

HiPOINT

STREAMING IN THE DIGITAL AGE



STREAMING SERVICES GUIDE BOOK
V.4 4/10/2018

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THE TRANSFORMATION

The concept of watching television or listening to music has been revamped, revolutionized, and reformatted into a new norm. Cord cutting is no longer an option, but rather a necessity for most people. The pioneers of the industry have had to not only acknowledge, but also comply with this new standard, or face huge losses as customers have moved away from traditional ways of watching television. The days of having to tune in and watch live TV or buy expensive discs to watch your favorite TV shows, movies, or listen to music are gone! We can already see the results of this impacting companies like Redbox or the long gone Blockbuster.



You can thank the Internet for this transformation!

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APPLICATIONS:

Streaming services started off as an add-on to DVD and digital download offerings, with a trickle of second-run movies and TV shows. They were supplements to the programs you watched on their first and second airings on cable television. Today, streaming services have revolutionized the industry! With the advent of faster Internet connections, an abundance of streaming video devices, and an explosion of mobile video, there has been the possibility of services like Netflix and Amazon Video to bulk up their streaming libraries, invest millions in original content, all of which allows for them to give traditional television providers a run for their money. These services have grown from their days as cable TV adjuncts; they're now full-fledged cable replacements for cord cutters.

Streaming Service	Best For	Starting Price
Netflix	Overall	\$11 per month
Hulu	Network TV	\$8 per month
Amazon Instant Video	Families	\$99 per year or \$8.99 per month
PlayStation Vue	Cable TV Replacement	\$35 per month
Sling Orange	Budget Cable TV Replacement	\$20 per month
Crackle	Vegging Out	Free
HBO NOW	Premium Content	\$14.99 per month
Spotify	Music Libraries and Family	Free for basic shuffle play, Premium account \$9.99 per month – Ad free, Unlimited Skips, Listen offline, Play any track and High quality audio.
Pandora	Music Simplicity	Free with ads, \$5/month ad-free (Pandora Plus) or \$10/month on-demand service (Pandora Premium).

NETFLIX

THE GOOD

- Excellent Selection
- Optimized Interface
- Good Recommendation system

THE BAD

- More expensive than other services
- Titles come and go frequently
- Limited brand-new content

VERDICT

The great-granddaddy of streaming services remains the best. As you probably know, Netflix provides unlimited streaming of TV shows, movies, comedy specials and original programming (including Orange Is the New Black, House of Cards and Arrested Development) for one monthly subscription fee. No other service has yet given Netflix an honest-to-goodness run for its money in terms of selection, quality and performance consistency. You can even create up to five different profiles on a single account to make sure that your favorite content doesn't mess up recommendations for your friends and loved ones.

COSTS

The standard tier, which allows subscribers to watch on two screens at once, is **\$10.99 per month**. The premium tier, which is available in Ultra HD and allows users to watch on up to four screens, is **\$13.99 per month**. The Basic plan is **\$7.99 per month** and allows you access on one device at a time.

hulu

THE GOOD

- Great selection of current TV
- Inexpensive
- Quality original programming

THE BAD

- Frequent commercials
- Inconsistent selections from older TV seasons
- Cumbersome interface

VERDICT

If you want to keep current with the latest TV shows but don't feel like investing in a cable subscription or an HD antenna, Hulu is the best solution. This service provides access to most major network shows (aside from CBS' programs) and a handful of cable shows the day after they air. It also lets subscribers access a show's current season — or often all of the program's seasons. In addition, the service hosts a number of original shows (including joint ventures with the BBC, like *The Wrong Mans* and *The Thick of It*), a selection of offbeat movies and a surprising amount of classic anime series. Even with a paid subscription, you have to sit through commercials, but far fewer than if you watched the same shows on cable.

COSTS

The standard tier, is **\$7.99 per month** or **\$11.99 per month** with few to no commercials depending on the aired show. The premium tier, which allows you to watch live TV and stream live to several live TV channels including sports, news and entertainment, is **\$39.99 per month**.



THE GOOD

- Wide content selection
- Included with other Prime benefits
- Good original shows

THE BAD

- Rarely gets brand-new videos
- Not available on some platforms
- A la carte content costs extra

VERDICT

For those who do most of their shopping online, Amazon Prime is a no-brainer. For \$99 per year, you get free two-day shipping on your purchases, a free Kindle book each month, and unlimited access to both Amazon Music and Amazon Prime Instant Video. Like Netflix, Amazon Video is a veritable buffet of movies, television and original programming, like Alpha House, Transparent and Mozart in the Jungle. Thanks to a deal with Viacom — which controls Comedy Central, MTV and Nickelodeon — Amazon Prime arguably has a better selection of comedy and children's programming than its competitors. The service also offers unlimited access to an extensive collection from HBO's back catalog of classics such as The Sopranos and The Wire. The separate Amazon Video provides easy access to current movies, but it's an à la carte service and is a displacement of Redbox-like services.

COSTS

The costs for the Prime instant video are tied to other prime services which include free two-day shipping and full access to music, movies and TV offerings. The yearly cost for this service is **\$99 per year**. In the recent Amazon offers a new plan for customers to have access to the video service only for **\$8.99 per month** or **\$10.99 per month** for the all of the services in the \$99 plan in a monthly membership. (Verified Feb. 2018)



PlayStation Vue

THE GOOD

- Huge channel selection
- No contracts
- Strong DVR capabilities

THE BAD

- About as expensive as cable

VERDICT

PlayStation Vue is about as close as you can get to a cable subscription without actually getting a cable company involved. The service, which is available on a wide variety of systems, is Sony's first foray into delivering live TV to its customers. Choose from four different packages: Access (\$50 per month), which gives you basic channels, Core (\$55 per month), which adds sports, Elite (\$65 per month), which adds niche programming and Ultra (\$75 per month), which adds certain premium channels. Although the service is expensive, it provides up to 90 live channels - including local sports and news - and lets you record your favorite shows.

COSTS

The costs for Playstation Vue has 4 plans

- Access – Popular Live TV at **\$39.99 per month**
- Core – Sports, Popular Live TV at **\$49.99 per month**
- Elite – Movies, Sports and Popular Live TV at **\$54.99 per month**
- Ultra – Movies, Sports, Popular Live TV and Premiums (HBO & Showtime) at **\$74.99 per month**

BEST BUDGET CABLE TV REPLACEMENT



THE GOOD

- Much cheaper than cable
- Wide breadth of content
- No contract required

THE BAD

- More expensive than most streaming services
- Limited on-demand content
- Gets expensive very fast with optional packages

VERDICT

If you like the idea of a cable subscription but feel it's just too expensive and offers more content than you want, Sling TV might provide a happy medium for you. On paper, Sling sounds a lot like a traditional cable service: Pay a monthly subscription fee in exchange for about thirty real-time channels. But there's no contract and no set-top box rental fee. Sling is especially handy for sports fans, as it offers a variety of ESPN channels. For cord-cutting sports fans, this alone is worth the price. Other popular networks, like NBC, BBC America, CNN, Cartoon Network, TBS and the Food Network, sweeten the deal. If you sign up for Sling Blue, which is the service's multi-stream option, and bundle it with the more bare-bones Orange, the combo will cost you \$40 per month.

COSTS

- Sling Orange - **\$20 per month** – 25+Channels
- Sling Blue - **\$25 per month** – 40 + Channels
- Sling Orange and Sling Blue **\$40 per month** – 50 + Channels
- Sports Extra is **\$5 per month**

IMPORTANT NOTE:

SlingTV is NOT a Sling Media product! ... It is separate from Sling Media's Slingplayer app, so be sure you get the correct app! A Slingbox is perfect if you already have a cable or satellite set-top box at home and want to watch 100% of your live or recorded TV anywhere in the world on your TV, tablet, phone, or computer.

CRACKLE

THE GOOD

- Free
- Amusing content
- Good variety of videos

THE BAD

- Lots of commercials
- Content skews cheesy
- Videos rotate very frequently

VERDICT

If you yearn for the halcyon days of cheesy action movies and anime on afternoon cable, Crackle will take you back in time at no cost. The Sony- owned platform broadcasts movies, TV shows and original programming on a rotating basis. There's no subscription or à la carte fee, although you do have to sit through a fair number of commercials. While the programming is not usually blockbuster material, it's stuff you've heard of — think Total Recall rather than The Terminator, or Pitch Black rather than Riddick. Some of the original shows are good, too, like Jerry Seinfeld's Comedians in Cars Getting Coffee.

COSTS

FREE

BEST STREAMING SERVICE FOR VEGGING OUT



THE GOOD

- Award-winning original programming
- Top-tier movies
- Original news programming

THE BAD

- Pricey

VERDICT

HBO, the original premium content channel, now offers two ways to stream: HBO GO (if you have HBO from a cable or satellite package) and HBO NOW (for cord-cutters). Don't worry about any differences, as the service's dual streaming services offer the same top-shelf content you get from the cable channel itself. And its library isn't just limited to only Game of Thrones (the premiere water-cooler-talk TV show), as new seasons of Westworld, Curb Your Enthusiasm and Veep are coming up in following seasons. For those looking to keep track of current events, Vice News Tonight offers beautifully produced nightly programming and Last Week Tonight with John Oliver gives audiences sorely needed laughs. At \$14.99 per month for HBO NOW, it can be a little pricey.

COSTS

\$14.99 per month

IMPORTANT NOTE:

HBO NOW is assuming you do not have a cable service subscription to HBO; however, if you do then alternatively you would have access to HBO via the streaming service HBOGO.

BEST STREAMING SERVICE FOR BUILDING MUSIC LIBRARIES AND FAMILIES



THE GOOD

- With a library of more than 30 Million songs and easy access via most digital platforms, Spotify is popular for good reason. It's a great place to find favorite artists, create and share playlists and enjoy exclusive live sessions. You can get enhanced sound quality if you choose the paid plan. Podcasts and original videos are recent added benefits.
- Readymade playlists to match your mood
- Latest singles and albums are quick to be available
- Discounts for Families, Students and PlayStation users

THE BAD

- Synching music you already own to your Spotify library can be confusing

VERDICT

Great for families of 6 users and building individual playlist libraries. Playlists are super simple to build, create and listen to.

COSTS

Free for basic shuffle play

Premium account \$9.99 per month – Ad free, Unlimited Skips, Listen offline, Play any track and High quality audio.



pandora®

THE GOOD

- It is for almost any music fan, especially those interested in discovering new artists.
- It's like having a personal DJ. Tell Pandora who you want to hear, and it creates a channel with selections from that artist and others with similar styles. Pandora has a vast, 40 million-title library.

THE BAD

- You can't upload your own songs

VERDICT

A little pricey; and great for people that are just wanting to stroll into music with their own personal DJ.

COSTS

Free with ads, \$5/month ad-free (Pandora Plus) or \$10/month on-demand service (Pandora Premium).

The logo for YouTube TV, featuring the red YouTube play button icon on the left and the text "YouTubeTV" in a large, bold, black sans-serif font on the right.

THE GOOD

- Unlimited DVR Recording Capabilities.

THE BAD

- YouTube TV's channel selection is thin. With fewer than 40 channels at \$35/40 per month, it's not quite as robust as DirecTV Now, whose \$35 plan offers more than 60 channels, nor as cost-effective as Sling TV, which offers more than 30 channels for \$20 per month.
- Some of the channels YouTube is missing are glaring omissions: there's no Nickelodeon, no Discovery, no CNN, no AMC, and no TBS, among others. Sure, you get broadcast networks, but you can get those just as easily with an HD antenna.

VERDICT

The service's DVR features are miles ahead of the competition, but in a world of on-demand content from individual channels and Netflix/Hulu/Amazon alike, DVR is not nearly as vital as it once was. Take that away, and you're left with a decently navigable cable replacement service that has some channels you want, and some you don't.

In other words: It's a lot like Sling TV/PlayStation Vue/DirecTV Now. It's not as obtuse as Sling TV, not as restrictive as PlayStation Vue, and not as buggy as DirecTV Now, but I can't point to anything it does remarkably better or worse than its three big competitors.

COSTS

\$40/per month

EQUIPMENT:

STREAMING EQUIPMENT			
TV ATTACHED DEVICES			
DEVICE NAME	RATING	COST	BEST FOR
Amazon Fire TV Stick with Alexa Voice Remote	4.5	\$39.99	STREAMING NEW MOVIES AMAZON VIDEO
Amazon Fire TV (2017)	4	\$69.99	STREAMING NEW MOVIES AMAZON VIDEO
Google Chromecast (2015)	4	\$35.00	STREAMING DISPLAY PC
Google Chromecast Audio	4.5	\$35.00	STREAMING DISPLAY PC
Google Chromecast Ultra	4	\$69.00	STREAMING DISPLAY PC
Roku Streaming Stick+	4	\$67.30	STREAMING AMAZON VIDEO
Roku Ultra (2017)	4	\$99.00	STREAMING AMAZON VIDEO
Apple TV 4K	4	\$179.99	STREAMING NEW MOVIES APPLE AIR PLAY
PlayStation 4 Devices	4	\$300 - \$499.99	GAMING
XBOX One Devices	4	\$300 - \$499.99	GAMING
TV DETACHED DEVICES – NON-PC			
SMART PHONE'S & TABLETS:			
MOST SMARTPHONES & TABLETS AVAILABLE ARE COMPATIBLE WITH PLAYING STREAMING SERVICES			
TV DETACHED DEVICES – PC			
LAPTOP, PERSONAL COMPUTERS:			
MOST SMARTPHONES & TABLETS AVAILABLE ARE COMPATIBLE WITH PLAYING STREAMING SERVICES			
<i>Before you buy be aware... you may already have equipment that will be able to stream content.</i>			



Amazon's Fire TV platform is built around FireOS, a modified version of Android designed with Amazon's content in mind. Fire TV devices are focused heavily on Amazon Prime media, with Amazon Instant Video and Amazon Prime Music built prominently into the menu system. There are plenty of other content services available through Fire TV as individual apps, like Hulu Plus, Netflix, and YouTube, but the big advantage of Fire TV is having all your Prime content right at your fingertips.

Amazon has equipped its Fire TV platform with Alexa, the same voice assistant used in the Amazon Echo speaker. It's a useful tool to use with the voice remote included with the current Fire TV and Fire TV Stick.

The latest Fire TV features a smaller, Google Chromecast-like design and support for HDR10 video, all for \$30 less than last year's model. The Fire TV Stick remains one of the best media streamers you can get for under \$50.

Amazon is also licensing its Fire TV interface for Fire TV sets, which function just as if they had a Fire TV attached to them. These sets (like the Element 55-Inch Amazon Fire TV Edition) are currently being manufactured by Element and are often rebadged as Westinghouse depending on the market and retailer.

GOOGLE CAST



Google Cast is the least visually obtrusive and physically complicated media streaming platform; you take a Chromecast or Chromecast Audio, plug it into a power source, plug into your TV or sound system, and control everything through your mobile device. There are no remotes, no on-screen interfaces, and no app stores to separately navigate. You just connect your Chromecast to your home network and stream whatever you're watching (from a Google Cast-compatible app, of which there are many) on your smartphone or tablet.

It's easy to use and economical, since both the Chromecast and audio-only Chromecast Audio are the least expensive media streamers on this list at \$35 each, and the Chromecast Ultra has more HDR options than any competitors in its price range. And all three work with Google Home, so you can issue voice commands for what you want to watch, and even see supplemental information related to voice searches (such as your Google Calendar

ROKU



Roku calls the services and apps available on its devices Channels, and currently offers thousands of choices in the Roku Channel Store. All of the big streaming media names are available, including Amazon Instant Video, Hulu Plus, Netflix, Sling TV, and Twitch, along with many smaller, niche apps and services for movies, sports, weather, news, and international content.

Roku's current lineup is its largest, with a total of six models across a wide range of prices and features. The Roku Streaming Stick+ and Ultra stand out as the top choices, both offering 4K video with HDR10 support. The Ultra is more expensive and larger than the Streaming Stick+, but it offers benefits like wired connection options and a remote with a headphone jack.

Roku has also pushed into the television market with its Roku TV platform. The company doesn't make TVs itself, but it offers its technology to manufacturers to incorporate into their screens. This has allowed many more budget-priced televisions to include connected features they couldn't use a few years ago, while keeping prices low. Roku TVs (like the TCL 55P607) work just like Roku media streamers, only they're built directly into the sets themselves. Now the majority of Roku TVs natively support 4K as well.

APPLE TV



Apple has been slow to update its Apple TV media streamer, but it's finally caught up with the Apple TV 4K. The latest Apple TV supports 4K video with both HDR10 and Dolby Vision, and features the Apple TV app store which the company only added to the device two years ago. The app selection is still a bit light compared with Roku and tends to eschew certain on-demand and subscription services that compete with Apple (like Spotify, against Apple Music), but other than that the Apple TV is feature-rich and very capable.

A voice remote lets you use Siri with the Apple TV 4K, and even control smart home devices if they're HomeKit-enabled. The only drawback is the hefty price; at \$180, the Apple TV 4K is well over twice as expensive as the Amazon Fire TV, Google Chromecast Ultra, and the Roku Streaming Stick+.

PLAYSTATION 4 DEVICES



The PlayStation product line is first and foremost a Game Console. At 70 Million sold worldwide and with hundreds of games, add-ons like Virtual Reality and PS Vue (Streaming Services) it clearly does games well and then so much more. The Playstation 4, currently, has 3 different models and without getting into the geeky stuff most of the enhancements are geared towards gameplay rather than streaming services. It can be extremely confusing by anyone's standards, so your best bet is to know what you need before you head into the store.

You have three options that look *very* similar when looking to purchase a PlayStation 4. You've got the original PlayStation 4, the new PlayStation 4 Slim with the exact same branding on the box as the original, and the new PlayStation 4 Pro.

Sony has a history of releasing a “slim” version of the PlayStation a couple of years after its initial release. In the past, those consoles have been labeled a little differently at launch to make it easier to tell the new version apart from the old one. These slimmer versions typically offer more a physical difference than a functionality difference, and this year is no different. The significant feature and performance difference comes with the PlayStation 4 Pro, and even then, the difference isn't huge unless you own a 4K television with HDR support.

So again, without getting into all the geeky stuff and sticking to the core topic at hand of streaming services, the Playstation 4 base models have altogether subtle differences for streaming services. Major differences are seen in the graphics with the PS4 Pro which offers up 4K.

- Playstation 4 \$299.99
- Playstation 4 Slim \$299.99
- Playstation 4 Pro \$399.99

XBOX ONE DEVICES



The XBOX One product line like the Playstation 4 is first and foremost a Game Console. Just like the Playstation 4 the XBOX has 3 different models: The XBOX One, XBOX One S, and the XBOX One X.

The Xbox One S offers a sleek, compact, and 4K video-capable alternative to the original Xbox One, which has been discontinued. The XBOX One S has multiple bundles sporting a variety of storage capacities and packed-in games, it's a great option for anyone looking to pick up an Xbox system for the first time.

With bundles available at \$229 for the standard 500GB version with one game (depending on your preferences), it's also one of the most affordable consoles on the market today. On the more expensive side the \$499 XBOX One X offers a native 4K-capable gaming console, which is more geared towards gaming enhancements and powerful performance in game play. It's a hefty price for streaming.

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DETACHED TV DEVICES



Whether you have a Smartphone, Tablet, PC or laptop it should be known that each one of these devices were the tools that founded the streaming revolution and are the tools used in its creation.

These days, we see all ages of people glued to their smart phones, tablets, PC's or laptops. Gaming and Work or school related tasks were the core purpose for these devices; however, streaming services and social media have found their place on these devices too. As a result, the television generation has been given a sidekick and the sidekick has built a place on the TV with streaming services.

YOUR BUILDINGS TV PROVIDERS STREAMING OPTIONS:

WHY STREAM!

It is truly about control, content and cost. Today as a consumer you have more control than you have ever had. Your providers are doing all they can to jump into the streaming service market and are making it extremely easy and cheaper to make that content available over the internet.

ARE TV PROVIDER SERVICES STILL RELEVANT?

Without a doubt, Yes, with your providers offering of services in your building you will have to do the math yourself; however, you can have more content control, better pricing for the content and far more flexibility just like you would with most streaming services.

Again, the costs are all unique to the individual and what services you want and equipment you have.

DIRECT TV – STREAMING SERVICES



DIRECT TV offers two streaming services Direct TV Everywhere and DirectTV Now.

Direct TV Everywhere is streaming services Included with your package: watch your live channels and recorded shows anytime, anywhere, on your devices. You will need to make sure that you have the latest equipment and it will need to be enabled via the internet; however, it allows you to take a go. Direct TV Now is a subscription service that allows you to Watch live TV and On Demand titles with no hardware or installation needed.

DISH TV – STREAMING SERVICES



Dish Anywhere streaming services.

DISH Anywhere™ Technology: You don't just watch TV in your living room anymore. You watch it all over the place. With Hopper with Sling® you can take live TV programming with you. Only DISH lets you watch live sports, news and everything on your DVR whenever and wherever you want --on your mobile device, tablet, Smartphone, or computer. Hopper with Sling®, is rated the most technically advanced Whole-Home HD DVR, delivering more possibilities to more devices than ever.

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GLOSSARY OF TERMS:

- **4K ULTRA HD:** The highest resolution currently available, around four times that of 1080p HD (3,840 x 2,160). It is quickly becoming the standard for new TVs.
- **802.11AC WI-FI:** The most recent and fastest Wi-Fi standard — not as fast as Ethernet, but faster than 802.11n.
- **ANDROID TV:** A smart TV platform powered by Android and available across smart TVs, set-top boxes, and more.
- **CASTING:** A term, popularized by Google, for sourcing content from the internet from a mobile device or computer to a TV or set-top box.
- **HDR:** Short for High Dynamic Range, HDR offers better contrast and more colors than standard dynamic range. It's considered by many to be a more notable visual improvement than 4K Ultra HD resolution itself.
- **HDR10:** One of the two most popular HDR formats, and an open standard backed by Samsung, Sony, LG, and other companies.
- **DOLBY VISION:** One of the two most popular HDR formats. Proprietary, and less popular than the other format, HDR10, Dolby Vision has advantages, such as the ability to gauge your HDR TV's capabilities and tailor the HDR experience.



YOUR WIRELESS CONNECTION

Wireless technology makes it easy to get rid of messy wires and cables that tie computing to your desk, but while wireless has become a household norm, technology is advancing quickly, and there are some easy steps you can take to quickly improve your connectivity. In order to best utilize streaming services over a wireless connection – which many streaming devices require a wireless connection – the following information might prove useful in optimizing your setup.

WHAT IS WI-FI?

Wi-Fi is a radio wave that transmits on a 2.4 or 5 gigahertz frequency. Radio waves can go through many objects (such as walls), but these impediments will decrease the strength of the signal. Imagine you're playing with a cheap pair of children's walkie talkies. If you're using them outside, the range is pretty good, but the moment you take them inside, they'll start to pick up interference. This is what happens with your router. The only difference is that routers always get interference while in the house.

Many devices can use Wi-Fi, including personal computers, video-game consoles, smartphones, digital cameras, tablet computers and digital audio players. These can connect to a network resource such as the Internet via a wireless network access point. Such an access point (or hotspot) has a range of about 66 feet indoors and a greater range outdoors. Hotspot coverage can comprise an area as small as a single room with walls that block radio waves, or as large as many square kilometers achieved by using multiple overlapping access points.

WHAT IS A WIRELESS ROUTER?

A router is a device that routes data between the Internet and your local computers. The router is also usually the device that broadcasts your personal wireless network, allowing your devices to connect to the Internet over Wi-Fi.

Usually the Ethernet ports on the back of a router are labeled WAN and LAN. We call the Internet a WAN (Wide Area Network) and your local computers a LAN (Local Area Network).

Make sure that the Ethernet cable in the WAN port is going to the wall jack or to your modem. Do NOT plug an Ethernet cable from the LAN port to the wall jack or to your modem! Doing so creates networking issues not only for your own connection, but for your neighbors' connections as well. There is only one WAN port; there are usually multiple LAN ports. A WAN port is usually labeled as WAN or Internet and sometime has a symbol of a globe (for World Wide Web), while a LAN port is usually labeled as LAN or Ethernet and has a numbered port.

Unless you're extremely familiar with setting up different kinds of routers, make sure to go over the documentation that comes with your router, as each model is slightly different.

HOW DO I SET UP MY WIRELESS ROUTER?

Set up your router at a central location in your unit. This will ensure that you'll get the best signal strength anywhere in your living space.

Almost all new routers today come pre-configured, so that when you connect them right out of the box, there's already a name and password chosen for your wireless network. The pre-configured name and password are usually written on the router itself, or on a sticker close by.

Changing the network name and password is optional but highly recommended. Just remember this rule of thumb: NEVER use “password” as your password and avoid passwords like “ABCDEF,” “012345” or “99999.” Passwords like these are too easy to guess and could make your network vulnerable to intruders.

Before you can change the name or password of your wireless network, you have to connect your computer to the router either through the pre-configured wireless network, or with an Ethernet cable to a LAN port. The router doesn’t need to be connected to the Internet for you to configure it.

Once connected to the router, you can navigate to the router’s configuration page in a web browser. The exact address you’ll have to navigate to will vary, but can almost always be found in a “Getting Started” booklet that came with your router.

MY INTERNET IS SLOW OR SPOTTY. WHAT SHOULD I DO?

As a first step, **ALWAYS** check your connection directly at your modem (or at the wall jack if you have an Ethernet connection). To do this, connect a laptop or desktop computer directly to your modem (or directly to the wall jack for an Ethernet connection) with an Ethernet cable. Even if your router is brand new, it’s the easiest way to find out if the actual service is experiencing issues, or if it’s something you can easily fix without having to contact your Internet Service Provider.

If your connection and speeds are what they should be when you’re plugged up directly to the modem (or to the wall jack for an Ethernet connection), but still slow or intermittent through your router, you can conclude that the router is experiencing some type of issue. Common causes of router problems stem from configuration settings or a failure of some kind.

Remember—unless you have a gigabit router, you won’t achieve speeds higher than 100Mbps with a wired connection.

HOW CAN I OPTIMIZE MY WIRELESS ROUTER?

USE WIRES WHEN POSSIBLE

As fast as the newest Wi-Fi standard is, a wireless connection still isn’t as fast or reliable as a standard wired one. When possible, connect bandwidth-hungry devices that stay in one location—like your Roku streaming media boxes or Xbox gaming consoles—directly to your router, via a networking cable, and save the wireless connections for the stuff that moves around.

CHANGE THE POSITION OF YOUR WIRELESS ROUTER

Do you have your wireless router nestled up against the broadband modem, tucked away in the entertainment center in a bedroom that’s been converted into the family den or home office? Move it! You don’t have to have the router near your modem. Ideally, a Wi-Fi router should be in a central location. If you need more flexibility in centrally positioning the router, you can purchase custom-length Ethernet Cat5e cables from places such as Best Buy or MicroCenter, or from any other place that services computers.

UPDATE THE FIRMWARE ON YOUR WIRELESS ROUTER

Updating router firmware is often overlooked by home users. Business networking devices usually display some sort of notification when newer software for the device is available for download.

Consumer wireless routers, especially older routers, don't always offer this notification. Check often for firmware updates for your router. There is typically a notification or popup in the router's interface for upgrading the firmware; however, you often must go to the router manufacturer's website and search for the firmware, and then upload it through the router's interface. Often, the router's web interface will include a link for quickly redirecting you to the manufacturer's website. There are often accompanying release notes that tell you what the firmware helps to fix. These fixes often help solve various connectivity problems.

CHANGE YOUR FREQUENCY CHANNEL

A channel is a way to organize a band of radio frequencies. If two devices are using the same channel, they will both experience interference. Ideally, you want your router to be the only one on the channel, but with only 11 channels available for most routers this can be difficult in a bustling building. You can adjust the channel that your router broadcasts on, and you might see a significant speed increase. Ultimately, you'll see much better speeds with a 5 GHz network.

A typical or basic router broadcasts on the very popular 2.4 GHz band frequency of radio waves. If too many devices are using the same frequency, there will be a lot of interference, and your router is not able to communicate with your devices as easily over Wi-Fi. Many baby monitors and cordless phones operate at this frequency. Investing in a dual-band router would help avoid interference.

A dual-band router broadcasts on the 2.4 GHz frequency but also broadcasts on the 5 GHz frequency. If you have a dual-band router, you might see two different networks when trying to connect to the internet. If one of the network names has a '5g' after it, it's most likely the 5 GHz network. In a high-rise building where a router is surrounded by routers and other 2.4 GHz devices on all sides, a dual-band router can be a lifesaver.

Note that older devices may not see or be able to connect to the 5 GHz band network.

When you set up a typical router, it usually chooses a certain channel by default. Some routers choose the least-crowded channel, but yours may not have this auto feature. Check for yourself which Wi-Fi channel is the least crowded to boost the router's performance, perhaps boosting signal range. A good, free tool to use is "Xirrus Wi-Fi Inspector." If you have an Android device, you can download an app called "Wi-Fi Analyzer" to see if your router is broadcasting on the same channel as a neighbor.

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