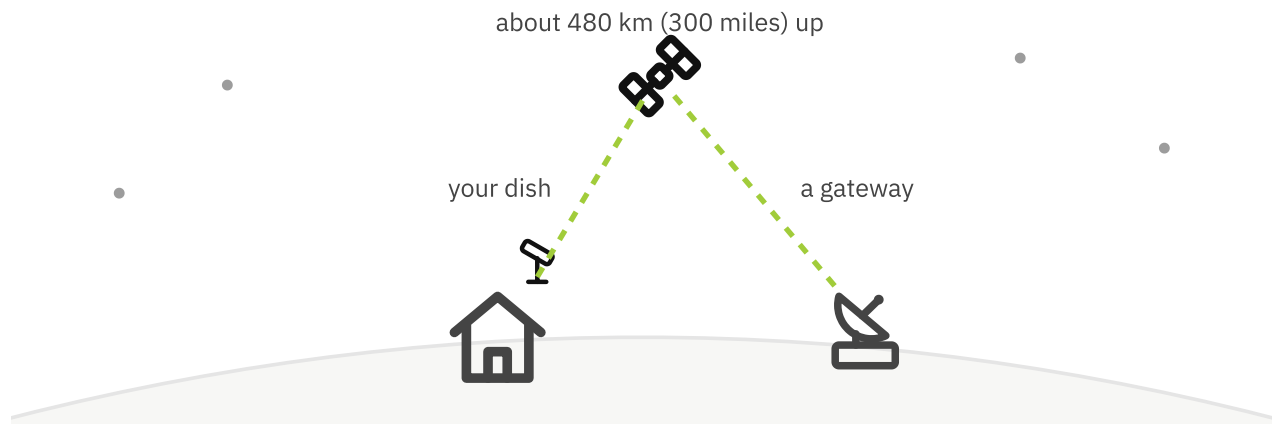


Starlink, Explained

How internet from space reaches your house or RV, how high the satellites are, and why the Wi-Fi inside matters as much as the sky above.



The short answer

Starlink is internet from satellites that fly low, about 480 km (300 miles) up. A flat dish on your roof or RV talks to whichever satellite is overhead.

Low, so it's quick

The old kind of satellite internet uses satellites far higher up. Starlink's are close enough that a video call feels normal.

Shared, so it varies

Everyone nearby shares the same satellites. Busy evenings are slower than quiet mornings.

Two links, not one

Dish to satellite is one link. Router to your phone is another: your Wi-Fi. A slow back bedroom is usually the Wi-Fi.

The one idea behind all of it

Your speed depends on three things in a row: the sky the dish can see, how many neighbors share the satellites, and your Wi-Fi. When something feels slow, check them backward. Start with the Wi-Fi.

What's inside

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HOW IT WORKS

How high the satellites fly

Starlink's satellites fly about 480 km (300 miles) up. That's close, by space standards. There are thousands of them, and more go up every month.

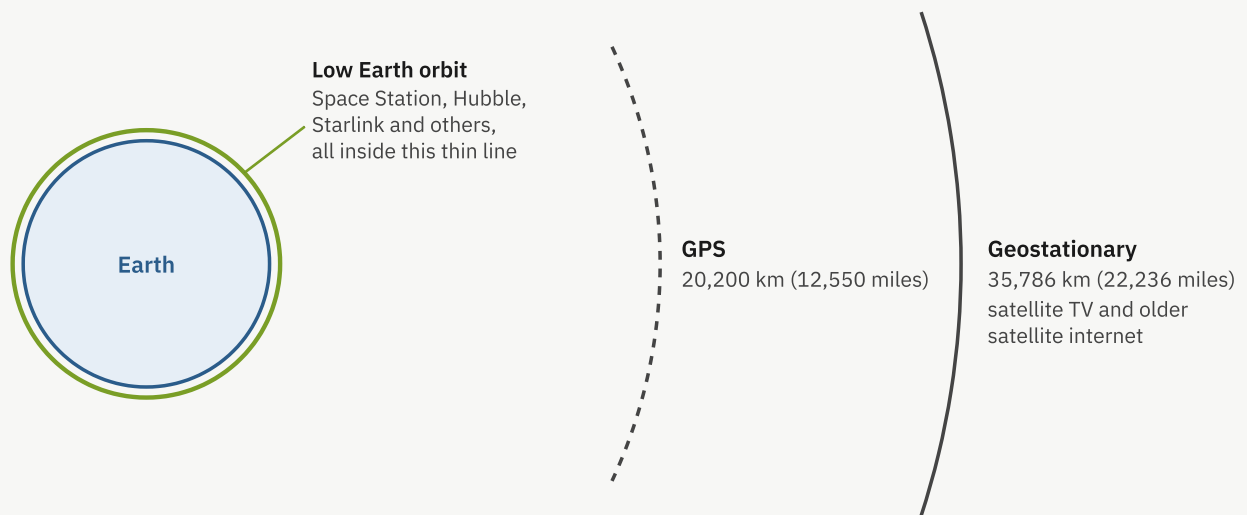


Figure 1. Earth and its satellites, to scale. Starlink hugs the planet like a thin line. The old kind of satellite internet, and GPS, sit far out.

A word on the words

Low Earth orbit means close to Earth, by space standards. **Latency** is the delay for a message to get there and back. A **gateway** is a Starlink station on the ground that connects the satellites to the internet.

HOW IT WORKS

Zooming in on the thin line

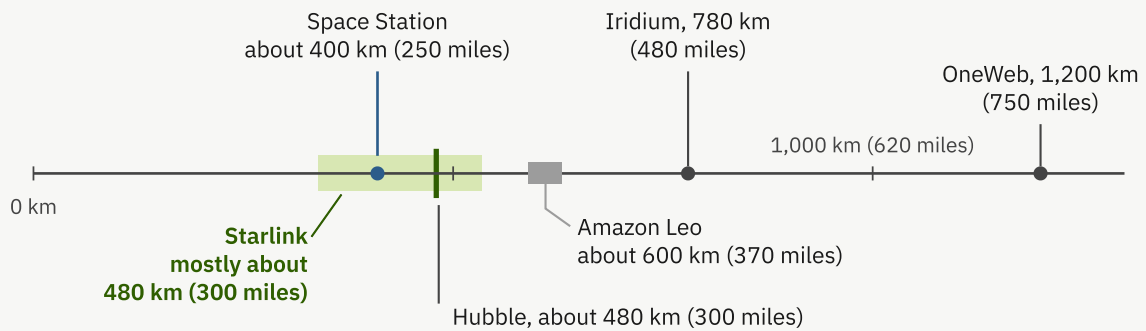


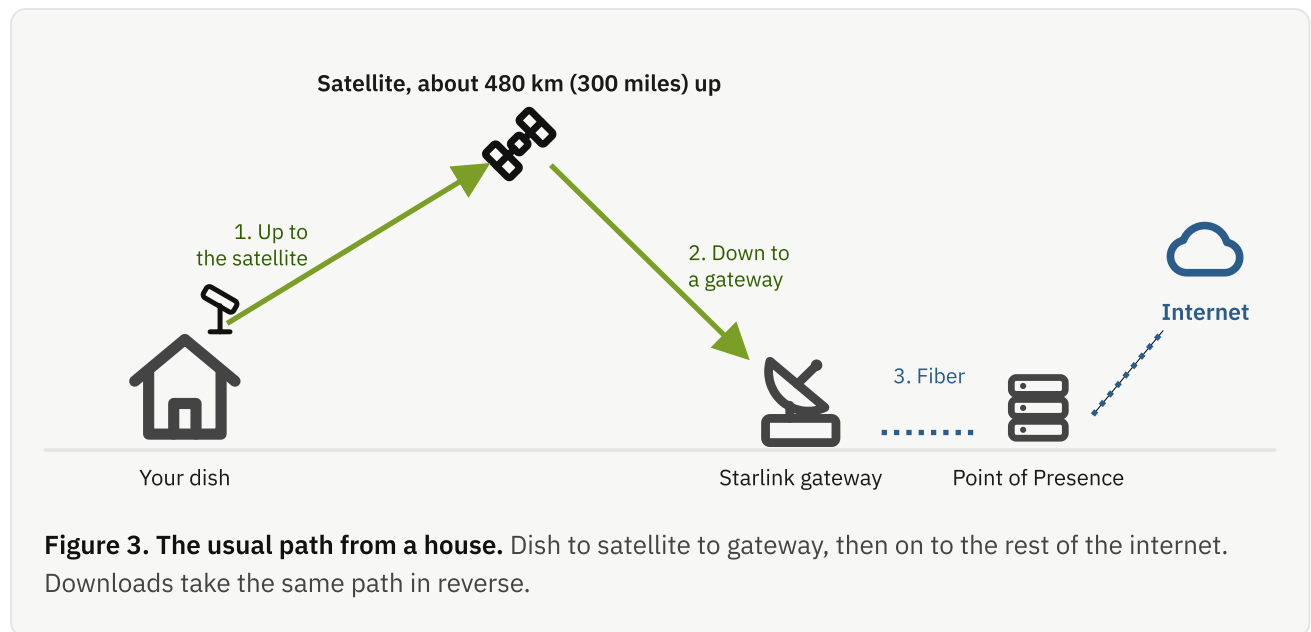
Figure 2. The thin line in Figure 1, stretched out. Now you can see where Starlink flies, next to the Space Station and the Hubble telescope.

A fun fact

Some Starlink satellites are allowed to fly lower than the International Space Station.

The path your data takes

Your data makes one trip up and one trip down. Dish to satellite, then satellite to a gateway on the ground. From there, it rides ordinary fiber like everyone else's.



- **Your dish** talks to whichever satellite is best placed overhead.
- **The satellite** keeps moving, so your dish hands off to the next one.
- **The gateway** is a ground station that connects the satellites to fiber.

At sea or in remote places, the satellites can pass your data to each other before sending it down.

Why it feels quick

[illegible]

What you notice

With Starlink, video calls and games feel normal. At 600 ms round trip, people talk over each other on calls, because each person hears the other about a third of a second late.

THE EQUIPMENT

A flat dish that aims without moving

The dish is many small antennas under a flat cover. By timing each one a little differently, it points its beam at a satellite without moving.

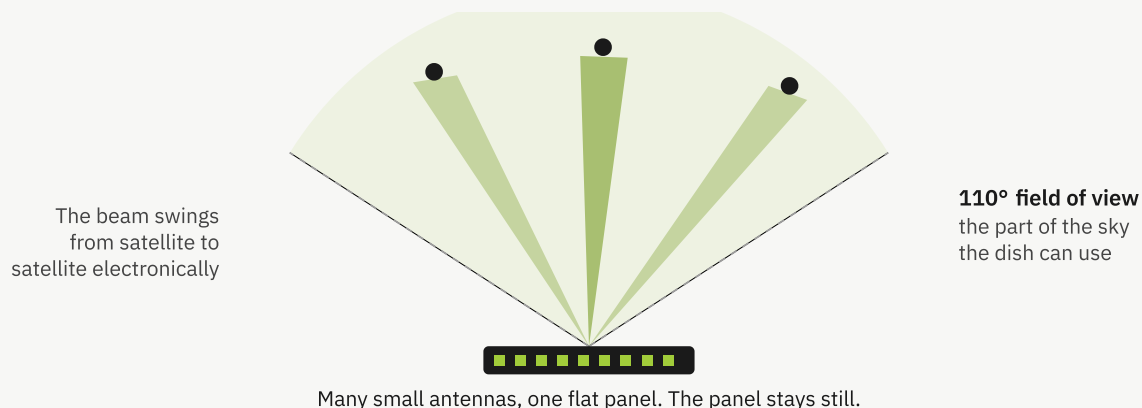


Figure 5. The beam moves, the dish doesn't. The beam follows satellites across the sky. Older rectangular dishes had a motor; the current ones don't.

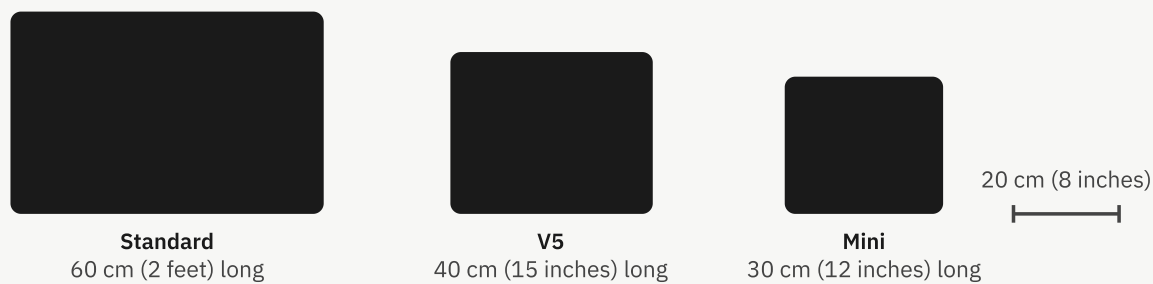
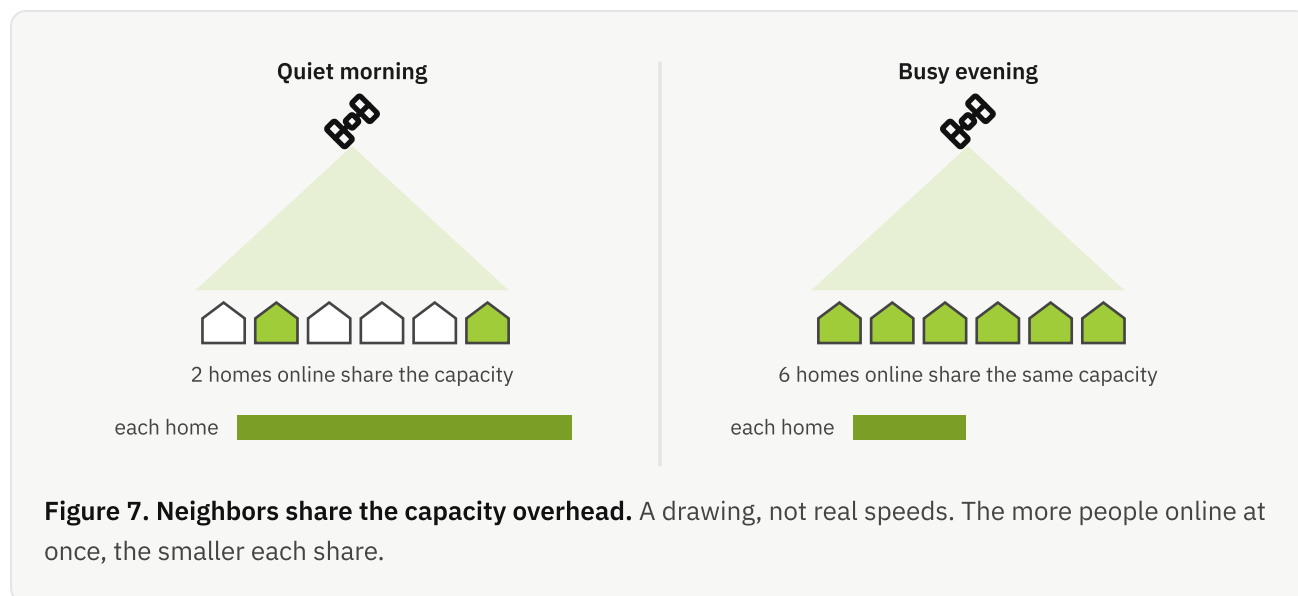


Figure 6. The current dishes, side by side. The small one is made for travel. The app tells you which one you have.

SPEED

Why speeds change

The satellites over your area can carry only so much. Everyone nearby shares it. So the same dish can be fast in the morning and slower in the evening.



Your plan affects who goes first when it's busy. The top home plan goes first. Travel plans go last.

What moves your speed

- How many neighbors are online
- The time of day, with evenings busiest
- Your plan
- Trees or buildings in the dish's view (page 10)
- Heavy rain or snow (page 10)
- Your own Wi-Fi (page 11)

PLANS

Plans for homes and RVs

Home plans are for one address. Travel plans, called Roam, go with you. Plan names and prices change often, so check starlink.com before you buy.

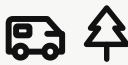
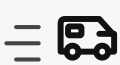
	 At home	 Parked away	 Driving
Home plan	✓ Yes	✗ No	✗ No
Roam plan	✓ Yes	✓ Yes	✓ Yes on a dish made for it

Figure 8. Which plan works where. A home plan works only at its home address. Roam works wherever Starlink has service when you park, and while driving on a dish made for it.

- **Home plans** are for use at the home address, with the dish parked.
- **Roam plans** work wherever you travel. Some have a monthly data allowance. After that, speed drops, but email and texts still work.
- **Traveling abroad** takes a plan that allows it. Register your trip in your Starlink account first.

CAUTION

Home plans don't work while you drive

Using Starlink while moving is not allowed on any home plan. You need a Roam plan and a dish Starlink supports for use in motion, mounted securely.

PLACEMENT

Trees, snow and rain

The dish needs a clear view of the sky. One tree branch doesn't cut you off all the time. It cuts you off for a moment, every time a satellite passes behind it.

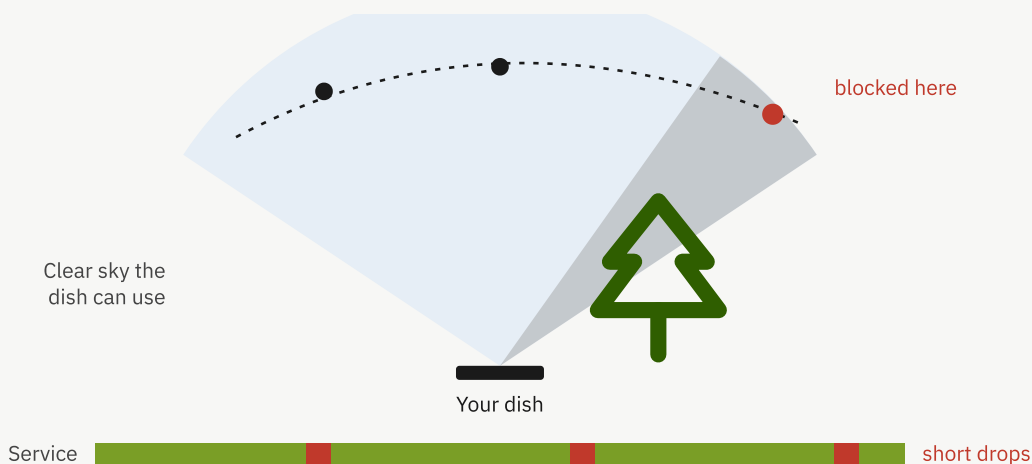


Figure 9. One tree, repeated short drops. The gray wedge is sky the tree hides. Each satellite that crosses it causes a short drop, then the next one takes over.

Check before you mount

The Starlink app has an obstruction check. Point your phone at the sky from where the dish will go. The app shows what's clear and what's blocked. Pick a clear spot, usually higher or away from trees. If that means a ladder or a roof, use an installer.

Weather

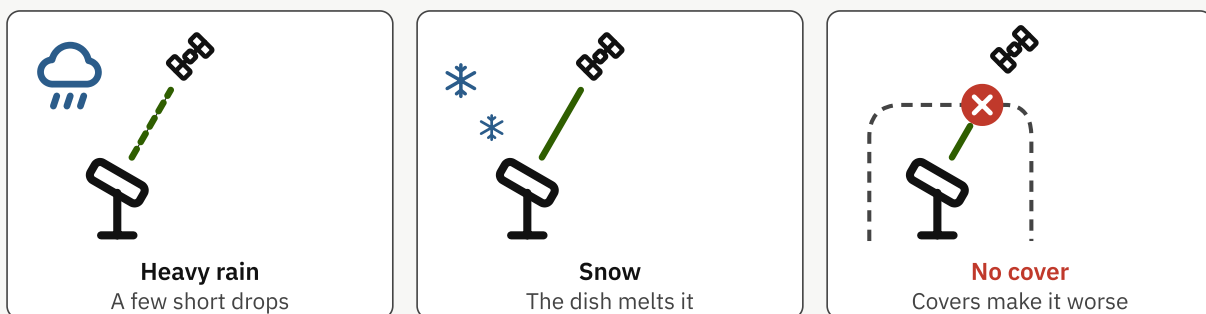
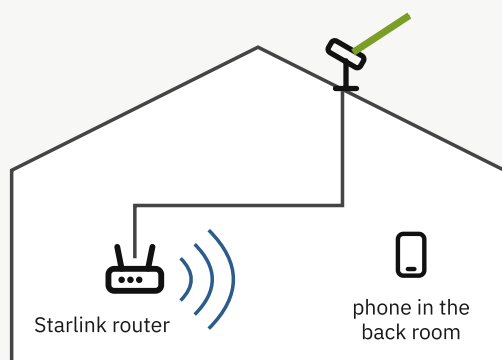


Figure 10. Weather and your dish. Heavy rain can cause short drops, and the dish heats itself to melt snow. Starlink says a cover makes things worse.

The Wi-Fi inside

A speed test on your phone measures two links at once: the satellite and your Wi-Fi. When the back bedroom is slow, the satellite is often fine. The Wi-Fi is the problem.



Link 1: the Starlink link

dish to satellite and back

Link 2: your Wi-Fi

router to phone, through walls, cabinets, or an RV's metal body

Figure 11. Two networks in one house. Your phone's speed is the slower of the two links. Test next to the router to see the Starlink link alone.

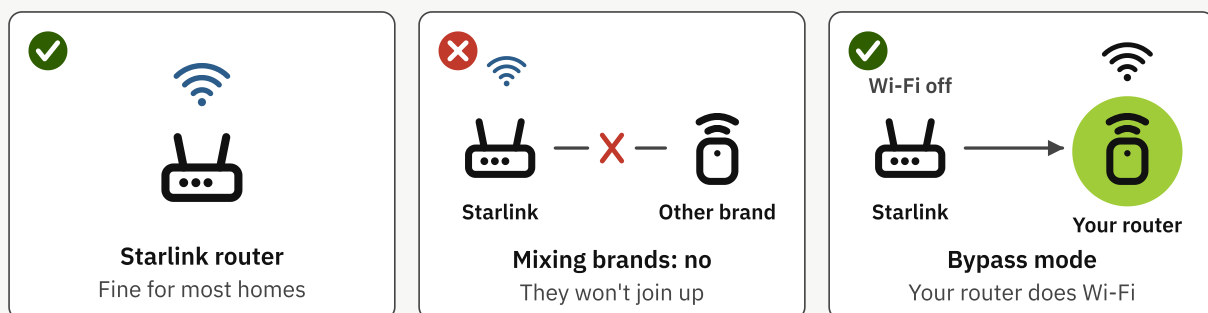


Figure 12. Three ways to set up the Wi-Fi. Starlink's router works on its own, but it won't join another brand's mesh. To use your own router, bypass mode turns Starlink's Wi-Fi off.

Starlink's routers are fine for most homes. They don't use the newest Wi-Fi band, and they don't join other brands' mesh systems.

⚠ CAUTION

Using your own router

Bypass mode turns Starlink's Wi-Fi off and hands everything to your own router. Turning it back on takes a factory reset of the Starlink router.

Wi-Fi Calling: some carriers don't support it over satellite internet. Check your carrier's page.

Six things people get wrong

Each myth is followed by what's true.

MYTH Satellite internet is too slow for video calls.

FACT That's true of the old satellites, far out in space. Starlink's are close, so calls feel normal.

MYTH The dish turns to follow the satellites.

FACT Current dishes steer their beam electronically and never move.

MYTH My home plan works in the RV while I drive.

FACT Not on any home plan. Use Roam, on a dish made for it.

MYTH It's slow in the back bedroom, so the satellites must be busy.

FACT Often it's the Wi-Fi. Test next to the router first.

MYTH I'll put a cover on the dish for the snow.

FACT Starlink says covers make it worse. The dish melts snow by itself.

MYTH I can add my own mesh and keep Starlink's Wi-Fi too.

FACT Starlink's routers don't join other brands' mesh. Bypass mode turns Starlink's Wi-Fi off.

Step by step in the Starlink app

Button names can differ a little between app versions. The steps stay in the same order.

1. Check for obstructions before you mount

Finds trees and roof edges in the dish's view before you drill any holes.

- 1 Open the Starlink app and tap **Check for Obstructions**.
- 2 Choose your Starlink kit when the app asks.
- 3 Hold your phone where the dish will go, at the same height, and follow the sky scan.
- 4 If the map shows blocked areas, move and scan again.

2. Split the 2.4 GHz and 5 GHz networks

Helps older gadgets, like some smart plugs and cameras, connect.

- 1 Open the Starlink app and tap **Settings**.
- 2 Tap your network name.
- 3 Turn on **Split 2.4/5 GHz networks**, name each one, and tap **Save**.
- 4 Join the older gadget to the 2.4 GHz network.

3. See each device's Wi-Fi signal

Shows whether a slow device has a weak signal.

- 1 Open the Starlink app and tap the **Network** tab.
- 2 Find the slow device and look at its signal.

4. Use your own router (bypass mode)

For a mesh system you already own. Read the caution on page 11 first.

- 1 Plug your router's internet port into the Starlink router.
- 2 In the Starlink app, open **Settings** and choose bypass mode.
- 3 Confirm. Starlink's Wi-Fi turns off. Only a factory reset turns it back on.

Before you blame Starlink

Work down this list when something feels slow. It starts with the part you control, your Wi-Fi.

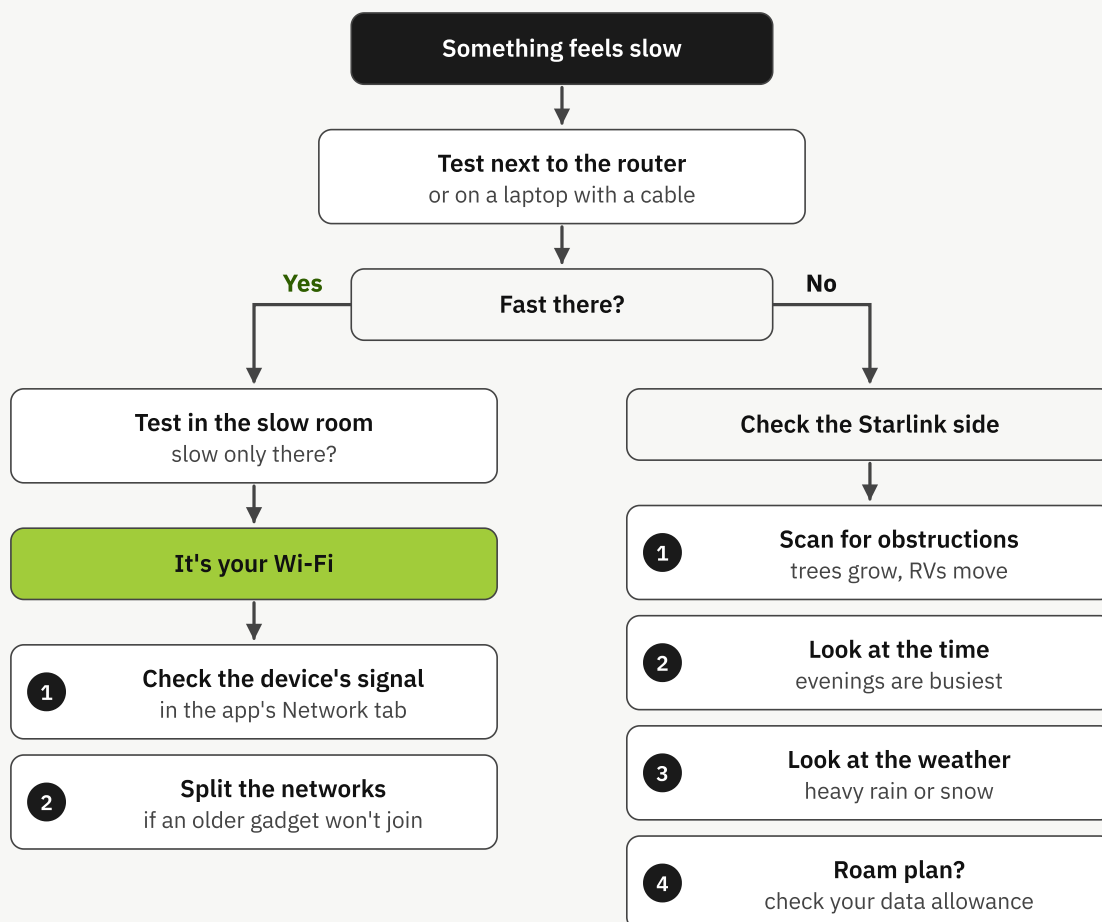


Figure 13. Before you blame Starlink. Test next to the router first. Fast there means the problem is inside, in your Wi-Fi. Slow there means checking the sky, the time, the weather and your plan.

For RVs especially

An RV's metal body blocks Wi-Fi. A device at the far end, or outside at the picnic table, may have weak Wi-Fi while the dish is fine. Also check the dish cable where it passes a window or door for kinks and damage.

SOURCES

Where these facts come from

Checked on 27 September 2026. Starlink's plans, names and rules change often; the dates below are part of each fact. Figures Starlink does not publish, such as how far away your gateway is, are left out on purpose.

- FCC DA 26-36 (2026-01-09): Starlink Gen2 grant, orbital shells 340 to 485 km (210 to 300 miles), continued operation at 525 to 535 km (326 to 332 miles)
- Reuters, SpaceNews, Space.com (2026-01-01): about 4,400 satellites lowered from about 550 km (340 miles) to about 480 km (300 miles) during 2026
- SpaceNews (January 2026): satellite count
- SpaceX, "Improving Starlink's Latency" (March 2024): the path through gateways and Points of Presence, laser links, 1.8 to 3.6 ms per leg, queue management in the router
- Starlink Specifications, DOC-1470-99699-90: latency 25 to 60 ms on land, upload typically 10 to 30 Mbps
- Starlink Network Update: 25.7 ms median peak-hour latency in the US (June 2025); fewer than 1% over 55 ms
- Starlink spec sheets: Standard 4 X, Standard 4, Starlink V5, Mini (size, weight, power, snow melt, field of view, routers, WPA2, mesh compatibility)
- Starlink help: kit types, obstructions, weather, snow and ice, power options, bypass mode, Wi-Fi troubleshooting
- Starlink Service Plans and Service Plan Descriptions, DOC-1728-44881-79; Fair Use Policy; Roam and in-motion help articles
- NASA: International Space Station (370 to 460 km, 230 to 290 miles); Hubble FAQs (about 483 km, 300 miles, updated 2026-06-15)
- GPS.gov, Space Segment (20,200 km, 12,550 miles); ESA, Types of orbits (35,786 km, 22,236 miles)
- FCC 20-102 (Amazon Leo, 590 to 630 km, 370 to 390 miles); Thales Alenia Space (Iridium, 780 km, 480 miles); Eutelsat (OneWeb, 1,200 km, 750 miles)
- Ookla, via IEEE ComSoc (July 2025): measured geostationary latency, about 680 ms median
- T-Mobile, Wi-Fi Calling from T-Mobile (t-mobile.com/support/coverage/wi-fi-calling-from-t-mobile): satellite internet not supported

About this guide

Written for people who aren't technical and want to know how Starlink works before they buy, install or troubleshoot it. Starlink is a trademark of SpaceX. This guide is independent and is not endorsed by SpaceX.