

How to turn your TV into a computer screen

Connecting your laptop to your TV is a cheap, easy way to get a much bigger screen.

If you're getting bored or annoyed with your laptop's tiny screen during the coronavirus lockdown, maybe you should try using your big TV as a monitor instead. It's great being able to sit back on your sofa and surf the web, play PC games or stream video from apps not available on your TV. Or maybe you just want a bigger view for video chat while you're stuck at home.



Using your TV as a monitor has downsides too. Text might be too small to see, input lag might ruin your gaming scores, and while the couch may *seem* comfy, it may turn into a neck ache when put into service as an office chair. And then there's the mouse, trackpad and keyboard to worry about. But going PC-to-TV works well in many situations, and the best part is that it's cheap (or free) depending on what gear you already have.

Mirroring vs. extending

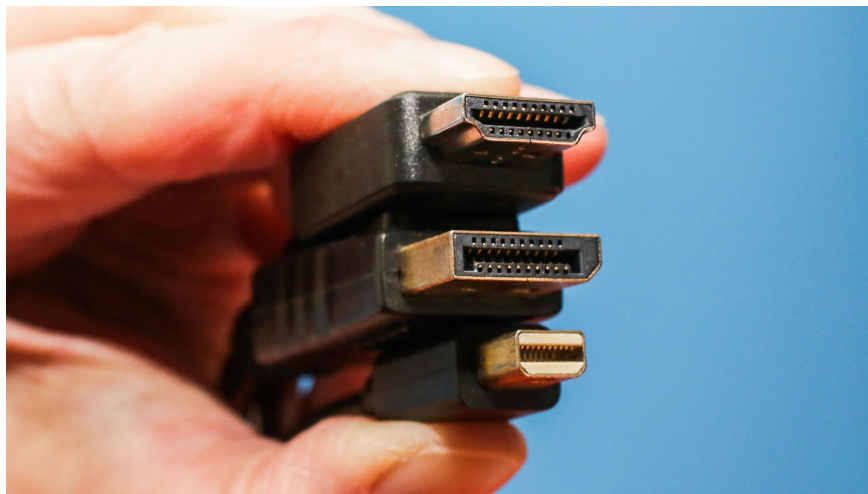
Mirroring means putting the same content on both your laptop's screen and the TV. It's more common and generally easier than screen extending -- where you see different content on both, making the TV an extension of your laptop's screen. Extending is useful for things like having a YouTube video running on the TV while you're working on a spreadsheet on your laptop. It's a bit more involved but still possible depending on your equipment. Mostly we'll be talking about mirroring in this article.



The easiest way: Wired HDMI

The most basic PC-to-TV connection consists of running a wire from your computer to the HDMI input on your TV. If you have an older TV and an older laptop, there are options like VGA, but that's basically the Dark Ages at this point.

Laptops and PCs have a bunch of different connections, so which wire or adapter you'll need to run depends on what computer you have. If you're not sure, check the manual or Google the model to determine its specs. Here's the rundown.



Full-sized HDMI: If you're lucky, your laptop has a full-sized HDMI output, so you can use a standard HDMI cable to run to your TV.

Mini- or micro-HDMI: These smaller versions of HDMI just need an adapter, or a cable that has a regular HDMI at the other end, to connect directly to your TV.

Thunderbolt, DisplayPort or Mini DisplayPort: All of these usually work with HDMI as well. Thunderbolt is found on older Apple computers and uses the same physical connection as Mini DisplayPort, so Mini DisplayPort-to-HDMI cables or adapters should work for Apple or so-equipped Windows PCs. Full-sized DisplayPort is common to Windows PCs. Again, you'll need an adapter or cable with this type of connection on one end and HDMI on the other.

USB-C port: Many modern laptops have only this kind of connection. Usually you'll just need an adapter (USB-C to HDMI) and it will work fine, but sometimes it might not work at all. MacBooks from the last few years should work, as will Microsoft Surface laptops and many others. Note that USB-C uses the same physical connection as Apple's Thunderbolt 3.



More wired tips: There are so many varieties of laptops out there, we can't make a blanket statement that a particular adapter will work for your PC. If you're not sure, Google your brand and model before you buy any kind of adapter.

Also, in some cases the quality might be diminished. You also won't likely get HDR or 4K resolution, for example, so if you want the best image quality for videos, you should use a different method to get the videos to your TV, like a Roku or Blu-ray player.

Wireless connections

There are a few options to skip the wires completely. Again, it depends on what computer you have, as well as the capabilities of your TV (or the streaming device connected to your TV).

If you have an Apple computer: The easiest way is to use AirPlay. But you'll need a device that supports it, namely:

1. Apple TV
2. Apple TV 4K
3. A TV that's Air Play 2 compatible, namely a 2019 TV from Samsung, Sony, LG or Vizio.

If you have a Windows PC: There's something called Miracast, though it's not as widespread as "all recent Apple products" like AirPlay. Your Windows 10 laptop should have the tech built-in. On the TV side, devices that support Miracast include:

1. Roku streamers
2. A handful of TVs (here's a list)
3. Wireless display adapters that plug into your TV



If you have a Chromebook: Computers that run Google's Chrome OS can send content to a TV wirelessly too. To use it you'll need:

1. Chromecast
2. Chromecast Ultra
3. Smart TVs with "Chromecast built-in," mainly Vizio but also some other brands.
4. Nvidia Shield
5. Sony TVs that run Android TV

Casting from a Chrome browser: If you don't have a TV device with AirPlay or Miracast compatibility you can still mirror your screen from the Chrome browser on any laptop. It works with any of the devices from the Chromebook list above. Only content on the browser will be visible, and certain websites won't work.

You can also "cast" content from a variety of mobile apps, like Netflix or YouTube, to most smart TVs. This isn't screen mirroring, but if you're just looking to get some content from your phone to a bigger screen, this is an easy way to do it.



If your intention is to play games, the lag from a wireless connection is probably going to prohibit any fun with games that require fast and accurate clicking, like with first-person shooters and racing games.

Accessories

If you want to up your game a bit, consider a few optional accessories. A wireless keyboard or mouse can go a long way toward making your PC-on-TV experience easier. Here's a couple inexpensive options.

Settings tips

Your TV and your laptop's screen are probably different resolutions. In theory this won't be an issue, but if you're finding text hard to read, or overall the image looks poor, make sure the laptop's output matches your TV's resolution.

It's easy to do on both Windows and Mac. If you're also trying to send audio, that might need to be switched on as well, either by clicking the speaker button in the lower right on Windows, or in System Preferences on Mac.

On the TV side, make sure you disable your TV's overscan. It might be disabled automatically, but if the edges of your desktop are cutoff, dig deep into your TV's menus for something like "size" or "zoom." If you're gaming, also see if your TV has a game mode. This should help reduce input lag, the delay between you pressing a button and that action showing up on screen. It's also a good idea to lower the sharpness control. I mean, in general this is a good idea, but here specifically it should help you make out fine details better, like text.



Speaking of text, if you're trying to work from your couch it's likely that despite the extra screen size, text is still too small. If that's the case, you can adjust text size on Windows and Mac. You can also use the zoom controls in certain apps, like Chrome browsers.

If you're not getting an image on screen at all, try unplugging the HDMI and plugging it back in (with the TV on), and if *that* doesn't work, leave it all plugged in but turn the TV off then on. This is trite advice for a reason: it solves so many issues.

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