BILL'S HOME TECH
Home & Small Business Tech Solutions

BILL'S COMPLETE MANUALS

TV Cables & Connections HDMI, ARC & Optical

Which cable goes where, and why —
explained in plain English, one step at a time

A plain-English guide to the back of your TV

Take your time — you can't break it

Written for you by Bill — Bill's Home Tech

(330) 200-8042 · BillsHomeTech.com

Covers HDMI 2.1 & 2.2, ARC/eARC, CEC & adapters · facts current November 2026

What's Inside

This is your plain-English guide to the sockets and cables on your TV: HDMI, ARC and eARC, optical audio, antennas, adapters for older gear, and the fixes for common problems. Read it in any order and at your own pace; there's no test, and you can't fall behind.

Part 1 — Getting Started

1 A Note from Bill
2 A Tour of the Back of Your TV

Part 2 — HDMI Made Simple

3 HDMI Ports and Versions
4 HDMI Cables: Names, Labels and What to Buy
5 HDMI-CEC: One Remote for Everything
6 Switching and Renaming Inputs

Part 3 — Getting Better Sound Out

7 ARC and eARC: Sound Back Out of the TV
8 Optical Audio: The Reliable Backup
9 Connecting a Soundbar, Step by Step
10 Headphones, Receivers and Other Sound Paths

Part 4 — Hooking Up Your Devices

11 A Cable or Satellite Box
12 Streaming Sticks and Their USB Power
13 Game Consoles
14 Blu-ray and DVD Players
15 An Antenna and the Coax Post
16 VCRs, Old DVD Players and Other Older Gear
17 The Internet: Wi-Fi, Ethernet and the USB Port

Part 5 — Tidy, Labeled and Expanded

18 HDMI Switches and Splitters
19 Long Cable Runs and Wall-Mounted TVs
20 Labeling Cables and Making a Wiring Map

Part 6 — Fixing Common Problems

21 "No Signal" and a Blank Screen
22 HDCP Errors and Handshake Problems
23 Sound but No Picture, or Picture but No Sound
24 Lip-Sync Delay: When Lips and Words Don't Match
25 When CEC Misbehaves

Part 7 — Buying Smart and Staying Safe

26 Honest Cable Shopping: Don't Overpay
27 Counterfeit Cables and Fake Support

Part 8 — When to Call Bill and Your Cheat-Sheet

28 When to Call Bill
29 Your TV Connections Cheat-Sheet
30 A Short Glossary

PART 1

Getting Started

A friendly welcome, and a slow walk around the back of your TV so every socket has a name and a job.

CHAPTER 1

A Note from Bill

Hello, and welcome. If you've ever stood behind a TV holding a cable in one hand and a flashlight in the other, wondering which hole it goes in, this book is for you. You're in good company. The back of a modern TV is a row of look-alike sockets with labels in tiny gray letters, and the boxes you plug into it each have their own ideas. It's confusing for everyone.

I'm Bill. I've spent more than 30 years working with technology, and these days I help folks around Portage County, Ohio, in person and remotely, make their gadgets behave. Hooking up TVs, soundbars, cable boxes and streaming sticks is some of the most common work I do. I wrote this book the way I'd explain it standing next to you at the TV: one cable at a time, in plain English.

What this book does for you

- Gives every socket on the back of your TV a name and a job, so nothing is a mystery.
- Explains HDMI, ARC, eARC and optical audio without the alphabet soup.
- Walks you through hooking up a soundbar, cable box, streaming stick, game console, disc player, antenna and even an old VCR.
- Shows you how to switch inputs, rename them, and label your cables so the next time is easy.
- Helps you fix the common headaches: "No Signal," sound with no picture, lips that don't match the words, and HDCP error messages.
- Keeps money in your pocket. You do not need expensive "gold" cables, and I'll tell you why.

WHAT THIS DOES FOR YOU

Why this is worth an afternoon

Once your cables are in the right places and your inputs have sensible names, the TV just works. One remote turns everything on, the sound comes out of the soundbar, and nobody has to call a grandchild to find the streaming stick. A tidy setup is also easier for anyone who helps you later.

You can't break it by trying

Here's some comfort: HDMI and the other plugs only fit one way, and plugging a cable into the wrong socket won't hurt anything. The worst that happens is a blank screen until you

move it. The only real cautions are about electricity and walls, and I'll point those out clearly when we get there. Otherwise, go ahead and try things.

And I'm only a phone call away

If you get stuck, call or text me at **(330) 200-8042**. I'm happy to look over your setup and sort it out with you. My help is $49 remote · $99 in your home. Now, let's take a look at the back of that TV.

— Bill

CHAPTER 2

A Tour of the Back of Your TV

Before you plug anything in, it helps to know what you're looking at. Most TVs keep their sockets in one or two groups on the back, often on the side so you can reach them when the TV is on a wall. Every TV is a little different, and newer TVs have fewer kinds of sockets than older ones. Grab a flashlight and your reading glasses, and let's name them.

The sockets, one by one

What it says	What it's for
HDMI (HDMI 1, 2, 3, 4)	The main socket for almost everything: cable box, streaming stick, game console, Blu-ray player. One cable carries picture and sound. Most TVs have three or four.
HDMI ARC or eARC	One of the HDMI sockets has this extra label. It can also send the TV's sound *out* to a soundbar or receiver. This is where a soundbar's HDMI cable goes.
Optical (Digital Audio Out)	A small square-ish socket, often with a little door or plastic plug. It sends sound out to a soundbar using light. Also called TOSLINK.
ANT/Cable In (RF)	A round, threaded metal post. An antenna or a basic cable line screws on here. The cable is called coax.
USB	A flat rectangular socket. It can power a streaming stick, show photos from a thumb drive, or install a TV software update. It does not carry picture from a cable box.
LAN (Ethernet)	Looks like a wide phone jack. A network cable from your router goes here for a steadier internet connection than Wi-Fi.
Headphone / Audio Out	A small round jack for wired headphones or a simple speaker. Not every TV has one.
AV In / Component	Older red, white and yellow (or green, blue, red) sockets for VCRs and older DVD players. Many new TVs have dropped these or use a tiny jack that needs an adapter.
Power	Where the TV's power cord connects. Some cords are attached for good.

TIP

Take a picture first

Before you change anything, take a photo of the back of the TV with your phone, close enough to read the labels. If something stops working later, you can see exactly how it was. It's the single most useful habit in this whole book.

Inputs and outputs

Every socket is either an **input** (something comes *into* the TV, like a picture from the cable box) or an **output** (something goes *out*, like sound to a soundbar). HDMI sockets are inputs. Optical and the headphone jack are outputs. The ARC or eARC socket is the clever one: it's an input that can also send sound back out. Keep that one idea in mind and the rest of the book falls into place.

GOOD TO KNOW

The labels vary by brand

One maker prints "HDMI 3 (eARC)" and another prints "HDMI IN 2 ARC." One says "Digital Audio Out (Optical)" and another just "Optical." If a label in this book doesn't exactly match your TV, look for the key word, like ARC, Optical or ANT. Your TV's manual (usually on the maker's website) has a drawing of your exact model's sockets.

PART 2

HDMI Made Simple

The one cable that does nearly everything: the ports, the versions, the cables, the one-remote magic called CEC, and switching between inputs.

CHAPTER 3

HDMI Ports and Versions

HDMI stands for High-Definition Multimedia Interface. All you need to know is that one HDMI cable carries both the picture and the sound from a device to your TV, digitally, with no fuss. That's why it replaced the bundle of colored cables we used to have.

Not all HDMI sockets on one TV are the same

On many newer TVs, the HDMI sockets have different abilities. One may be marked **eARC** or **ARC** for a soundbar. One or two may be marked **4K@120Hz** or **144Hz** for a game console. The rest are ordinary inputs that work perfectly for a cable box or streaming stick. Read the small print next to each socket, or check the TV's manual, before you decide what goes where.

HDMI versions in plain English

You'll see version numbers on TV boxes and in ads. Here's what they mean for you as of November 2026. Each newer version still works with older devices and cables. You simply get the newer features only when everything in the chain supports them.

Version	What it brought	Do you need it?
HDMI 2.0	4K pictures at normal TV smoothness (60 frames a second), and HDR for brighter, richer color.	Plenty for TV shows, movies, cable and streaming.
HDMI 2.1	Much more speed (up to 48 Gbps), 4K at 120 frames a second for games, smoother gaming features, and **eARC** for better soundbar audio.	Nice for a newer game console or a top soundbar. Not needed for TV watching.
HDMI 2.2	Doubles the speed again (up to 96 Gbps) with a new **Ultra96** cable. Announced in January 2025.	No. As of late 2026 the first cables are just reaching stores, and almost nothing you'd plug in uses it yet.

GOOD TO KNOW

Version numbers on the TV box aren't the whole story

A TV can say "HDMI 2.1" and still have only some of the 2.1 features, or only on some sockets. If a feature matters to you, like 4K at 120 for a game console, look for that feature by name on the TV's spec sheet rather than trusting the version number alone.

CHAPTER 4

HDMI Cables: Names, Labels and What to Buy

HDMI cables all look alike on the outside, and the plug is the same shape on every one. The difference is how much they can carry. The official names come from HDMI Licensing Administrator, the group that runs the HDMI standard, and they describe speed, not version numbers.

The official cable names

Cable name	Carries up to	Good for
Standard HDMI	Older, lower speeds	720p and 1080i. Fine for very old gear. Don't buy one new.
High Speed HDMI	10.2 Gbps	1080p HD and some 4K. Many older cables in your drawer are this.
Premium High Speed HDMI	18 Gbps	4K with HDR. A safe everyday choice for a 4K TV.
Ultra High Speed HDMI	48 Gbps	Everything HDMI 2.1 can do, including 4K at 120 for games and eARC. The best choice today.
Ultra96 HDMI	96 Gbps	HDMI 2.2. New in 2026; not needed in a typical home yet.

If you're buying a new cable today, a certified **Ultra High Speed** cable is the sensible pick. It costs only a little more than older types, handles anything you're likely to own, and works fine with older devices too.

Look for the certification label

Genuine certified Premium High Speed, Ultra High Speed and Ultra96 cables come with an official **certification label** on the package. It has a QR code and a shiny hologram. The label means that model and length passed testing at an approved test center.

1. Find the certification label on the cable's box or bag. It's a sticker with the HDMI logo, a QR code and a hologram.
2. Open your phone's **Camera** and point it at the QR code. On the newer labels, any QR reader works.
3. Tap the link that appears. It should open a page on the HDMI website showing the brand, model and length of the cable.
4. If those details don't match the cable in your hand, or the code won't verify, don't trust the "certified" claim. Older labels were checked with HDMI Licensing's own app instead.

TIP

Shorter is better

Buy the shortest cable that reaches comfortably, with a little slack. A 6-foot cable is plenty for most TV stands. Long cables cost more, coil up behind furniture, and are more likely to struggle with the fastest signals. See Chapter 19 for long runs.

HEADS UP

"8K" or "2.1" printed on a bag isn't proof

Anyone can print "8K" or "HDMI 2.1" on a package. The certification label with a scannable code is what shows a cable was actually tested. Chapter 27 covers counterfeit cables.

CHAPTER 5

HDMI-CEC: One Remote for Everything

Here's a feature that can make life much easier. **HDMI-CEC** (Consumer Electronics Control) lets the devices connected by HDMI talk to each other. With it turned on, one remote can do a lot: turn on the streaming stick and the TV switches to it by itself. Turn off the TV and the soundbar goes off too. The TV remote's volume buttons control the soundbar.

Every brand gives it a different name

This is the confusing part. CEC is the same standard everywhere, but TV makers give it their own names, so you have to know what to look for in the menu.

TV brand	What the setting is called
Samsung	**Anynet+ (HDMI-CEC)**
LG	**SIMPLINK (HDMI-CEC)**
Sony	**BRAVIA Sync**, and in some menus **Control for HDMI**
Roku TV models (TCL, Hisense, others)	**Control other devices (CEC)**, with options such as **1-touch play**
Vizio	**CEC**
TCL and Hisense (non-Roku models)	Varies by model and software. Look for "CEC" or "HDMI control" in the settings.

Where to turn it on

Menus differ by model year, so treat these as a starting point. If yours doesn't match, look for the name in the table above, often under a heading like Connection, External Devices, Inputs or System.

TV	Typical path
Samsung	**Settings** > **All Settings** > **Connection** > **External Device Manager** > **Anynet+ (HDMI-CEC)**. On some model years it's under **General & Privacy** instead of Connection.
LG (webOS 6 and later)	**Settings** > **All Settings** > **General** > **Devices** > **HDMI Settings** > **SIMPLINK (HDMI-CEC)**. On 2026 models, start with **System** instead of General. Older LG TVs keep it under Connection or General.
Roku TV	**Settings** > **System** > **Control other devices (CEC)**, then check the boxes you want, such as **1-touch play**, **System audio control** and **ARC** (or **eARC**).

TV	Typical path
Vizio	Press **Menu**, open **System**, choose **CEC**, and set it to **Enable**.
Sony	Look in **Settings** under **Channels & Inputs** or **External inputs** for **BRAVIA Sync settings**.

TIP

Turn it on at both ends

CEC usually has to be on in the TV *and* in the device. Soundbars, streaming players and cable boxes often have their own CEC or "HDMI control" setting. Samsung notes the TV can take up to a couple of minutes to notice a newly connected device, so give it a moment.

GOOD TO KNOW

When CEC gets too helpful

Sometimes CEC turns the TV on when you didn't want it, or switches inputs by itself. That's fixable without giving up the good parts. See Chapter 25.

CHAPTER 6

Switching and Renaming Inputs

An **input** is just one of the sockets on your TV, and "switching inputs" means telling the TV which one to show. If the TV is on HDMI 1 but your cable box is plugged into HDMI 2, you'll see a blank screen or "No Signal" even though everything is working.

How to switch inputs

- Press the **Input** or **Source** button on the TV remote, if it has one. A list appears. Choose the one you want and press **OK**.
- On Roku TVs, each input is a tile on the Home screen, like an app. Press **Home** and select the tile, such as **HDMI 2** or the name you've given it.
- On Google TV models (many Sony, TCL and Hisense TVs), look for an **Inputs** icon at the top of the Home screen or in the quick settings.
- With CEC turned on (Chapter 5), simply pressing a button on the device's own remote often switches the TV for you.

Rename your inputs so nobody has to guess

"HDMI 3" means nothing to a visiting grandchild. "Cable Box" or "Roku" does. Most TVs let you rename inputs. Here's how on the brands where I've checked the steps.

Samsung

1. Open the **Source** list (from the Home screen, or the Source button).
2. Highlight the input you want to rename.
3. Press **Up** on the remote to open its options, then select **Edit**.
4. Pick a name and an icon, then confirm.

Roku TV (TCL, Hisense and other Roku models)

1. Press **Home** and highlight the input's tile, such as **HDMI 2**.
2. Press the **star** button (*) on the remote.
3. Choose **Rename input**, then pick a name and icon from the list or type your own.
4. You can also go to **Settings** > **TV inputs**, choose the input, and pick **Rename**.

Sony, LG, Vizio and others

Sony puts input names under **External inputs** > **Manage inputs** on many models. On LG, Vizio and other brands, look in the input list for an **Edit**, **Rename** or pencil icon. The exact spot varies by model, so if you don't see it, check the TV's manual for "rename input."

TIP

Hide the inputs you never use

Many TVs, including Roku TVs, let you hide unused inputs so the list only shows the two or three you actually use. Fewer choices means fewer wrong turns.

PART 3

Getting Better Sound Out

How the TV sends its sound to a soundbar or receiver: ARC, eARC, optical, and the simpler choices for headphones.

CHAPTER 7

ARC and eARC: Sound Back Out of the TV

Normally HDMI carries sound *into* the TV. **ARC**, the Audio Return Channel, lets one HDMI socket send the TV's sound back *out* along the same cable to a soundbar or receiver. That means the sound from every source, whether the TV's own apps, the antenna or anything plugged into the other HDMI sockets, can come out of your soundbar through one cable.

eARC is the enhanced version that arrived with HDMI 2.1. It does the same job with far more room, so it can carry the very best movie sound formats without squeezing them.

What each one carries

	ARC	eARC
Ordinary TV sound (stereo)	Yes	Yes
Compressed surround (Dolby Digital, DTS 5.1)	Yes	Yes
Dolby Atmos from streaming apps (in Dolby Digital Plus)	Usually yes	Yes
Uncompressed 5.1 and 7.1, Dolby TrueHD, DTS-HD Master Audio, DTS:X	No	Yes
Room for sound data	About 1 Mbps	Up to about 37 Mbps

For most people watching TV and streaming, ARC sounds great. eARC matters if you have a top-end soundbar or receiver and you play 4K Blu-ray discs or want the fullest Dolby Atmos.

Making ARC or eARC work

1. Find the HDMI socket on the TV labeled **ARC**, **eARC** or **eARC/ARC**.
2. Connect it to the soundbar's HDMI socket labeled something like **HDMI OUT (TV ARC)** or **HDMI TO TV (eARC/ARC)**.
3. Turn on CEC on the TV (Chapter 5). ARC depends on it on most TVs.
4. In the TV's sound settings, set the sound output to the soundbar, receiver or **HDMI ARC/eARC** instead of the TV speakers.
5. If your TV has an eARC switch, turn it on. On many Samsung TVs it's **Settings** > **All Settings** > **Sound** > **Expert Settings** > **HDMI-eARC Mode**, set to **Auto**.

HEADS UP

The wrong HDMI socket means silence

This is the most common soundbar mistake I see. If the soundbar's cable goes into an ordinary HDMI socket instead of the ARC or eARC one, you'll hear nothing from the soundbar. Sonos says exactly this in its own setup guide. Check the label on the TV end.

TIP

Use a good cable for eARC

eARC works with a High Speed HDMI cable with Ethernet or an Ultra High Speed cable. If you're buying one new, get Ultra High Speed. Many soundbars include a suitable cable in the box.

CHAPTER 8

Optical Audio: The Reliable Backup

The **optical** socket, also called **TOSLINK** or **Digital Audio Out (Optical)**, sends sound as pulses of light through a thin cable. When you plug in the cable and the TV is on, you can often see a faint red glow at the tip. It's sound only. No picture, and no remote-control messages.

When optical is the right choice

- Your TV has no ARC or eARC socket (older TVs).
- ARC just won't cooperate with your particular TV and soundbar, and you want sound working today.
- Your soundbar only has optical. The Sonos Ray, for example, connects by optical, not HDMI.

What optical can and can't do

Sound type	Over optical?
Stereo TV sound	Yes, and it sounds good.
5.1 surround (Dolby Digital, DTS)	Yes, in compressed form.
Dolby Atmos and lossless formats	No. For Atmos you need HDMI ARC or eARC.
Remote control of the soundbar	Not through the cable. Many soundbars can learn your TV remote's volume buttons instead. Check the soundbar's manual.

Plugging it in

1. Pull the small clear plastic caps off both ends of a new optical cable. People miss these all the time.
2. Line up the plug's shape with the TV's **Optical** socket. It only fits one way. Push gently until it clicks. Some sockets have a little spring door that the plug pushes open.
3. Plug the other end into the soundbar's **Optical** or **Digital In** socket.
4. In the TV's sound settings, choose **Optical** or external speakers as the output.
5. If you hear nothing, look for a digital audio format setting and try **PCM**. Some soundbars don't understand every format the TV sends.

HEADS UP

Don't kink it

An optical cable carries light through a fine strand inside. Bend it sharply or pinch it in a door and it can stop working. Give it gentle curves.

GOOD TO KNOW

Sonos adapters

Sonos's HDMI soundbars (Arc Ultra, Arc and Beam) can also use an optical connection through the **Sonos Optical Audio Adapter**, which plugs onto the HDMI cable. Sonos sells it separately for the Arc Ultra. You lose Dolby Atmos that way, so use HDMI eARC/ARC if your TV has it.

CHAPTER 9

Connecting a Soundbar, Step by Step

A soundbar is the easiest way to make TV voices clearer and louder. Whatever the brand, the connection choice is the same: HDMI ARC or eARC first, optical as the backup.

The general steps for any soundbar

1. Turn the TV and soundbar off. Place the soundbar and plug its power cord in.
2. Run an HDMI cable from the TV's **ARC** or **eARC** socket to the soundbar's TV/ARC HDMI socket. No ARC socket? Run an optical cable instead.
3. Turn both on. Turn on CEC on the TV (Chapter 5).
4. In the TV's sound settings, choose the soundbar or **HDMI ARC/eARC** (or **Optical**) as the sound output.
5. If the soundbar has an app, open it and follow its setup steps. Many soundbars need the app for updates and voice settings.
6. Test with the TV remote's volume buttons. A volume display for the soundbar should appear, or the soundbar's lights should respond.

Notes for popular brands

Brand	How it connects
Sonos	Arc Ultra, Arc and Beam (Gen 2) use HDMI eARC/ARC, with an optical adapter option. The Ray uses optical only. Setup is done in the Sonos app.
Bose	Bose recommends the TV's HDMI eARC or ARC socket (needed for Dolby Atmos), with optical as the fallback, and a cable rated High Speed or better. Setup is done in the Bose app. On a Roku TV, Bose says the Roku remote controls the soundbar once setup is done.
Samsung soundbars	Connect the TV's ARC/eARC socket to the soundbar's **HDMI TO TV (eARC/ARC)** socket. With a compatible Samsung TV, **Q-Symphony** can play sound through the TV and soundbar together.
Other brands	Vizio, LG, Sony, Roku and others follow the same pattern. Check the label on the soundbar's HDMI socket and its quick-start sheet.

TIP

Turn off the TV speakers

Once the soundbar works, make sure the TV isn't also playing through its own speakers, which can sound echoey. Choosing the soundbar as the output usually turns the TV speakers off. Samsung's Q-Symphony is the exception, on purpose.

CHAPTER 10

Headphones, Receivers and Other Sound Paths

A soundbar isn't the only way to get sound out of a TV. Here are the other paths and when each one makes sense.

The headphone or audio-out jack

Some TVs have a small round jack marked with a headphone symbol or **Audio Out**. It works with wired headphones, a TV-listening amplifier, or simple powered speakers. On many TVs, plugging something in turns off the TV speakers, and some let you choose a separate volume. Newer TVs often skip this jack.

Bluetooth

Many smart TVs can send sound to Bluetooth headphones or speakers with no cable at all. Look in the TV's sound output settings for a Bluetooth option. Bluetooth sometimes adds a small sound delay, which Chapter 24 helps with. Our "Hearing Help Tech" manual covers TV-listening headphones.

An AV receiver

An AV receiver is a bigger box that powers separate speakers for full surround sound. Two common setups:

- **Everything into the TV:** plug the devices into the TV, then connect the TV's ARC/eARC socket to the receiver's HDMI output marked ARC or eARC. Simple, and the TV remote does more.
- **Everything into the receiver:** plug the devices into the receiver's HDMI inputs, then one HDMI cable from the receiver's output to the TV. Good with older TVs that lack eARC, but the receiver must be on to see anything.

GOOD TO KNOW

Older red and white audio jacks

Some older soundbars and stereos only have red and white RCA inputs. If your TV has no analog audio out, a small digital-to-analog converter (optical in, red/white out) can bridge the gap. It only carries stereo, which is fine for clearer TV sound.

PART 4

Hooking Up Your Devices

Cable boxes, streaming sticks, game consoles, disc players, antennas, VCRs and the internet: where each one goes and the small details that trip people up.

CHAPTER 11

A Cable or Satellite Box

A cable or satellite box has two connections: one bringing the service in, and one sending picture and sound to the TV.

1. Screw the coax cable from the wall onto the box's **Cable In** or **RF In** post. Turn it finger-tight. For satellite, the dish's cable goes to the box's satellite input.
2. Run an HDMI cable from the box's **HDMI Out** to any ordinary HDMI socket on the TV. Save the ARC/eARC socket for a soundbar if you have one or might get one.
3. Plug in the box's power and wait. A cable box can take several minutes to start up the first time.
4. Switch the TV to the input you used (Chapter 6), and rename it "Cable Box."

TIP

Leave the TV's own coax post alone

When a box is doing the tuning, the TV's own ANT/Cable In post isn't used for cable. You only need it for an antenna (Chapter 15). Don't split the cable line to both unless your provider says to.

GOOD TO KNOW

One remote for both

Most provider remotes can be set to control the TV's power and volume. Your provider's support site lists the codes or a setup routine. With CEC on, the TV may also follow the box.

SCAM ALERT

Activation and "equipment" fees from strangers

Your cable company won't phone you out of the blue demanding payment to keep your box working, or ask for gift cards. If someone does, hang up and call the number printed on your bill.

CHAPTER 12

Streaming Sticks and Their USB Power

A streaming stick (Roku, Amazon Fire TV, or similar) plugs straight into an HDMI socket. A streaming box, like Apple TV, Roku Ultra or the Google TV Streamer, sits beside the TV with its own HDMI cable. Either way, it needs **power** as well as HDMI, and power is where most trouble starts.

Plugging in a stick

1. Plug the stick into an ordinary HDMI socket. If it won't fit because of nearby cables, use the short HDMI extender that comes with many sticks.
2. Plug its small USB power cable into the stick, and the other end into the power adapter that came in the box.
3. Plug the adapter into a wall outlet or power strip.
4. Switch the TV to that input and follow the on-screen setup.

The TV's USB port, or the wall?

It's tempting to power the stick from the TV's USB port and skip the adapter. Sometimes that works. Often it causes trouble:

- Many TV USB ports don't supply enough power. Roku says a player that gets too little power may show a **low-power warning** or a flashing red light. Fire TV sticks can show a similar warning about insufficient power.
- Most TVs cut power to the USB port when the TV goes to standby, so the stick restarts every time you turn the TV on, which means a longer wait.
- Roku's recommended fix is the player's own USB cable and power adapter in a wall outlet.

> **TIP**
>
> **Use the adapter that came with it**
>
> Roku says a replacement adapter should be rated 5 volts and 1 amp or the equivalent. The adapter in the box is the safe choice. If outlets are short, a small surge-protected power strip behind the TV solves it.

GOOD TO KNOW

Chromecast has been replaced

Google discontinued its Chromecast products in 2024 and replaced them with the **Google TV Streamer**, a small box with its own Ethernet socket. Note that it does not include an HDMI cable, so you'll need one. Existing Chromecasts keep working.

SCAM ALERT

Fake "activation" sites

Roku says plainly that it does not charge support or activation fees, and that you should only use websites ending in **roku.com** when setting up. Fake setup sites even buy ads at the top of search results. If a website or a phone "technician" asks for a fee or a card number to activate any streaming stick, stop. More in Chapter 27.

CHAPTER 13

Game Consoles

A game console, whether it's for you or for the grandchildren's visits, connects with one HDMI cable, just like a streaming stick. The only special thing about consoles is that the newest ones can use the fastest HDMI features.

1. Use the HDMI cable that came in the console's box. Current consoles ship with a cable that's up to the job. If you need a new one, buy a certified Ultra High Speed cable.
2. Plug it into the TV's HDMI socket marked **4K@120Hz**, **144Hz** or **Game**, if your TV has one. Check the manual if the sockets aren't labeled.
3. Turn the console on and follow its setup. It will usually detect the TV's abilities by itself.
4. Rename the input to the console's name.

GOOD TO KNOW

Game Mode

Many TVs switch into a **Game Mode** automatically when a console is detected. It reduces the tiny delay between pressing a button and seeing the result. You'll see the term **ALLM** (Auto Low Latency Mode) for this, and **VRR** (Variable Refresh Rate) for smoother motion. Both are HDMI 2.1 features.

TIP

If the eARC socket is also the only 120Hz socket

On some TVs, the soundbar's eARC socket is also one of the fast gaming sockets. That's fine. Put the soundbar on eARC as usual and the console on the other fast socket if there is one. If not, the console works perfectly well in an ordinary socket at 4K and 60.

CHAPTER 14

Blu-ray and DVD Players

A Blu-ray or DVD player made in the last fifteen years or so connects with HDMI. Plug an HDMI cable from the player's **HDMI Out** to any HDMI socket on the TV, switch to that input, and you're done.

Getting the best sound from discs

Blu-ray discs can carry the richest sound formats, like Dolby TrueHD and DTS-HD Master Audio. To hear them at their best through a soundbar:

- With an eARC TV and eARC soundbar, plug the player into the TV and let eARC pass the full sound through.
- With ordinary ARC, the TV sends a simpler version. It still sounds good, just not the full format.
- Some soundbars and receivers have their own HDMI input. Plugging the player into that, then the soundbar's output to the TV, sends the full sound straight to the soundbar.

GOOD TO KNOW

An older DVD player with only colored plugs

If your DVD player only has red, white and yellow sockets, see Chapter 16. A modern DVD or Blu-ray player with HDMI is usually inexpensive and simpler than an adapter.

TIP

If a disc plays sound but no picture

Try the player's resolution or output setting, or a different HDMI cable and socket. Chapters 21 and 22 cover this in more detail.

CHAPTER 15

An Antenna and the Coax Post

The round, threaded post marked **ANT In**, **Cable In** or **RF** is where an antenna connects. With an antenna you can watch local broadcast channels for free, with no monthly bill. The cable that screws on is called **coax** (short for coaxial), and the screw-on end is called an **F connector**.

1. Screw the antenna's coax onto the TV's **ANT In** post. Line up the thin center wire with the hole, then turn the outer ring clockwise until snug. Finger-tight is right; no tools.
2. If the antenna is powered (amplified), plug its small power adapter or USB lead in as its instructions say.
3. On the TV, switch to the **Antenna**, **Live TV** or **TV** input.
4. Run a **channel scan** (sometimes called Auto Program, Channel Search or Set Up Antenna) from the TV's channel or broadcast settings. It takes a few minutes.
5. Move the antenna and scan again if some channels are missing. Higher and nearer a window facing the broadcast towers usually helps.

TIP

Bent center wire, no channels

If the thin copper wire in the middle of the coax plug is bent or broken, you'll get few or no channels. Straighten it gently, or replace the cable. Coax cables are inexpensive.

GOOD TO KNOW

One antenna, two TVs

A simple coax splitter can feed an antenna to two TVs, but each split weakens the signal a little. If the second TV loses channels, an amplified antenna or a distribution amplifier may help. Our "Cutting the Cord" manual has more on antennas.

CHAPTER 16

VCRs, Old DVD Players and Other Older Gear

Many folks still have a VCR with family tapes, or an older DVD player that works just fine. These use **analog** connections: the red, white and yellow plugs (called **composite**), or the green, blue and red video plugs (called **component**). The trouble is that many new TVs no longer have those sockets at all.

First, check what your TV has

If you see...	Then
Red, white and yellow sockets	Plug straight in, color to color, and choose the **AV** or **Composite** input.
A single tiny round jack marked AV In	Some TVs use a small jack that needs a breakout adapter cable with red, white and yellow sockets on the other end. The right adapter is listed in the TV's manual; they aren't all the same.
Only HDMI sockets	You'll need a small converter box, described below.

Using a composite-to-HDMI converter

1. Buy a composite-to-HDMI converter (sometimes sold as "AV to HDMI" or "RCA to HDMI"). Make sure it goes in that direction: colored plugs *in*, HDMI *out*.
2. Plug the VCR's red, white and yellow cables into the converter's matching sockets.
3. Run an HDMI cable from the converter to any HDMI socket on the TV.
4. Power the converter with its USB cable. A USB wall adapter is more reliable than the TV's USB port.
5. If the converter has a 720p/1080p switch, try 1080p first. Switch the TV to that HDMI input and press play.

GOOD TO KNOW

Set your expectations

VHS tapes were never sharp, and a big modern TV shows every flaw. A converter makes old gear work; it can't make it look like HD. If the goal is to keep the family memories, it may be better to have the tapes digitized. Our "Digitizing Old Photos & Movies" manual explains how.

What doesn't work

- Plain cables that claim to turn red/white/yellow into HDMI with no box in between. Analog and digital need a powered converter.
- Counting on the VCR's coax output (the old "channel 3 or 4" trick). Some newer TVs can't tune it, and when it does work the picture is the poorest of all. The colored outputs and a converter are more dependable.
- Plugging an HDMI device into a converter's colored sockets. Composite-to-HDMI boxes only take analog in.

HEADS UP

Converters only go one way

A composite-to-HDMI converter won't work backward to feed an old TV from a new streaming stick. That needs the opposite kind, an HDMI-to-composite converter.

CHAPTER 17

The Internet: Wi-Fi, Ethernet and the USB Port

A smart TV or streaming device needs an internet connection for its apps. Most people use Wi-Fi, but a cable is often better if your router is near the TV.

Ethernet: the steadier choice

The **LAN** or **Ethernet** socket takes a network cable from your router or a mesh Wi-Fi point. A wired connection doesn't fade when someone runs the microwave, and it's usually faster. If your shows often stop to buffer, try a cable.

1. Plug one end of an Ethernet cable into a spare socket on the back of your router.
2. Plug the other end into the TV's or streaming box's **LAN** socket.
3. In the TV's network settings, choose **Wired** or **Ethernet**. Many TVs switch automatically.

TIP

Sticks usually need an adapter for Ethernet

Streaming sticks don't have an Ethernet socket. Some makers sell an Ethernet adapter that goes between the power cable and the stick. Boxes like Apple TV 4K (some models), Roku Ultra and the Google TV Streamer have the socket built in.

What the TV's USB ports are for

- Powering a streaming stick (with the cautions in Chapter 12).
- Showing photos or playing videos from a thumb drive in the TV's media player.
- Installing a TV software update downloaded from the maker's website, when support asks you to.
- Some TVs can also use a USB keyboard or webcam.

GOOD TO KNOW

USB doesn't carry the cable box

A USB socket can't take the picture from a cable box, DVD player or computer. Those need HDMI.

PART 5

Tidy, Labeled and Expanded

More devices than sockets, cables that need to go farther, a TV on the wall, and a simple labeling system that saves you every time.

CHAPTER 18

HDMI Switches and Splitters

These two gadgets look alike and sound alike, but they do opposite jobs. Buying the wrong one is a common mistake.

Gadget	What it does
HDMI switch	Several devices *in*, one cable *out* to the TV. Use it when you have more devices than HDMI sockets.
HDMI splitter	One device *in*, the same picture *out* to two or more TVs. Use it to show one cable box on two screens.

Before you buy a switch

- Count again. Plug the soundbar into eARC, then the devices into the other sockets. Many people find they have enough sockets after all.
- Use a powered switch with its own adapter. Unpowered ones can be unreliable with some devices.
- Match the speed. If any device sends 4K HDR, the switch must handle it. Look for 4K60 HDR or better on the box.
- Auto-switching models jump to whichever device turned on last. Handy, but they can also switch when you don't want them to.

Setting up a switch

1. Plug each device's HDMI cable into the switch's numbered **In** sockets.
2. Run one HDMI cable from the switch's **Out** socket to an ordinary HDMI socket on the TV.
3. Plug in the switch's power. Use the button or its remote to pick a device.

HEADS UP

Splitters and HDCP

Copy protection (HDCP, see Chapter 22) can stop some splitters from working with streaming apps or cable boxes. If a splitter gives an HDCP error, the splitter is usually the cause, not the TV.

CHAPTER 19

Long Cable Runs and Wall-Mounted TVs

Sometimes the cable box is across the room, or the TV is on the wall over the fireplace with the boxes in a cabinet below. Here's how to get the signal there safely and neatly.

How long can an HDMI cable be?

There's no single official limit, but ordinary (passive) cables get less reliable the longer they are, especially at the fastest speeds. Makers of certified Ultra High Speed cables generally list passive lengths up to around 15 to 30 feet. For longer runs, use an **active optical HDMI cable**, which converts the signal to light inside the cable.

HEADS UP

Active optical cables have a direction

Each end of an active optical cable is labeled. The **Source** end goes to the device (cable box, console). The **Display** end goes to the TV. Put it in backward and you get "No Signal." Check the labels before you fish it through a wall.

Hiding the cables on a wall-mounted TV

- **On the wall:** a paintable plastic cord cover (raceway) hides the cables along the wall's surface. Easy, cheap and no holes in the drywall beyond the screws.
- **Inside the wall:** a recessed TV power and cable kit puts a plate behind the TV and another near the floor, with a properly rated power connection between them and a passage for the HDMI and other low-voltage cables.
- **Behind the TV:** use short right-angle HDMI adapters or cables if the TV sits close to the wall, so the plugs aren't bent.

STAY SAFE

Never run the TV's power cord inside the wall

The electrical code (NEC 400.12) doesn't allow ordinary flexible cords, including TV power cords and extension cords, inside walls. They can overheat and become a fire hazard. Use an in-wall power kit made for the purpose, or have an electrician add an outlet behind the TV. For HDMI and other cables inside the wall, use cables rated for in-wall use, marked **CL2** or **CL3**.

TIP

Leave a pull string

When you run cables through a wall, leave a pull string in there too. The next time you need a new cable, you tie it on and pull it through, with no fishing.

FROM BILL

Wall mounts are worth a second pair of hands

Mounting a TV means finding studs, lifting a heavy screen and getting the cables right before it goes up. I'm glad to help plan it or do the connections. $49 remote · $99 in your home.

CHAPTER 20

Labeling Cables and Making a Wiring Map

Ten minutes of labeling now saves an hour of guessing later, especially after a move, a power outage, or when a helper is trying to fix something over the phone.

Label both ends of every cable

1. Get some small labels: twist ties with tags, colored tape, or a label maker.
2. On each cable, write where it goes, at *both* ends: "Cable Box" near the box and "Cable Box" near the TV.
3. Use the same name you gave the input in the TV's menu (Chapter 6), so the label, the menu and the cable all agree.
4. Label power cords too, especially on a crowded power strip: "TV," "Soundbar," "Roku."

> **TIP**
>
> **Colors work for tired eyes**
>
> Colored tape or bands are easy to see behind a dark cabinet. Red for the cable box, blue for the streaming stick, and so on. Write the colors on your wiring map.

Make a simple wiring map

Fill this in and keep it with the TV's paperwork. It's also printed in the cheat-sheet.

TV socket	What's plugged in	Input name on TV	Label color
HDMI 1			
HDMI 2			
HDMI 3			
HDMI 4 / ARC / eARC			
Optical			
ANT In			
USB			

PART 6

Fixing Common Problems

Calm, step-by-step fixes for no signal, HDCP errors, sound without picture, lips out of sync, and a TV that has a mind of its own.

CHAPTER 21

"No Signal" and a Blank Screen

"No Signal" means the TV is showing an input where nothing is sending a picture. Usually nothing is broken. Work down this list in order.

1. **Check the input.** Press Input or Source and pick the input the device is plugged into.
2. **Check the device is on.** Look for its light. A streaming stick needs its power adapter plugged in; a cable box may still be starting up.
3. **Reseat the cable.** Unplug the HDMI cable at both ends and push it back in firmly.
4. **Try another socket.** Move the cable to a different HDMI socket and switch to that input.
5. **Try another cable.** HDMI cables do fail, especially ones that have been bent or pulled.
6. **Power-cycle everything.** Turn off the TV and device, unplug both from the wall for a full minute, plug back in, turn on the device first, then the TV.
7. **Take out the middleman.** If there's a switch, splitter or receiver in between, connect the device straight to the TV to see if the extra box is the problem.

TIP

The "device first, then TV" order

HDMI devices exchange a quick hello, called a **handshake**, when they're turned on. Turning the source device on first, then the TV, clears up many stubborn blank screens.

GOOD TO KNOW

Active optical cable?

If you're using a long active optical cable, make sure the Source end is at the device and the Display end is at the TV (Chapter 19).

CHAPTER 22

HDCP Errors and Handshake Problems

HDCP (High-bandwidth Digital Content Protection) is copy protection built into HDMI. Every device and box in the chain must agree to it before protected shows and movies will play. When they don't, you may see a message like "HDCP unauthorized. Content disabled," a purple or green screen, or a picture that flickers on and off.

Fixes, in the order to try them

1. Turn off the TV and the device, unplug both from power, and unplug the HDMI cable at both ends. Wait a minute.
2. Plug the HDMI cable back in, then power. Turn the device on first, then the TV.
3. Connect the device directly to the TV. Netflix's own help suggests bypassing receivers and sound systems while you test.
4. Try reversing the HDMI cable's ends, then try a different cable. Netflix suggests both.
5. Try a different HDMI socket on the TV.
6. If you use a switch or splitter, test without it. Some don't pass HDCP properly.
7. Check for software updates on the TV and the device.

GOOD TO KNOW

Very old TVs

A TV from the early HDMI years, or one with only DVI inputs, may not support the HDCP version that new 4K streaming requires. In that case the device may play in lower quality or not at all, and no cable will fix it.

TIP

Write down the exact message

If the error persists, write down or photograph the exact wording. It helps the device maker's support, or me, find the fix quickly.

CHAPTER 23

Sound but No Picture, or Picture but No Sound

When only half of the show arrives, the cause is usually a setting rather than a broken part.

Sound but no picture

- Press the device's Home button to see whether a menu appears. If it does, the problem may be one app.
- Make sure the TV isn't in a power-saving "screen off" or picture-off mode.
- The device may be sending a format the TV can't show, such as a resolution set too high. On many streaming devices you can reset the display setting or let it auto-detect.
- Try a different HDMI cable and socket. A cable that can't keep up with 4K HDR sometimes passes sound but drops the picture.

Picture but no sound

- Check the mute button and volume on the TV *and* on the soundbar.
- Check the TV's sound output setting. It may be set to a soundbar that's off, or to Bluetooth.
- With a soundbar on ARC/eARC: confirm it's in the ARC or eARC socket, CEC is on, and the soundbar is set to its TV/HDMI ARC input.
- With optical: check the little plastic caps are off and the soundbar is on its optical input. Try setting the TV's digital audio format to **PCM**.
- Turn everything off, unplug for a minute, and turn the soundbar on before the TV.

TIP

When ARC stays stubborn

If ARC keeps dropping out after the steps above, connect optical as well or instead. It's a perfectly good backup for TV watching. Our "Soundbars & Home Audio" manual has more sound fixes.

CHAPTER 24

Lip-Sync Delay: When Lips and Words Don't Match

If people's lips move a moment before or after you hear the words, the sound and picture are out of step. It's most common with soundbars and Bluetooth headphones, because the TV takes time to process the picture while the sound takes a different path.

1. First, check whether it happens on everything or just one app or channel. If it's one app, restart that app or the device; the fault may be in the show.
2. Turn the TV and soundbar off, then on again. A fresh start often fixes it.
3. Look for the TV's audio delay setting and adjust it a little at a time while watching someone talk.
4. If your soundbar or its app has its own audio delay or lip-sync setting, try that instead.
5. Turning on Game Mode reduces picture delay, which can also bring the two together.

Where to find the setting

TV	Typical path
Samsung	**Settings** > **All Settings** > **Sound** > **Expert Settings** > **Digital Output Audio Delay** (applies to sound sent to a soundbar).
LG	**Settings** > **All Settings** > **Sound**, then **AV Sync Adjustment** (on some models under **Additional Settings**).
Other brands	Look in the sound settings for **Audio Delay**, **Lip Sync** or **AV Sync**.

GOOD TO KNOW

Which way to move it

Some settings delay the sound, some move it earlier, and the direction depends on the brand. Move it a small step, watch for ten seconds, and keep going the way that helps.

CHAPTER 25

When CEC Misbehaves

CEC (Chapter 5) is wonderful when it works, but sometimes it gets carried away. Here are the common complaints and gentle fixes.

What happens	What to try
The TV turns itself on	A device woke up (often for an update) and told the TV to switch on. Turn off the "turn on TV" or "1-touch play" option in that device's settings.
The TV jumps to another input	A device came on and claimed the TV through CEC. LG's support site has a page on exactly this. Turn off that device's "switch input" or CEC option, or CEC on the TV.
The TV remote won't control the soundbar	Check CEC is on in both the TV and the soundbar, and that the soundbar is on the ARC/eARC socket.
Everything turns off together, but you wish it wouldn't	Look for a "device auto power off" or "system standby" option and turn just that part off.
Nothing works with CEC at all	Turn CEC off, unplug everything for a minute, turn CEC back on, and power up one device at a time.

TIP

You can mix and match

Most TVs and devices let you keep some CEC features and turn off others. Many folks keep "TV remote controls the soundbar" and turn off "device turns on the TV."

GOOD TO KNOW

Universal remotes

If you use a universal remote, CEC can sometimes fight it. Turning CEC off is a common fix.

PART 7

Buying Smart and Staying Safe

Honest advice on what cables are worth, how to spot a counterfeit, and the fake "support" traps that wait for people searching for TV help.

CHAPTER 26

Honest Cable Shopping: Don't Overpay

Here's the plain truth: HDMI is digital. A cable either delivers the signal or it doesn't. A certified inexpensive cable gives exactly the same picture and sound as a very expensive one of the same certification. Gold-plated plugs, braided jackets and "cinema grade" labels don't make your shows look better.

What actually matters

Pay for	Why
Certification	Premium High Speed or Ultra High Speed, with the scannable label (Chapter 4).
Length	Just long enough. Shorter is more reliable and cheaper.
A sturdy plug	A plug that fits snugly and a cable that bends easily behind the TV.
In-wall rating	Only if it's going inside a wall: CL2 or CL3 (Chapter 19).
Skip	**Why**
Gold plating	Doesn't change a digital picture.
"Audiophile" or "8K cinema" branding	Marketing words, not a certification.
Extended cable "protection plans"	Cables are inexpensive to replace.
Expensive cables pushed at checkout	The cable in the soundbar or console box is often all you need.

TIP

Check the box first

Many soundbars, game consoles, Blu-ray players and streaming boxes include an HDMI cable. Some, like the Google TV Streamer, don't. Look in the box before you shop.

GOOD TO KNOW

Old cables are usually fine

The High Speed cables already in your drawer work for HD and much 4K viewing. Upgrade when you add a 4K HDR device that won't show a picture, a newer game console, or an eARC soundbar that struggles.

CHAPTER 27

Counterfeit Cables and Fake Support

Two kinds of trouble catch people out: cables that aren't what they claim, and "support" that isn't support at all.

Counterfeit and fake-certified cables

Counterfeit HDMI cables, some with fake certification labels, have been seized by authorities. They may skip wires inside and fail with 4K or eARC. Protect yourself:

- Buy from a store or seller you trust, and be wary of prices that seem too good for a "certified" cable.
- Scan the certification label's QR code (Chapter 4). It should open a page on the HDMI website matching the brand, model and length.
- No label at all on a cable that claims to be Premium or Ultra High Speed is a warning sign.

Fake support numbers

When something stops working, it's natural to search online for "TV no signal help" or "soundbar support number." Scammers know this. They buy ads at the top of search results and make websites that look official. Roku warns that fake sites even appear at the top of search results because scammers pay for ads.

SCAM ALERT

Signs it's a fake support line

They ask to connect to your computer or phone, ask for a card or gift cards to "fix" or "activate" your TV, say your TV has a virus or your account is "hacked," or want payment before helping. Real TV makers don't do this. Hang up.

How to reach the real support

1. Look for the support number in the TV's printed manual, on a sticker on the TV, or in the TV's own settings (often under **Support** or **About**).
2. Or type the maker's main web address yourself, such as **samsung.com**, **lg.com**, **sony.com** or **roku.com**, and find Support from there.
3. Skip search results marked **Sponsored** or **Ad** when you're looking for help.
4. For your cable or internet company, use the number on your bill.

SCAM ALERT

If you already paid or let someone in

Call your bank or card company and dispute the charge. If you let someone connect to your computer, turn it off and have it checked. Roku also suggests reporting it to the Federal Trade Commission at **reportfraud.ftc.gov** and changing your passwords. It's not your fault; these scams are built to look real.

PART 8

When to Call Bill and Your Cheat-Sheet

When a hand from someone who does this every day is worth it, plus the whole book on a couple of pages.

CHAPTER 28

When to Call Bill

Most connection problems you can fix yourself with this book and a little patience. But some jobs go faster and safer with someone who does them every day. Here's an honest list of when a call makes sense.

Good reasons to call

- You've got a new TV, soundbar and boxes to connect, and you'd like it done once, done right, and labeled.
- ARC or eARC won't work no matter what you try, or the TV remote won't control the soundbar.
- You're mounting a TV on the wall and want to plan the cables, power and mount before drilling.
- Your old VCR or DVD player needs to work with a new TV, or you're not sure what adapter to buy.
- You keep seeing HDCP errors, blank screens or a TV that turns itself on.
- Someone on the phone claimed to be "support" and you want a calm second opinion before doing anything else.
- You'd simply like a patient walk-through and a wiring map made for your own setup.

What working with me is like

I'm Bill, and I help folks in **Portage County, Ohio** in person and anywhere remotely. With 30+ years of professional experience, I go at your pace, explain what I'm doing, and leave things labeled so you can manage on your own. There are no silly questions.

FROM BILL

Here's how to reach me

Call or text **(330) 200-8042**, or book online at **billshometech.com/book**. If my AI receptionist **Sophie** answers the main line, she can answer simple questions and get you on my schedule. Help is $49 remote · $99 in your home.

— Bill

CHAPTER 29

Your TV Connections Cheat-Sheet

Print this page and keep it near the TV. It's the whole book in short.

What goes where

Device	Plug it into
Soundbar	TV's **HDMI ARC/eARC** socket. No ARC? Use **Optical**.
Cable or satellite box	Coax into the box; box's HDMI Out into any ordinary HDMI socket.
Streaming stick	Any HDMI socket; power from its own adapter in the wall.
Game console	The HDMI socket marked 4K@120Hz or Game, if any.
Blu-ray or DVD (HDMI)	Any HDMI socket.
VCR or old DVD	Red/white/yellow sockets, an AV adapter, or a composite-to-HDMI converter.
Antenna	TV's **ANT In** post, then run a channel scan.
Internet	Wi-Fi, or an Ethernet cable into **LAN**.

When something goes wrong

Problem	Try
No Signal	Check the input; reseat the cable; device on first, then TV.
HDCP error	Unplug everything for a minute; connect directly; try another cable.
No sound from soundbar	ARC/eARC socket? CEC on? TV output set to soundbar?
Lips out of sync	Restart; adjust the TV's audio delay a little at a time.
TV turns itself on	Turn off "1-touch play" or "turn on TV" in the device's settings.

CEC names to look for

TV brand	Setting name
Samsung	Anynet+ (HDMI-CEC)
LG	SIMPLINK (HDMI-CEC)
Sony	BRAVIA Sync / Control for HDMI
Roku TV	Control other devices (CEC)

TV brand	Setting name
Vizio	CEC

Keep this handy

TV socket	What's plugged in	Input name	Label color
HDMI 1			
HDMI 2			
HDMI 3			
HDMI ARC / eARC			
Optical / ANT / USB			

Keep handy	Fill in
TV brand and model	_____
TV maker's support number	_____
Cable or internet company	_____
Bill's Home Tech	(330) 200-8042 · billshometech.com/book

CHAPTER 30

A Short Glossary

Word	What it means
ARC	Audio Return Channel. Lets one HDMI socket send the TV's sound out to a soundbar.
eARC	Enhanced ARC, part of HDMI 2.1. Carries the best movie sound formats.
CEC	Consumer Electronics Control. Lets HDMI devices control each other, so one remote does more.
Coax	The round cable that screws onto the antenna or cable post. The screw-on end is an F connector.
Component	Older analog video using green, blue and red plugs.
Composite	Older analog video using one yellow plug, usually with red and white for sound.
Converter	A small powered box that changes one kind of signal into another, such as composite to HDMI.
Gbps	Billions of bits per second. How much a cable can carry.
Handshake	The quick hello HDMI devices exchange when they turn on.
HDCP	Copy protection built into HDMI. Every device in the chain must support it.
HDMI	The one cable that carries digital picture and sound.
Input	A socket where a signal comes into the TV, and the setting that chooses it.
Optical (TOSLINK)	A cable that carries sound as light. Sound only.
Splitter	Sends one device to several TVs.
Switch	Lets several devices share one TV socket.
Ultra High Speed	The certified HDMI cable for everything HDMI 2.1 can do (48 Gbps).
Ultra96	The new certified HDMI 2.2 cable (96 Gbps).

FROM BILL

You've got this

Every cable has a name and a job now, and you know where each one goes. Take it one cable at a time, label as you go, and call if you get stuck. — Bill, (330) 200-8042