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# ADVISOR

FROM IDG

# I/O 2018

Everything Google revealed



HANDS-ON WITH ANDROID P BETA



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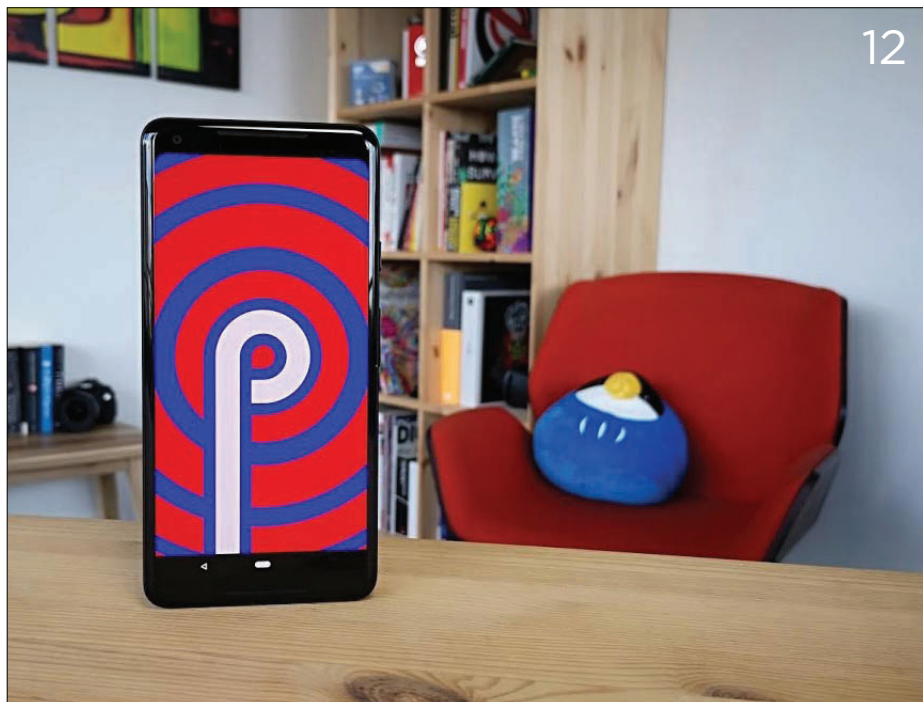
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# Everything Google revealed at I/O 2018

Google leaned heavily into machine learning and personalization during its keynote. [BRAD CHACOS](#) reports

Google always pulls out the stops for the keynote at its annual I/O developer conference, and this year was no exception. Google I/O 2018 lacked the flashy flagship hardware that defined previous keynotes – nary a new Chromebook, Pixel, or Google Home could be found – but it still managed to shine, thanks to some

serious improvements to the software and services underlying the entire Google ecosystem.

Hardware is nothing without software that tells it what to do, after all. And at I/O 2018, Google's software was focused squarely on making the Internet more about you through the power of machine learning. Let's dig in.

## **Gmail Smart Compose**

Google CEO Sundar Pichai kicked things off with Smart Compose, which is basically Gmail's Smart Reply cranked to 11. Whereas Smart Reply would scan your emails and intelligently offer buttons with quick one-click responses, Smart Compose uses AI to suggest complete sentences as you're drafting an email. As you type, you'll see suggestions appear in faded grey text; clicking Tab uses the suggestion.

"Smart Compose helps save you time by cutting back on repetitive writing, while reducing the chance of spelling and grammatical errors," Google says. "It can even suggest relevant contextual phrases. For example, if it's Friday it may suggest 'Have a great weekend' as a closing phrase."

Smart Compose sounds like a serious timesaver if it's as effective in reality as it is in concept.

## **Google Photos**

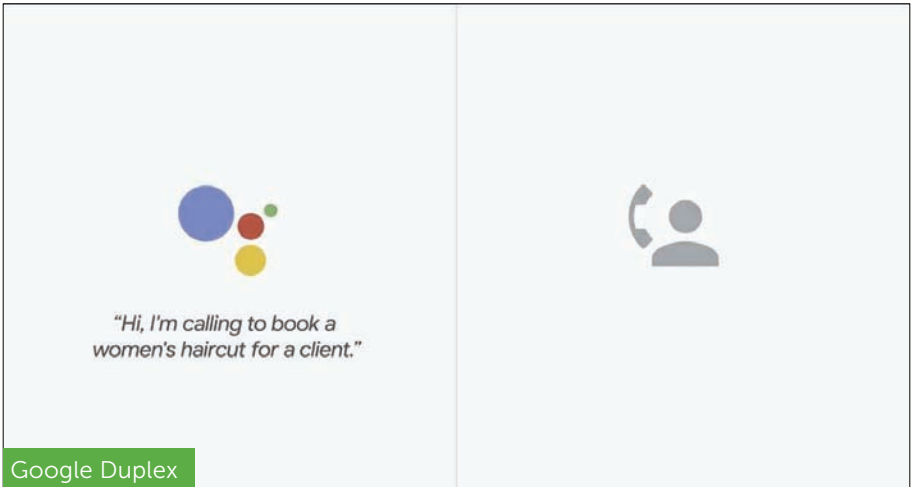
Machine learning is making Google Photos more useful in the coming months, too. While you're looking at an image in the coming weeks, you might see new prompts offering to fix the brightness of an image, or fade the background to black to make the star of the

picture pop. Get this: Google’s AI smarts will even be able to add colour to old black-and-white pictures.

Just as cool, if you take an image of a document, Photos will be able to create a PDF of it automatically – even if it’s taken at an awkward angle.

## Google Assistant

Google Assistant is evolving into your Google Assistant. A flurry of upgrades is coming to the AI helper, including the ability to choose from six different voices and, in the future, even a John Legend voice pack. New features let Assistant respond to natural conversations and parse complex multi-step queries. On phones, the app will be able to show you an overview snapshot of your day. Smaller upgrades are also on the way, and third-party smart devices with screens will start rolling out with Assistant in July. For further details, go to [page 28](#).



## Google Duplex

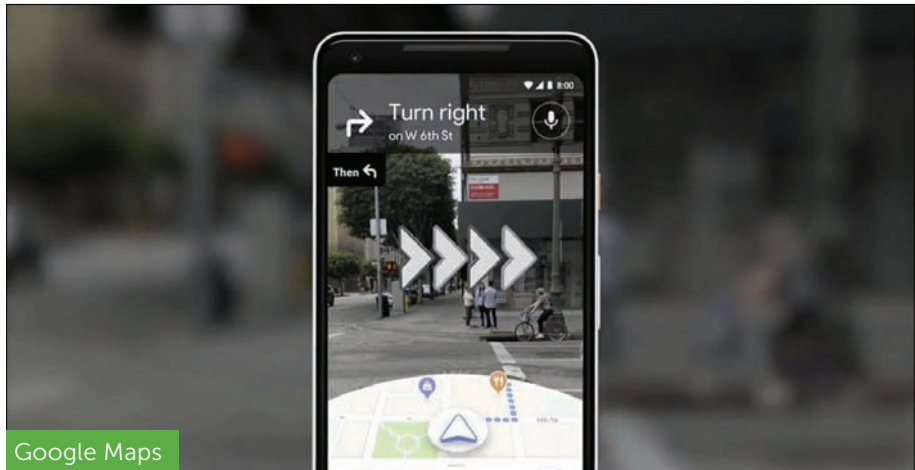
Speaking of phones, Google Assistant will even be able to call local businesses to schedule reservations for you, conducting complex conversations in real time using Google's AI smarts and new voices. The machine sounded eerily human in an on-stage demonstration, complete with ummms and ahhs in the middle of sentences. The recipients seemingly had no idea they were conversing with a robot.

Google didn't reveal Android P's final name at I/O, but it did launch the next-gen Android OS in developer preview beta form. A previous developer preview launched in March, but the beta version adds Android P features revealed at I/O 2018 – see [page 12](#) for our hands-on.

Android P is shaping up to be a substantial update for Google's smartphone operating system, with new AI-powered features, a major navigation change, and a suite of tools aimed at curing smartphone addiction. Catch up on the newly announced features in our Android P beta coverage.

## Google Maps

Continuing the theme of the day, Google Maps is getting an overhaul that uses machine learning to infuse your experience with personalized recommendations. A redesigned Explore tab and new For You tab will highlight local events and restaurants, drawing not only from physical locations but also from what you've liked in the past, and trending activities in the area. This summer, Google Assistant will come to Maps as well. For details see [page 25](#).



Google also showed off a wild future for walking directions in maps. Tapping into computer vision and machine learning, Maps can create an augmented-reality Street View that overlays directions and business details on your screen in real time. Wild stuff.

## Google News

Even Google News is getting in on the personalization action, with an overhauled News app and web presence that makes it easier to find the news that matters to you from the sources you trust. It's emphasized most by a 'For You' tab that appears when you open the app, but Google's AI touches every aspect of the service. That includes a 'Full Coverage' section that attempts to give you a cohesive and broad view of any particular story by mapping out relationships between people, places, and things in the story, then organizing it into story lines with frequently



asked questions and highlighted tweets from a variety of sources. Google says Full Coverage is “by far the most powerful feature of the app,” but there’s a lot more that’s new. Read up on it all on [page 43](#).

## Google Lens

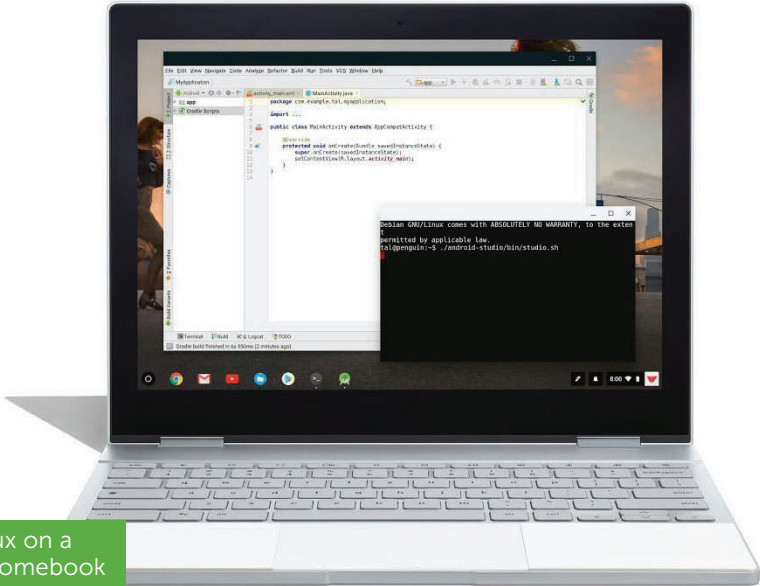
The entire point of Google Lens is to leverage the company’s strengths in machine learning and computer vision to provide you with more information about the world, but it’s getting even more useful soon. A new smart text selection tool lets you copy and paste text captured with your camera. Even more useful, selecting a text snippet brings up information about the subject. “Say you’re at a restaurant and see the name of a dish you don’t recognize – Lens will show you a picture to give you a better idea,” Google says. “This requires not just recognizing shapes of letters, but also the meaning and context behind the words.” A fresh style match feature, on the other hand, can show you information about outfits or home décor you like, as well as products with a similar style.

But perhaps most significantly, Lens is being freed from the shackles of Photos and Assistant. Google’s technology will now come baked directly into the Pixel’s camera app, and cameras in (unspecified) devices by LG, Motorola, Xiaomi, Sony Mobile, HMD/Nokia, Transsion, TCL, OnePlus, BQ, and Asus.

For further details, go to [page 38](#).

## Linux on Chromebooks

It didn’t make the I/O main stage, but in a follow-up post, Google revealed that Chromebooks are



Linux on a Chromebook

getting Linux support to help developers code on the browser-based laptops. A preview will be available for the Pixelbook soon.

According to Google: “Support for Linux will enable you to create, test and run Android and web apps... Run popular editors, code in your favourite language and launch projects to Google Cloud with the command-line. Everything works directly on a Chromebook.

Linux runs inside a virtual machine that was designed from scratch for Chromebooks. That means it starts in seconds and integrates completely with Chromebook features. Linux apps can start with a click of an icon, windows can be moved around, and files can be opened directly from apps.”



## Waymo's self-driving cars will take passengers for real

Google's Waymo self-driving car company sought to show its safer side at the keynote. No doubt its rival Uber's self-driving technology failure, which led to the death of a pedestrian in Tempe, Arizona, in March, was top of mind.

CEO John Krafcik said Waymo has used Google's deep neural networks to reduce its pedestrian detection error rate by 100X. That sounds great, though by digging into the numbers, that error rate started at 1 in 4, and therefore improved to about 1 in 400. We'll see how those numbers work out in real life when the company starts a driverless transportation service in another Arizona city, Phoenix, later this year.

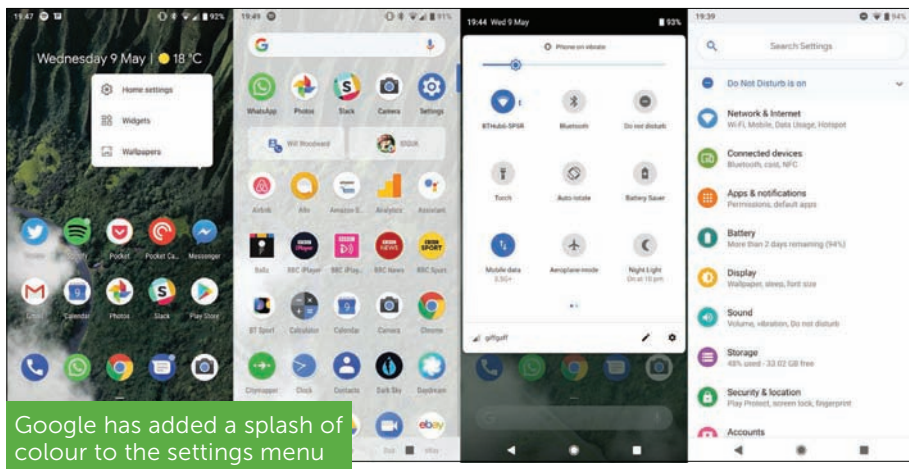


# Android P Public Beta

Free on compatible devices

As expected Google released the open public beta of its new operating system, Android P, at its Google I/O event on 8 May 2018. It's an update that brings noticeable visual change along with some quite dramatic gesture controls. For the first time you can download the beta on more than just the past few Pixel phones – see [page 22](#).

We've been using P (confectionary name TBC) for a few days by now, so here's a run-down of what we think about the new look including new gestures, menus, settings and adaptive features. We



downloaded it onto a Pixel 2 XL and it's a bigger overhaul from Oreo than that OS was from Nougat and there's a lot to unpack.

## Design

Google introduced what it calls Material Design into Android in 2014, and Android P is an evolution of that aesthetic. We vastly prefer this look over Nougat and even Oreo with more playfully rounded edges on menus, icons and settings.

The settings menu gets a refreshing splash of colour in the icons and the whole UI features more of Google's own fonts in headings, but keeps most text to the usual Android font, Roboto.

The small tweaks are enough to be completely refreshing coming from Oreo, and there's more rounded corners and white space in text boxes and the notification shade.

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Animations mean apps now pop up from their icon and are then dismissed with a sweep to the left when you press home, with the search bar (still not removable) and your five chosen apps springing back into place.

It's very clean, it's very Google and it's more playful than Oreos' oddly austere look. But it's not a huge redesign, and if you're a Pixel user you won't have trouble adapting.

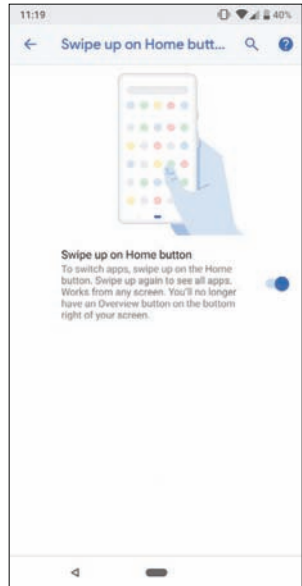
The volume control is a cool new design too, and appears at the left of the screen when you press one of the volume keys. You can tap the top icon to cycle through sound on, vibrate or silent, while the volume control is for media playback rather than tones, which makes much more sense.

**Gestures**

One thing you can turn on that isn't on by default is Swipe up on Home Button – hidden in Settings > System > Gestures. It replaces the three Android navigation buttons with one pill shaped one. You lose the Overview button altogether, and the back button only appears when you have an app open.

This is more to get used to. The pill is a home button but is that shape to

Swipe up on Home Button replaces three Android navigation buttons



indicate you can always swipe up on it. If you're Home or in-app, a short swipe opens the brand new app switcher view, which is similar to Apple's on iOS.

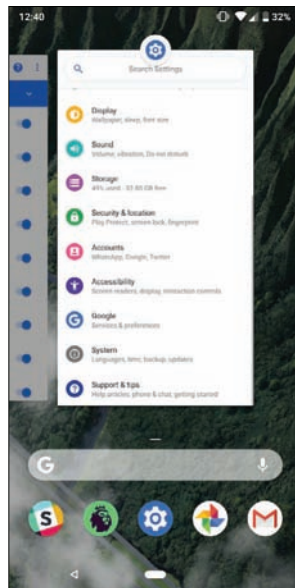
You can swipe up on an app to dismiss it from the switcher (like iOS) or scroll through them to find the app you want. The pill at the bottom can also be dragged left or right to scroll through, but it's a bit slow and we'd be surprised if Google doesn't change how this works in the final build.

It's notable though that you can no longer clear all notification – perhaps a sign that Google knows your phone actually runs better if you don't compulsively close every app all the time.

When in app switcher mode, five app icons are at the foot of your screen as the last five apps you opened, for even quicker access. As ever, tap home and everything is back to normal.

A longer held swipe on the home screen still opens the app draw but it's easy to accidentally open the app switcher, which is annoying. There are far more swipes in P than prodding and tapping, and while Google no doubt sees this as more flowing and elegant, it's a big jump to get used to, just as it was for some on iPhone X.

App switcher mode

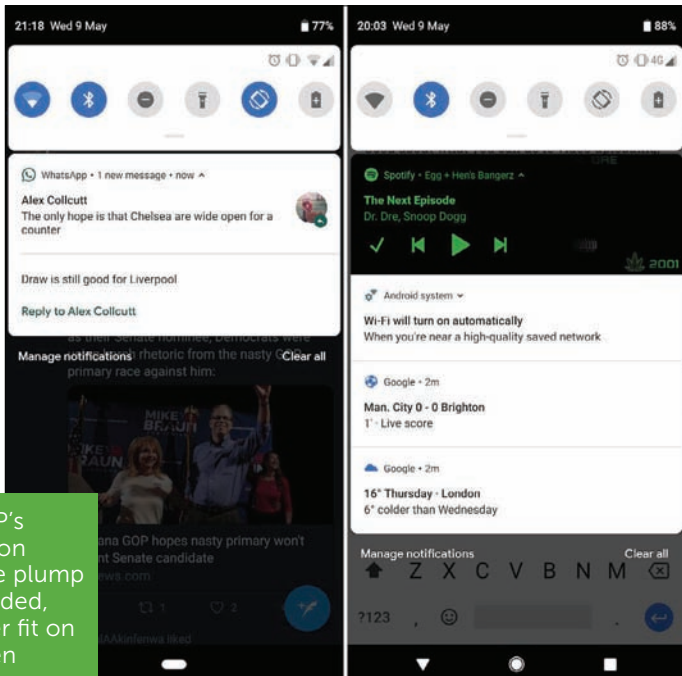


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## Notifications

The notifications on P are improved from Oreos already excellent integration, but we find it odd that they are bigger with more white space. Oreos notifications are angled and compact to their advantage; dealing with them is easy and on the Pixel 2 XL, you can see absolutely loads of them at once to dismiss or action.

Unfortunately, on Android P the notification boxes are plump and rounded, and fewer fit on the screen. This is a step backwards that we hope Google changes, but actioning the notifications themselves is improved.

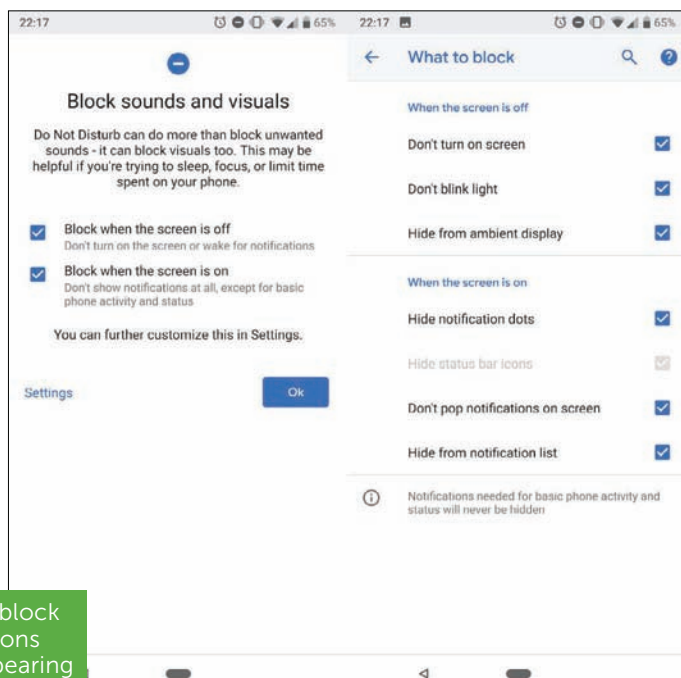


Android P's notification boxes are plump and rounded, and fewer fit on the screen



You can reply in-line to messages as before, but rather than auto-dismissing, the notification now displays the message and your reply if you don't open the app. There are also auto replies in some cases, but with only three replies so far.

There's also subtle little haptic additions, like a small buzz when you open the quick settings from the top of the screen. The clock has also moved over to the left, no doubt to accommodate the onslaught of notches on Android phones this year. You can still snooze notifications and granularly turn off particular types of notifications in apps if they allow it, which can be better than blanket turning them off for an app.



You can block notifications from appearing

If you want to go nuclear though, do not disturb has been updated. You can block them from appearing when the screen is off if you don't want the phone buzzing away, or select block when on too, so that only basic phone activity and status shows (time, battery, alarm, and so on).

We quite like this. Phones are distracting, and Google is trying to wean you off the stuff that doesn't matter. Delve further into the settings, and you can customize hiding notifications from the ambient display, disabling the blink light and other options. It's a welcome addition that has already made us stop mindlessly picking up and unlocking our phone because we know it won't be displaying anything until do not disturb is turned off.

## **Adaptive features**

Two new notable features on Android P are adaptive, and they make a ton of sense working silently (but optionally, of course) in the background.

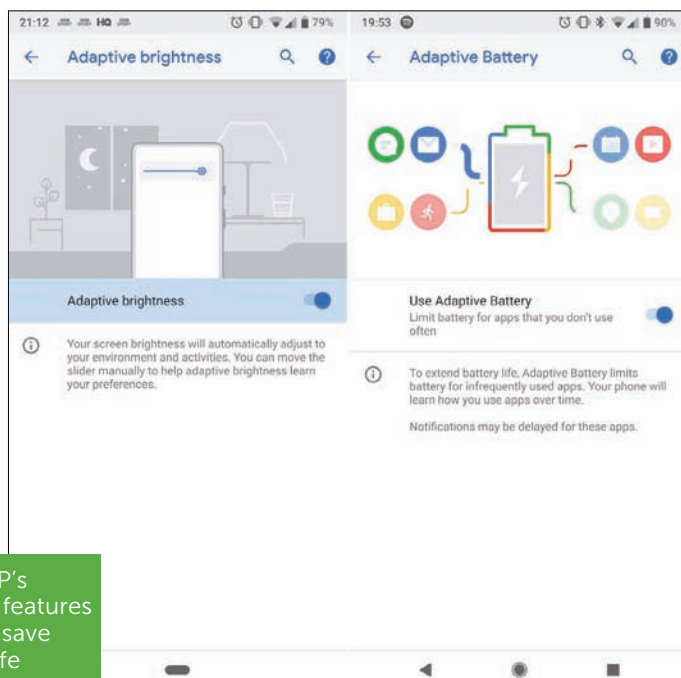
Adaptive brightness auto adjusts your brightness in unison with the light sensor as ever, but the slick addition is that if you disagree with its choices, it'll learn your preferences as you manually adjust the brightness yourself.

Adaptive battery is an evolution of Doze that limits the battery consumption of apps that you don't use much. A prompt says your phone will 'learn how you use apps over time' and echoes a similar promise Huawei makes about its phones with a Kirin 970 processor. That this feature is now baked into Android P is far more pleasing.

These adaptive features are there in part to help save battery life, but they will also play a part in performance too. A phone with apps pushed to the background taking up less battery will always perform better than one with no optimization at all.

In the app drawer there’s also the small addition of app actions and AI predictions, where the OS will try and guess what you might want to do next, whether that’s text or call a certain contact, or open a certain app. It hasn’t popped up much yet as it’s designed to improve over time – adaptive, see.

A final addition is Slices, which didn’t work for us on first go, but is designed to learn your behaviour.



Android P's adaptive features will help save battery life

Google's example is typing Lyft in Google search, and seeing a link to tap to take you to home or work.

## Verdict

Uptake worries aside though, Android P like O before it is now the best ever version of Android. The adaptive features are excellent, the design is more fun and the gestures, if tricky and iPhone X-like, are a welcome (and optional) shake up of an ageing user interface.

Add to that the superb admission that you should use your phone less with features to help you do that, the P in Android P may end up standing for that little bit of peace you forgot you needed. **Henry Burrell**

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# TECH ADVISOR

## MateBook X Pro:

Why Huawei's awesome ultraportable is the laptop of the year



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We reveal its best hidden features



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Audio upgrades that won't break the bank





## HOW TO Download the Android P Public Beta

Android P has a new Public Beta. MARIE BLACK shows how to install it and try out its latest features

There's a new Android P Public Beta that is available on more than just Pixel devices. You'll also be able to install it on select devices from Nokia, Vivo, OnePlus, Xiaomi, Sony, and Oppo, and can check which are compatible at [fave.co/2jl53oW](https://fave.co/2jl53oW).

## Should you install Android P?

If you're curious, have a compatible device and are reasonably techy, then why not. You can get a good look at what's in store for Android, and if you don't like it or find it too buggy you can simply revert to your previous operating system.

Before you begin you should take the necessary steps to ensure all your data is backed up.

## Install Android P Public Beta

Downloading Android P should be simple with Google's Android Beta Program. Any devices enrolled to the programme will receive OTA updates to the latest Android operating systems where available.

1. Launch your web browser and visit [g.co/androidbeta](https://g.co/androidbeta)
2. Scroll down to Eligible devices and click the green 'Enrol device' button next to your phone.
3. Agree to the T&Cs, then tap 'Join Beta'.
4. Click OK to the confirmation that your device has been enrolled and that an OTA update will be available soon.
5. The OTA update notification can take up to 24 hours to arrive (and it will never arrive if you have previously manually flashed Android on to the device). If you don't get it, check your Internet connection and visit Settings > About phone > System Updates and check for any available updates.
6. When the notification arrives tap Download.

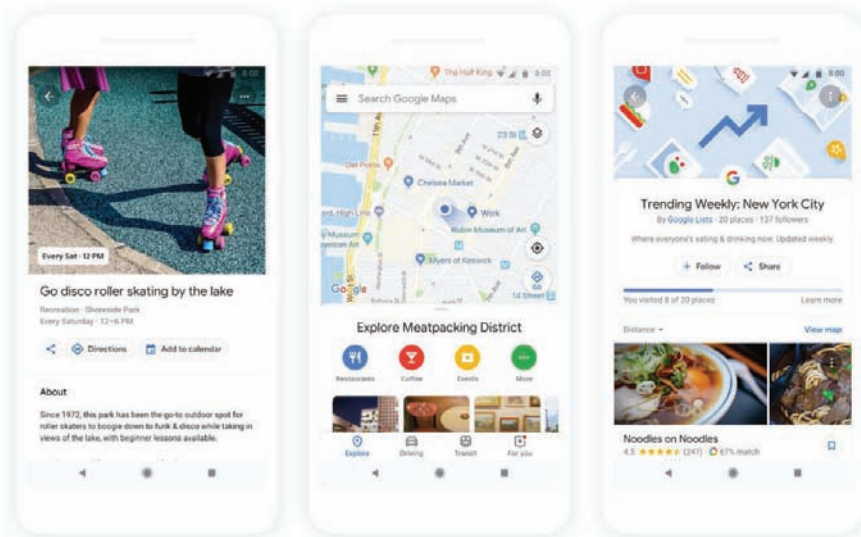
## HOW TO

7. In the next window you'll be told this will install a preview version of Android on your device. Check you are connected to Wi-Fi, then tap Download
8. You can now install the Android Public Beta. Tap Restart & Install to begin the process.

### **Uninstall Android Public Beta**

Removing or uninstalling an Android Beta is as easy as installing it. Head to the Android Beta Program page at [g.co/androidbeta](https://g.co/androidbeta), then tap the Unenrol device button next to your device. Do note, however, that doing so will wipe all data on your device.





# Google reveals a more personal Maps

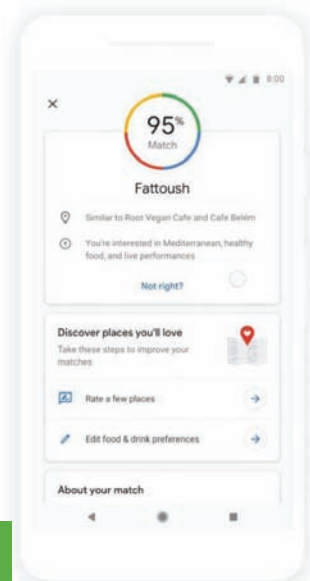
A redesigned Explore interface and a For You tab make Google Maps better at being your local guide, writes **BRAD CHACOS**

**M**achine learning can give you a version of the Internet tailored to fit your specific needs and wants. Google has been beating that drum for years, but the vision manifested itself in fresh, impressive ways in an overhauled Google Maps app revealed during the company's I/O keynote. And then Google knocked our socks off with a thrilling vision of how augmented reality and computer vision could radically transform walking directions in the future.

A redesigned Explore tab and a new For You tab will make Maps more personal for each of its one billion-plus users in the coming months, as the interface will be populated with restaurants, businesses, and activities from your local haunts. The focus will be on interesting events (such as new store openings) and personal recommendations to get you to try new things.

Beyond mere physical proximity, the new Explore and For You tabs cull their recommendations by cross-referencing trending activities in the area as well as the vast treasure trove of information stored about you on Google’s servers. If you prefer Greek restaurants, for example, For You will lean toward those, and conversely avoid culinary selections that you loathe.

The cards for businesses that appear in your feeds will include a ‘Your Match’ rating that’s essentially Google’s guess at whether you’ll like a given business, once again pulling information from your personal profile. If you like healthy food and Greek cuisine, a new healthy Greek eatery would appear in For You with a high Your Match score, whereas a greasy spoon might not rate so highly.



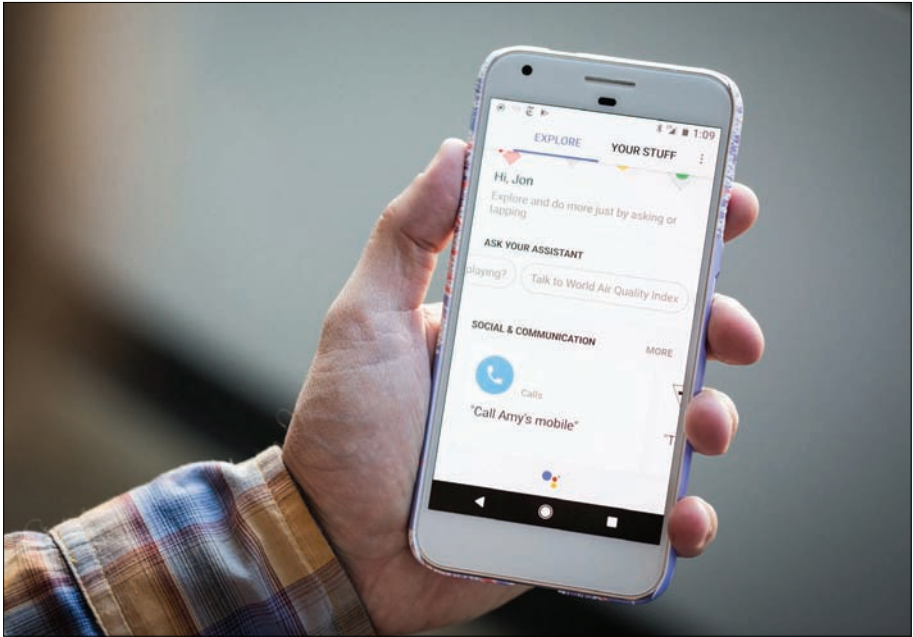
Google Maps will now recommend places to visit

Picking a restaurant to hang out at socially can be difficult even with the power of personalized recommendations. Google Maps is gaining a 'Shortlist' feature that lets you select a handful of businesses to share with your friends to help narrow down the selection, eliminating the need to pass around links in a group text. Your pals can add recommendations of their own and vote for which place they want to visit.

To make things even more personal, Google Assistant is bringing its AI smarts to Maps later this summer.

Finally, Google also teased a potential future feature that taps into your phone's camera to drastically change how the walking directions function. Blending 'computer vision' with machine learning from the cloud transforms Maps into a Street View-like augmented reality experience. Holding up your camera still show a tiny sliver of the map (as you can see in the screenshot on [page 8](#)), but also the world around you – and the world is overlaid with visual directions to your destination, as well as pop-up cards displaying info of any businesses you pass. You might even be able to add a virtual guide to your destination (a fox, in Google's demonstration).

Think of the new on-foot interface for Google Maps like a supremely handy Frankensteinian mash-up of Google Lens and Google Daydream. The company didn't announce any firm plans for the AR revamp's rollout, but we can't wait to get our hands on it – assuming this augmented reality vision becomes actual reality one day, that is.



# 11 Google Assistant you should be using

Google's AI assistant learned some new tricks while you weren't looking, reveals [RYAN WHITWAM](#)

Google has had voice search features in Android for years, but when Google Assistant rolled out on the Pixel in October 2016, everything finally came together. You can now get Assistant on all modern Android devices, and Google has already announced new Assistant features at I/O 2018 that

will make it even better (okay, and maybe a little too real, in the case of Duplex).

It can be easy to miss the improvements if you don't obsessively keep an eye on the news, so here they are in one place: the 12 coolest new features in Google Assistant.

## 1. Sync connected smart home devices

Google Assistant supports numerous smart home devices, but you might notice that devices you've just added to your account don't always work right away. That's because Assistant isn't constantly scanning for new connections. You can give it a kick-start.

After adding a new smart home device like a camera or thermostat, open up Assistant and say, "Sync my devices". Assistant tells you it's syncing with your connected accounts, and a few seconds later any newly added devices will appear in your list. Make sure to add them to rooms in Assistant for full functionality.

## 2. Send daily info

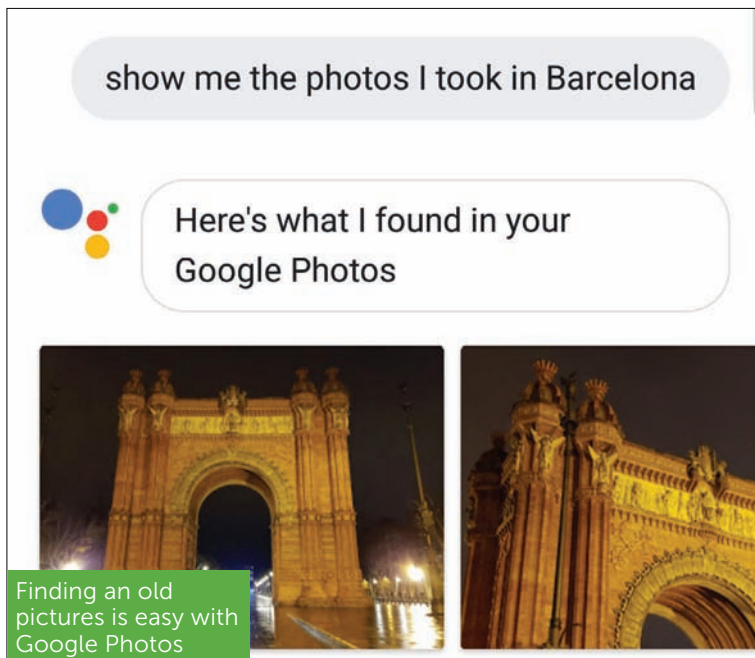
Assistant is great for calling up little tidbits such as the weather, stock quotes, or even jokes. You don't even have to ask every time, though. You can have Assistant proactively send you certain bits of information as a daily update. To configure a daily update, start by asking your question normally – ask it for the weather, a dad joke, whatever. After Assistant pulls up the content, you can follow up with "Send this to me daily". Assistant asks what time you want the update, and you're all set. To change or cancel a daily update, just say, "See my subscriptions".

### 3. Have Assistant remember things for you

Your human brain is fallible, but Google Assistant can remember things without fail. All you have to do is ask it. You can tell Assistant to remember things just by saying “Remember that [some piece of information]”. You could, for example, tell Google to remember where you parked, what you did with the spare house key, your high score in Tetris, or anything else. As a handy bonus, Assistant also saves maps when you tell it where you parked. Later, you can ask Google to recall the information in various ways. You can be direct, like asking Assistant “Where did I park?” You can recall fact you’ve saved with “What did I say about [x]?” or “Remind me about [x].”

### 4. Search your Google Photos uploads

Google Photos is a fantastic backup solution for all your snapshots. Google offers unlimited storage of images and videos, provided you’re okay with a little compression, and Pixel owners get free full-quality backups. If you want to look for specific photos you’ve taken, you can do it right from Google Assistant. All you have to do is ask. It plugs into the amazing search capabilities of Google Photos, so you can ask to see almost anything. You can ask Assistant to pull up pictures of specific people, locations, and even objects. Tap the image results to scroll through them immediately, or open Google Photos via the shortcut under your pictures. Just make sure you preface your request with something like “my photos” to ensure you get images from your Google Photos library rather than images from a Google search.



## 5. Routines

Using Assistant to do the same few things all the time can be tedious, but Routines might be able to help. This feature allows you to connect multiple actions to a single command. There are only a few predetermined routine commands right now, but they could still save you a lot of time.

To get started, open the Assistant settings and scroll down to Routines. In this menu, Google provides six commands right now: good morning, bedtime, I'm leaving (leaving home), I'm home, let's go to work, and let's go home. Say any of those, and you'll trigger the associated Routine. Each one

includes a few customization options including smart home devices, travel info, and audio playback. You can also modify the trigger phrase at the top of the Routine settings page.

## 6. Take and share screenshots

You can capture screenshots on Android phones by holding the power and volume buttons, but Assistant can do it, too. In fact, it might be faster if you intend to share the screenshot right away. Open Assistant and say, “take a screenshot” or “share a screenshot”.

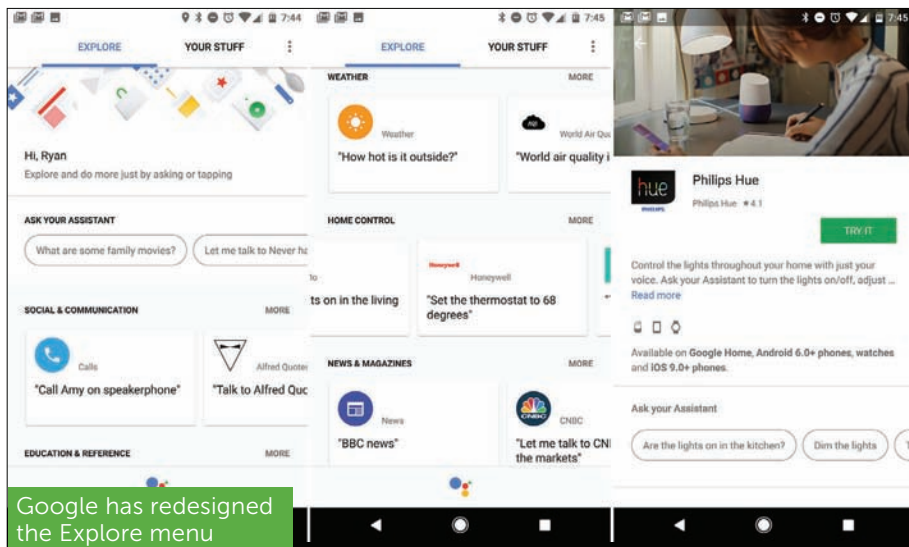
It takes a moment to capture the screenshot, but you’ll get a preview as soon as it’s done. Assistant then immediately brings up the sharing interface so you can send the screen to a message or upload it someplace. The screenshots taken via Assistant aren’t saved locally, so you won’t end up with clutter from repeated screenshot captures.

## 7. Listen to podcasts

Google has built a basic podcast interface into the Google app, and the easiest way to access it is via Assistant. You might want to listen to podcasts in this fashion because Google’s solution is quick and easy. Just say, “listen to [podcast name]” to fire up the latest episode. If you were in the middle of an episode, Assistant picks up where you left off.

Your progress is not device-specific, either. You can start listening to a podcast on your phone, then tell Assistant on Google Home you want to listen to the same podcast. Rather than start, over, it starts where you last listened on your phone.





## 8. Explore menu

Google used to hide all of Assistant’s features in a series of esoteric, buried menus. Now, there’s a much more sensible way to find out what sort of things you can do with Assistant in the Explore menu. To access this menu, open Assistant and tap the blue drawer icon in the upper right corner. Here, you can find all the services supported by Assistant broken down into categories like Social & Communication, Education & Reference, Games & Fun, and more. Each tile links to a full info page where you can see sample commands and (if necessary) link your account. The bottom line is that checking out the Explore menu is the easiest way to keep track of newly added apps and services.

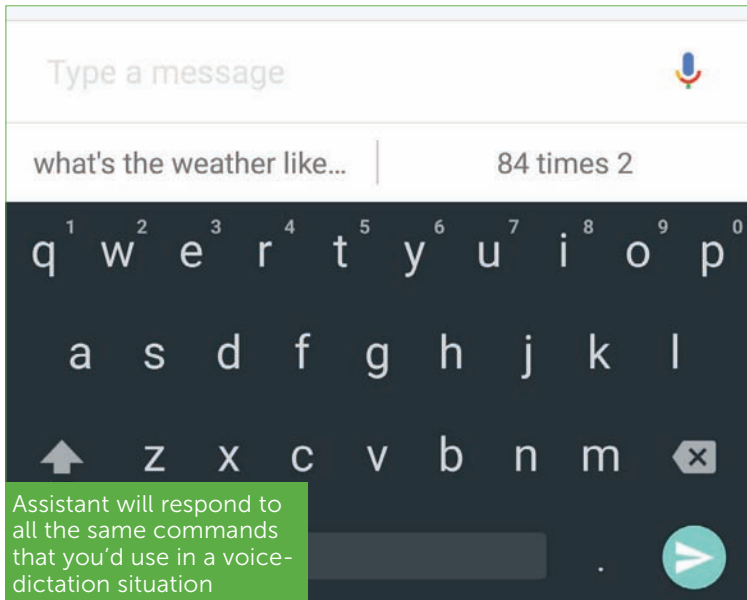
There are also some general Assistant command suggestions at the top. You don’t even have to speak

the suggestions, just tap the bubble and they'll be dropped right into Assistant.

### 9. Typing to Assistant

Google Assistant first appeared in the Allo app, and in that iteration, you could input text to 'chat' with the Google's bot. But the more powerful baked-in phone version of Assistant began its life with only voice input. That's fine when you're in a situation where you can talk to your phone, but voice dictation isn't always appropriate. Well, you can type your questions and commands, too.

To access the keyboard in Assistant, long-press your home button as you normally would. But instead of speaking right away, tap the keyboard icon



in the lower-left corner. Assistant will expand to fill the screen, and you can begin typing. Assistant will respond to all the same commands that you'd use in a voice-dictation situation, and you'll also find contextual suggestions above the keyboard. And because these suggestions are part of Assistant, they appear no matter which keyboard app you're using.

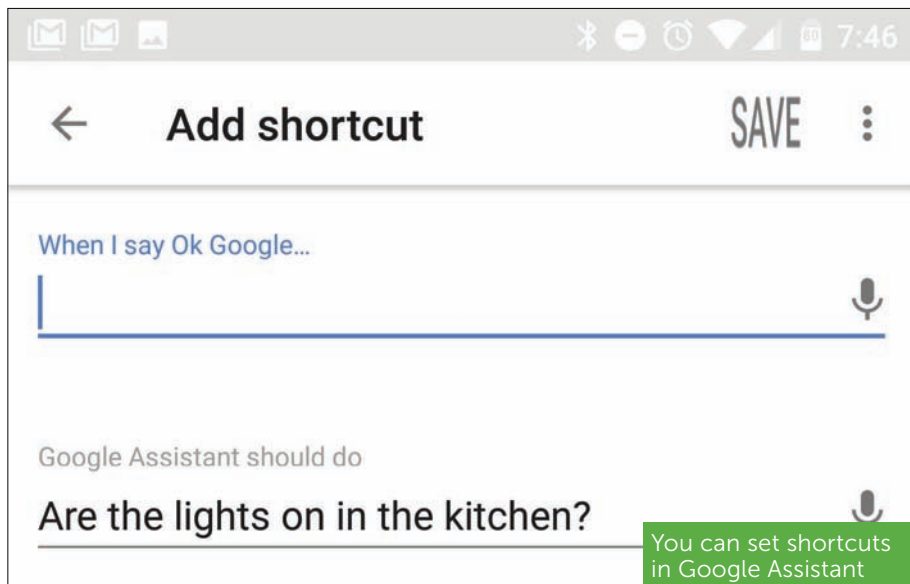
## 10. Editable history

Google Assistant used to be a transient experience – whatever you said to Assistant would be lost to the ether as soon as you left the Assistant UI. But now there's a full history of your commands, and you can edit them too.

To access your Assistant history, you need only drag up on the overlay when Assistant pops up. This will drop you into a full-screen interface that shows your recent queries. Scroll up to see everything you've asked and how Assistant answered.

Editing is a snap, too. Long-press on a query, and it will be highlighted along with Assistant's reply. From there, you can either delete or edit it. Deleting will completely remove the query (and associated activity) from the history. This is just like removing something from your Google search history, so it won't be used to inform future search and Assistant predictions.

If you choose to edit a query, the text is dropped into the text field along with an open keyboard. You can tap send to immediately repeat the command, or make some changes and send it again. Just note that none of this undoes the actions performed when the command was first issued.



## 11. Shortcuts

There are dozens of services and apps integrated with Assistant already, but some of them get preferential treatment. For example, you can tell Google to control your Hue lights directly, but lights connected through Homey require you to preface all commands with "Tell Homey". It can get a bit tedious, but shortcuts are here to help.

To create a shortcut, go to the Assistant settings and open the settings. Scroll down and tap on the Shortcuts option. The shortcut screen has a box for what you want to say, and one below that for what you want Assistant to actually do in response.

In the top box, input whatever snappy shortcut phrase you want. It tends to work better if you use the

microphone button to speak the shortcut. Assistant will sometimes put a sample command in the bottom box, but you can change that to the command you want. It has to be the full phrase you'd say to Assistant, including the "Tell [X]" part if needed. Once your shortcut is saved, it'll work by voice and text.

## 12. Google Express shopping list

Google Assistant has always been able to add items to a shopping list, but that list used to live solely in Google Keep. As such, it was just a list. But Google recently changed the shopping list functionality to plug directly into its Google Express delivery service, which could be very useful if you use it.

All you have to do is say, "Add [item name] to my shopping list." It will show up in your Google Express shopping list instantly. You can access that list in the Google Express app, or simply say, "Show me my shopping list". That takes you to the online version of your list, which can be shared with any of your contacts. If you're a Google Express subscriber, you can tap 'Shop your list' to get filtered search results from supported local retailers. Add items to your cart, and you're done.



# 5 Google Lens features we can't wait to try out

With everything from text recognition to real-time results, Google Lens is leaping into the future. LEIF JOHNSON reports

**W**e all know Google as a powerhouse for search results when we're entering text into a search engine, but the substantial improvements to Google Lens announced at Google I/O today effectively transform the AI service into a real-time search engine for the world around us –

all with the help of on-board camera apps. Here's what we're looking forward to the most.

## 1. AR integration with Google Maps

Sometimes, especially in unfamiliar cities, it's hard to tell which direction you're facing, even when Google Maps shows you right where you're standing.

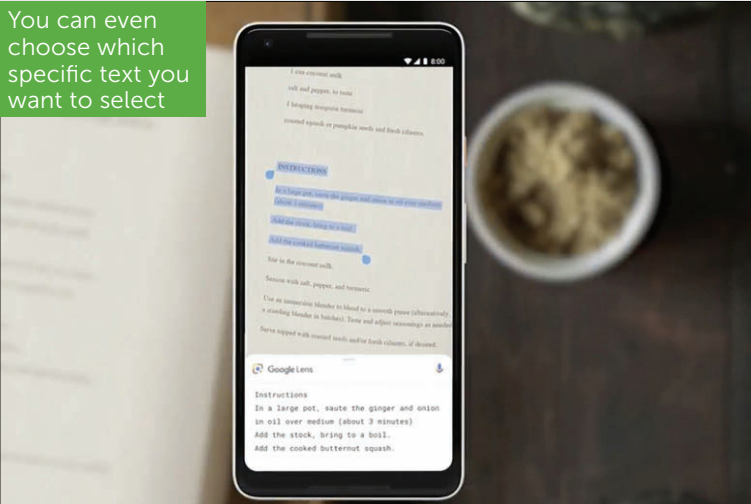
Soon, though, you'll be able to activate your camera in Google Maps and see helpful contextual information for the scene you're looking at in the real world. Simply raise your camera, aim it at a scene, and you'll see information about various businesses around you, as well as the names of the streets. Not only will this make it easier to gather your bearings, but it may even help you discover fun new restaurants you otherwise wouldn't have noticed – even though they're only a few steps away.

## 2. Smart text selection

Back when I was a student, I often found myself wanting to easily copy text from books, and plug that material into research papers as excerpts. It seems as though I was simply born too late.

To wit: one of Google Lens' best new features lets you select and render text simply by aiming your camera at it, almost as if you'd used your mouse to select it on a regular monitor. Presumably – accounting for possible problems with line breaks and spacing – you then simply paste the text into a text message or document.

If this pans out as demonstrated, it's going to save so much time. For example, you could use Lens to



capture the ingredients from a cookbook, and then send them via text to a friend buying groceries at the store. Or if you're reading a menu written entirely in French, you could use Lens to get the precise definition for ris de veau, along with a photo of what the dish looks like as well as a description of its ingredients. This is information you need to know.

Granted, in some situations Google Lens technically adds an extra step since many of us are used to simply sending photos of printed text to friends anyway. But I could certainly see Lens being unbelievably useful for research cases, international travel, and many other scenarios.

### 3. Style Match

I have a lamp beside my bed that I love, but I've had a rough time finding a matching lamp for the other



nightstand. Thanks to Google Lens' Style Match feature, that may no longer be a problem.

With Style Match, you simply aim your camera at an item and it shows you suggestions for other items that look just like it. In one of the examples shown on stage, looking at a lamp with an intricate base brings up a Shopping search for 'Lamp', and the images Google delivers show different lamps with similarly intricate bases along with prices. And they all look quite similar to the lamp that started that search.

Google introduced a similar feature for regular Google Image Search last year, but being able to see results like this in real time through a camera app makes it significantly more useful.

#### **4. Real-time search results**

As Google Lens works at the moment, you have to specifically choose an item on the display and wait for Google to bring up search results for you. But the updated Lens will give you search results related to objects you're looking at in real time. That means that if I'm standing on Westminster bridge in London, I can look over at the Houses of Parliament to the left and get information about its history in one second, and then I can pan over to the other side of the river and get similar information about the London Eye. It's going to make solo tours much more fun.

And that's not all, thanks to improvements in machine learning. If you're aiming your camera lens at a concert poster, Google can start playing a music video by the featured artist. It's taking WYSIWYG to a whole new level.

## 5. Support for third-party camera apps

Google Lens was originally only available for the Pixel phones, but earlier this year Google extended support to all Android phones through the Photos app and Google Assistant. Soon, though, owners of some Android smartphones made by companies other than Google will get to enjoy the power of Lens straight through their native camera apps.

This move will extend to default third-party camera apps from Sony Mobile, HMD/Nokia, LGE, Xiaomi, HMD/Nokia, Transsion, TCL, OnePlus, BQ, and Asus. (Samsung and Huawei already have their own AI camera features in their apps.) Here's to hoping it works well with all of them. Google Lens is an incredible service, and making it more easily available to everyone is a step in the right direction for a better Internet.



# Google News given a major overhaul

Google is overhauling its News app, making it easier to find news from sources you trust, writes **JASON CROSS**

**A**fter years of minor updates, Google is finally rolling out a major overhaul of its News platform. Announced at Google I/O, the new Google News is more personal and customizable, made to better surface the news you care about from the sources you trust. Updates are available now.

## For You

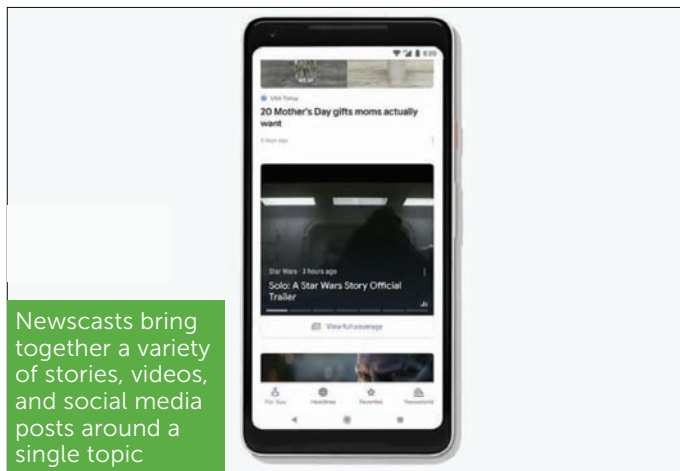
When you first open the new Google News, you'll be greeted with a personal briefing of the top five stories selected for you. These are chosen by AI that scours the web and selects stories it thinks you'll care about the most, given your interests and preferred sources. Scrolling past that, you'll see more suggestions, again selected by AI. It looks for local news stories as well, assembling them into a personalized Local section. The For You tab will use the vast amount of information Google already has about you to pick areas of interest and sources right out of the box, with no configuration. But it learns as you use it, tailoring the feed as it gleans what you want to see. You can always tap on any story and choose to see more or less about a certain topic or from a particular source.

## Headlines

The Headlines section will show you the top stories generating the most coverage around the world. You can then filter by category or region to see top stories just from the UK, or in Sports, or Technology, for example. The new design puts an emphasis on large photos and video, to create a more engaging experience that pulls you into the story.

## Newscasts

The updated News app introduces a new visual format called Newscasts. These are cards that progress through a series of stories, videos, social media posts, and other sources. Animation, bold headlines, and pull quotes give you the gist of each piece of information.



Newscasts bring together a variety of stories, videos, and social media posts around a single topic

It's a little like Twitter Moments, but from a wide variety of sources all over the web, not just tweets.

Newscasts is all about giving you a broad view of a popular news topic, so you can quickly understand the gist of what's going on and decide how you want to get more information.

## Full Coverage

Some Newscasts will have a button below that says View Full Coverage. This is Google's attempt to give you a cohesive and broad view of any particular story, and the company claims it is "by far the most powerful feature of the app".

Full Coverage is assembled from a variety of sources and formats using something Google calls "temporal co-locality." It maps relationships between people, places, and things in a story in real time, organizing it into story lines. It even assembles a set

of answers to frequently asked questions, so you don't have to hop out to the do a web search asking the same things as everyone else. It highlights tweets from a variety of relevant voices, and even displays fact checks so you can know what's real.

## Newsstand

The Newsstand section is designed to make it easy to follow the sources you like most and find new sources to broaden your view. In addition to traditional news outlets, it features content from over 1,000 magazines. You can quickly follow publications with a single tap, and Google has made it dead simple to subscribe to paid publications. Just find the publication you want to subscribe to and tap the Subscribe button. You're already signed in with your Google Account so you don't need to create new passwords, enter payment information, or email addresses. You'll be able to access your paid content everywhere – in Google News on any platform but also on the publisher's own websites.

Google worked with over 60 publishers to build this new one-tap subscription feature, and says it is rolling out now.

The new Google News is aimed at accomplishing three goals: make it easier to follow news you care about, help you dive deeper and get the full story, and make it easier to find, follow, and subscribe to trusted news sources.



# Digital Wellbeing to tackle phone addiction

Digital Wellness in Android P is about loving everything more, including your phone, reveals **MICHAEL SIMON**

**A**long with updates to Google Assistant, Lens, Gmail and just about every app with the word Google before it, there was one unveiled at I/O that isn't about enhancing Google's ecosystem of services. In fact, it's about using all of them less.

Baked deeply into Android P is a set of tools Google is calling Digital Wellbeing, and it's all about balancing your digital life with your real-world one. Through a

series of settings, options, and features, Google wants Android P to be the least-used version of Android, and it just might make us love our phones even more.

## **The bitter truth about app usage**

The premier feature of the new initiative is Android Dashboard, which provides a snapshot of your daily usage, not unlike the Battery tab in Android Oreo. But instead of showing you which apps are causing your battery to drain, the screen will show you exactly how long you've used your phone each day, as well as the apps that have gobbled up the most of your time. Think of it as nutritional labelling for phone addicts.

Among the data presented on the exhaustive Android Dashboard is how many notifications you've received, and how long you've used each app on a daily and hourly basis. When confronted with all these details, you'll likely be shocked by just how many hours you've been staring at your phone's screen – and that's the point. And the reports extend beyond your phone. For example, your entire YouTube watch time will be collected, whether you've been playing videos on your phone or a PC.

It's a bold strategy for a company that makes phones and apps. While cigarette makers have a long history in fighting regulations designed to warn customers about the harm their products cause, Google is voluntarily sharing potentially alarming information directly on our devices. As Google explains it, the Digital Wellbeing initiative is a response to customer concern, and not any attempt to get ahead of regulators.



## Curbing addiction one app at a time

But the Android Dashboard is just the beginning. Google is also giving us the tools to help curb our phone addictions, with new features and settings designed to force us out of apps and into the real world. Google CEO Sundar Pichai even coined an acronym about it: JOMO, or joy of missing out.

To help users put down their phones, Google has built new controls into Android P to manage how and when you use your phone, including app timers (so if you're using a specific app for more than, say, 30 minutes, you'll get a warning), and automatic enabling of Do Not Disturb when you rest your phone face-down on a table. The Do Not Disturb button is also way more powerful, removing all notifications from your phone when it's switched on, even ones you've already received.



When you flip your Android P phone over on a table, Do not disturb will automatically engage

It's a stark contrast to Apple's overall lack of parental controls in iOS X. The iPhone maker was taken to task earlier this year for ignoring smartphone addiction in children, something that Google already tackled with its Family Link app. The Digital Wellbeing initiative is very much a preemptive strike against iOS 12, which is expected to include some form of controls to limit a child's screen time. Unless Apple does something similar to what Google has implemented in Android P – which seems unlikely – it won't be enough.

## Turning mindless interactions into meaningful ones

Google is making a statement to Apple and everyone else with Digital Wellbeing in Android P: Smartphone addiction isn't just a problem that affects kids. I already know that I'm going to be horrified when I see my daily phone stats in Android Dashboard, but a visual representation of how much time I'm devoting to

Digital Wellbeing in Android P is designed to get families to appreciate the time they spend with and without their phones

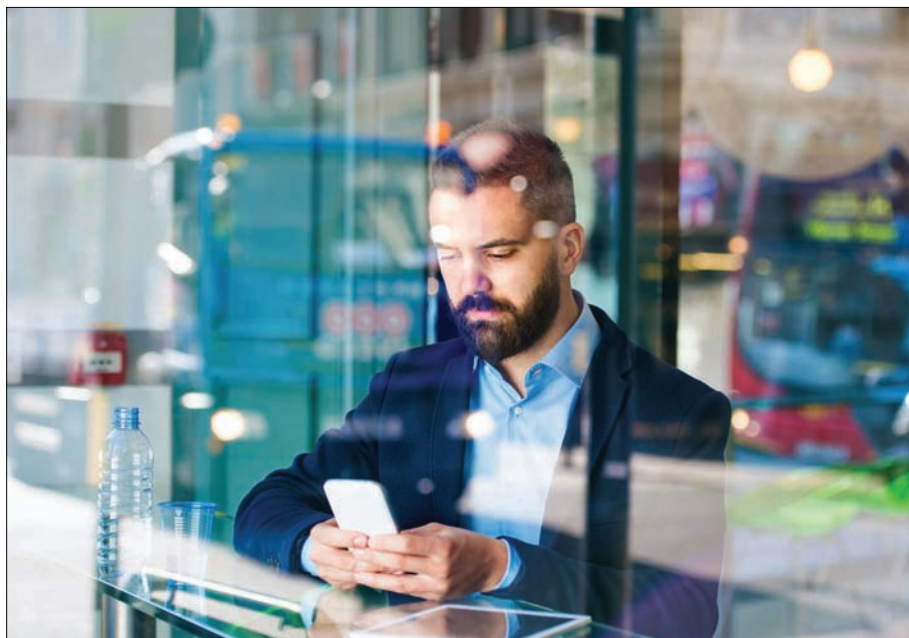


my screen might spur me to set some personal limits on my phone. It's like if Marlboro started handing out nicotine patches with every carton of cigarettes – lots of people would try them out even if they didn't plan to fully quit smoking.

Google's plan with Digital Wellbeing isn't just to make us appreciate life outside our screens, it's also to make the interactions with our phones more meaningful. Our days are filled with dozens of meaningless interactions with our phones – unimportant notifications, mindless social media checks, time-killing games – and Google wants to help us cut all of that out of our life, if we decide to opt in. It's not so much about using our phones less, but concentrating the time we spend with them into the things that are most important.

And that extends to the biggest detriment to our well-being of all: late-night phone use. With a feature called Wind down, Android P phones will fade to grayscale at the end of the day and turn on Do not disturb at bedtime, so we'll be less tempted to get lost in a YouTube hole when we're supposed to be sleeping. It's just one more way Google is encouraging us to balance our lives and restore some sanity to our digital mental health.

During the I/O keynote, Pichai said Digital Wellbeing was a "deep ongoing effort" that extends beyond the walls of Google's labs. It's a four-pronged plan that deeply involves the user in order to understand our habits, focus on what happens, switch off, and find balance for our families. And it just might make us appreciate our phones even more, too.



# Looking at Android P's gesture navigation

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All gestures are not created equally. **MICHAEL SIMON** reports

**A**s expected, Google introduced a new way to navigate Android with gestures instead of virtual buttons, and it's sure to spur opinions among both Android and iOS users. But while it might seem like a blatant rip-off of Apple's iPhone X navigation, Google's method – which is says it's been working on since before the iPhone X landed

– differs from Apple’s in meaningful ways. The early beta suggests that the experience will actually improve on Android’s speed and intuition. Here are four reasons why we’re looking forward to it on the Pixel and other Android P phones.

### **1. It’s optional**

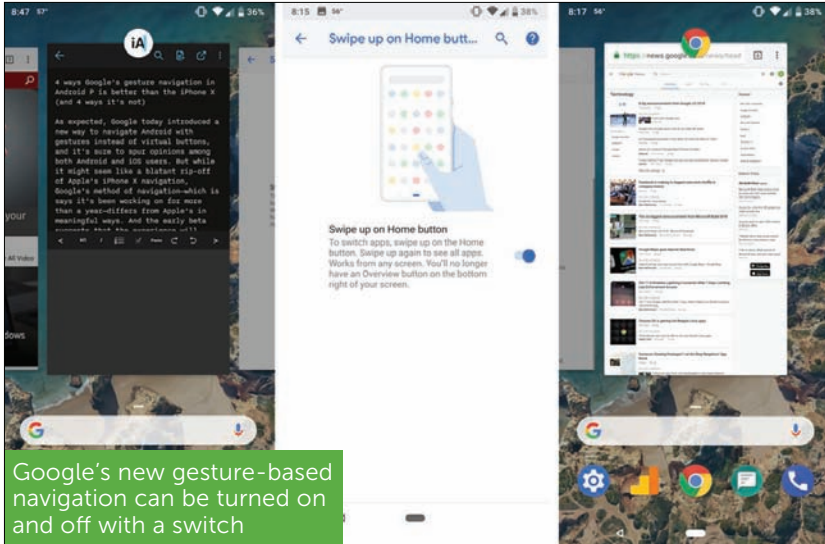
The biggest difference between the gesture navigation in iOS 11 and Android P is that Google is letting you switch it on and off. Head over to the new Gestures menu in Settings and you’ll find a Swipe up on Home Button toggle that will enable the new system, elongating the home button and removing the square tasks button. Don’t like it? Just switch it off to go back to the old nav bar.

### **2. The home button is also a scroll bar**

On the iPhone X, the navigation bar is little more than a line at the bottom of the screen that Apple calls a “home indicator”. But on Android it’s still a virtual button. That means you can still long-press it to bring up Google Assistant, but it also has a new trick: scrolling. Swipe to the left or right on the new home button, and you’ll instantly be taken to the app carousel, where you can scroll to select an app. It’s super-easy and actually makes it quicker to jump back and forth between apps.

### **3. You can grab text in the app switcher**

When you swipe up to enter the app switcher on Android P, you’re not just looking at visual snapshots of the apps you recently used – they are actually



Google's new gesture-based navigation can be turned on and off with a switch

dynamic images that you can interact with. Like the iPhone X, you can swipe up on one of the screens to quit it, but you can also long press inside them to select text. From here, you can move the handles to select the words you want, and copy, search, or translate what's between them, all without opening the app.

**4. Smart shortcuts make switching faster**

When you swipe up to enter the multitasking carousel in Android P, you won't just get a scrollable set of your most recent screens. You'll also see shortcuts to five predictive apps curated using Google's on-device machine learning. Apple does something similar with its Siri suggestions on the Spotlight search screen, but it's much handier on Android P.



# Moto G6 Play

£169 inc VAT from [fave.co/2lbusST](https://fave.co/2lbusST) ★★★★★

**T**he Moto G6 Play is a sleek budget phone that costs just £169. It is an outstanding cheap phone in 2018 that in no way feels like one despite costing less than the Moto G6 and G6 Plus.

While those two handsets have better specifications, the G6 Play has charmed us right out

the box. It is well designed, sleek yet sturdy and a decent performer considering the low-end spec sheet.

Here's our review explaining why the Moto G6 Play is such a good deal.

## Design

While the G6 and G6 Plus look pretty much identical, the Moto G6 Play has a slightly different design. You can tell it's part of the same range of phones, but the Play has a few quirks that make it stand out.

For starters, the fingerprint scanner is on the back and has the Motorola logo on it. You might prefer the placement compared to the front-mounted G6 and G6 Plus, but that's entirely down to personal preference.

At first glance you'd think Motorola had removed its headphone jack, but actually it's moved it from its position next to the USB port on the G6 and G6 Play to the top of the device. Another change here is that this port is Micro-USB rather than USB-C, which is a shame considering its an older standard, but understandable considering the price.

While the more expensive G6 models have a sleek 3D glass rear cover, the G6 Play is plastic. It still looks and feels good though, and actually the plastic cover helps in terms of grip. The other thing missing here is a p2i water-repellent coating





(in the UK at least), so you'll have to be a little more careful with it around water, but we used it in the rain and it came out unscathed.

The G6 Play is a bit chunkier than most phones at 9mm and weighs a reasonable 175g. These aren't huge differences to the other G6 phones, though and the bulk and weight actually help to make it feel more premium – but if you want a slim, sleek phone this is not it. Our review unit is an attractive hue though somewhat a fingerprint magnet. But the way it reflects light is very cool for a budget phone and helps it to stand out, along with its circular camera module.

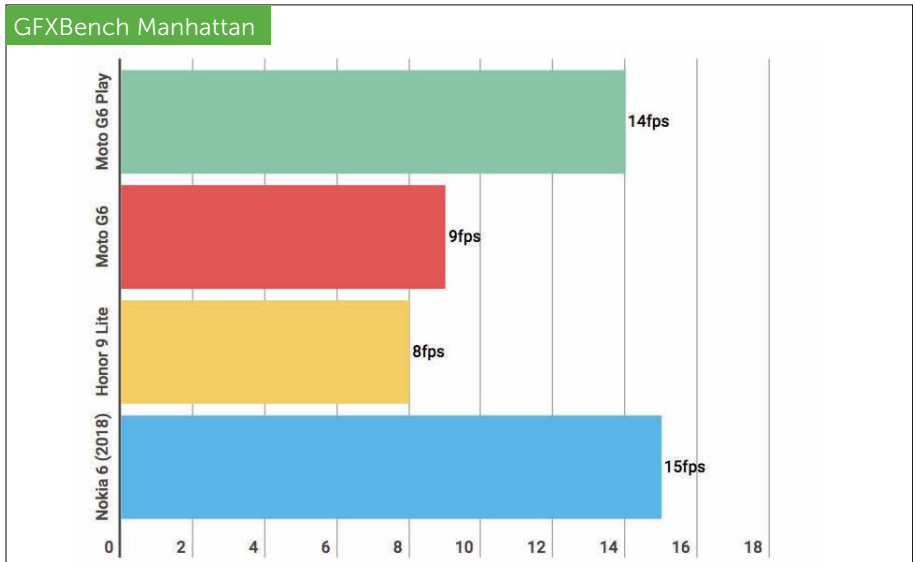
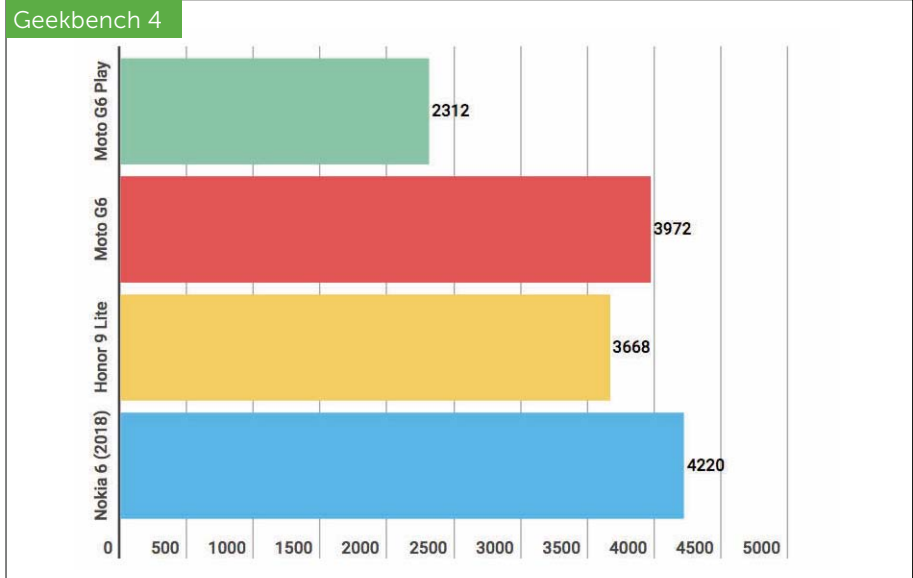
## Display

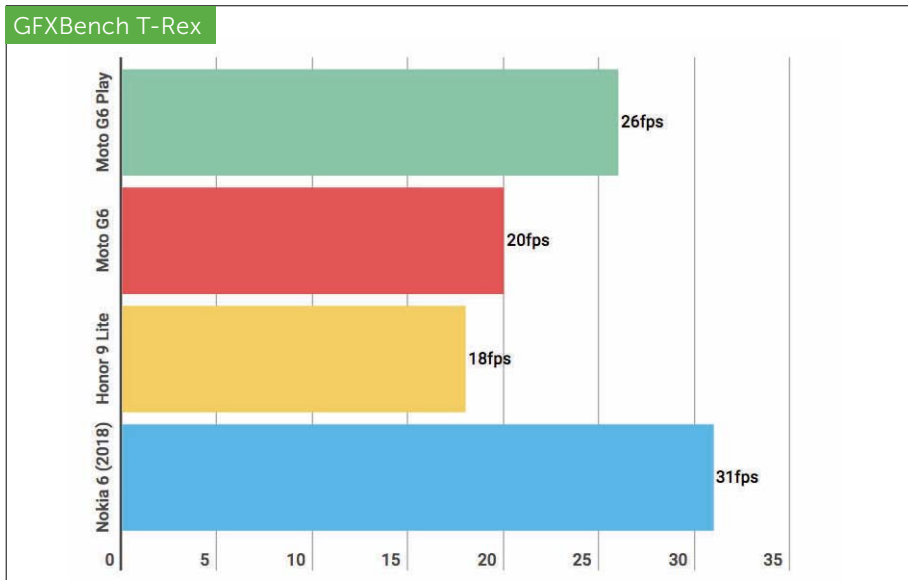
The G6 Play's screen is a 5.7in 18:9 LCD, but not a Full HD resolution at 1440x720p. We still really liked using the phone, and the lower resolution of the display in comparison to the G6 and G6 Plus isn't an issue in our eyes. It can deal with colour reproduction well in standard mode, but has the option to change to vibrant to boost the saturation. The display is more than sufficient at this price, and this is one of the cheapest 18:9 phones we've seen, and Netflix on the bus was no trouble at all.

## Processor, memory and storage

It's impressive to see the G6 Play has 3GB of RAM and 32GB of storage, which matches the entry configuration of the regular G6. However, the processor drops from a Qualcomm Snapdragon 450 to a 430. The lower-grade chip means performance isn't as good, and in a tangible way, though we found

REVIEW





the phone perfectly serviceable as our main phone for several days. Multi-tasking is a tad slow at times and the camera app lags, but for calls, texts, social media, email and even Spotify to Bluetooth headphones, the G6 Play is surprisingly excellent.

As our benchmarks shows, the G6 Play holds its own against phones of the same price and specs. It performs faster in frames per second tests than the G6 due to its lower resolution screen – but in fact, you won't notice any difference in use between any of these four phones.

### Connectivity and audio

As is standard on lower-end phones, there is Bluetooth 4.2 for connecting to accessories such as

## REVIEW

speakers, but with the absence of the aptX standard, audio quality to wireless headphones is noticeably patchy. If you want to use the speaker, it's a front port deal and gets quite loud, but is only suited to talk radio or podcast playback – and a quiet solo Netflix session at a push.

## Cameras

Motorola has given the G6 Play a 13Mp camera, but there's no secondary lens. There's phase detection autofocus and an f/2.0 aperture, and the results are just about social media-acceptable, but it is obviously not a standout shooter.

The G6 Play's camera is decent for a budget camera



Note how it can capture the sky well in some shots, but it becomes blown out in others. The level of detail captured for a budget phone is pretty decent, though.

Video is limited to 1080p at 30fps, though the phone can still record slow motion. The front camera is 8Mp like the other G6 models but, again, has fewer features here and is passable at best.

### **Battery life**

Although most areas are downgrades, the Play offers a much higher-capacity battery than both the other G6 phones. It's a whopping 4,000mAh, compared to the 3,000- and 3,200mAh G6 and G6 Plus.

The level of detail captured for a budget phone is pretty decent



## REVIEW

Motorola says this means you can get 32 hours usage from the device, which sounds amazing – and more importantly we found to be true in real world use. The G6 Play lasted for over two days of use before hitting anywhere near 10 percent battery, which is impressive on a modern (if low-end) smartphone.

It also benefits from Turbo Charging: you can get six hours of life from a 15-minute charge and in our tests, it charged from 0- to 33 percent in half an hour.

## Software

Overall, the experience on the G6 Play is solid thanks to Moti's uncluttered Android skin that barely changes anything from stock. Notably, there are fewer camera features on the phone compared to the G6 and G6 Plus thanks to the lack of dual rear cameras.

You still get Android 8.0 Oreo with a stock interface – it's very much the experience you get on Google's own Pixel devices bar a few aesthetic changes. That means Android as it's intended, with no bloatware to take up valuable storage, important when you only have 32GB (although it is expandable).

Motorola does add its own Moto app, which contains helpful things such as actions and things you can do with the display. The G6 Play doesn't have Moto Voice, though.

## Verdict

The Moto G6 Play is a great little surprise of a phone. It holds its own next to the other two G6 phones and has better battery life (and a cooler fingerprint sensor). The 18:9 display and premium (but plastic)

design means it feels just as well-made as phones double the price but doesn't compromise on performance to do so. With a headphone jack as a plus, a minus is Micro-USB but we'll forgive that on its strengths and can recommend the G6 Play as one of the best budget phones of 2018. **Chris Martin and Henry Burrell**

## Specifications

- 5.7in (1440x720, 282ppi) IPS LCD capacitive display
- Android 8.0 Oreo
- Qualcomm MSM8937 Snapdragon 430 processor
- Octa-core 1.4GHz Cortex-A53 CPU
- Adreno 505 GPU
- 2/3GB RAM
- 16/32B storage, microSD up to 256GB
- Iris/fingerprint scanner
- 13Mp rear-facing camera: f/2.0, 1.12µm, phase detection autofocus, LED flash
- 8Mp front-facing camera: LED flash, 1080p
- 802.11b/g/n Wi-Fi
- Bluetooth 5.2
- A-GPS, GLONASS, BDS
- Micro-USB 2.0
- Non-removable lithium-ion 4,000mAh battery
- 154.4x72.2x9mm
- 175g





# Sony Xperia XZ2

£699 inc VAT from [fave.co/2Hg3E6q](https://fave.co/2Hg3E6q) ★★★★★☆

Sony's Xperia XZ2 range is the firm's first phone to boast the now-ubiquitous 18:9 aspect ratio on its screen. Read on for our thoughts.

## Design

After years of similar-looking phones, Sony fans (just as much as us) have been crying out for a design revamp for the Xperia line. With the XZ2, they finally have it – sort of.

It brings with it a new design language for Sony – dubbed 'Ambient Flow' – and is the firm's first smartphone to have an 18:9 display. Finally, gone are



the giant bezels that sat above and below the display of the XZ1, replaced by slightly less giant bezels above and below the new 5.7in display. Opinions at *Android Advisor* are split as to whether its an improvement, but this is certainly not the sort of all-screen device Sony's biggest rivals are able to offer. It reminds many of us of some old Nokia Lumia phones, which is perhaps not the best thing.

Ambient Flow is about more than the screen, though. It's also about breaking up the straight lines that have dominated recent Sony devices. Instead, the XZ2 has 3D curved glass on both the front and back of the phone – a subtle curvature at the edges of front, a more noticeable bulge on the back.

There are pros and cons to the design, but mostly the former. The curved glass looks stunning when it catches the light, though unsurprisingly it's a fingerprint magnet. It's also one of the most slippery phones we've tested and getting out of a pocket without dropping it feels like an almighty task. The use of Gorilla Glass 5 should reassure buyers that it's tough enough, but even so glass rears are always an extra risk when it comes to drops and scratches.

The rounded design feels good in the hand, though it is comparatively thick and heavy. Figures of 11.1mm and 198g do not sound right for a brand-new 2018 flagship. It might only be thick in the middle, but the rounded back means that the phone is basically impossible to use while resting on a flat surface. It rocks side-to-side like a baby's crib. We wouldn't mind so much if the size and weight meant a huge battery, but that's not the case here.

Beyond that, Sony has moved both the camera and fingerprint sensor to the centre of the phone's rear – and the fingerprint sensor is now always on, so is quicker to use than before. Previously, it was mounted in the power button on the side. Although it's faster, we prefer the old method. The natural way to hold the XZ2 means your finger rests on the camera lens, not the scanner. It's far too low down the phone, as is the power button on the side.

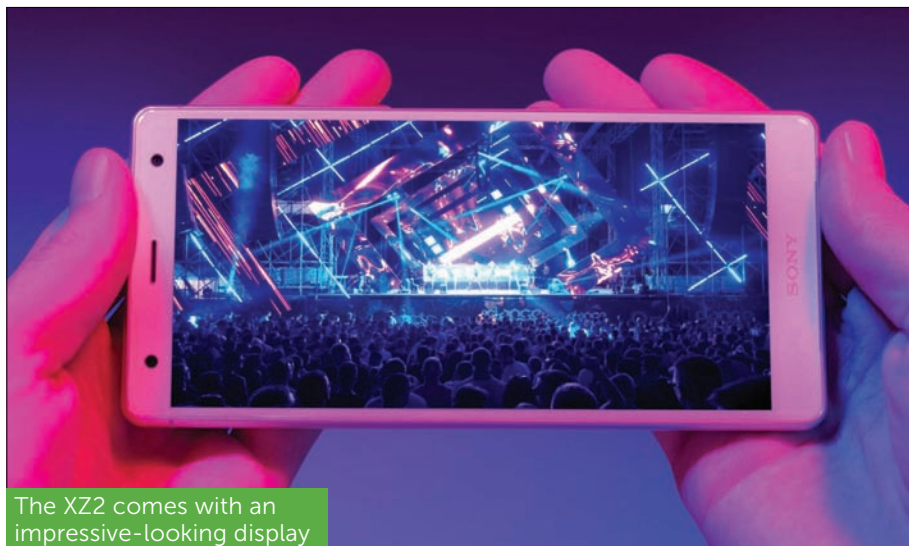
You'll get the IP65/68 waterproofing we've all come to expect from Sony. However, the firm has sadly, and shockingly, finally given in and joined the most of the industry in dropping the 3.5mm headphone jack, so it's USB-C or Bluetooth only when it comes to audio.

The XZ2 will launch in a selection of four colours (with the usual colour-coded UI to match): Liquid Black, Liquid Silver, Petrol Blue, and Ash Pink.

## Display

As mentioned, the XZ2 is Sony's first phone with an 18:9 display. The firm is playing catch-up here and the change means the display has jumped from 5.2- to 5.7in, a more average size for a 2018 flagship. If you want a smaller phone, then Sony has the XZ2 Compact and we're glad that it is still making 'mini' versions for those that still want one.

The new 5.7in screen comes at the cost of chunky dimensions though, as the XZ2 has a screen-to-body ratio of 76 percent, a fair amount short of the Galaxy S9's 83 percent. Those bezels are still holding the design back. We are glad Sony hasn't gone down the



The XZ2 comes with an impressive-looking display

iPhone X route and introduced a notch, though. The screen's Full HD+ resolution of 2160x1080 isn't the highest we've seen, but it's more than enough for a sharp-looking image at 424ppi. It's also very bright with a maximum of 535cd/m<sup>2</sup>.

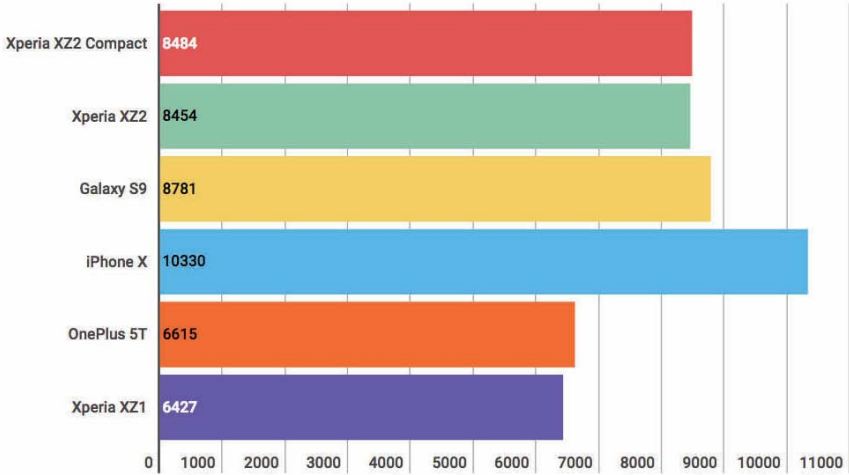
There are improvements as Sony has borrowed HDR upscaling tech from its Bravia TVs, so that the XZ2 can take any video content – either local to the device or streamed – and upgrade it to HDR as you're watching it, with results that are impressive.

### **Processor, memory and storage**

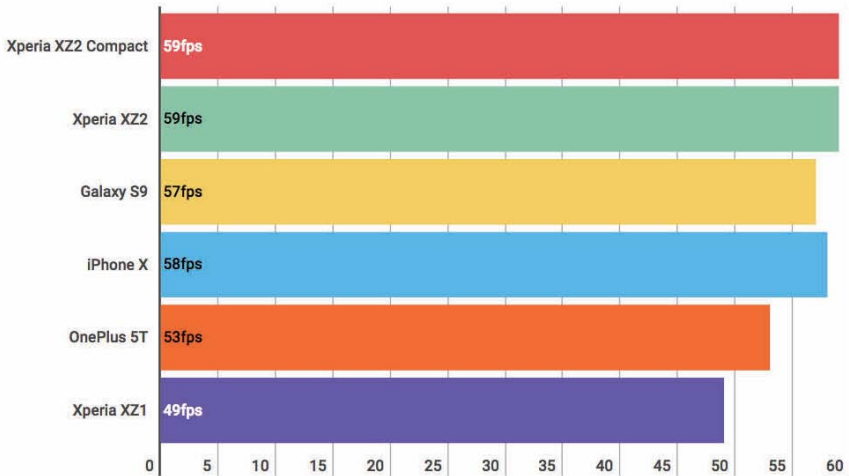
Unsurprisingly, the XZ2 is powered by Qualcomm's new Snapdragon 845, which we're likely to see in most major Android flagships this year. Here it's paired with 4GB of RAM and a typical 64GB of on-board storage.

REVIEW

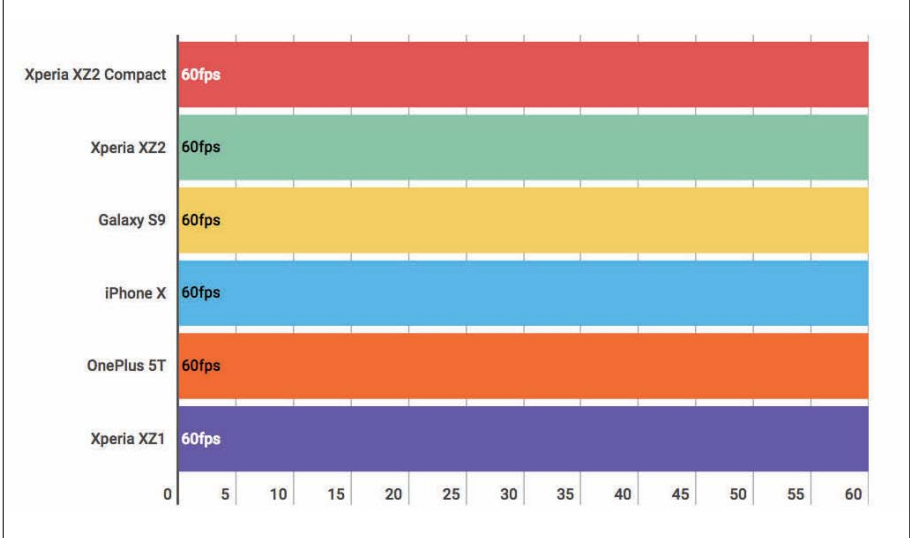
Geekbench 4



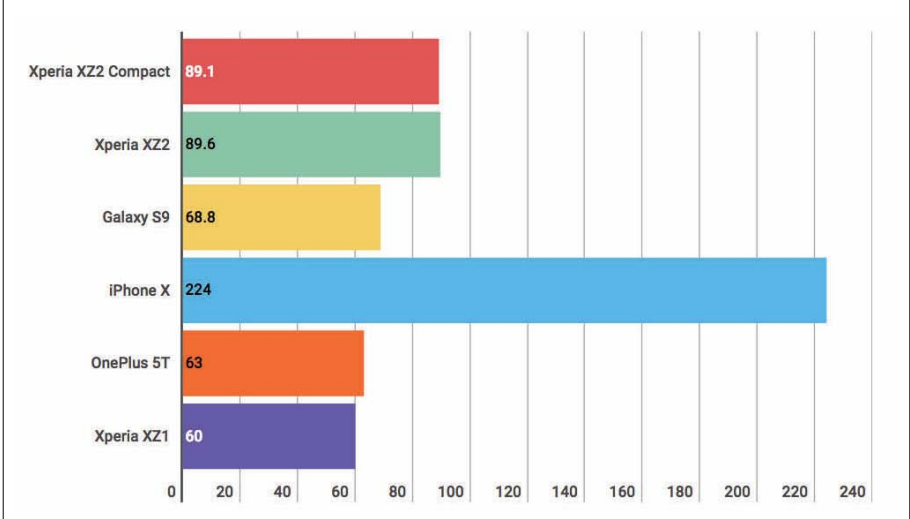
GFXBench Manhattan



GFXBench T-Rex



JetStream



Although some rivals have more memory and storage, this should still be enough for most users. The inclusion of a microSD card slot for adding up to 400GB more helps and the feature is becoming more rare. Performance isn't something to worry about with a flagship phone, and hasn't been for some time. As our test results show, the XZ2 keeps pace with the Galaxy S9 across the board and we've not had any issues. You should really base your decision on other elements. It's worth noting that the XZ2 Compact offers the same core specifications at a lower price if you don't mind the smaller screen.

## Audio

The front-facing stereo speakers are now 20 percent louder, with a slightly improved frequency range to match – and there's still support for High Resolution audio. They are decent, but we're hugely disappointed to see Sony, a company that prides itself on audio, ditch the headphone jack – especially when the phone is easily thick enough to house one. A USB-C to 3.5mm jack adaptor is included in the box, but this is a small consolation. You'll need it for the supplied headphones as they are not USB-C.

Instead of a useful port, you get a new 'Dynamic Vibration System', borrowed from the PS4's DualShock 4 controllers. In essence, it's force feedback that uses the vibration motor inside the phone. You select different levels of power by tapping a volume button and using the slider.

The system analyses audio from music, video, or games and vibrates the phone to match the audio.

It's a bit of a gimmick, doesn't work with every app and you need to be holding the phone but works reasonably well – especially for film trailers.

## Cameras

Thanks to an exclusive image processor developed together with Qualcomm, Sony promises that the camera in the XZ2 has reduced noise, better colour reproduction, and improved contrast when compared to the XZ1.

Despite rivals having two or even three rear cameras, such as the Huawei P20 Pro we looked at in the previous issue, the XZ2 has a lone 19Mp camera and there's no optical image stabilization. Also, the camera can't take images in portrait mode.

The blurred background bokeh effect is one of the big selling points of dual-lens cameras for most,



The XZ2's can't take pictures in portrait mode

REVIEW

and the XZ2 doesn't offer an alternative – there's not even a software portrait effect built into the main camera app, despite Google proving it can be done to great effect in the Pixel 2.

Features such as predictive capture – which automatically detects motion or smiles – and autofocus burst are handy. We also like that Sony still offers a dedicated two-stage button on the side for photography. The combined phase detection and laser autofocus is speedy, too.

Overall, the camera is decent enough but can't stand up to rivals at similar or even lower prices. You can see samples below and opposite that show the XZ2 is good in low light despite the f/2.0 aperture being a way off rivals, but often the images look better on the phone than on a PC monitor. For example, in the macro shot we thought we'd got the buds on the





plant nicely in focus and sharp, but later inspection revealed that it's a little off. It's a bit disappointing from Sony, which supplies cameras for rival phones.

If you're just after general snaps for social media, then the XZ2 is easily good enough. If, however, you're serious about phone photography, then rivals such as Samsung's Galaxy S9 and Apple's iPhone X are better.

Perhaps more importantly, this is also the first smartphone from any manufacturer capable of recording 4K HDR video footage, while the 960fps super slow motion that Sony pioneered will now be available up to 1080p, compared to the previous cap of 720p. Those are some nice video upgrades, which might swing it for those serious about shooting films.

However, the super slow motion in Full HD means a shorter burst of the high frame rate, even if you can fit more in the frame. It's also still difficult to



Close-up shot

## REVIEW

hit the button at the right time for things that aren't happening continuously, Samsung's new motion detect feature is much better.

Sony's 3D scanning tech has been added to the selfie camera, so you don't even need a friend to help you use it any more.

## Battery life

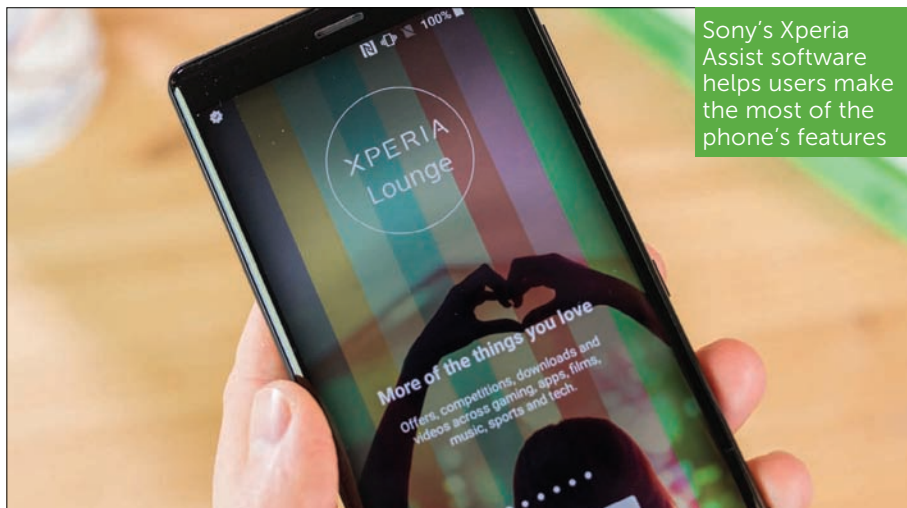
As mentioned earlier, the XZ2 doesn't have a huge battery, despite its weight and size. It's 3,190mAh, which is only marginally bigger than the Galaxy S9. The Huawei P20 measures just 7.7mm and has a 3,400mAh. Previously, Sony claimed a two-day battery life for its phones, but that seems to be a thing of the past, despite newer and more efficient processors. The company now just claims all-day battery and that's about right unless you're a heavy user.

In our battery test, the XZ2 managed six hours, 46 minutes. That's only slightly more than the Galaxy S9's six hours, 38 minutes. Sony's own lower tier XA2 phones managed eight- to 10 hours in the same benchmark. On the plus side, the XZ2 benefits from Quick Charge 3.0 and Qi wireless charging.

## Software

As you'd expect the phone ships with Android 8.0 Oreo – after all, the XZ1 was the first non-Google phone to pack that version of the operating system – and comes with Sony's usual tweaks and additions.

Not much has changed since the XZ1, so existing Sony users will feel right at home. This sadly means there still too many preloaded apps such as Kobo, AVG



Sony's Xperia Assist software helps users make the most of the phone's features

and various others from Amazon, and while these can be disabled they can't be uninstalled.

Thankfully, Sony makes up for this by providing some of the best own-brand apps on the market, including its own Music player and PlayStation for things such as PS4 Remote Play.

The phone also comes with Xperia Assist software, which is designed to help users make the most of the phone's various features. Whenever an app is opened for the first time, the software uses a chatbot interface to explain the app's new features.

## Verdict

We waited a long time for Sony to bring a new design and although the firm has switched to an 18:9 screen, we're miffed by the chunky and heavy design that has a fingerprint scanner and power button in awkward

## REVIEW

places. And dropped the headphone jack. The core specs are perfectly good but that's no longer a differentiator in the smartphone market. Consumers look for amazing photography and other nifty features, which are lacking here. The XZ2 Compact makes for a decent choice with the same core specifications in a smaller phone at a lower price, but otherwise flagships such as the Galaxy S9, Apple's iPhone X and Huawei P20 are better. **Chris Martin**

## Specifications

- 5.6in (2,160x1,080, 424ppi) IPS LCD capacitive display
- Android 8.0 Oreo
- Qualcomm MSM8998 Snapdragon 845 processor
- Octa-core 4x 2.7GHz Kryo 385 Gold and 4x 1.7GHz Kryo 385 Silver CPU
- Adreno 630 GPU
- 6GB RAM
- 64GB storage, microSD up to 400GB
- Fingerprint scanner
- 19Mp rear-facing camera: f/2.0, 25mm, 1/2.3in, 1.22µm, gyro EIS, predictive phase detection and laser autofocus, LED flash
- 5Mp front-facing camera: f/2.2, 1/5in, 1080p
- 802.11ac Wi-Fi
- Bluetooth 5.0
- A-GPS, GLONASS, BDS, GALILEO
- Micro-USB 3.1 Type-C
- Non-removable lithium-ion 3,180mAh battery
- 153x72x11.1mm
- 198g



# Xiaomi Mi Note 3

£267 inc VAT from [fave.co/2jO6mTE](https://fave.co/2jO6mTE) ★★★★★

**A** larger version of the company's flagship Mi6, the Xiaomi Mi Note 3 is a gorgeous smartphone that comes at an affordable price. More affordable, in fact, and that's largely because it offers slower performance. But while the company has downgraded the Mi6's processor, it has increased the screen size and battery capacity, and upgraded the selfie camera.

## Design

Successor to the Mi Note 2, the Mi Note 3 is practically indistinguishable from the Mi6, simply adding a larger screen (only slightly larger, mind, at 5.5in vs 5.15in), and losing the glossy coating around the edge due to its 7000 series aluminium frame. A little bit of extra weight, in part due to the higher-capacity 3,500mAh battery, makes it feel more substantial in the hand.

We're not complaining: the Mi6 is a very good-looking phone, if lacking the futuristic bezel-less design of the Mi Mix. We'd like to see a taller, thinner display built into the Mi Note 4, but for now thanks to its gently curved rear edges and slim side bezels the Mi Note 3 is just about manageable in a single hand – particularly if you make use of MIUI's One-handed mode.



The screen might be only Full-HD in resolution (Xiaomi has yet to implement anything higher in any of its phones), but it's an excellent example of IPS tech (yep, that's IPS and not OLED as we saw previously). Bright, clear and vibrant, with fantastic viewing angles and decent contrast. This display is actually smaller than we saw on the Mi Note 2, which had a 5.7in panel, and it lacks the curved edges on top that made it look much like a Samsung Galaxy copycat.

As is becoming increasingly common with premium smartphones, the Mi Note 3 adopts a glass finish front and rear. Its glossy surface feels ultra-smooth in the hand, and though our black sample is peppered with fingerprints it really looks the part.

The premium feeling is aided by the dual-camera visible at the rear, the same one as found on the Mi6 and, pleasingly, lying completely flush. The Mi Note 3 might be larger than the Mi6 but it's still just 7.6mm thick, and weighs around 163g.

We're still not incredibly keen on the under-glass Home button, which integrates a fingerprint scanner but looks a little like the button itself fell off. (When we say under-glass we do not mean that it is integrated to the screen, as is rumoured for the imminent Xiaomi Mi7.)

We're pleased to see Xiaomi has retained its IR blaster at the top edge – these are still popular but increasingly rare – but the 3.5mm headphone jack is gone, instead reliant on USB-C audio. This sits at the bottom with speaker grilles either side, though just the one speaker inside (the Mi6 has stereo speakers). Along the edges you'll find power, volume and a

dual-SIM slot-loading tray. Unlike some of Xiaomi's more recent smartphones the Mi Note 3 does not support wireless charging. However the battery is Quick Charge 3.0-compatible, which takes the hassle out of recharging. It's higher in capacity than the Mi6's 3,350mAh battery, though down on the previous Mi Note 2's 4,070mAh.

## Performance

The Mi Note 3 is a capable phone for all users, but it's no longer a flagship. Whereas we saw the Snapdragon 821 in its predecessor, and the 835 in the Mi6 (both were the top Qualcomm chips available at launch), this new model has a mid-range Snapdragon 660 running at 2.2GHz inside. It's reflected in the price, but disappointing if you simply wanted a large-screen version of the company's flagship.

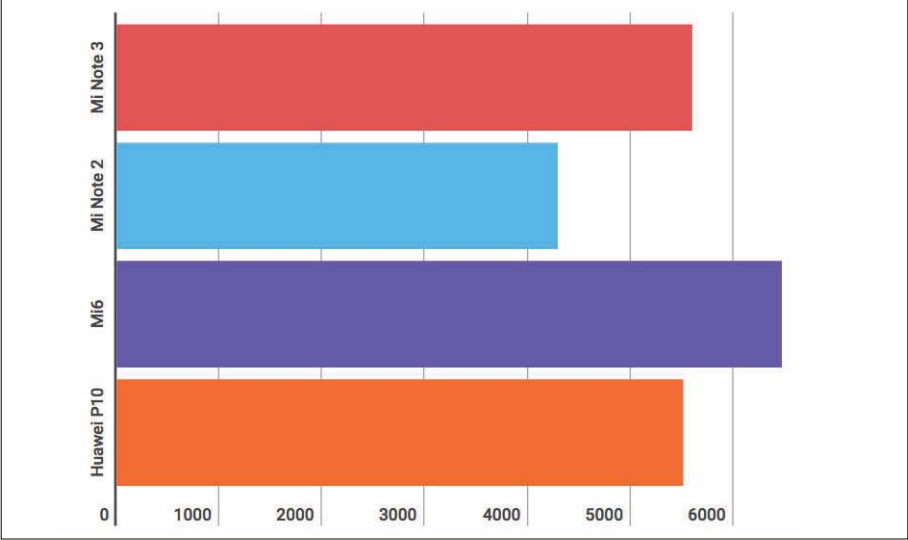
That processor is combined with the Adreno 512 GPU, 6GB of RAM and 64GB of storage in our review sample, though 128GB is available. There's no microSD support, so if you think you'll be taking a lot of photos and videos and storing a lot of apps and games, go for the higher-capacity option.

Performance is still very good, if not quite flagship level, and the Mi Note 3 is also capable of playing the latest games. Once you're familiar with the software you shouldn't find any navigation bottlenecks, and in our testing the MIUI OS offers a fluid experience.

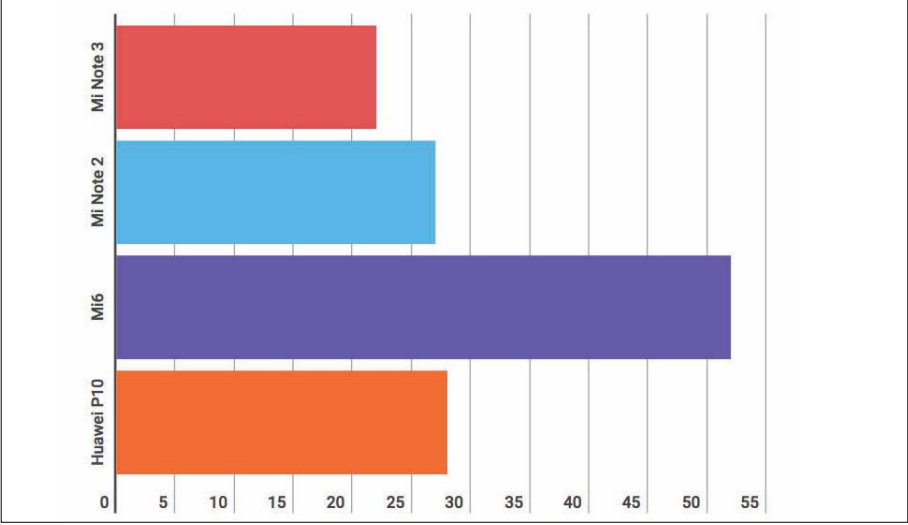
We ran the Mi Note 3 through our usual benchmarks and unsurprisingly found lower performance than the Mi Note 2 and Mi6. Performance is just a little short of last year's Huawei P10, and



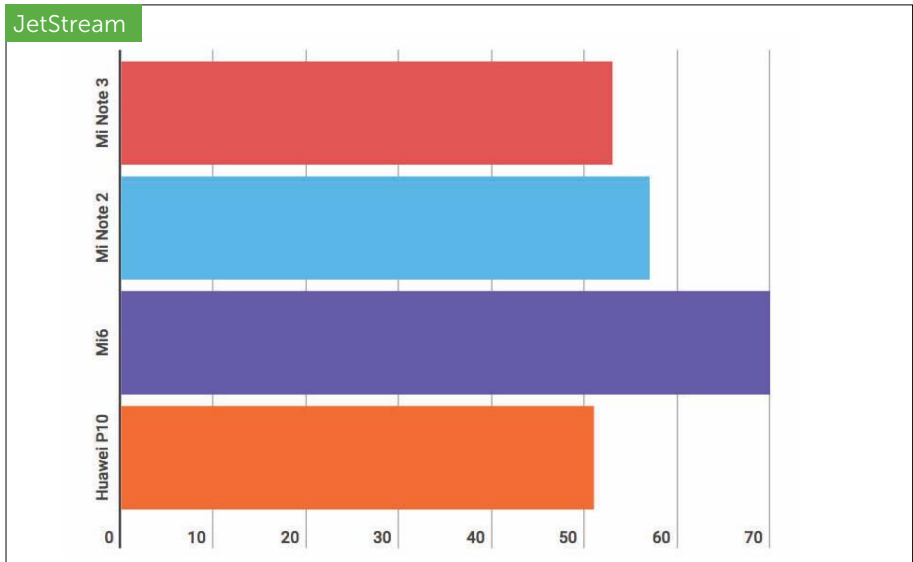
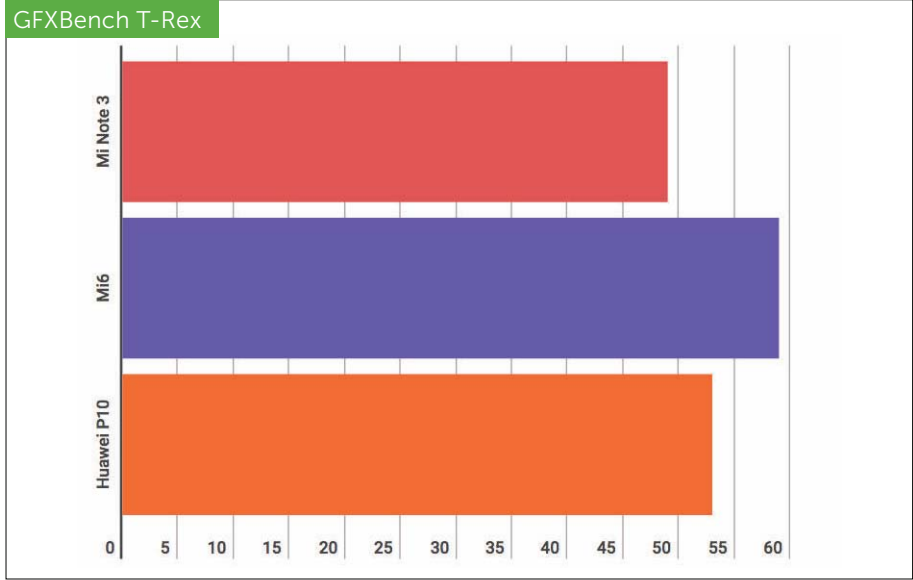
Geekbench 4



GFXBench Manhattan



REVIEW



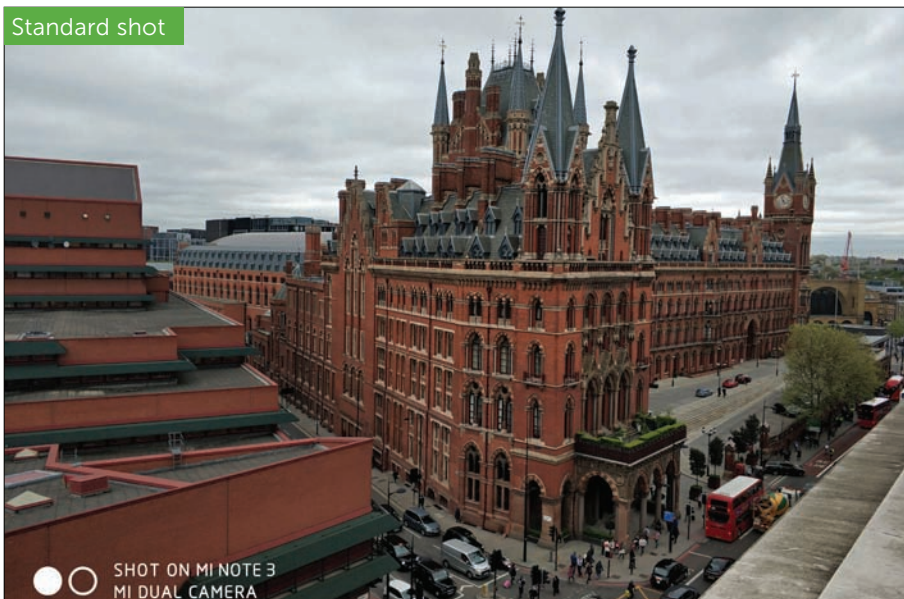
though we haven't tested it we'd expect the Oppo R11 that runs the same hardware to be at a similar level.

Connectivity is pretty good, with dual-SIM dual-standby functionality, Bluetooth 5.0, 802.11ac Wi-Fi, NFC and GPS. There's also the aforementioned fingerprint scanner, but no microSD support or 3.5mm headphone jack.

## Cameras

The Mi Note 3 uses the same dual-camera as the Mi6, and suffice to say we were pretty impressed with that one. There's a 12Mp, f/1.8 wide-angle lens and a second 12Mp f/2.6 telephoto lens, paired with a dual-LED flash. Key specs include a 10x digital zoom, 2x optical zoom, four-axis OIS and PDAF.

Standard shot



REVIEW



It can also shoot stable, high-quality 4K video, and offers various shooting modes and real-time filters. After the photo is taken there are also some decent editing tools. As with the Mi6, we found images to be well exposed and offering realistic colours, with good detail levels – it could pick out individual bricks on a building the other side of Euston Road. Some noise is present, but overall the clarity is good.



With HDR mode turned on an otherwise gloomy day suddenly gets a boost, with the Note 3 doing a good job of lightening the shadows without losing any detail.

Low Light performance is excellent. The Mi Note 3 is able to clearly light up the scene, differentiate between shades of black, and produce readable text. While it's the same primary camera as we find on the Mi6, the front camera has been upgraded to a 16Mp lens. This is a very capable phone for taking selfies.

## Software

We touched earlier on the fact the Xiaomi runs MIUI 9.5 rather than standard Android. This is based on Oreo, but looks like quite a departure thanks to the lack of preinstalled Google Play services and alternative apps for many of those you will be familiar with. The app tray has also been removed and the Settings menu rearranged.

Just because MIUI is unfamiliar does not mean it's no good, of course. It has some useful features such as Dual Apps, Second Space, App lock, Quick ball and One-handed mode. Plus you can install Google Play and the Google launcher, then set it up how you like.

## Verdict

The Mi Note 3 is a downgrade on the Mi6 and, arguably, the Mi Note 2, but it appeals with a lower price and an attractive premium design. Though it doesn't feature a flagship processor, this is a very capable smartphone with a very decent dual-camera. Provided you can live without 800MHz 4G and are

happy to install Google Play Services yourself, it's difficult not to recommend the Mi Note 3. **Marie Black**

## Specifications

- 5.5in Full-HD (1920x1080) 16:9 IPS display
- MIUI 9.5 (Android Oreo)
- 2.2GHz Qualcomm Snapdragon 660
- Adreno 512
- 6GB RAM
- 64GB storage (128GB available)
- No microSD support
- 802.11ac Wi-Fi
- 4G FDD-LTE B1/B3/B5/B7/B8
- Dual-SIM dual-standby
- Bluetooth 5.0
- NFC
- GPS
- GLONASS
- USB-C
- Fingerprint scanner
- 12Mp dual-camera, dual-LED flash, 4K video
- 16Mp selfie camera
- 3,500mAh battery
- Quick Charge 3.0
- 152.6x73.95x7.6mm
- 163g



# Ticwatch Sport

£179 inc VAT from [fave.co/2lx1KiG](https://fave.co/2lx1KiG) ★★★★★

The Ticwatch Sport, also known as the Ticwatch S, is the latest offering from the Chinese company Mobvoi. As the name suggests it's a fitness-focused smartwatch, and a fairly high-end one at that: it features GPS, impressive water resistance and an always-on display. Yet the price is a lot more manageable than even the entry-level Apple Watch.

In this article we discuss the Ticwatch Sport's design, build quality, features and specs, and outline its

REVIEW

performance in testing. We'll help you decide if this is the fitness watch for you.

**Design**

The watch is made of matt-finish polycarbonate and feels pleasant on the wrist, as well as capable of absorbing plenty of punishment. It's rated IP67 water- and dust-resistant, which translates to dust-tight and protected against liquid immersion up to 1m, although the manufacturer does not recommend swimming with it.

Weight-wise it would sit somewhere towards the upper end of the Apple Watch range (45.5g; only the larger stainless steel and ceramic editions of the Series 3 weigh more) but that still leaves it in the 'comfortably lightweight' zone; indeed for part of the testing period we wore the Ticwatch and the Apple Watch at the same time on the same wrist without being especially inconvenienced, even though in fashion terms we don't recommend this look.

Note that the rubbery polyurethane strap (which has integrated GPS) cannot be removed or replaced, so you'll need to make sure you pick the right colour initially. If you'd prefer a removable strap, go for the Ticwatch Express variant, which has GPS in the watch body.





## Colour options

The Ticwatch S comes in three colours: black ('Knight'), neon yellow ('Aurora') and white ('Glacier'). Black is probably the safest choice but you can get away with gaudier colours in gym/sporty settings and we're rather fond of the yellow. We suspect, however – based on similar materials and colours on other manufacturers' watches – that this and the white option will both start to look grubby after a few months of use.

## Interface

When you jog, tap or rotate the Ticwatch it wakes up and displays the full watch face, but by default – this feature can be disabled to preserve battery – a simpler always-on version is shown at other times.

The watch is based on Google's Wear OS and pairs most naturally with an Android phone (Android 4.3 or later is required.) It's possible to use it, however – albeit with a less optimized experience – with an iPhone running iOS 8 or later.

Having only one button (and no dial) might seem limiting, but the interface manages for the most part to make life simple. The button toggles between the list of apps and the watch face, and you can easily swipe up and down to browse options, tap to select one or swipe left to right to go back one menu tier.

Occasionally the interface is less user-friendly than we'd like – when selecting a new watch face, for example, we paused for just a moment on one particular face and the watch unilaterally decided that this was what we were getting – but it's generally

simple and intuitive. We do like the way recent apps automatically appear at the top of the list for ease of repeat access, although it seems counter-intuitive that they appear below as well; in the photo above you can see the Alarm app twice within the space of four slots.

Speaking of faces, the way watch face customization is handled is odd (albeit standard fare for a Wear OS device). Opening the relevant section of the settings shows only three; if you tap through to add more, you find there are really 19, all accessible without download, hidden in the submenu. You have to select one of these to add it to the higher-tier menu – the ‘favourites’ – and then select again to make it the selection.

You can access even more faces than this, but you have to download them from the Play Store.

## Performance

You get the usual range of Wear OS smartwatch features – music, email and text notifications, Shazam, Google Assistant – but this is primarily a fitness device. (To be fair the company’s website also boasts that the Ticwatch features a vibrator, but we assume this is a translation issue because we couldn’t find one in the box.)

With on-board GPS, which the makers boast is particularly accurate because of its integration into the strap, our expectations were high. But we found the device mildly prone to underestimation: a route that a trusted Apple Watch Series 2 pegged at 3.8km (backed up by Google Maps) was estimated at 3.69km by the Ticwatch. That’s not a bad margin for error, mind you.

Smartwatches and treadmills are not happy bedfellows – they cannot use their GPS and don't know how fast the machine is running – but we gave it a try just to see how it would cope. As expected, the Ticwatch struggled, believing a 5km run was only 3.7km. But you can't expect much better than that without syncing with the machine, or training a smartwatch with your stride length (which takes time and will only improve, not fix, the problem).

For comparison, our well-trained Apple Watch still underestimated the treadmill run but less egregiously: it reckoned we'd done 4.3km.

## Verdict

The Ticwatch Sport has a clean, simple look and feels good, robust and lightweight on the wrist, and the price is decent for a watch with GPS and IP67 water resistance (even if Mobvoi doesn't recommend swimming). However, we're not huge fans of Wear OS in general and its usual interface issues are present here, such as the awkward method of changing faces. And we're not entirely convinced by the accuracy of the tracking, despite the vaunted benefits of integrating GPS into the strap – which can't be changed. A decent fitness watch, but not an outstanding one. **David Price**



## Specifications

- 1.4in (400x400, 287ppi) OLED multi-touch screen
- 1.2GHz dual-core MT2601 processor
- 512MB RAM
- GPS (integrated into watch band)
- Heart-rate monitor
- Proximity sensor
- Accelerometer
- Gyroscope
- E-compass
- Microphone
- Speaker
- 300mAh rechargeable battery – claimed battery life 48 hours
- Bluetooth 4.1
- 802.11 b/g/n
- IP67 water resistance
- 45mm diameter, 13mm thick
- 45.5g



You've gone incognito.

## HOW TO Browse anonymously on Android

MARTYN CASSERLY shows you different apps and settings that can keep you anonymous while surfing the web

**Y**ou might feel secure when using the Internet on your phone, but the truth is that all your activities could be monitored by a number of interested parties. To put a stop to this here are a few different ways to stay anonymous.

### **Is private browsing mode actually private?**

The most obvious place to start is with the web browser you already use. Most offer some kind of

## HOW TO

private or incognito mode, which promise to forget any sites you've visited, but these are not quite as safe as they might sound.

While the searches won't be stored on your device, they will still be visible to your Internet Service Provider, the websites you visit, or your employers if you're using a work connection.

Also, any downloads you make remain in your downloads folder after you've finished browsing, so you'll need to remove those manually.

If you only want to keep things private from other members of your household then the private modes are fine. If you want to keep things private to the parties we've mentioned above then you'll want to use a VPN service as well. We'll cover that below.

To enable the private mode on your browser follow these instructions.

## Chrome

On Chrome you'll find it in the upper right corner with the icon of three dots. Tap this, then select New incognito tab from the menu. The frame of the browser will now be dark and you'll see a little hat and glasses icon in the status bar at the top.

## Edge

In Microsoft's Edge browser you'll need to tap the three dots in the bottom right corner, then select New InPrivate tab from the options that appear.

## Firefox Focus

While the normal Firefox browser has a private mode,

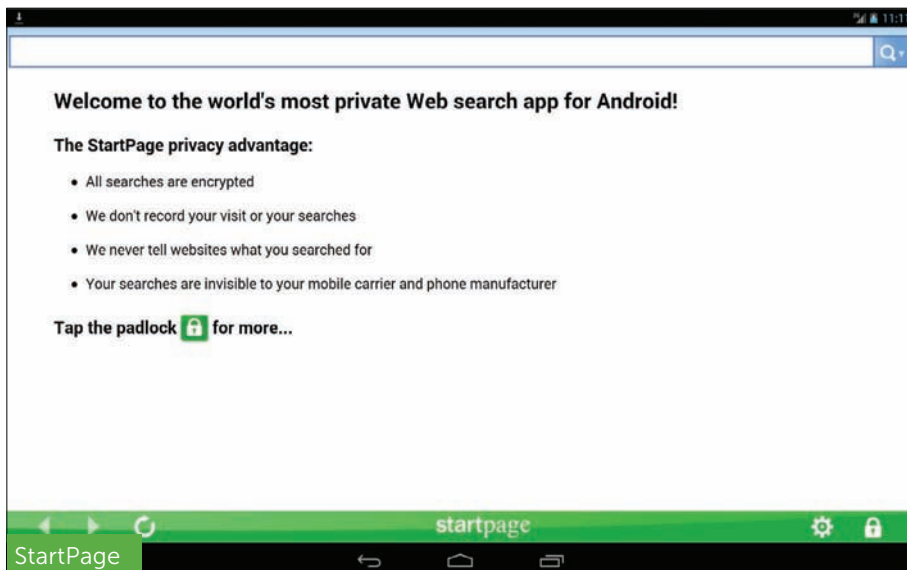
we'd recommend you download a different browser: Firefox Focus, which is permanently in that state.

## Which is the most secure web browser for Android?

While the mainstream offerings have private modes, there are some that are built from the ground up to protect your privacy and anonymity online.

StartPage ([fave.co/2I868kC](https://fave.co/2I868kC)) is one of our favourites, as it boasts a zero-data collection policy that means the browser doesn't store any information about you, including your IP address, which is often how websites know who or where you are.

This is bolstered by SSL encryption so your ISP won't know what you were searching for, and all browsing history is 'scrubbed and anonymized' to



## HOW TO

ensure you are protected. StartPage is completely free and an easy way to curtail any snooping from overly nosey parkers.

Other good options are Orbot: Tor for Android ([fave.co/2l86nMy](https://fave.co/2l86nMy)), which features a built-in VPN, and if you want to stop sites tracking you, then Ghostery ([fave.co/2lbQ01y](https://fave.co/2lbQ01y)) or DuckDuckGo ([fave.co/2lvuesQ](https://fave.co/2lvuesQ)) are fine choices.

## Why you should use a VPN for mobile web browsing

If you don't want to swap browsers, or just want to add even more layers of protection, then a VPN is the way to go. These Virtual Private Networks create a secure, encrypted tunnel through which you connect to the web. This makes it virtually impossible for hackers to see what you're up to.

There are a number of excellent paid services, such as NordVPN ([fave.co/2acnWuW](https://fave.co/2acnWuW)) and ExpressVPN ([fave.co/2vPq5a9](https://fave.co/2vPq5a9)), plus several free options too.

For details on how to use a VPN on an Android device, see our next tutorial.





## HOW TO Set up a VPN

MARTYN CASSERLY reveals how to set up and use a VPN on your Android smartphone or tablet

**V**irtual Private Networks (VPNs) are a useful way to protect yourself from digital snoopers, as well as accessing forms of entertainment previously unavailable in your country.

With most of us now conducting the majority of our online lives via smartphones and tablets, it's good to know that there are a number of VPN apps and

services such as NordVPN and ExpressVPN available for Android. We show you how to get one up and running on your device.

## What is a VPN?

As the name suggests, a Virtual Private Network is a software-based connection between two points which encrypts all data sent and received. People often use VPNs to create 'private tunnels' that allow them to use public Wi-Fi spots, hotel connections, or other potentially unsecure networks without the threat of hackers stealing their information.

Another benefit of VPNs is that they disguise the location of your computer and can make it look like you're logging in from Budapest when you're in fact sitting in a coffee shop in Brixton.

This can be useful in a couple of ways, firstly in that it provides you a level of privacy because it's much harder to track your online activities, and secondarily because it means you can circumvent regional restrictions on services like Netflix.

## Choosing a VPN

Getting a VPN up and running on your Android device is very easy. First of all, you'll need to choose one to download. There two main types of service available – free or subscription based.

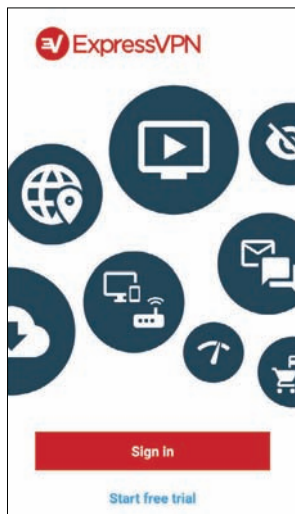
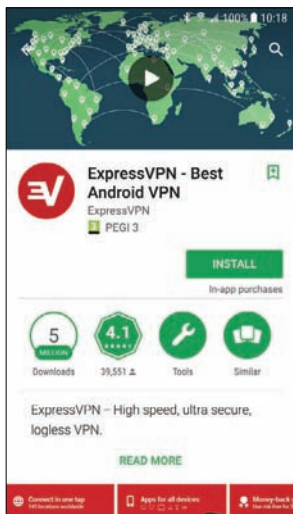
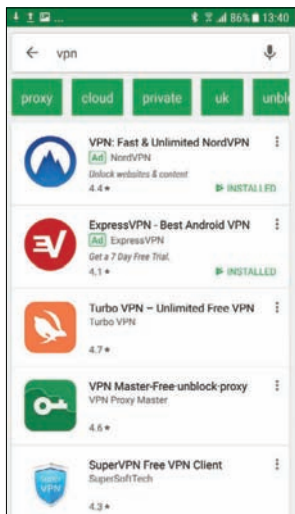
While free might sound more tempting, there are some risks involved where research has found some to be less secure than you might hope. That being said, if you find the right one then it's a good way to get started with Virtual Private Networks.

Our preferred route is that of a paid service. While it might cost you money, we think the security and performance is often better than the free alternatives, plus most of them usually offer trial versions.

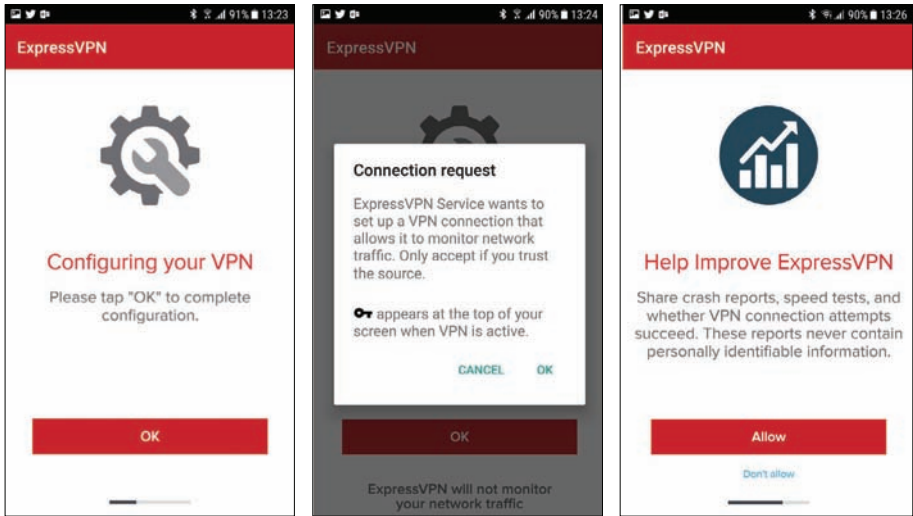
For this article we'll use ExpressVPN ([fave.co/2vPq5a9](https://www.expressvpn.com/2vPq5a9)), but the setup and user experience will be very similar on other VPN apps.

### Setting up the VPN

Go to the Google Play Store and search for ExpressVPN. Download the app and then tap the Open button when the installation process has been completed. You'll need to set up an account, so choose the Free Trial option and enter your details. This will last for 30 days, during which time you have access to all the services on offer. After that you'll need to pay either £9 per month or £70 per year to continue using the app.



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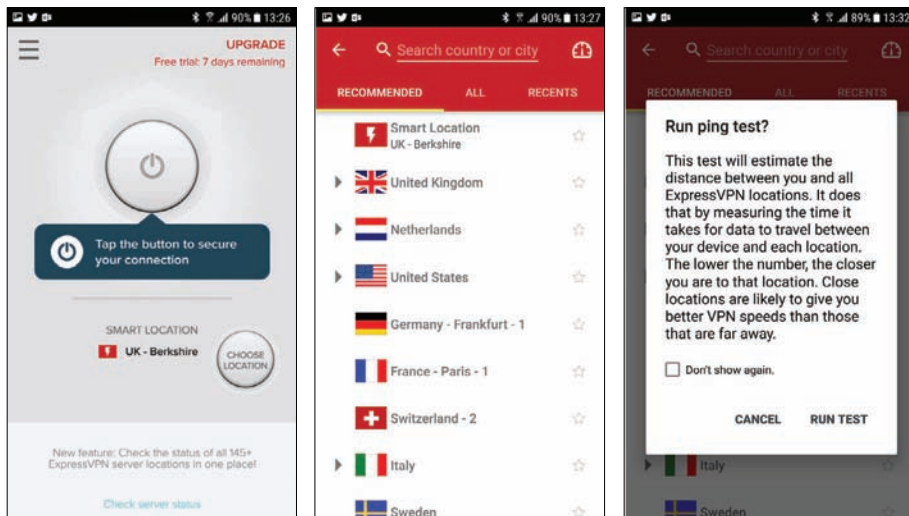
Most paid VPNs cover multiple devices, and in the case of Express VPN you can use the service simultaneously on a combination of three smartphones, tablets, or PCs. You may be asked to configure your VPN, but this only requires tapping the OK button and then agreeing to the Connection request as the process is mostly automated.

A final option is to let the VPN share crash reports and other technical data to the developers. You can tap Allow if you're happy to send this information, but there's also a Don't Allow option just below.

With the account created you can now start your adventures in Virtual Private Networks.

### Using the VPN

There's not a hell of a lot to do when it comes to actually using a VPN on your device, as you tend to set

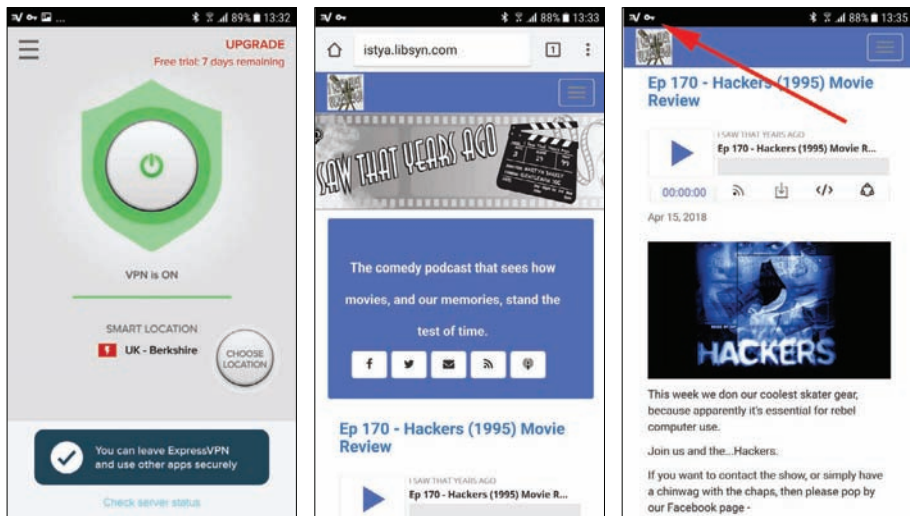


it and forget it. Open the app and you'll be presented with a minimalist layout dominated with a big button in the centre. As you might guess, this turns the VPN on and off. Beneath it you'll find a section stating where your current server is located. This can be changed by tapping on the Choose Location button.

The latter is important if you want to watch things like Netflix from other countries, as you simply select a server based in that location. It's also handy if you find that your connection is slow, as sometimes a particular server can experience problems due to heavy traffic or technical issues.

When you're in the list of servers you can also test how fast the connection is by tapping the speed dial shaped icon in the upper right corner. This opens up the option to test the Ping rate. Essentially this measures how long a signal takes to leave the

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device, reach the server, and then return. It's only really important in things like online gaming where you need instant responses to commands, but for watching videos or general browsing it's not something you'll need to worry about.

Most VPNs will offer a default server, and this will usually be the best available at the time. When you're happy with the choice, tap the On/Off button and the VPN will kick into action.

Now you're free to use your normal browser, in the knowledge that any activities are hidden from prying eyes. In the notification bar you'll see the icon of a key, which represents that the VPN is running and encrypting your connection.

Of course, if you log onto Facebook or YouTube then the sites themselves will know it's you and record your actions, but for surfing and general

online entertainment you're practically anonymous. You might notice a slow-down in the speed of your connection, which is inevitable due to the encryption and rerouting of your data, but hopefully it should be only minimal.

If you do find it too slow, then try switching servers. Otherwise you can restrict the use of the VPN to only certain activities that you want to remain private, or for catching up on Season 3 of *The Expanse*.

When you're finished, go back to the app and tap the On/Off button once more and your handset will revert back to its normal connection.

