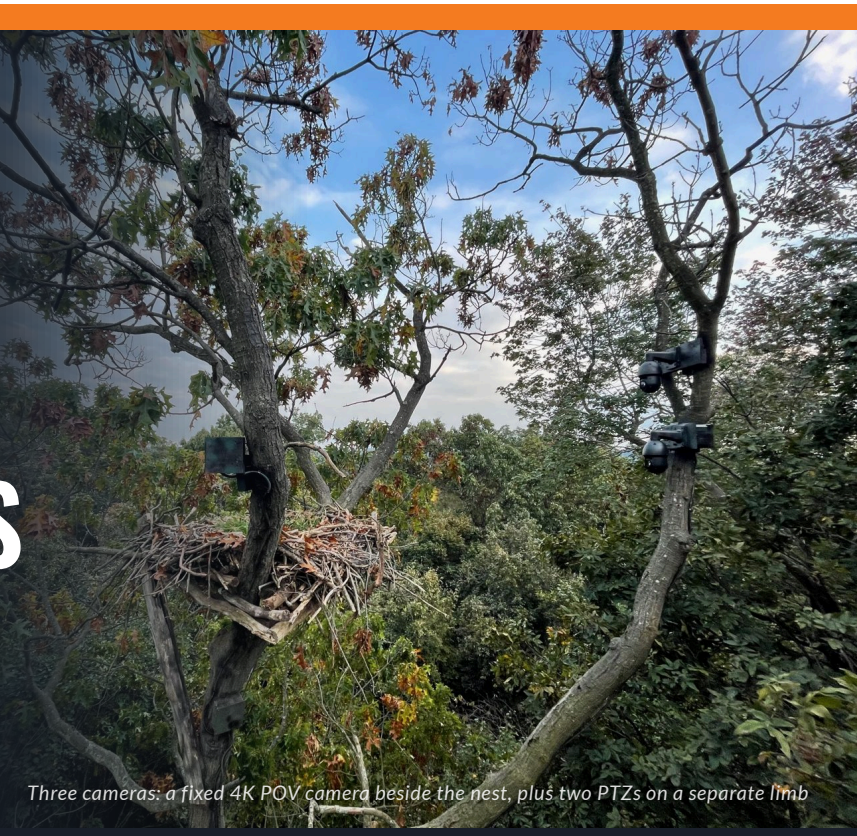
2026 EDITION

INSTALLATION GUIDE · EAGLES NEST

LIVE CAMERA INSTALLATION REQUIREMENTS

& DEPLOYMENT OPTIONS



Three cameras: a fixed 4K POV camera beside the nest, plus two PTZs on a separate limb

A reliable live nest cam needs two things at the nest tree: **power** and an **internet connection**. How you get them there depends on what's already on site. This guide covers the basics, helps you pick the right setup, and shows each option step by step.

15 YEARS

We know what works for a successful nest season. HDOnTap has been doing this for 15 years, and we've learned what works and what doesn't. Getting it right the first time is critical: you can't service the cameras once the eagles are on the nest.

FIVE WAYS TO GET YOUR NEST TREE ONLINE

01 DIRECT ETHERNET

02 WIRELESS BRIDGE

03 STARLINK SATELLITE

04 SOLAR + RADIO LINK

05 SOLAR + STARLINK

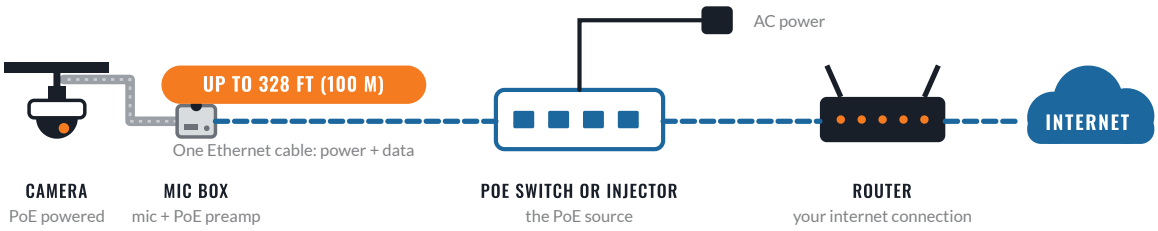
START HERE

A THE BASICS

POWER + INTERNET, OVER ONE CABLE

Every live camera needs **power** and an **internet connection**. With **Power over Ethernet (PoE)**, both travel over a single Ethernet cable, so there's just one cable to run to the camera.

328 ft **Maximum PoE cable run: 328 ft (100 m)**
Measured from the PoE source (a network switch or PoE injector) to the camera.



NEED TO GO FARTHER?

A **PoE Ethernet extender** can add another 328 ft. That can mean more trenching and conduit, so at some point **off-grid solar with a wireless radio link** makes more sense. We'll help you choose.

DON'T FORGET AUDIO

Live audio lets viewers hear the **eagle calls, even when the birds are off-camera**. Each camera's Ethernet cable runs into its own small grey **mic box** near that camera; from there, Ethernet and audio run together in grey conduit to the camera. No extra cable or injector.

TELL US ABOUT YOUR SITE

- [ ] Is there grid power at or near the nest tree?
- [ ] How far is the nearest internet connection?
- [ ] Is there a clear line of sight from the nest tree to a building with internet?
- [ ] Does the site have an unobstructed view of the sky?
- [ ] For solar: how much southern sun does the site get?
- [ ] Photos of the full nest tree, the nest, and the limbs and structure around and above the nest (for mounting cameras)
- [ ] Have a drone? Drone video and photos of the nest are very helpful, and a drone can confirm line of sight over the trees for a radio link.

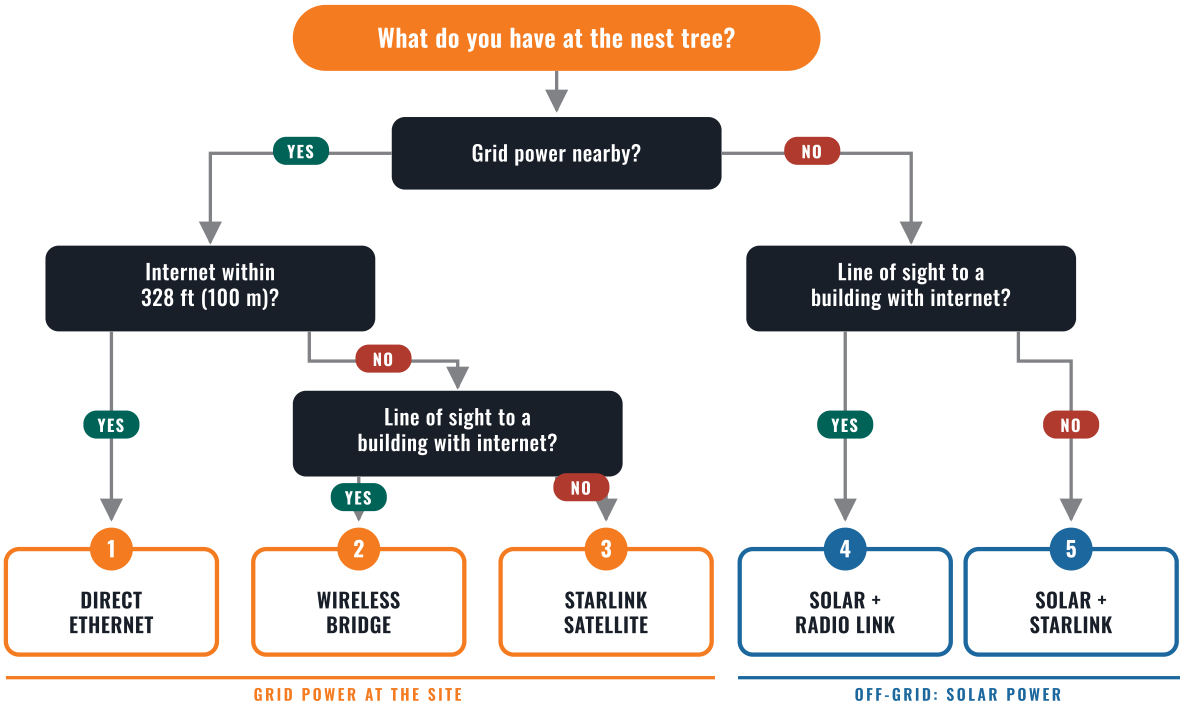


Electronics box on a post near the nest tree, with cabling in conduit

CHOOSE YOUR SETUP

B WHICH OPTION FITS?

START WITH WHAT'S AT THE CAMERA LOCATION



#	AT THE NEST TREE	SOLUTION	PAGE
1	Power and internet nearby	Direct Ethernet connection	4
2	Power nearby; internet more than 328 ft away or not feasible	Wireless bridge Or a PoE extender, if trenching that far is an option. Cellular works too, but isn't ideal.	5
3	Power nearby; internet too far and no line of sight	Satellite internet (Starlink)	6
4	No grid power or internet; line of sight to internet	Off-grid solar + wireless radio link	7
5	No grid power or internet; no line of sight	Off-grid solar + Starlink	8

NOT SURE? ASK US

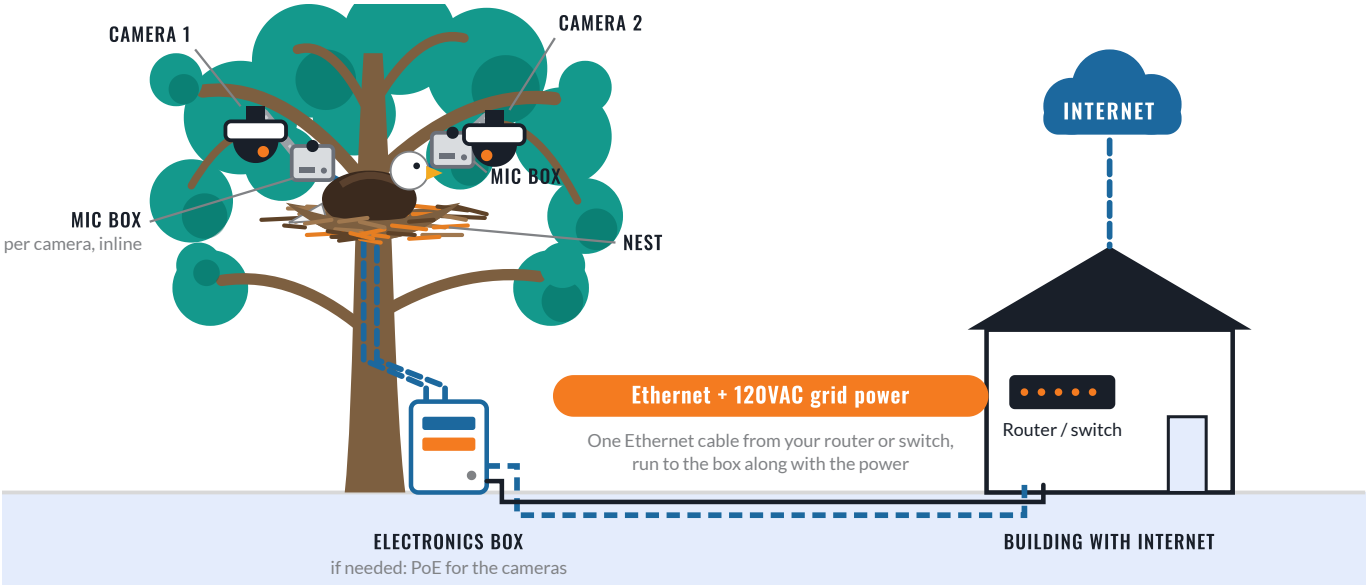
Every site is a little different. Send us the answers from the basics page and we'll recommend a setup, then supply it pre-configured and tested.

DEPLOYMENT SCENARIO 1

1 POWER & INTERNET NEARBY

SOLUTION: DIRECT ETHERNET CONNECTION

WHEN THIS FITS ✓ Grid power near the nest tree ✓ Internet within 328 ft (100 m)



Ethernet / PoE (power + data) · Ethernet + audio in grey conduit (mic box → camera) · Power · Wireless or satellite link

WHAT GETS INSTALLED

- ☑ An electronics box (if needed), typically near the base of the nest tree.
- ☑ A single Ethernet cable from your internet router or network switch to the electronics box, run along with 120VAC grid power.
- ☑ PoE from the electronics box powers and connects the camera(s).
- ☑ 2 **mic boxes** for live audio, one inline on each camera's Ethernet cable (no extra cable).

GOOD TO KNOW

- This is the **simplest and most reliable** setup.
- Wired is the most dependable choice for 24/7 streaming.
- **You may not need an electronics box.** If the total cable length is within 328 ft (100 m), or twice that with a PoE extender, the cameras can run straight from your PoE switch.

JUST PAST THE LIMIT?

If your internet connection is a little beyond 328 ft, a **PoE extender** can carry power and data farther. Each cable segment still follows the 328 ft (100 m) rule. Ask us if it fits your site.

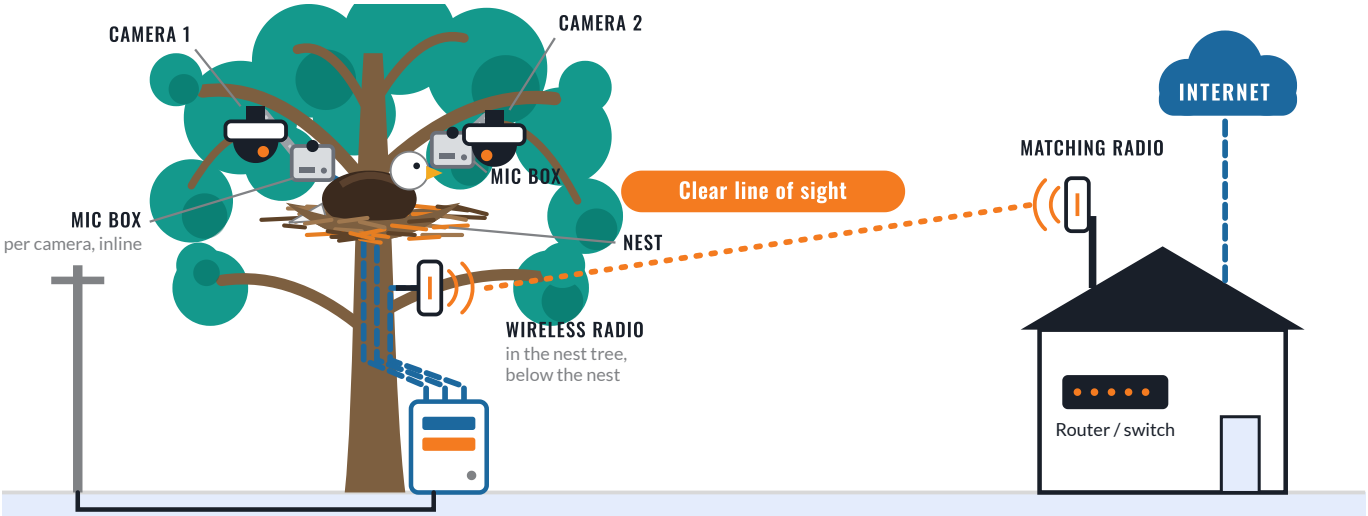


DEPLOYMENT SCENARIO 2

2 POWER NEARBY, INTERNET FAR

SOLUTION: WIRELESS BRIDGE

WHEN THIS FITS ✓ Grid power near the nest tree ✕ Internet 328+ ft away or not feasible ✓ Line of sight



Ethernet / PoE (power + data) · Ethernet + audio in grey conduit (mic box → camera) · Power · Wireless or satellite link

WHAT GETS INSTALLED

- ☑ A weatherproof electronics enclosure near the base of the nest tree with **3 PoE injectors**:
  · 2 for the cameras (one each)
  · 1 for the wireless radio, typically mounted in the nest tree below the nest
- ☑ A matching wireless radio installed at a location with internet access.
- ☑ 2 **mic boxes** for live audio, one inline on each camera's Ethernet cable (no extra cable).

GOOD TO KNOW

- A **clear line of sight** between the two radios is required.
- Minor foliage may be acceptable with 2.4 GHz radios.
- We supply fixed wireless radios pre-configured and tested, ready to install.
- A **cellular** router and data plan is another option, but it isn't ideal.

WE SUPPLY THE COMPLETE SETUP

Pre-configured and fully tested as one site solution

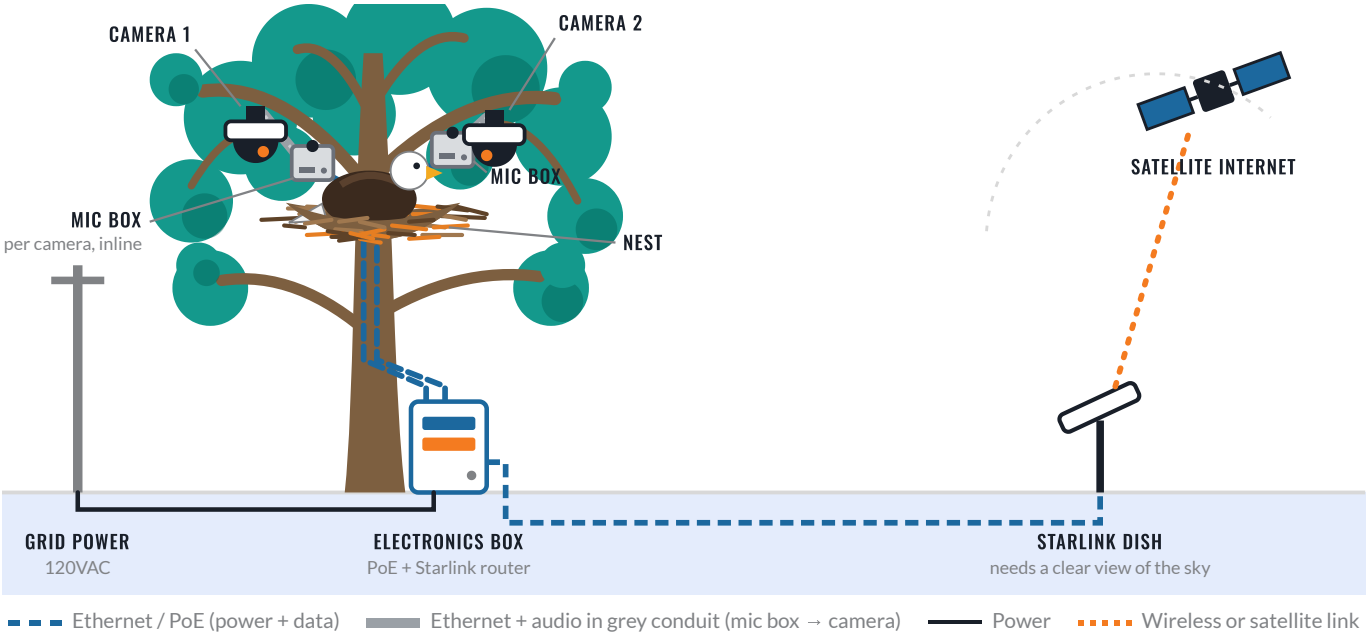
CAMERAS · MIC BOXES · ELECTRONICS BOX · POE INJECTORS · WIRELESS RADIOS · CABLING

DEPLOYMENT SCENARIO 3

3 NO LINE OF SIGHT

SOLUTION: SATELLITE INTERNET (STARLINK)

WHEN THIS FITS ✓ Grid power near the nest tree × Internet too far × No line of sight for a wireless bridge



WHAT GETS INSTALLED

- ☑ An electronics enclosure near the base of the nest tree with:
  · 2 PoE injectors, one for each camera
  · a router and equipment to support Starlink satellite internet
- ☑ A Starlink dish in a location with a clear view of the sky.
- ☑ 2 **mic boxes** for live audio, one inline on each camera's Ethernet cable (no extra cable).

GOOD TO KNOW

- Ideal for remote locations with no wireless options.
- **HDOnTap VPN services** allow remote access to your cameras, even on Starlink residential service, saving hundreds of dollars every month.
- Good **cellular** coverage? A cellular uplink is another option, but it isn't ideal.

WE SUPPLY THE COMPLETE SETUP

Pre-configured and fully tested as one site solution

CAMERAS · MIC BOXES · ELECTRONICS BOX · POE INJECTORS · STARLINK UPLINK · ROUTER

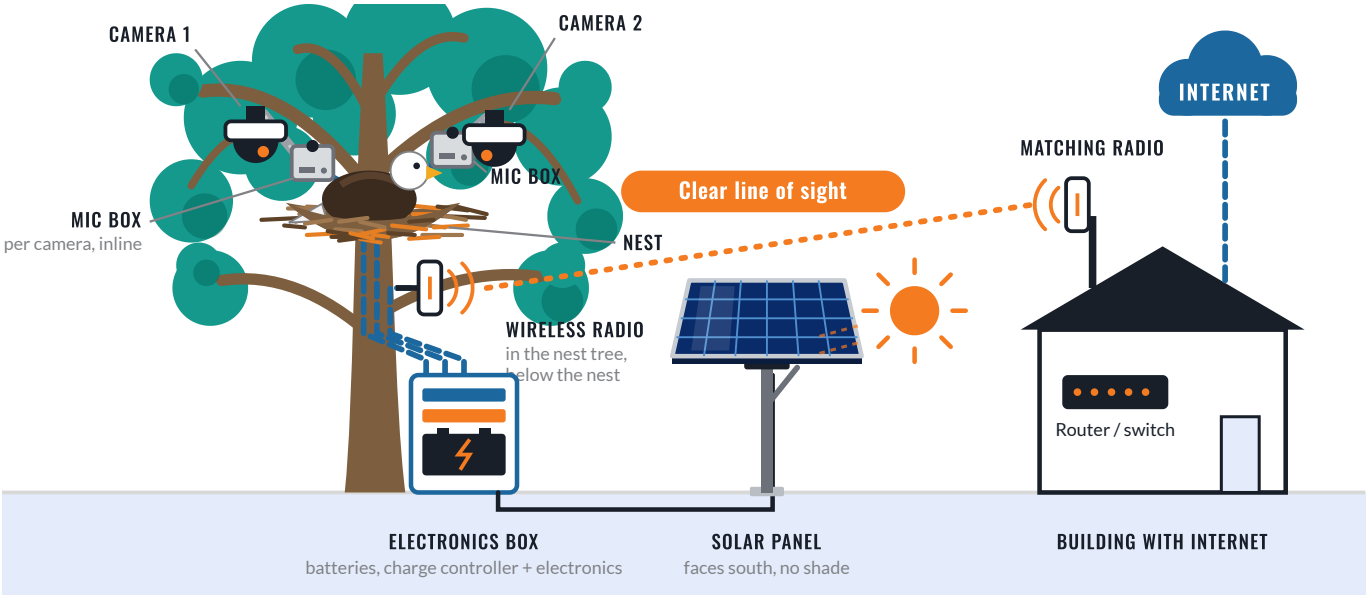
DEPLOYMENT SCENARIO 4

4 OFF-GRID: RADIO LINK

SOLUTION: OFF-GRID SOLAR + WIRELESS RADIO LINK

WHEN THIS FITS

- ✕ No grid power near the nest tree
- ✕ No internet nearby
- ✓ Line of sight to an internet location



Ethernet / PoE (power + data) · Ethernet + audio in grey conduit (mic box → camera) · Power · Wireless or satellite link

WHAT GETS INSTALLED

- ☑ A solar panel feeding **one electronics box** that holds the batteries, charge controller and all the electronics, including PoE for both cameras and the radio (3 Ethernet runs).
- ☑ A wireless radio bridge, typically mounted in the nest tree below the nest, linked to a nearby location with internet access.
- ☑ 2 **mic boxes** for live audio, one inline on each camera's Ethernet cable (no extra cable).

GOOD TO KNOW

- Install the solar panel where it gets **good sun exposure to the south**.
- We size the **battery capacity** (energy storage) and **solar panel** (power production) to your site's sun exposure.
- Solar panels need **routine maintenance** to keep charging at its best: clear away any plant growth that could shade them, and regularly wipe off dirt and debris.
- The radio link needs a clear line of sight to the internet location.

WE SUPPLY THE COMPLETE SETUP
Pre-configured and fully tested as one site solution

CAMERAS · MIC BOXES · SOLAR POWER · WIRELESS RADIOS · ELECTRONICS BOX · POE

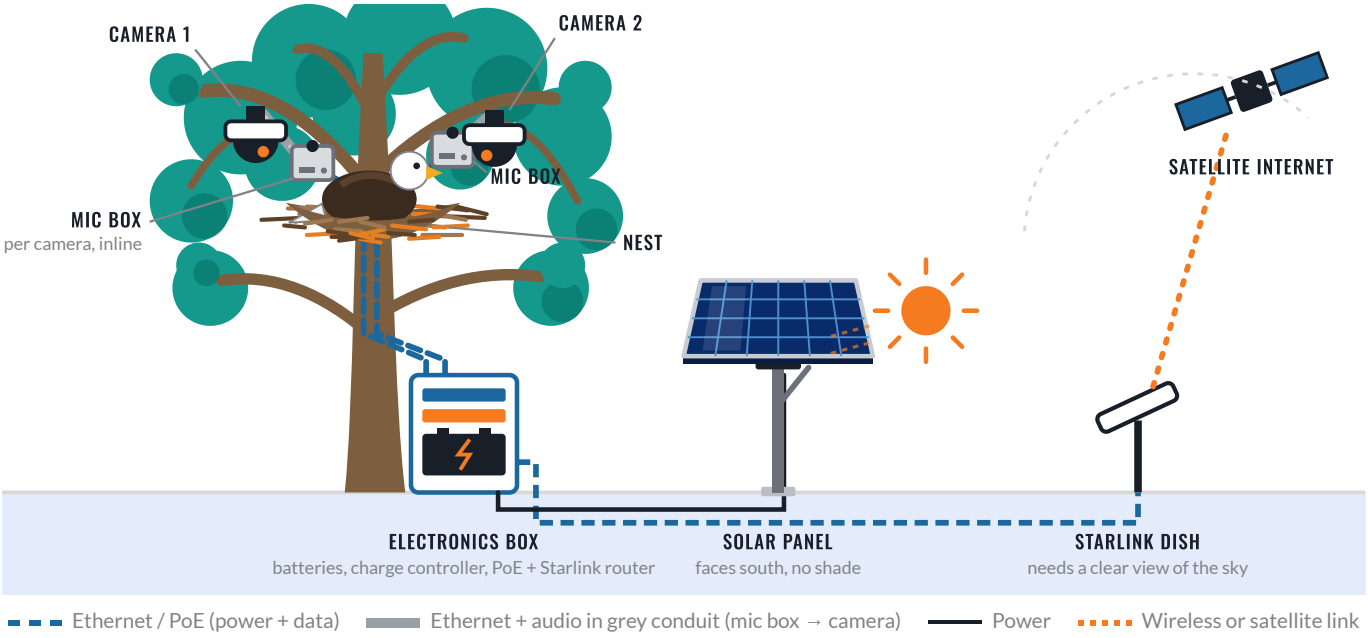
DEPLOYMENT SCENARIO 5

5 OFF-GRID: STARLINK

SOLUTION: OFF-GRID SOLAR + STARLINK SATELLITE INTERNET

WHEN THIS FITS

- ✕ No grid power at the nest tree
- ✕ No internet
- ✕ No line of sight



Ethernet / PoE (power + data) · Ethernet + audio in grey conduit (mic box → camera) · Power · Wireless or satellite link

WHAT GETS INSTALLED

- ☑ A solar panel feeding **one electronics box** that holds the batteries, charge controller, PoE for both cameras and Starlink equipment.
- ☑ A Starlink dish for internet service.
- ☑ 2 **mic boxes** for live audio, one inline on each camera's Ethernet cable (no extra cable).

GOOD TO KNOW

- Install the solar panel where it gets **good sun exposure to the south**.
- We size the **battery capacity** (energy storage) and **solar panel** (power production) to your site's sun exposure.
- Solar panels need **routine maintenance** to keep charging at its best: clear away any plant growth that could shade them, and regularly wipe off dirt and debris.
- Starlink needs good, **unobstructed exposure to the sky**.

WE SUPPLY THE COMPLETE SETUP
Pre-configured and fully tested as one site solution

CAMERAS · MIC BOXES · SOLAR POWER · STARLINK UPLINK · ELECTRONICS BOX · POE

INSTALL IT RIGHT

C GET IT RIGHT THE FIRST TIME

TIPS FROM 15 YEARS OF NEST CAMS

MOUNT IT SOLID

Mount in the same tree as the nest if you can, on a solid, rigid limb or the trunk (or a sturdy bracket). Trees move in the wind, and any sway shows when you zoom in.

TWO CAMERAS, MINIMUM

We always recommend a minimum of **two cameras** on an eagle nest. You get two different angles, and a **backup** if one camera has an issue: once the eagles are on the nest, you can't visit the site to fix it. Plan both mounting spots when you scout the tree.

PROTECT THE CABLING

Run all cabling in **metallic conduit** so squirrels and other critters can't chew through it, and secure it so it can't blow in the wind. Loose cables spook the birds and can get damaged.

ADD A POV CAMERA

Consider a fixed 4K **POV camera** right at the nest. It almost puts viewers in the nest, while two PTZs on a separate limb cover the wider views (see the cover).

BLEND IN

Where you can, paint the conduit and cameras to match the tree and bark colors.



Close-up: two PTZ cameras on painted mounting plates



The fixed 4K POV camera beside the nest; two PTZs on a neighbouring limb

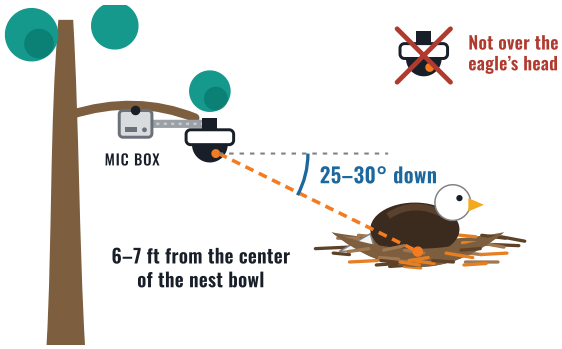


The POV camera and painted conduit, secured along the limb beside the nest

INSTALL IT RIGHT

C CAMERA PLACEMENT

DISTANCE AND ANGLE MAKE THE VIEW



WHERE TO PUT THE CAMERAS

- About **6–7 ft from the center of the nest bowl**.
- Aimed about **25–30° down** at the nest. Why this angle works:
  - If the eagles bring in more sticks, they **won't block the camera**.
  - The lens is **out of the line of fire** for droppings.
  - When the eagles stand in the nest, the camera is at about **eye level**, so viewers feel like they're in the nest with them.
- **Never over the eagles' heads.** It spooks them, and a top-down view isn't what viewers want.

GOOD VIEW VS. NOT IDEAL

WHAT THE ANGLE DOES FOR VIEWERS



IDEAL

Side / profile view at about eye level: an adult with its eaglet. The view we aim for.



NOT IDEAL

Looking down on the eagle's head from above.



NOT IDEAL

Camera too high: mostly backs and the tops of heads.

LESSONS LEARNED

WHAT NOT TO DO



Too close and not high enough: the eagles leaned over and defecated on the lens.

Do this instead: Mount 6–7 ft from the nest center, 25–30° down, never overhead.



Non-metallic conduit: a squirrel chewed right through it to the wires.

Do this instead: Use metallic conduit, secured to the tree.

BEYOND POWER & INTERNET

D BUILT TO STREAM ALL SEASON

STREAMING & CAMERA CONTROL

PRESETS & LIVE OPERATORS

We may set two or three presets on the nest, but we **never run guard tours**. Any movement is slow and deliberate, through HDOnTap Studio, where volunteer camera operators sign up for time slots on a calendar.

HEAR THE NEST, NOT THE WIND

Built-in camera mics are usually a pinhole with almost no wind protection. We customize outdoor-ready omnidirectional mics with good wind protection and a PoE-powered preamp, in a small grey PVC **mic box** near each camera. Ethernet runs from the electronics box into the mic box, then Ethernet and audio run together in grey conduit to the camera's line-level input. The camera needs to support the AAC audio codec.

REMOTE ACCESS & PUSH STREAMING

Opening network access so the cameras can be reached remotely is **preferred**, especially if you plan to control the cameras remotely. If that's not possible, cameras can push the stream to HDOnTap over RTMP, RTMPS or SRT with no need to open your network. RTMPS and SRT are encrypted.

MANAGE IT REMOTELY

You can't service the cameras once the eagles are on the nest. Remote management lets you check settings, update firmware and reboot without a site visit. For Axis cameras, ask about Sertavo.



Live view: a pair of bald eagles on the nest, from an HDOnTap eagle cam.



IR night view: the pair on the nest at dusk. Infrared keeps viewers watching after dark.

SCHEDULE A FREE CONSULTATION CALL

An HDOnTap rep will walk you through the entire process. Call 858.481.4096 or email sales@hdontap.com.

WANT TO GO DEEPER?

Camera choice, lighting, resolution, zoom, audio, codecs and bandwidth are all covered in our companion guide, ***Choosing the Right Webcam Hardware* (2026)**.
https://help.hdontap.com/files/choosing-the-right-webcam-hardware-2026.pdf

ONE PARTNER, START TO FINISH

FULL SITE SOLUTIONS

EVERYTHING YOUR NEST TREE NEEDS, FROM HDONTAP.

PRE-CONFIGURED
Equipment arrives set up for your HDOnTap live stream.

FULLY TESTED
We test everything before it ships to your site.

Whichever scenario fits your nest tree, we can supply the whole thing: the camera, the power and the internet connection that keeps it streaming.

WHAT WE SUPPLY

- CAMERAS
- POE SWITCHES & INJECTORS
- POE EXTENDERS
- ELECTRONICS BOXES
- FIXED WIRELESS RADIOS
- STARLINK UPLINK SOLUTIONS
- OFF-GRID SOLAR POWER
- ROUTERS
- CABLING
- OUTDOOR AUDIO
- HDONTAP STUDIO
- VPN REMOTE ACCESS

TELL US WHAT'S AT YOUR SITE.

We'll recommend the right deployment option and put the complete solution together for you.

READY TO GO LIVE?

LET'S PLAN YOUR NEST TREE

TELL US WHAT'S AT YOUR SITE

We've been doing this for 15 years. Send us a few details and photos of your nest tree and we'll recommend the right setup, then deliver it pre-configured and tested.

CALL OUR OFFICE
858.481.4096

EMAIL
sales@hdontap.com

VISIT US ONLINE
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