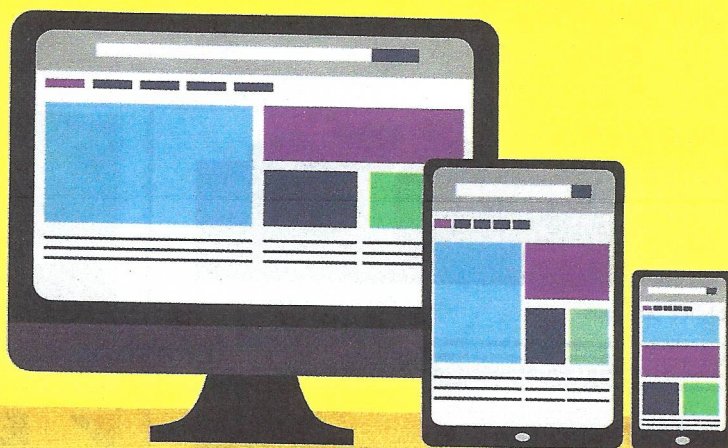




MIRROR YOUR PHONE, TABLET & LAPTOP SCREEN

Ever wanted to view whatever's on your phone, tablet or laptop on a bigger screen? Well, you can. Jonathan Parkyn explains how to mirror your display

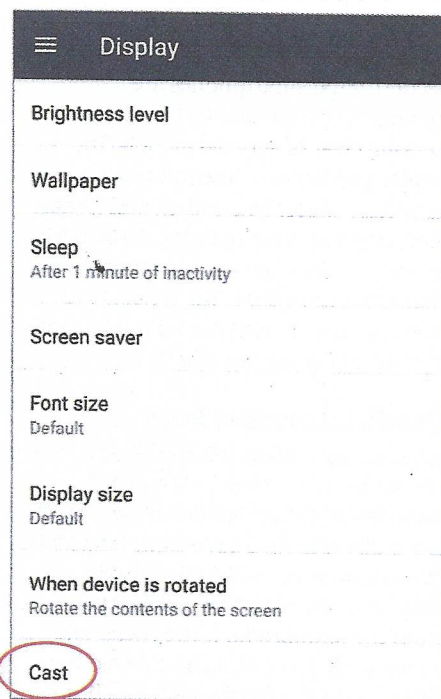
Portable devices are great, but their small screens can hold them back. **Mirroring** your device's screen on a larger display makes it far easier to view apps, share photos and videos, or just keep an eye on your phone while working on your PC. Many screen-mirroring tools also offer useful extras, such as the ability to record your screen. And depending on the devices involved, screen mirroring might not cost you a penny (you may need to buy software or adapters, but these are usually very cheap).

It's worth highlighting at this point that screen mirroring is not quite the same as **casting**. It's possible to cast specific content – a video, for example, while mirroring implies sharing an exact copy of the entire display. But it is possible to mirror your display using casting tools and these terms are often used interchangeably.

Mirroring Android on your PC

You may already have everything you need to mirror your Android device's screen on your PC. Windows 10 has built-in support for casting, as do most Android devices, and in some cases it's possible to cast your whole screen using just these features. However, your PC will require the correct hardware to fully support casting, while some Android devices – including Google's Nexus and Pixel phones and tablets – have limited casting abilities.

To check whether the built-in tools will work for you, click the Action Centre icon (the square speech-bubble in the bottom-



Tap the Cast option to mirror your Android device to a nearby Windows 10 computer

right corner of your desktop) on the PC you want to mirror to, then click Connect at the bottom of the panel and select 'Projecting to this PC'. On the Settings screen that appears, select 'Available everywhere on secure networks' from the top menu, then select 'First time only'. Click Start, type **connect** and press Enter – this will launch the Connect app and you should see a message saying your computer is ready to connect wirelessly.

Now, on your Android device, swipe down the Notification Centre from the top of the screen and look for a Cast icon

(a square with a wireless symbol over it). If you don't see it, tap Settings, then Display and scroll to the bottom. Tap Cast (see screenshot left), then select the name of your computer from the list. The devices should now connect and you'll see a replica of your Android phone or tablet screen appear within the Connect app window. If the Android device can't connect, or if you see an error message on your PC saying 'This device doesn't support Miracast', you'll need to try an alternative method.

If you're happy to use a wired connection, you can mirror your Android screen for free using a Chrome app called Vysor. You will need Chrome for this, so install it from www.google.com/chrome if you don't already have it. Install Vysor from www.snipca.com/28600.

Plug your phone or tablet into your PC using your device's USB cable, open Vysor, then click Find Devices. If Vysor fails to discover your Android device, tap Settings on your phone or tablet, then System, 'Developer options' and switch on 'USB debugging'. Now click Find Devices again and you should see your device listed. Click it and a message on your Android screen will ask whether to 'Allow USB debugging' – tap 'Always allow from this computer', then OK.

Your phone or tablet screen will then appear in a window on your PC (see screenshot above right). Brilliantly, Vysor lets you control your Android device with your mouse and take screenshots (click the camera icon at the top). Wireless mirroring, screen recording and higher visual quality settings are only available

MIRRORING TO A TV

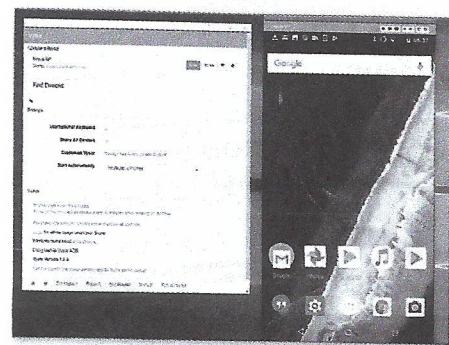
If you fancy sharing your device's screen to an even bigger display, you might consider connecting to your TV instead of your PC. The simplest way to do this is via a straightforward cable connection. Most laptops (and some tablets) feature an HDMI socket that will let you use practically any TV as a second screen. Some devices may require an adapter for the HDMI connection to work.

If you have an iPhone or iPad, for example, you'll need Apple's expensive Lightning Digital AV Adapter (£49 from www.snipca.com/28633). Cheaper, non-Apple versions are available on sites like Amazon, but unlike chargers (see page 58) none are made by Apple-certified companies, so don't take the risk.

With Android, HDMI support varies massively depending on your model. Some models support a standard called MHL to convert output to HDMI,

while others use a slightly different standard called SlimPort, so check before trying to connect (MHL devices: www.snipca.com/28651; SlimPort devices: www.snipca.com/28652). Some TVs support MHL, but it's more likely you'll need an MHL or SlimPort-to-HDMI adapter. Expect to pay around £10 for this online.

For wireless connections, iOS users can use an Apple TV (from £179, www.apple.com/uk/tv) as a link to their mobile device and a big screen. Similarly, Android users can use a Chromecast (from £30, www.google.com/chromecast), though, as mentioned earlier, not all models can cast their entire device's screen. In most cases, you'll still be able to cast content from your phone to your TV from within specific apps, such as BBC iPlayer, Netflix, Plex and more – see www.snipca.com/28632 for a list of supported apps.



View (and control) your Android device on your PC using the free Vysor extension for Chrome

on the paid-for version of Vysor (around £8 per year, www.vysor.io). The free version also displays an advert every 30 minutes. Alternatives to Vysor include Reflector 3 (around £12 from www.airsquirrels.com/reflector), which supports wireless mirroring and screen recording.

Mirroring iOS on your PC

Like Android, iOS has built-in support for casting, but relies on Apple's own format – AirPlay – rather than universal casting standards, such as Miracast. If you own an Apple TV, for example, mirroring to your TV screen is easy using AirPlay (see the box above right). But mirroring to a PC is somewhat trickier.

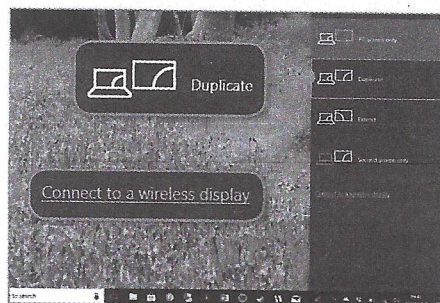
For an easy, frill-free way to mirror your iPhone or iPad screen, LonelyScreen (www.lonelyscreen.com) will essentially turn your PC into an Apple TV-like AirPlay receiver. Install it on your PC, then launch it, swipe up from the bottom of your iPhone or iPad screen (or down from the top on an iPhone X) to bring up the Control Centre, tap the Screen-Mirroring icon, then select LonelyScreen from the options shown (see screenshots below). Note that you may need to allow

LonelyScreen through your PC's firewall. Lonely Screen is very simple to use, but doesn't offer extended features such as screen recording or mouse control and costs around £12 per year (there's a free trial, so you can try before you buy).

X-mirage (www.x-mirage.com) is another option to consider. It works in a similar way to LonelyScreen, but offers high-resolution mirroring, screen recording and some limited mouse controls (play/pause/back/forward and volume). X-mirage costs about £12, but it's a one-off payment rather than an annual subscription. Reflector 3 (see above) also works with iOS devices.

Mirroring a laptop on your desktop PC

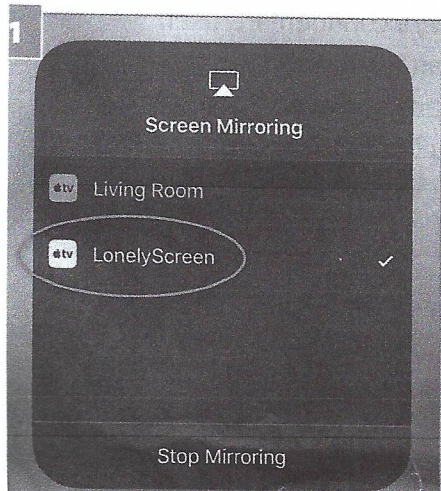
Assuming both your laptop and your desktop PC are running Windows 10, mirroring your screen wirelessly from one to the other is pretty straightforward.



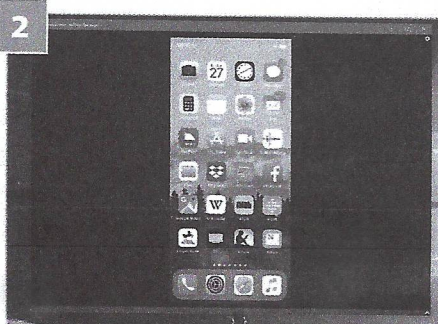
On the laptop you want to mirror, click Duplicate, then 'Connect to a wireless display'

Use our instructions in the 'Mirroring Android on your PC' section above to set up the host PC's 'Projecting to this PC' settings. On your laptop, open the Action Centre and click Project. Select Duplicate, then click 'Connect to a wireless display' (see screenshot above). Your desktop PC should be listed among the available devices. Click it to connect, then click Yes when you see the message on your desktop PC asking whether to allow the laptop to project.

Not all PCs support the Miracast standard required for this method. If yours doesn't, you might consider using a remote-desktop tool instead of a screen-mirroring one. These let you view and control one PC from another over your network. TeamViewer (www.teamviewer.com) is a great remote-desktop tool that's free for personal use – you can watch a video guide showing how to set it up at www.snipca.com/28649. **ca**



To mirror an iPhone or iPad to your PC, select the LonelyScreen option in your device's Screen Mirroring menu...



...your device's screen will now appear in a window on your PC's desktop