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Click here to buy the full 144-page “Take Control of Zoom” for only $14.99!
Welcome to *Take Control of Zoom*, version 1.0, published in May 2020 by alt concepts inc. This book was written by Glenn Fleishman and edited by Joe Kissell.

This book provides detailed instructions, warnings, and tips for using the Zoom videoconferencing service, from installation and configuration of software and account settings to best practices as a meeting member and meeting host, including how to be safe when creating meetings and participating in them.

If you want to share this ebook with a friend, we ask that you do so as you would with a physical book: “lend” it for a quick look, but ask your friend to buy a copy for careful reading or reference. Discounted classroom and user group copies are available.

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**Updates and More**

You can access extras related to this ebook on the web (use the link in *Ebook Extras*, near the end; it’s available only to purchasers). On the ebook’s Take Control Extras page, you can:

- Download any available new version of the ebook for free, or buy any subsequent edition at a discount.

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- Read the ebook’s blog. You may find new tips or information, as well as a link to an author interview.

If you bought this ebook from the Take Control website, it has been added to your account, where you can download it in other formats and access any future updates.
Zoom is a videoconferencing service that lets you bring from one to hundreds of other people together for real-time meetings, conversations, gabfests, lectures, and other purposes. Zoom allows screen sharing, audio-only participation (including via regular landline and wireless phones), and session recording.

While Zoom was founded in 2011 and steadily grew in adoption, usage skyrocketed during the outbreak of the global coronavirus pandemic in early 2020. The company said they saw a rise of people who used the service at least once per day on average from 10 million in December 2019 to 300 million participants in meetings in April 2020 (Figure 1). That’s an extraordinary leap and it’s remarkable that the company could keep the service running with that level of demand.

Figure 1: Zoom’s use has become so high that cartoonist Peter Kuper can knowingly parody its overuse. (© 2020 Peter Kuper. All rights reserved. Used with permission.)
Many companies, nonprofits, schools, and government bodies shifted from in-person meetings to Zoom calls. Zoom also became a popular option for socializing, including virtual coffee dates, and for gaming, where people gather around a board game or use an online game that allows remote participation. You’re probably already one of them!

And as you have certainly found, Zoom is flexible and generally easy to start with. The software is available as an app for every major desktop and mobile operating system as well as a web app that can be used without any plug-ins from all major desktop browsers.

But because it’s also powerful, there are a lot of options you can fiddle with or preset in configuring your setup, before or while participating in a meeting, or while setting up or running a meeting as a host.

Researchers and others have also revealed weaknesses in Zoom’s security, encryption, privacy, and basic programming. Zoom has fixed bugs and promised better. And you can make choices to improve your safety and privacy. But whether to trust Zoom for your particular purposes is a question everyone has to ask themselves, too.

This book aids people suddenly thrust into frequent or full-business-day Zoom usage who feel hamstrung by the company’s documentation and the various apps’ sometimes baffling or infuriating interface choices.

It’s also for people whose friends or family want them to be part of ongoing virtual happy hours or regular chats, and who are concerned about what they have read about Zoom or find the service overwhelming to use well.

I will take you from a Zoom user to a Zoom master by helping you understand all the corners of the service, including the many ongoing changes in the app, which I will document in future updates. But I will take you from your current level of Zoom knowledge to full expertise through task-based, bite-sized chunks. Let’s start!
Zoom Quick Start

Zoom provides an enormous amount of power and utility into a sometimes hard-to-understand set of slightly different interfaces across each operating system and browser they support. Use this Quick Start to find the parts of the book most useful to you fastest.

If you want to leap into a meeting, jump to “Be part of a meeting.” If your paramount concern is safety, read the sections under “Consider safety.” If you’ll never start (or “host”) a meeting, you can skip later chapters in the book focused on managing meetings, listed in “Learn to host Zoom meetings.”

**Consider safety:**
- Look into reports of Zoom’s privacy and security issues; see Can You Trust Zoom?.
- Maintain your safety as a participant; see Stay Safe in a Meeting.
- As a host, create safe conditions for a meeting; see Plan for Safety as a Host.
- Deal with safety issues while a meeting is underway when you’re hosting it; see Protect a Zoom Meeting.

**Get set up in Zoom:**
- Install Zoom software and configure it; see Get Set Up with Zoom.
- Prepare your surroundings and yourself for video chats; see Prep for Meetings.

**Be part of a meeting:**
- Conference with people in a Zoom meeting; see Participate in a Meeting.
- Show presentations, files, and videos from your device; see Share Your Screen.
• Talk via text with people inside and outside a Zoom meeting; see Chat in Zoom.

• Make an audio and video record of a Zoom session; see Record a Meeting.

**Learn to host Zoom meetings:**

• Use host controls to create meetings; see Set Up a Meeting.

• Handle a meeting while it’s underway; see Manage a Meeting.

• Control participants’ screen sharing; see Manage Screen Sharing.
What Zoom Can Do

Before we get into how to set up Zoom and use it, let me sketch an overview of what Zoom offers across their software and some optional hardware so you can understand the scope of your options.

Zoom offers videoconferencing, a feature this book devotes a lot of attention to, because it’s what most people are looking for and how most people spend their time using Zoom as a product.

Videoconferencing obviously includes two or more people using audio and video to communicate in real time with each other. One person has to be the host: they create a meeting and have superpowers, which in some tiers of service they can partially delegate to other people or hand off entirely.

Everyone else is a participant, someone who has varying abilities in a meeting depending on what the host permits them to do and what’s available in their app. (Web apps have fewer features than the company’s native apps.)

Each participant may be able see the live streaming video camera of everyone else, or sometimes just one at a time—or just a presenter or meeting host.

Note: Zoom’s Grid view in native desktop apps can be overwhelming, especially in big meetings, as you see dozens to hundreds of people live streams at once, sometimes broken into several pageable screens of streams. The Active Speaker view shows just the current and most recent people who have spoken to the meeting.

Zoom videoconferencing, called Zoom Meetings & Chat, also includes:

- **Audio-only participation:** People in a Zoom meeting don’t have to have a camera or can choose to not enable it. Those who dial in from a regular telephone also can use only the audio features.
• **Viewer/listener only:** A Zoom participant can be a completely passive observer and not send their audio or video into the meeting.

• **Screen sharing:** A Zoom host or participant can share their live screen. If the host allows it, multiple people can share screens simultaneously from desktop apps at once.

• **Screen annotation:** Participants can mark up a screen that everyone can see.

• **Public and private chat:** Zoom allows participants to send text messages within the meeting that everyone can see, as well as private messages to the host or among participants.

  **Note:** A host or administrator at a company, school, or organization may disable certain features or make them mandatory.

Zoom Meetings & Chat is broken out into price tiers, which start at free. That tier includes nearly all important functionality with modest limitations, such as a 40-minute meeting length for sessions with three or more participants. Paid tiers lift meeting limits and add additional account features, including cloud recording. I explain this in full in **Choose a Tier.**

Zoom also offers registered users chat outside of meetings in which they’re participating, if the users are part of each other’s contacts or part of the same organization. The chat feature is weak, so it’s largely useful inside organizations that have standardized on Zoom and within meetings. Every other major messaging service offers better features.

While *webinar* may be one of the most annoying words coined in the last 30 years, and scrape the mental blackboard like the word “moist” for some people, it’s popular for lecturers, small businesses, educators, and massive corporations to use these web-based video presentations to reach audiences. **Zoom Video Webinars** can be presented from the same software used for regular videoconferences, and can include up to 100 interactive video hosts or participants and up to 10,000 live viewers.
Can You Trust Zoom?

It’s impossible to write a book or have a discussion about Zoom without beginning with whether or not you can trust the company that provides the service and develops the software.

As Zoom grew dramatically in popularity in early 2020, their software clients, privacy policy, encryption and security provisions, and business arrangements drew enormous new scrutiny. That led to the exposure of bugs, poor practices, misstated explanations in technical documentation and marketing materials, and bad business decisions.

In mid-2019, the company faced their first major security and privacy disclosure, explained below. The company responded defensively and never apologized publicly, even as they fixed the problem. In late March and early April 2020, even as more than 15 disclosures came out in rapid succession, Zoom quickly released software fixes or updated server-based flaws. Their CEO and other executives repeatedly apologized.

Zoom users have also faced a significant problem that resulted in the coinage of a new word: zoom bombing. That’s the appearance in a Zoom meeting of a troll or abuser who fills the session with racist, sexist, or other tirades and images, streams pornography, or otherwise acts to disrupt the meeting for fun or to harm the participants. Zoom isn’t at fault per se for zoom bombing, but later in this chapter I discuss its impact and how by early April 2020, Zoom had dramatically overhauled security settings and their interface for host’s to change options rapidly. They continue to roll out new features even as I am writing this version of the book. (I delve into using setting Zoom up to use it safely and securely in a section for hosts, Protect a Zoom Meeting.)

For simplicity and to avoid going on and on for pages, I’ve divided the issues into security and encryption, privacy (including zoom bombing), and a final evaluation on how to decide for your purposes if you can use Zoom now—or ever trust them in the future.
Explore Zoom’s Security Model

Obviously, a company that has access to your screen, microphone, and camera and that lets you create communication sessions with other people has to protect the security of your interactions.

There are several aspects of security in a system like Zoom’s:

- **Apps**: Software must be written to prevent malicious parties from exploiting it and gaining access to users’ audio, video, and text feeds. But it also must respect a user’s settings and intent.

- **Account security**: Zoom requires a registered account for hosts, but participants don’t always need one, so only some Zoom users provide the company with information that must be protected.

- **Meeting security**: Zoom sessions should be able to prevent unwanted attendees. This is both a security and a privacy issue, and I discuss both in this and the following section.

- **Encryption**: The system must be designed to prevent unauthorized parties from accessing communications while they happen and, if data is intercepted, by decrypting it later.

Let’s dig in on each of these.

**Apps and Security**

Zoom has suffered from sloppy coding and shortcuts in the interest of making it easier to install the software and join meetings.

For instance, a couple of years ago Apple made it harder for webpages to use links that would trigger launching associated applications. While
Get Set Up with Zoom

Zoom starts with an app, like any networked service that involves connecting people. To use Zoom you install a native app from the company and launch it, or click a link in your browser to open a Zoom web app. From there you can participate in meetings and webinars.

I walk through the options for apps, and then explore the kind of hardware you need and options you might prefer.

Finally, I examine Zoom’s pricing tiers, useful for anyone who ever plans to host a meeting of more than one other person.

Download or Use a Zoom App

Zoom works best with a native app, one written for the operating system on which it runs. Some features are only available in native apps, which are faster, less choppy, and more reliable than the web apps that Zoom also offers for all major desktop browsers.

Whenever possible, use a native app; in circumstances were it’s not feasible, turn to a web app, preferably in Google Chrome, which offers the broadest feature support.

Note: You may be helping someone else get set up, and for naïve users, a web app may vastly easier to use—a single click or two is all that’s needed to participate in a videoconference.

Use a Native Zoom App

Zoom offers native apps for every major platform, including Android, iOS, iPadOS, macOS, and Windows. To get a native app, you can do any of the following:

• Visit the Download Center, which automatically figures out what you need. Click or tap the Download button.
• Wait until you join your first meeting on a given device. The meeting webpage will prompt you to download the software.

• Download directly via these links to Google Play (for Android), the iOS App Store (for iPhone and iPad), and the Mac App Store.

On desktop operating systems, run the installer and follow prompts to install the software. On mobile devices, install the software through the familiar app store process.

Get an Extension for Chrome OS

Google’s Chrome OS, used with Chromebooks, is a mix of the Chrome browser and operating system features. Thus, you can use a “native app” in Chrome OS, but it’s a kind of web plugin available only for Chrome for Chrome OS! You’re prompted to install it or can download it directly from the Chrome Web Store.

Use Zoom in a Browser

Some people may prefer not to install the native Zoom app for security reasons or because they lack permissions on a piece of hardware they’re using. In that case, you can turn Zoom’s web apps.

Note: Host accounts disable web apps by default, but they can turn the option in via Personal > Settings in their account. It’s labeled “Show a ‘Join from your browser’ link.”

These web apps require no plugin installation. Instead, they rely on a variety of browser video standards. That reliance means only a few browsers support most of the Zoom service’s features.

You can use Zoom in a desktop browser with:

• Google Chrome 53 or later. It’s your best choice on every desktop platform. (However, with Google Chrome in Chrome OS, you have to install an extension; see the sidebar just above.)

• Microsoft Edge 38 or later. You can’t share your screen using Edge with Windows 10 Home, only with Windows 10 Pro or Enterprise.
Prep for Meetings

We all like to put our best foot forward, and appearing on video can be daunting if you don’t do it all time—even among trusted colleagues, but especially with students, instructors, your boss or higher-ups, family, and friends.

As I write this book, a good hunk of the world is under shelter-at-home or tighter lockdown rules, requiring us to put our home working spaces under scrutiny when we use Zoom for video. That can make it even more fraught, but you can increase your comfort.

A few years ago, I had a contract job in which there were regular video meetings. I wound up making a number of changes in my work area to make it look tidy and professional and so I felt less self-conscious on camera—realizing that nobody else particularly cared about my space or appearance.

Consider all of the following as a way to put your best visual foot forward.

Set Up for Video

Obtaining the best results from a stream of video can be a fickle endeavor. Built-in and add-on webcams often perform poorly in low light, adding noise, and in mixed light, such as with bright lights in frame or pointing towards a frame.

You can fix lighting, add a backdrop, and make other changes that bump up your video quality. Here are a few tips that can help you produce the best conditions.

Tip: You can test your video in Zoom’s desktop apps via Settings > Video. These apps show a preview screen that’s exactly other people will see.
**Tip:** With networks and services sometimes overwhelmed, hosts may ask some people or all participants who aren’t speaking pause their video to reduce bandwidth requirements. This can improve video and audio quality.

**Manage Your Camera**

Whatever kind of camera or device you’re using, make sure the camera is positioned and angled so that you’re perpendicular to it. Nobody wants to look up your nose or see just the top of your head (Figure 3).

![Figure 3: This iPhone setup isn’t a good way to be an active participant in a video meeting.](image)

**Stabilize a Mobile Device**

If you own a relatively recent smartphone or tablet, it may have a very nice front-facing camera for selfies and videos. But other people will find it distracting if you’re holding the device in your hand and it’s constantly jiggling or moving.

There are a zillion smartphone and tablet tripods in the $15 to $40 range that include an adjustable clamp to fit any size of device. Or, you can buy an adapter for about $10 to $20 for smartphones and tablets that works with a tripod you already own.
Participate in a Meeting

Everything in the book until now has been preamble! We are finally at the main event: being part of a meeting.

Zoom meetings may have all participants joining via just video, just audio, or some combination of the two. Some people in a session may be using a dial-up line as audio-only members.

Meetings might have a single person streaming their video on camera, like a lecturer, fitness instructor, or manager, and everyone else locked out from showing theirs. Or a screen might show every participant!

Tip: Zoom offers multiple views, discussed later, that let you customize how many people you see on screen when multiple people are streaming video or sharing screens.

A host might mute everyone and ask that only text messaging be used as a backchannel, or might call on individuals and hand a sort of virtual mic to them, highlighting them as they ask a question or take a turn in a presentation or course.

Let’s dig into how we find a meeting and join it, and then how to work within a video session.

Note: Learn how to work as a host in setting up and running a meeting in two later chapters: Set Up a Meeting and Manage a Meeting.

What Makes a Meeting

A Zoom meeting is a sort of virtual room to which you’re invited. Every meeting has a unique meeting ID (a 9 to 11 digit number), and nearly all have a password. You may be sent an invitation that contains the meeting ID, the password, and a URL that will redirect (with permission) through Zoom’s website to connect you to the meeting.
**Note:** Only paid business tiers of service let a host create a meeting without a password starting May 9, 2020.

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**What’s a Personal Meeting ID?**

Zoom creates a Meeting ID for every new meeting, but each account also has a fixed Personal Meeting ID associated with it. (You can change the ID if you subscribe at a paid tier.) It can be used exactly like a regular Meeting ID for both scheduled and “instant” meetings. See Meet Instantly for more details on the latter.

Because the Personal Meeting ID doesn’t change, as long as you keep the password the same, anyone can drop in while you have an active meeting by using the ID and password. That might be useful for some personal, academic, or work situations in which you want a persistent accessible space. Or you may not worry about people re-using the connection details.

For business and education accounts, administrators can disable the use of Personal Meeting IDs as of May 9, 2020.

The host may have opted to include the password in the URL; if so, it appears as &pwd= followed by letters and numbers. This adds risk with publicly announced or posted meetings, as an unwanted party can use the URL to join. Other hosts may share just the portion of the URL that contains the meeting ID (with the password provided through other means), and you will then be prompted to enter the password to join the meeting.

Each meeting is set up with particular parameters, some of which can be modified during the session. Here’s a list of what you may be able to do in a meeting, keeping in mind some hosts may disable certain options or they may not be available at the host’s service tier or without the host’s permission:

- Share a video stream from your camera.
- Share audio from a mic you select.
- Share your screen.
Depending on what groups you use Zoom with, you may find yourself routinely sharing your screen to walk through or narrate a presentation, demonstrate software, or help provide technical or other support to people in the meeting for a given feature. You might even use this method to record a video solo or with other people that you can post as a how-to.

Screen sharing in Zoom is a form of streaming video, where a compressed version of the particular item or focus being shared replaces a video camera feed. This makes sessions bandwidth-dependent: a presentation with bullet points and flat colors will appear better on every connected person’s display than a 30-frames-per-second video or even walking quickly through menus in a piece of software.

Zoom makes it easy to share your screen to from a few to as many as hundreds, or even thousands, of people. Knowing a few key settings will help you from the get-go.

Let’s start with how to share your screen, then look at what you don’t want to share.

**Multiple Shared Screens**

Just to make it even more complicated, multiple people can share a screen, including a whiteboard, in the same session. A host must enable this feature.

As many desktop users as desired can share at once, but mobile users can only share if they’re the only member sharing.

With dual-monitor mode enabled, a desktop user can see two different whiteboards at once. Otherwise, they see the most recent one, but can use view controls to select others. Mobile users see only the most-recent whiteboard.
Note: On May 9, 2020, Zoom began disabling screen sharing by default for everyone but the host for free-tier accounts. If you’re not the host, you may need to prod that person to enable screen sharing if you’re asked to use it during a meeting.

Tip: For advice as a host on managing screen sharing, see Manage Screen Sharing.

Pick What You Share

What you can share varies by platform, but it includes photos, apps, a full monitor or device screen, and files that an operating system can show natively without another app, like video and PDFs. While desktop apps have a lot of options, Zoom provides a robust set of choices for mobile devices, too.

Note: What actions can viewers take? See View a Shared Screen. This includes options you can engage in with a whiteboard or annotating your own screen. Other people in the meeting can be allowed to mark up what you’re sharing, too, and everyone can see it.

Share from a Desktop App

Desktop apps offer a very long list of what you can share to other participants. Start by selecting an item and then proceed to share.

Choose a Desktop Option to Share

Click the Share Screen button and Zoom reveals a three-tabbed window with an array of choices:

The Basic tab includes screen-based options (Figure 21):

- **Any display**: Zoom notes these as Desktop 1, Desktop 2, and so forth, and overlays large numbers on the corresponding displays.

- **Whiteboard**: You (and others) can draw on a blank screen with annotation tools, which are described in Mark Up a Screen.
Chat in Zoom

While Zoom may seem all about video, the service has a chat system that works both within meetings and separately, depending on how you have it configured.

Zoom’s chat is fairly primitive compared to modern instant messaging systems, like WhatsApp, Skype, and Apple’s Messages, and channel-based group communication tools, such as Slack and Teams. It gets the job done during a meeting, but it’s unlikely to be a tool of choice outside it unless you, your company, or your school has or offers no better alternative.

**Tip:** For details on what chat features you can control as a host and how to manage during meetings, see Manage Chat.

**Note:** With business-linked Zoom accounts, an administrator can impose additional limitations on how chat is used both within meetings and outside of them, even if you’re the host.

Chat in a Meeting

Zoom features chat alongside audio and video as one of the ways to communicate with the host and among members during a meeting.

To get started with Chat in a meeting, click the Chat button at the bottom of a desktop app or tap the More icon and tap Chat.

From a menu, you can select to whom your messages are sent, whether that’s everyone in a meeting or individuals. Zoom doesn’t let you set up groups to talk to, however. Enter a message and press Return (desktop) or tap Send (mobile).

When you receive a message and are not displaying the Chat view in your app, a brief overlay appears showing the sender and message,
which then fades. A red badge with the number of missed chat messages appears over the Chat button in desktop apps and on the More icon in mobile apps.

**Tip:** It is very easy to overlook chat. The Chat pane doesn’t display by default in the desktop app and it’s not apparent that you have to tap More > Chat in a mobile app to get there.

All messages appear in a single Chat stream. A label above each message that indicates whether it was sent you individually or if it was sent to the whole group.

You can also select any member’s name in the Participants list to highlight them or open the Chat view. Select yourself in the desktop client, and Chat opens to Everyone as the destination.

**Warning!** A recorded meeting may include the text of chats between you and the person recording, an issue if that person uploads a meeting’s recording without examining chat logs. Read Use Resulting Audio and Video for more details on the care that needs to be taken.

**Note:** A host may disable participants’ ability to chat publicly or privately. See Manage Chat for more details.

Participants can also send files in a desktop app by clicking the File button and selecting a document (**Figure 24**). Only desktop app users can receive these files, which they click to download.
Set Up a Meeting

Because the meeting is the central unit of Zoom, as discussed in What Makes a Meeting, creating that meeting is the central job of the host.

In this chapter, I review the many options you have for setting up a meeting, including planning for safety, and then discuss how to create a meeting.

A Roadmap on How To Host

In this chapter and the following, Manage a Meeting, you learn how to function as a host on Zoom, including wrangling participants and controlling screen sharing and chat. In the chapter after that, Record a Meeting, I explain options for hosts to allow or configure recordings and how to record or access recordings as a host or participant.

Configure Meeting Options

Let it never be said that Zoom offers too few options—or that it puts them all in one place! In this section, I explain where to find settings and walk through basic meeting preferences and security options you can choose in advance.

Where To Find Zoom Meeting Settings

The company’s website and apps organize meeting options in a few different places.

- **Account settings**: Preferences you set via the account settings part of website affect both the defaults for *future* meetings you create as well as the accessibility of certain features in *all* meetings, no matter whether you have scheduled the meeting before that point or not. I discuss these in this section.
• **Meeting settings:** When scheduling a meeting, you can make changes to defaults that are decided in your account settings. See *Create a Meeting* for details.

• **In-meeting settings:** Some options chosen in advance can be modified by a host while the meeting is underway. See *Manage a Meeting* for a variety of options available during a meeting.

• **Personal Meeting Room settings:** Zoom also has separate options for the Personal Meeting Room, a sort of fixed address in Zoom assigned to your account. I discuss these options particularly in *Meet Instantly* and *Invite Participants to a Meeting*.

To access account settings, start by visiting zoom.us, clicking Sign In, and then clicking My Account. In the left-hand navigation bar, click Settings. Or [click this link to Settings](#).

I’ve grouped below the settings you should understand and consider configuring. There are many others that are self-explanatory or which you will rarely have reason to change.

**Set Defaults for a Meeting**

Several choices revolve around starting conditions when a meeting begins:

• **Start a meeting with video on:** You can opt separately to have your video (“Host video”) or participants’ video (“Participants video”) start as soon as you or they join a meeting. Participants can override this setting.

• **Audio Type:** You can select whether to limit participants to audio provided through a Zoom app, audio via a dial-up telephone call, or both.

Note: With a free account, dial-in access may not always be available during periods of high use. And on the other side, web app participants using Firefox or Safari can’t have the browser handle audio.
Manage a Meeting

Zoom makes hosting a meeting just as easy as being a participant. You use the same apps and have all the same options plus superpowers in meetings that let you control participants.

Zoom doesn’t force you into a particular way of interacting with participants. A series of pre-meeting choices you make and in-meeting actions you take shape how you run the meeting.

As a host, you can be entirely laid back, a moderator, a mediator, or a dictator— sometimes acting that last role is needed! Like running a classroom, a Zoom meeting often requires attention and discipline to prevent it from devolving into chaos. A tighter hand will be needed for public meetings, in which anyone can participate, and student-based videoconferences.

But even for social use, knowing how to manage meeting Zoom’s controls will make the experience more meaningful, fun, or functional.

Host Meetings with a Desktop Client

Zoom lets you host a meeting from mobile, desktop, or web app. But I argue it’s best to use a desktop app, as it offers you the option to switch between Active Speaker, Gallery, and Side-by-Side views and layouts. Even iPad and Android tablet versions of the Zoom apps limit you to at most seeing nine people at once.

While you can navigate to security and meeting settings, manage a Waiting Room, and swipe to find different participants’ video streams in a mobile client, it takes time and often requires multiple taps. In the desktop app, everything is easily available, often with a single click. It lets you fully participate and fully manage a session.

Likewise, even though you can use a web app to host a meeting, browsers lack features and responsiveness compared to the native desktop apps. If you must host via a browser, use Chrome.
Start the Meeting

A meeting can start in a few different ways, depending on how you’ve configured your account settings and the options when scheduling the meeting. This includes sessions in a Personal Meeting Room.

This process can wind up happening in one to three phases:

- **A meeting that allows people to join before the host arrives:** Participants immediately enter a live meeting. (This is not available with instant meetings that use a Meeting ID, as there’s nothing to join before the meeting starts!)

- **A meeting that requires the host to start it, but has Waiting Room disabled:** Participants enter the live meeting as soon as the host starts it.

- **A meeting with Waiting Room enabled:** Participants may not join the meeting until the host starts it, at which point they are placed into the Waiting Room. The host must then admit them into the live meeting.

Let’s dig into these phases further.

**Note:** Disable your notifications to make sure your attention doesn’t wander and you don’t miss important actions happening in the meeting. See Turn Off Notifications While Using Zoom.

Before the Host Joins

Participants can attempt to join a scheduled meeting or a meeting using your Personal Meeting ID at any time. However, unless you’ve set the option to allow them to join before you arrive, they see a message that the meeting hasn’t started yet (Figure 29).
Record a Meeting

Zoom has excellent built-in controls for recording the audio and video of a meeting. The service lets you conduct a multiple-person conference, a lecture or presentation, or an event and use in-app software to later work with the material captured. Your action might be as simple as posting the complete video the moment a session ends, or editing a multi-track podcast from individually recorded speakers.

While this chapter contains much that’s relevant for participants in meetings, recording is more tightly controlled and potentially more relevant for the person who organized or started the meeting.

Note: In addition to recording for later playback, you can stream meetings via YouTube Live. The feature is available to paid accounts only, including education accounts, and the setup is fairly straightforward, as Zoom describes in a support document.

Use Other Tools for Recording

If Zoom’s built-in tools don’t suit on a desktop operating system or you want to record from a mobile device, you can use built-in operating system or third-party tools to record. Android and iOS in particular have straightforward ways to record the screen as a video or even stream to other apps.

These videos will include Zoom interface details and might need additional editing. You can disable the Zoom account setting “Always show meeting control toolbar” to minimize its appearance on screen.

Configure Recording Details

Zoom allows two kinds of recordings: all tiers of services can record locally, and a host can allow any participant to make a recording. Paid tiers also have access to cloud-based recording, which has different
parameters and more limitations, but doesn’t require any work on behalf of a host or participant to manage the recording.

**Note:** Recording requires a desktop app. It’s not available in mobile or web apps.

Let’s start, however, with privacy, as it’s a key aspect of recording sessions.

### Consider Privacy During Recordings

We often say unguarded things when we think we are among people we trust. In this new era of everything happening remotely on video, we may drop our guard and be impolite, impolitic, or imprudent during a meeting that is being recorded.

There are also many kinds of meetings that are strictly private, proprietary, or confidential, and in the event they need to be recorded, much more care should be taken about the process.

**Tip:** While these options are only available to the host, you as a participant can suggest that a meeting host engage them. In an organization, you can help draft guidelines, a wiki entry, or some other method of spreading best practices for recording internal and external meetings.

A host can provide some additional help in a meeting by configuring for both privacy and disclosure in the account settings for recordings:

- **Local recording:** It’s wise to enable this but disable the “Host can give participants the permission to record locally” unless this is something needed for an upcoming meeting. It avoids any confusion.

- **Automatic recording:** For some kinds of meetings or businesses, you may want to enable this option, because you have an internal, regulatory, or other obligation or guideline to record all meetings for later review.
Appendix A: Zoom Alternatives

Zoom has a lot of competition. The service seems to have taken the lion’s share of new users during the global pandemic because of a combination of ease of use, ease of installation, number of simultaneous users, and generally high levels of functionality—it just works as expected nearly all the time. But maybe not: data released by competitors indicates they picked up a lot of usage, too, but perhaps in the quieter business segment with less anti-social behavior.

While this book offers the ins and outs of Zoom, you may have found after reading parts of this book that you would rather sometimes or routinely turn to an alternative tool. Or you may need a tool for specific purposes beyond Zoom, such as with a business that requires certain certifications on privacy or security. Here’s a look at several options that are free to use, and then a summary of additional paid alternatives.

FaceTime

Apple’s free FaceTime audio and video chat software and service works only on the Mac, iPhone, iPad, and iPod touch (plus FaceTime Audio on the Apple Watch)—there’s no web-based component. Everyone relies on the bundled FaceTime app. If your group doesn’t all have Apple gear, FaceTime is a nonstarter, so skip to the next section.

FaceTime allows up to 32 people in a single video chat with the latest few versions of Apple operating systems and with hardware from the last few years.
Note: All iOS devices must run iOS 12.1.4 or later (or iPadOS) to connect. Mac users must be using macOS 10.14.3 Mojave or later. Not all iOS devices compatible with iOS 12.1.4 may participate in video calls, however: older hardware that can run iOS 12.1.4 can join a Group FaceTime chat in audio-only mode.

Group FaceTime is among the simplest of the videoconferencing options, in part because there’s no software to install. But it also has the fewest features. You can’t share a screen or a presentation, and it lacks moderator controls. The person originating the call isn’t a host as such, and nobody in the call can mute other people, or manage any features. Anyone in the call can add another person, too.

It also has this weird behavior of growing and shrinking the four most recent speakers based on a combination of how recent they spoke and how much. It’s disorienting.

Tip: iOS 13.5 (still in beta as we published this edition) adds an option to disable this growing/shrinking option in Settings > FaceTime under Automatic Prominence. Disable the Speaking option.

Apple doesn’t offer a URL you can share to join a Group FaceTime call; you must be invited into a session. It also doesn’t include a built-in recording option, nor is there a way to remove anyone from a call.

On the plus side, FaceTime relies on robust end-to-end encryption that Apple describes in detail in a white paper.

Google Hangouts

Google Hangouts for consumers allows up to 25 people to videoconference, and includes screen sharing. Everyone must have a Google account and must be logged into it, but that’s free and extremely common.

Hangouts supports macOS, Windows, iOS, and Android, as well as Chrome OS (used on Chromebooks) plus Ubuntu and Debian-based Linux distributions. It can also be used in all major browsers, and only
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About the Author

Glenn Fleishman never stops writing about technology and its implications. He’s in his third decade of writing for publications as varied as *American History*, *Fast Company*, the *Economist*, *Smithsonian* magazine, Increment, the *New York Times*, *Macworld*, and TidBITS, and many others. In 2012, he was a two-game champion on Jeopardy!

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