2026 EDITION



HARDWARE GUIDE

CHOOSING THE RIGHT WEBCAM HARDWARE

UNDERSTANDING YOUR OPTIONS

Live webcams are a popular way for **hotels, resorts and attractions** to show off what makes them special. With so many webcams and streaming services out there, picking the right setup can feel overwhelming. The good news: it all starts with choosing hardware that fits your unique needs, and we're here to help with every piece.

CAMERA FACTORS

01 LIGHTING
02 RESOLUTION
03 LENS & FIELD OF VIEW
04 ZOOM
05 MOVEMENT
06 AUDIO
07 ENVIRONMENT

NETWORK & STREAMING

01 CONNECTIVITY & POWER
02 VIDEO CODEC & BANDWIDTH
03 STREAMING COMPATIBILITY
04 REMOTE MANAGEMENT

START HERE

WHAT TO CONSIDER

BEFORE YOU BUY YOUR WEBCAM HARDWARE

The best webcam for your business depends on where it's going and what you want viewers to see. We've split this guide into two parts: **seven camera factors** that shape the picture and sound, and **four network and streaming essentials** that get your live stream from the camera to your viewers.

	TOPIC	THE QUESTION TO ASK	WHAT TO LOOK FOR
CAMERA FACTORS			
1	LIGHTING	Will the camera need to see in the dark?	Infrared (IR), especially for wildlife cams
2	RESOLUTION	How sharp does the picture need to be?	1080p HD or higher; adaptive bitrate for 4K
3	LENS & FOV	How much of the scene should fit in the frame?	Wide or narrow field of view to fit the shot
4	ZOOM	How far away is your subject?	Optical zoom, not digital
5	MOVEMENT	One static view or several angles?	Fixed for one view; PTZ for many
6	AUDIO	Do you want viewers to hear the scene?	AAC support; a wind-protected outdoor mic
7	ENVIRONMENT	Indoors or outdoors?	An outdoor-ready camera; a specialty enclosure where needed
NETWORK & STREAMING			
1	CONNECTIVITY & POWER	How will the camera get power and internet?	PoE and wired; solar or cellular off-grid
2	CODEC & BANDWIDTH	How much upload speed do you have?	H.264, H.265 or AV1 to fit your bandwidth
3	COMPATIBILITY	Will we pull the stream, or will the camera push it?	RTSP for pull; RTMP, RTMPS or SRT for push
4	REMOTE MANAGEMENT	Can we reach the camera's web interface?	Firmware updates, reboots and settings

ONE PARTNER FOR THE WHOLE SETUP

We sell all of the hardware in this guide, and everything you buy from HDOnTap arrives pre-configured and fully tested. See **Buy from HDOnTap** on page 14.

FACTOR 01

01 LIGHTING

INFRARED VS. NO INFRARED

IP cameras with **infrared (IR) LEDs** can see much better in low-light or dark environments, because they both emit and detect infrared light.

Many of today's **PTZ (pan, tilt and zoom)** cameras come with powerful built-in infrared. An IR-equipped camera can deliver a clear view even in complete darkness, no matter which direction it's pointing.

650 ft+ Depending on the camera model, IR range can reach **up to 650 feet and beyond**. Check the specs for the camera you're considering.

CHOOSE INFRARED IF…

- ☑ Your camera needs to see in low light or at night
- ☑ You're streaming wildlife. For wildlife cams, infrared is often considered essential.
- ☑ You want a clear view after dark, in any direction



Infrared night view, Pennsylvania Elk cam

TIP: WE'RE HAPPY TO HELP

Need help choosing the best camera for your needs? Let us know how far your view needs to reach after dark and we'll help you find a camera that fits.

FACTOR 02

02 CAMERA RESOLUTION

HIGH-DEFINITION CLARITY

Viewers expect sharper live video than ever, partly thanks to **4K Ultra HD** television in broadcast media and broadband reaching a larger audience. A 720p HD camera used to be enough for most needs. Today, **1080p HD** is considered adequate for delivering clear, high-definition video streams. A 4K Ultra HD webcam offers even higher resolution for live streaming, but how well it works also depends on having more network bandwidth.

HOW THE RESOLUTIONS COMPARE

RESOLUTION	DIMENSIONS	TOTAL PIXELS	WHERE IT STANDS
720P HD	1280 × 720	About 0.9 million	Used to be enough for most needs
1080P HD	1920 × 1080	About 2.1 million	Over twice the pixels of 720p; adequate for clear HD
4MP / 1440P	2560 × 1440	About 3.7 million	A popular sweet spot; we sell and stream many of these
4K ULTRA HD	3840 × 2160	About 8.3 million	Highest resolution; needs more bandwidth

PIXEL COUNT, SIDE BY SIDE



STREAMING 4K? PLAN ON ADAPTIVE BITRATE STREAMING (ABR)

With ABR, your stream is encoded at several quality levels, and each viewer's player automatically gets the best one their connection can handle, for less buffering. Without ABR, anything over about 5–6 Mbps is a lot for viewers. Most will be fine, but many struggle, especially on mobile and cellular. In our experience, 4MP at 15 fps streams at about 4 Mbps, while **4K at 15 fps is more like 8 Mbps, so 4K should use ABR.** HDOnTap offers ABR as a premium service; ask us for details.

TIP: RESOLUTION ISN'T EVERYTHING

Image quality depends on your webcam's resolution, but sharp focus and good lighting matter too. HDOnTap can help you find the best setup for your camera with all of these in mind.

FACTOR 03

03 LENS & FIELD OF VIEW

WIDE VS. NARROW, AND HOW IT SHAPES YOUR FRAMING

A camera's lens decides its **field of view**: how much of the scene fits in the frame. Before you pick a camera, picture the shot you want viewers to see. Is it a sweeping view of the whole beach, or a close look at one spot?

WIDE FIELD OF VIEW

SHOW THE BIG PICTURE

- Fits more of the scene in the frame
- Great for skylines, beaches, slopes and venues
- Subjects appear smaller on screen

NARROW FIELD OF VIEW

GET CLOSER TO THE ACTION

- Fits less of the scene, but shows it larger
- Great for a single subject, like a nest or a storefront
- Less room around the edges of the frame

FRAMING TIPS

- [x] Decide what your "hero" subject is, and make sure it fills a good part of the frame
- [x] Think about what you don't want in the shot, such as parking lots, neighbors or private areas
- [x] Consider where the camera can actually be mounted. Distance to the subject affects which field of view works best.
- [x] Need both a wide view and a close-up? A PTZ camera or a second camera may be the answer (see Movement).

TIP: WE'LL HELP YOU FRAME IT

Send us a photo from the spot where you plan to mount the camera and tell us what you want viewers to see. We'll recommend a lens and field of view that fit.

FACTOR 04

04 ZOOM

OPTICAL VS. DIGITAL

If your subject is far away, zoom is what gets your viewers close. But not all zoom is created equal, and it's **optical zoom** that really matters.

OPTICAL ZOOM

THE REAL THING

Optical zoom uses the camera's lens to magnify the scene, so you get closer to your subject without losing detail.

DIGITAL ZOOM

JUST A CROP

Digital zoom simply crops the image and enlarges what's left. The picture gets bigger, but it doesn't get any more detailed.

Zoom level

The optical zoom level determines **how close you can get to a distant subject**, like an eagle nest high in a tree across the valley. The farther away your subject is, the more optical zoom you'll want.

ASK YOURSELF

- [ ] How far is the camera from the subject you most want to show?
- [ ] Do you want to switch between a wide view and a close-up? (A PTZ camera with optical zoom can do both.)
- [ ] Does the camera's listed zoom refer to optical zoom, digital zoom or a combination of the two?

PLANNING TO ZOOM IN A LOT? MOUNT IT SOLID.

The farther you zoom, the more every little movement shows. If the camera is on a pole or structure that sways or flexes, wind will cause shake and motion that's very noticeable in the live video when you're zoomed in far. Mount the camera on a solid, rigid structure.

TIP: TELL US THE DISTANCE

Let us know roughly how far your subject is from the camera location and we'll help you choose a camera with the right amount of optical zoom.

FACTOR 05

05 WEBCAM MOVEMENT

FIXED VS. PTZ (PAN, TILT AND ZOOM)

Do you want a live stream with one static view, or the flexibility to show off several angles and vantage points? Your answer decides whether you need a **fixed** camera or a **PTZ** camera.

FIXED VS. PTZ, SIDE BY SIDE

	FIXED CAMERA	PTZ CAMERA
VIEWS	One angle	A range of motion across multiple angles
ADJUSTING THE VIEW	Manual adjustment	Pan, tilt and zoom
ZOOM	Digital zoom usually available	Zoom without compromising image quality (see Zoom)
COVERAGE	A single view	A significantly larger area
BEST FOR	A single static view	Showcasing various angles and vantage points

WHAT PTZ MAKES POSSIBLE WITH HDONTAP

PRESETS & TOURS

Save your favorite views as presets, then set up a tour that moves from one preset to the next. Share each angle at the speed and duration you choose.

TIME-LAPSE AT EVERY PRESET

Our time-lapse services can drive the camera to each preset location while generating time-lapse clips of every view at the same time.

LIVE CONTROL WITH HDONTAP STUDIO

Keep the animals in the shot. Owners or staff can control a PTZ camera manually, and with **HDOnTap Studio** controls you can drive it yourself or bring in volunteer camera operators. A built-in calendar lets volunteers sign up for time slots to operate the cameras.

For wildlife cams, live control is a must. Viewers love it when the animals stay in frame.

FACTOR 06

06 AUDIO

BUILT-IN MIC VS. EXTERNAL MIC INPUT

Sound brings a live stream to life: crashing waves, chirping eaglets, the buzz of a busy boardwalk. If you want viewers to hear the scene, make sure your camera is ready for audio.

BUILT-IN MICROPHONE

SIMPLE AND SELF-CONTAINED

Nothing extra to mount or wire. But a built-in mic is usually just a pinhole in the housing, with almost no wind protection, so outdoors you'll hear a lot of wind noise.

EXTERNAL MIC INPUT

FLEXIBLE PLACEMENT

A camera with an external microphone input lets you choose your own mic and place it where the sound is, even if that's not right next to the camera.

AAC **HDOnTap streams need AAC audio.** Cameras usually support several audio codecs. As long as yours supports AAC, you're good to go.

HDONTAP OUTDOOR AUDIO

CLEAR SOUND, EVEN ON A WINDY DAY

We build custom outdoor audio kits around **outdoor-ready omnidirectional microphones** with good wind protection. Each mic pairs with a **PoE-powered preamp / mic interface** that boosts the mic's signal to the line-level input your camera expects. One network cable powers it, and the mic can go wherever the sound is.

- ☑ Weatherproof, outdoor-ready mics
- ☑ Wind protection built in
- ☑ Powered by PoE

Part of our complete site solutions. See **Buy from HDOnTap** on page 14.

FACTOR 07

07 ENVIRONMENT

INDOOR VS. OUTDOOR, AND WHEN TO USE AN ENCLOSURE

Many of the IP security cameras we work with are made for outdoor use, but many are not. Going outside? Start by checking that your camera is built for it.

In certain circumstances, a **specialty enclosure** is well worth it, helping protect your camera from moisture, rain, salty air, dirt or debris.



X|Clear wash cycle at Hotel del Coronado

SPECIALTY ENCLOSURES FROM X STREAM DESIGNS



XCLEAR

COASTAL ENVIRONMENTS

Our patented self-cleaning model. It washes itself, a big help in coastal environments.



XRAIN

WET AND RAINY LOCATIONS

Built on the same rotating-dome wiper system as our patented X|Clear, for wet and rainy locations.



XHEAT

EXTREME COLD, ICE AND SNOW

Made for extreme cold, icy and snowy environments, and does a better job of melting snow.

CHOOSING AN ENCLOSURE? LOOK FOR

- ☑ Circulation fans
- ☑ Temperature regulation
- ☑ Non-corroding or rust-proof materials
- ☑ Secure mounting hardware

TIP: NOT SURE YOU NEED AN ENCLOSURE?

Tell us about your site and we'll let you know whether an enclosure from our sister company, **X Stream Designs, Inc.**, makes sense.

XSTREAM DESIGNS

NETWORK & STREAMING 01

01 CONNECTIVITY & POWER

POE, WIRED VS. WIFI, AND OFF-GRID SITES

Every camera needs two things to stream: **power** and an **internet connection**. How you deliver them depends on your site.

POWER OVER ETHERNET (POE)

With PoE, a single network cable carries both power and data to the camera. That means fewer cables, no separate power outlet at the camera location and a cleaner install.

WIRED VS. WIFI

	WIRED (ETHERNET)	WIFI
RELIABILITY	The most dependable choice for a 24/7 live stream	Can be affected by distance, walls and interference
POWER	Can deliver power too, with PoE	Still needs a separate power source
BEST FOR	Most installs, whenever a cable can reach	Spots where running a cable isn't practical

OFF THE GRID

SOLAR POWER

No power at the site? A solar power system can keep your camera running in remote locations.

CELLULAR, FIXED WIRELESS OR STARLINK

No internet at the site? Cellular, fixed wireless radios or a Starlink uplink can get your stream online.

WE CAN SUPPLY ALL OF IT

Off-grid power, fixed wireless radios, routers, switches, cabling and Starlink uplinks: we provide complete site solutions. See **Buy from HDOnTap** on page 14.

NETWORK & STREAMING 02

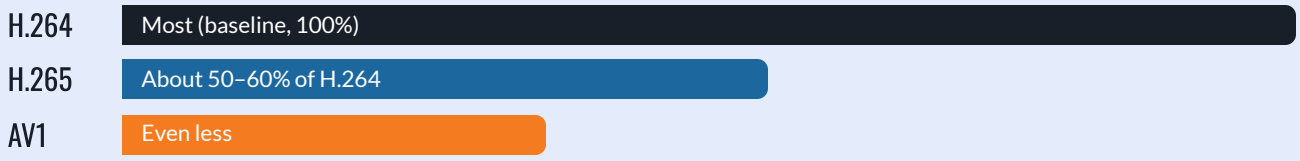
02 VIDEO CODEC & BANDWIDTH

H.264, H.265 AND AV1

A **video codec** is how your camera compresses video so it can travel over the internet. Together with resolution, frame rate and bitrate, it determines how much **upload bandwidth** your live stream needs, around the clock.

CODEC	WHAT TO KNOW
H.264	The long-standing, widely supported standard. It's what HDOnTap delivers to your viewers.
H.265	Uses less bandwidth than H.264 for similar video quality. HDOnTap accepts H.265 today with our adaptive bitrate streaming (ABR) service. H.265 comes with licensing (patent royalty) issues, and many web browsers don't support it, so we deliver video to viewers in H.264.
AV1	Uses even less bandwidth than H.265. HDOnTap support is coming soon. Note: cameras that support AV1 are limited right now.

BANDWIDTH FOR SIMILAR VIDEO QUALITY (APPROXIMATE)



HOW MUCH UPLOAD SPEED DO YOU NEED? IT DEPENDS ON YOUR SETUP.

RESOLUTION
Higher resolution uses more bandwidth.

FRAME RATE
Higher frame rates use more bandwidth.

BITRATE & COMPRESSION
Less compression (a higher bitrate) looks better but uses more bandwidth. More compression saves bandwidth at the cost of quality.

CODEC
H.265 and AV1 need less upload than H.264 for similar quality.

EVERY SITE IS DIFFERENT. ASK US FOR A RECOMMENDATION FOR YOUR SITE.

Tell us your camera, resolution and internet connection and we'll suggest the right codec and settings. For real-world bitrates from our streams, see Resolution (page 4).

NETWORK & STREAMING 03

03 STREAMING COMPATIBILITY

PULL VIA RTSP OR PUSH VIA RTMP, RTMPS OR SRT

There are two ways to get your camera's live stream to HDOnTap: **we pull it** from your camera, or **your camera pushes** (publishes) it to us.

PULL · RTSP

WE CONNECT TO YOUR CAMERA

HDOnTap can pull streams from your camera using RTSP (Real Time Streaming Protocol).

To do that, our network needs to reach the camera, which typically means opening ports on your network, such as **port 80** (web interface) and **RTSP port 554**.

PUSH · RTMP, RTMPS OR SRT

YOUR CAMERA SENDS IT TO US

Some cameras support RTMP, RTMPS or SRT and can publish their stream directly to HDOnTap. RTMPS (via TLS) and SRT are encrypted.

Because the camera pushes the stream out to our network, opening up your network isn't necessary.

WHY PUSH MATTERS FOR SECURE NETWORKS

For government agencies and other sites where opening ports for outside access is a security issue, a camera that can push via RTMP, RTMPS or SRT is often the way to go. Ask us which cameras support it.

ASK YOURSELF

- ☑ Does the camera support RTSP?
- ☑ Can you open port 80 and RTSP port 554 for HDOnTap, or is that a security concern?
- ☑ If ports are a concern, does the camera support RTMP, RTMPS or SRT publishing?

NETWORK & STREAMING 04

04 REMOTE MANAGEMENT

FIRMWARE, REBOOTS AND SETTINGS, FROM ANYWHERE

Cameras need a little care over time. The good news: **if we have access to your camera's web interface, we can manage any camera remotely.**

FIRMWARE UPDATES

Keep the camera current

REMOTE REBOOT

Restart without a site visit

SETTINGS ACCESS

Fine-tune the picture and stream

FEATURED · AXIS CAMERAS

HDONTAP SERTAVO SOFTWARE

Available for Axis cameras only (for now), our **Sertavo** software lets you publish your stream to the HDOnTap network, **even if your camera is behind a firewall**. It also supports:

- ☑ Custom overlays
- ☑ Time-lapse
- ☑ Remote camera control

TIP: BUY IT READY TO GO

Cameras purchased from HDOnTap arrive pre-configured and fully tested, so remote access is set up from day one. See page 14.

ONE PARTNER, START TO FINISH

BUY FROM HDONTAP

WE SELL ALL HARDWARE OPTIONS.

PRE-CONFIGURED

Equipment arrives set up for your HDOnTap live stream.

FULLY TESTED

We test everything before it ships to your site.

Whatever your site needs, from the camera itself to the power and network that keep it streaming, you can get it from us.

COMPLETE SITE SOLUTIONS

- CAMERAS
- OFF-GRID POWER SOLUTIONS
- FIXED WIRELESS RADIOS
- STARLINK UPLINK SOLUTIONS
- ROUTERS
- SWITCHES
- CABLING
- AUDIO

ADAPTIVE BITRATE STREAMING (ABR)

Streaming 4K or anything over about 5–6 Mbps? ABR keeps viewers on mobile and cellular happy. We offer it as a premium service.

ALL OF IT.

Tell us about your site and we'll put together the complete package.

BEFORE YOU BUY

PRE-PURCHASE CHECKLIST

RUN THROUGH THESE WITH YOUR TEAM

LIGHTING

- [ ] Will the camera need to see in low light or darkness?
- [ ] Wildlife cam? Plan on infrared.

RESOLUTION

- [ ] At least 1080p HD? 4MP / 1440p is a popular sweet spot.
- [ ] Streaming 4K or over about 5–6 Mbps? Plan on adaptive bitrate streaming (ABR).

LENS & FIELD OF VIEW

- [ ] Wide view or narrow close-up?
- [ ] What do you want in (and out of) the frame?

ZOOM

- [ ] How far away is your subject? Is the listed zoom optical?
- [ ] Zooming in far? Plan a solid, rigid mount to avoid wind shake.

MOVEMENT

- [ ] One static view or several angles?
- [ ] Using PTZ? Map out presets, tours and time-lapse. Wildlife cam? Plan on live control with HDOnTap Studio.

AUDIO

- [ ] Built-in mic or external mic input?
- [ ] AAC support? Outdoor mic with wind protection?

ENVIRONMENT

- [ ] Going outside? Is the camera made for outdoor use?
- [ ] Coastal, rainy or snowy site? Ask about X|Clear, X|Rain or X|Heat.

CONNECTIVITY & POWER

- [ ] PoE and a wired connection where possible?
- [ ] Off-grid? Plan for solar and cellular, fixed wireless or Starlink.

CODEC & BANDWIDTH

- [ ] Which codecs does the camera support? (H.265 works with our ABR service.)
- [ ] Is your upload speed enough? Ask us for a recommendation.

STREAMING COMPATIBILITY

- [ ] Can you open port 80 and RTSP port 554 for us to pull the stream?
- [ ] If not, can the camera push via RTMP, RTMPS or SRT?

REMOTE MANAGEMENT

- [ ] Will HDOnTap have access to the camera's web interface?
- [ ] Axis camera? Ask about Sertavo.

BUYING

- [ ] Buying from HDOnTap? Equipment arrives pre-configured and fully tested.
- [ ] Need power, network gear, audio or ABR? We offer all of it.

TAP INTO THE POWER OF LIVE STREAMING VIDEO

GET STARTED

EXPLORE PACKAGED OR CUSTOMIZED SOLUTIONS

Maximize your brand's impact online with the guidance of our experienced staff. Tell us about your location and goals, and we'll help you choose the hardware, site solutions and streaming plan that fit.

CALL OUR OFFICE
858.481.4096

VISIT US ONLINE
hdontap.com

HD ON TAP

STREAMING SERVICES REDEFINED.