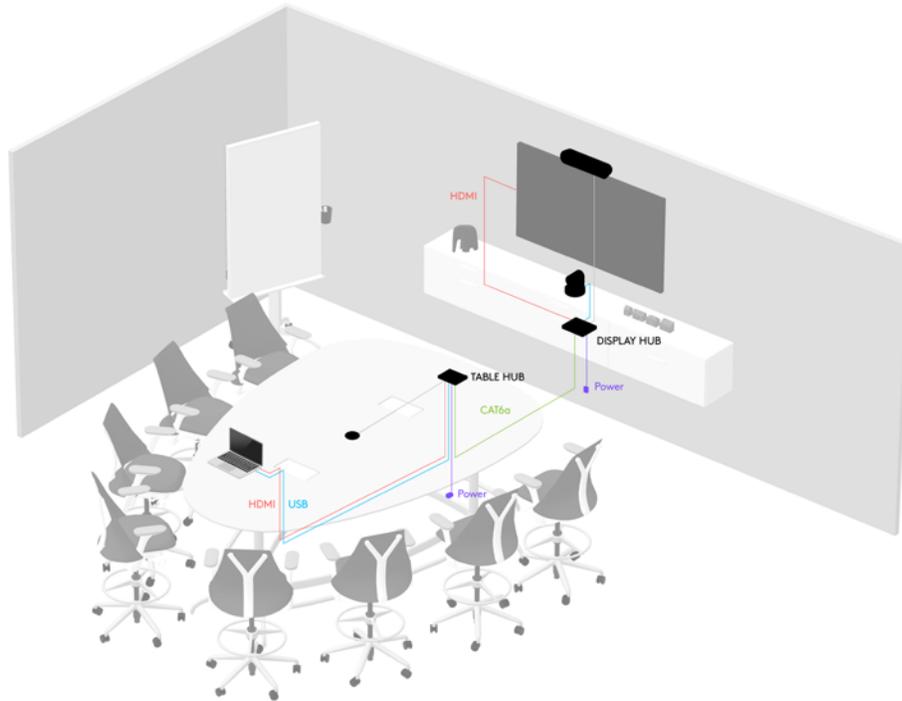
Other cables and connections include a USB cable between the video conferencing hardware and computer source, an HDMI cable or cables between the computer source and display(s), and an Ethernet connection for Internet access. Take note of how cable lengths and proximity to power/network outlets will inform your possible installation options in any given room.



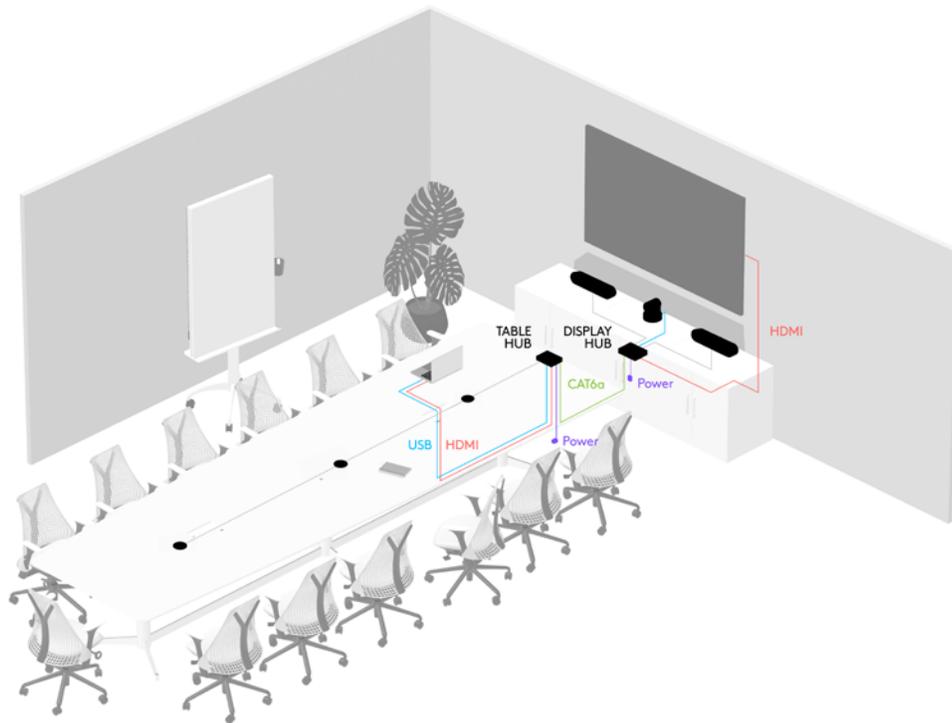
Huddle room cabling example with MeetUp and BYOD setup.

For the Logitech GROUP system deployments in larger conference rooms, additional connections are required between the hub, camera, speakerphone, and optional expansion microphones

Logitech Rally offers even more installation flexibility, including the addition of up to seven individual mic pods and an external speaker (mono) or two (stereo). With each Rally Mic Pod providing exceptional conversational clarity throughout a 7.5' (2.3m) radius (effectively serving up to 10 people) the possibilities are expansive.



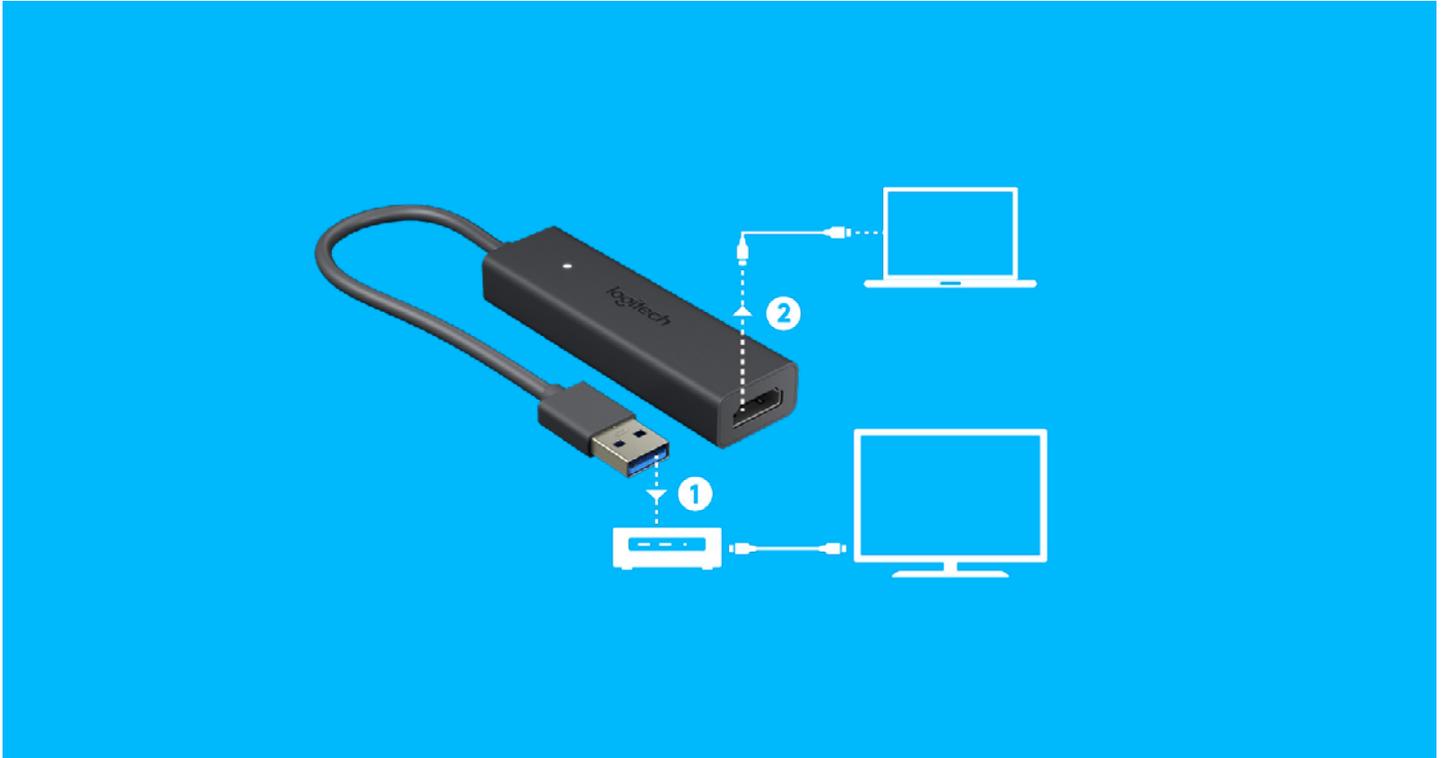
Mid-sized meeting room cabling example with Rally and BYOD setup.



Large meeting room/boardroom cabling example with Rally and BYOD setup.

For seamless meeting room installations, route cables through a conduit or under-the-table wire tray to keep cables organized, mitigate visual clutter, and reduce potential tripping hazards. Logitech Screen Share brings fast and easy content sharing to any conference room computer. Simply connect a laptop or tablet via HDMI to start sharing. There is no need to install software, enter a passcode, or even connect to the internet. Screen Share works with Zoom, Skype® for Business, WebEx®, BlueJeans, and other meeting services that support content sharing via USB.

Packed with video encoding technology in a surprisingly compact device, the Screen Share connects to the conference room computer via USB, and provides an HDMI input for instant content sharing as shown below:



Logitech Screen Share connects to the conference room computer via USB (1) and provides an HDMI input (2) for instant content sharing.

CABLE MANAGEMENT

In order to create a clean and professional video meeting space, cable management is an essential part of the installation process. Depending on room size along with number and length of cables, managing wiring can become a complex challenge for installers seeking to keep cables and cords neatly organized and contained.

A disorganized jumble of cables and cords can be distracting, diminish user experience, and reduce the overall effectiveness of meetings. Taking the time to do the installation right is well worth the effort. Here are some basic considerations for a streamlined cable management plan:

TABLE GROMMETS

Table grommets allow devices and connections needed above the table to cleanly pass the wires through to the bottom side with minimal visual impact.

Combined with under-table trays, organize and protect cables, hubs, and computer resources beneath the work surface and provide access points through table grommets located wherever wired equipment (like a Rally Mic Pod) is positioned. In situations where power or Ethernet outlets have been installed in the floor, consider using cable ties to secure connectors and power cords to table legs.

STRAIN RELIEF

Strain Relief is a way to mechanically secure cables to that the connector on the cable and the connector on the device to which it connects is not under tension (also called strain). Properly implementing strain relief is vital to a proper install to reduce potential failures that could occur during install or at any point in the future. This is true for all products, but even more for products that may be moved around like Tap when it is not permanently mounted using the swivel mount.

When installing cable runs, remember to leave some slack in the line to allow for flexibility of movement during use. With the GROUP speakerphone, for example, users tend to move the speakerphone in their direction in order to use the controls.

CONDUITS

Conduits can be installed under the floor, above a suspended ceiling, or behind walls to help run cables from different parts of the room to the required devices. When running cables through conduit, take care to ensure compliance with applicable fire and building codes. Plenum-rated cable has a special insulation with low-smoke and low-flame characteristics and is typically specified for use in conduits and air-handling spaces.

Note that conduits have a fixed capacity for how many cables they can accommodate. Characteristics and is typically specified for use in conduits and air-handling spaces. Note that conduits have a fixed capacity for how many cables they can accommodate.

RACEWAYS

Where space for concealed conduit is unavailable, consider above-floor raceways to deliver cables from wall to table while mitigating potential tripping hazards. Compared to running cables under carpet, cable channel raceways provide greater flexibility for adding, removing, or modifying cable runs in needs change. Raceways are also available for wall applications as when installing the display or Rally Speakers.

CABLE RETENTION

Various cable retention brackets, Velcro, and zip tie solutions are available from third-party providers. With Rally, a Rally Mounting Kit is available that includes two robust cable retention brackets to help secure the Rally Display Hub and Rally Table Hub connectors, reduce cumbersome cable clutter, and support a streamlined installation with a professional appearance.

CABLE EXTENDERS

In larger video meeting spaces, the standard cables may not reach far enough for the planned installation. The good news is that extender solutions are readily available.

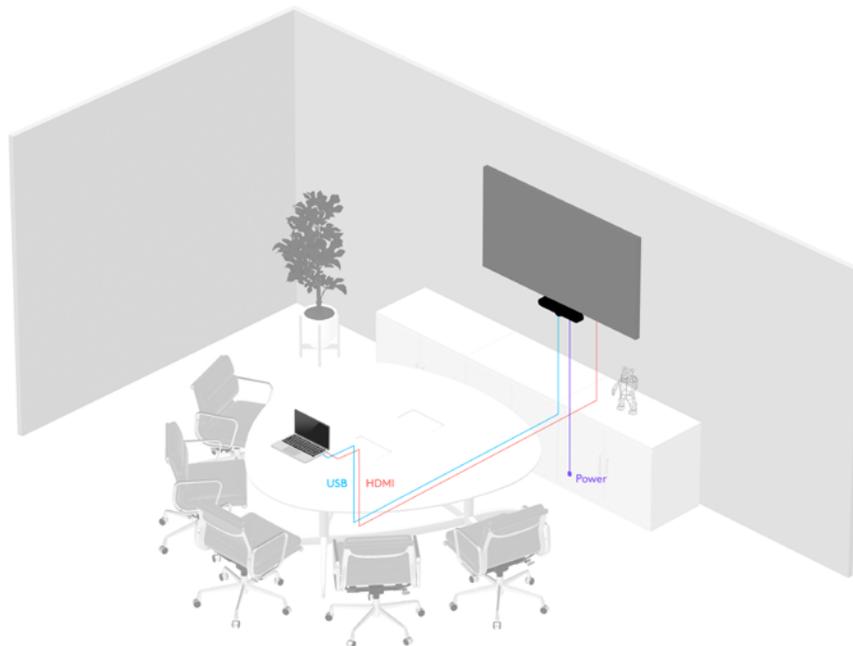
For GROUP, easily customize your conference room setup with the GROUP 10m or 15m Extended Cable. Use it to increase the distance from the hub to the camera or speakerphone. This 10-meter cable replaces the 5-meter DIN cable included with GROUP and can be routed through a conduit or raceway for super-clean conference room installations.

See below for some visual examples of best-practice layouts for various types of video meeting spaces:

HUDDLE ROOMS



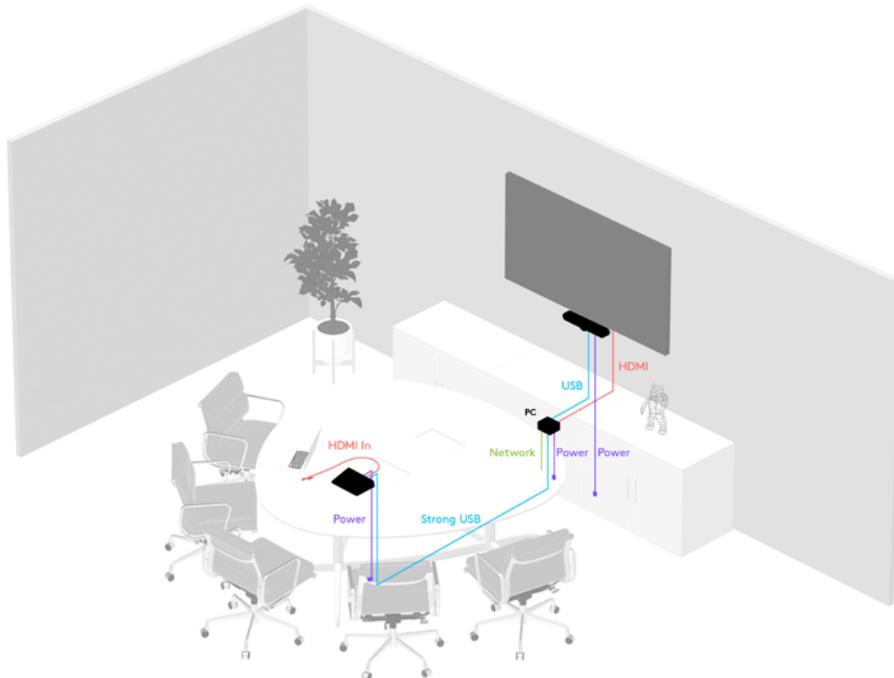
Huddle room layout example with [Logitech MeetUp](#) ConferenceCam.



Huddle room cabling example with [Logitech MeetUp](#) ConferenceCam and BYOD setup.



Huddle room layout example with [Logitech MeetUp](#) ConferenceCam and [Logitech Tap](#) meeting room controller.

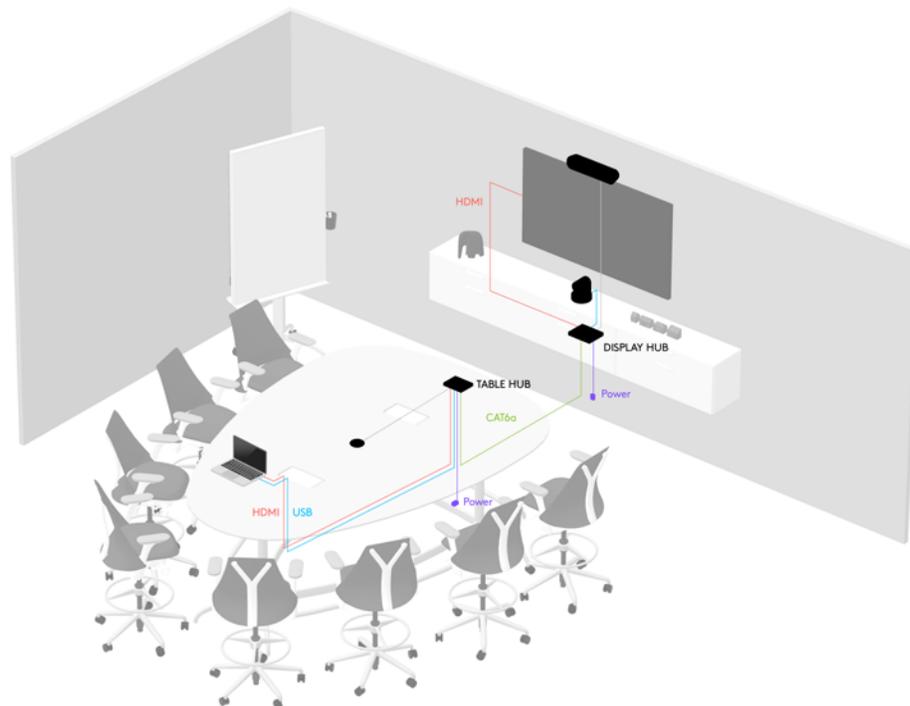


Huddle room cabling example with [Logitech MeetUp](#) ConferenceCam, [Logitech Tap](#) meeting room controller and dedicated room compute.

MID-SIZED CONFERENCE ROOMS



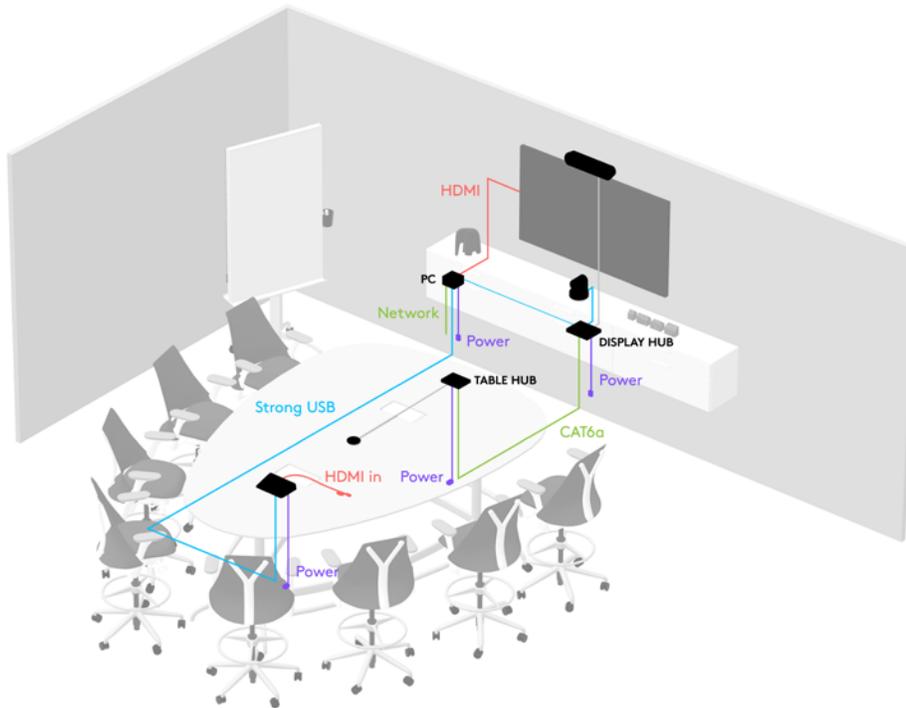
Mid-sized conference room layout example with [Logitech Rally](#) ConferenceCam.



Mid-sized conference room cabling example with [Logitech Rally](#) ConferenceCam and BYOD setup.



Mid-sized conference room layout example with [Logitech Rally](#) ConferenceCam and [Logitech Tap](#) meeting room controller.

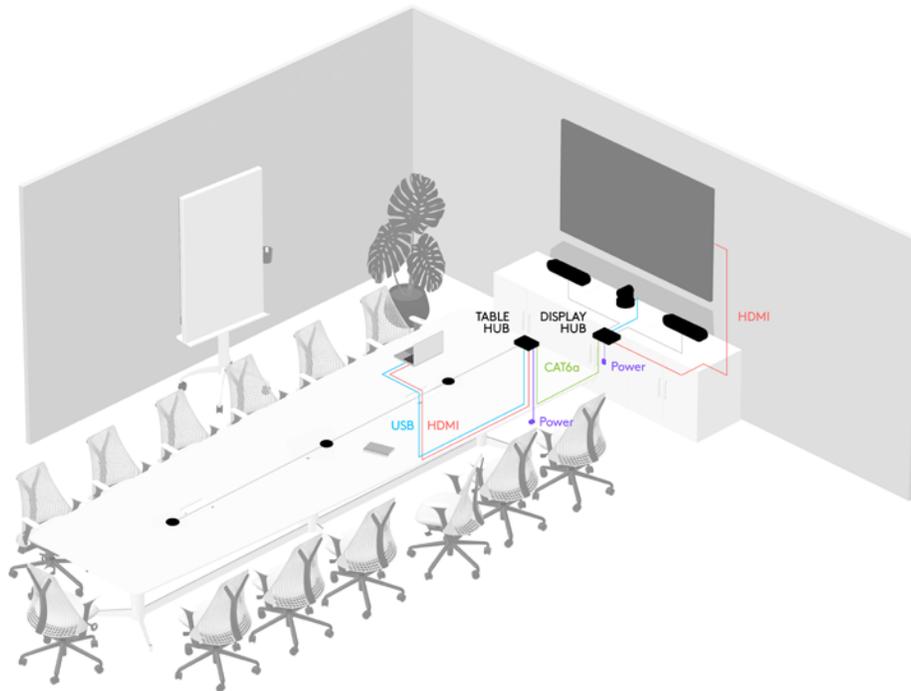


Mid-sized conference room cabling example with [Logitech Rally](#) ConferenceCam, [Logitech Tap](#) meeting room controller and dedicated room compute.

LARGE CONFERENCE ROOMS



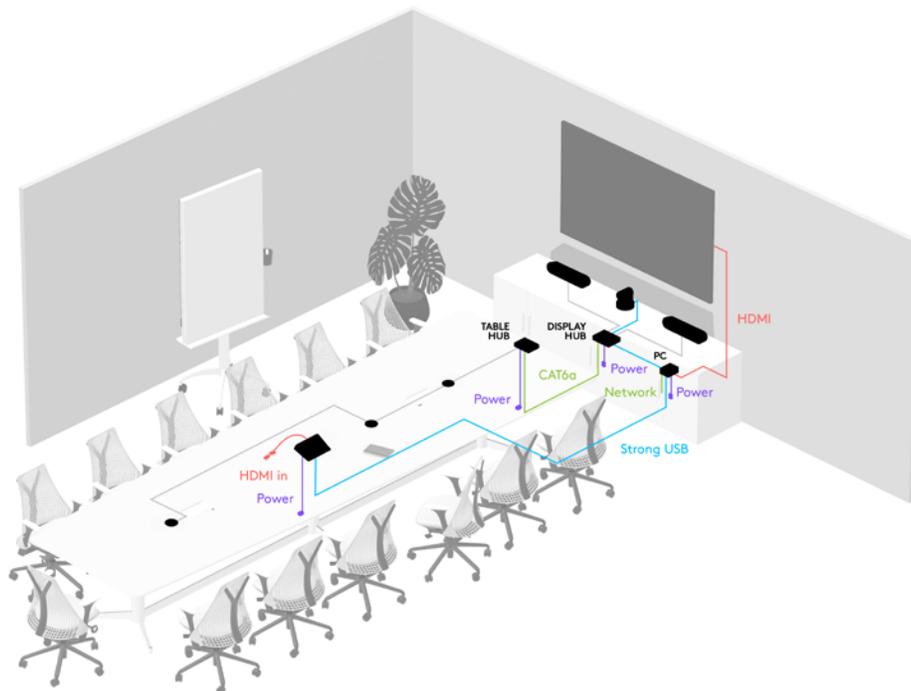
Large conference room layout example with [Logitech Rally](#) ConferenceCam.



Large conference room cabling example with [Logitech Rally](#) ConferenceCam and BYOD setup.



Large conference room layout example with [Logitech Rally](#) ConferenceCam and [Logitech Tap](#) meeting room controller.



Large conference room cabling example with [Logitech Rally](#) ConferenceCam, [Logitech Tap](#) meeting room controller and dedicated room compute.



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**Contact your reseller
or call us at 800-308-8666**

Logitech Inc.
7700 Gateway Blvd.
Newark, CA 94560
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