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» App reviews » Tips & advice
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20 LOLLIPOP FIXES

» Repair broken Wi-Fi » Fight battery drain
» Stop apps crashing » Bring back silent mode

LG G FLEX 2 REVIEWED

The shape of things to come?

ANDROID M

What to expect from Google I/O and the next big update

SMARTWATCH 3

The first Android Wear watch with built-in GPS

JOIN THE MOD GENERATION

Why you should replace Android with Cyanogenmod12

POWER UP APPS

30 must-have downloads to make everyday tasks faster and easier

XPERIA Z4 vs LG G4

First look at Sony and LG's brand new phones – which is the best?

ip IMAGINE PUBLISHING
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GreatDigitalMags.com
ISSUE 051

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There are now over a thousand watch faces for Android Wear!

Find out how to master your smartwatch on page 10

Welcome

Android Lollipop has been out for five months now. Not only are some phones still waiting for the upgrade, but many of those that have it have been beset by bugs. The most notable of these has been a so-called 'memory leak', which has caused apps to sporadically crash and homescreens to refresh. However, while (at time of writing) Google has yet to solve this problem, there are some workarounds. From page 14 onwards, we'll show you how to fix Lollipop's biggest problems, including this memory leak, boosting battery life and bringing back silent mode.

For a chance to enjoy a Material Design makeover and many of its new features, but without the lengthy wait, fewer kinks and added customisation, many have turned to Cyanogenmod. This custom ROM now has five million users worldwide. Find out why you should join the Mod Generation and flash Cyanogenmod 12, from page 53 onwards.

For all our complaining and clever solutions, our problems with Lollipop could be rendered moot on 28 May. This date will mark the kick-off of the Google I/O conference, where the tech giant always announces the next generation of Android. Find out what to expect from Android M, Android Wear and more from page 20. On 28 May, don't forget to follow our live blog of the main keynote on Twitter – you can even play along with our I/O bingo card on page 25.

Jack Parsons

Jack Parsons
Editor

MEET THE TEAM

What's your favourite app?

Jack Parsons
Editor
Flynx is a clever browser that has changed the way I read the web, loading multiple links at once and with an ad-free reading mode.

Jamie Frier
Staff Writer
It has to be Google Maps. As someone who can get lost on a straight road, it has proved invaluable over the years.

Siobhan Maguire
Production Editor
Instagram is my favourite app as it gives me an insight to all sorts of things around the world, from food to amazing places!

Adam Markiewicz
Senior Designer
As well as designing Android Mag, I moonlight as a musician, so Mobile Metronome is definitely one of my favourites.

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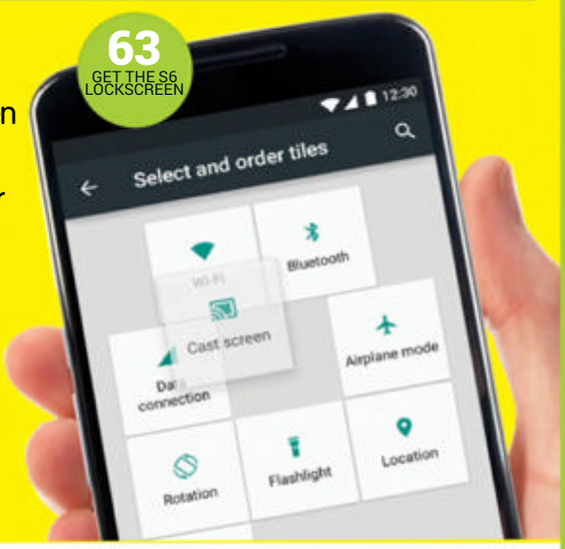

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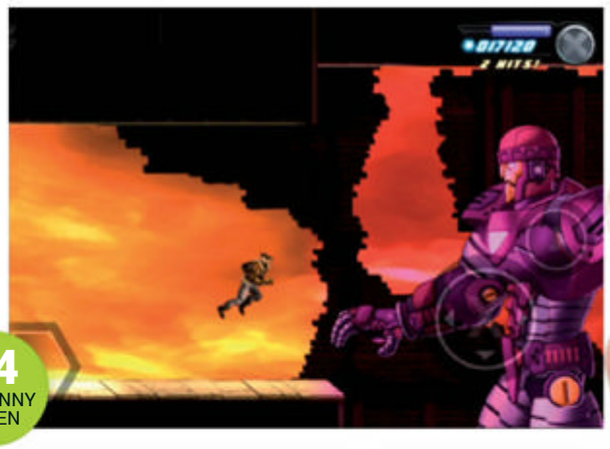

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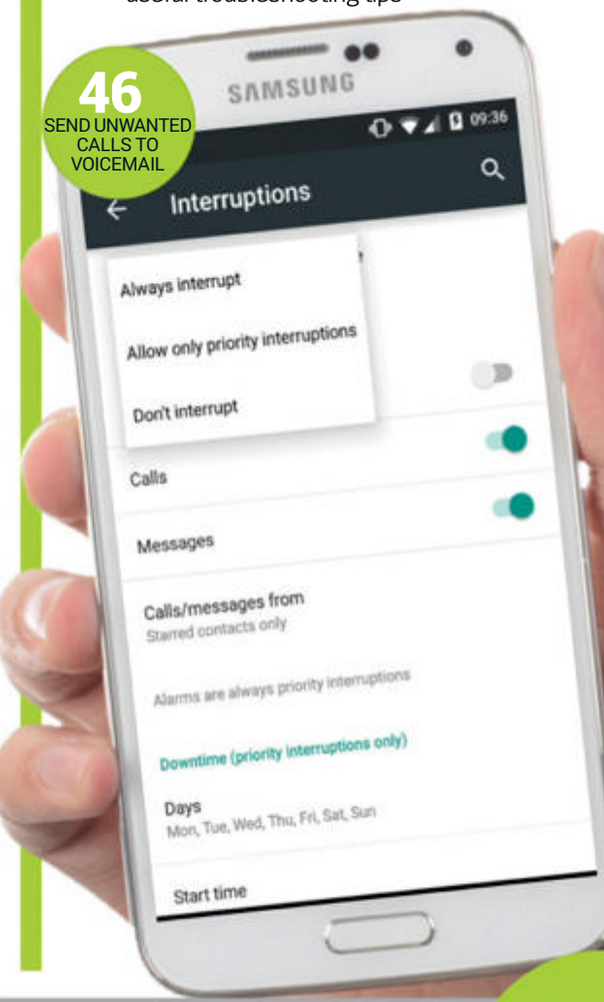

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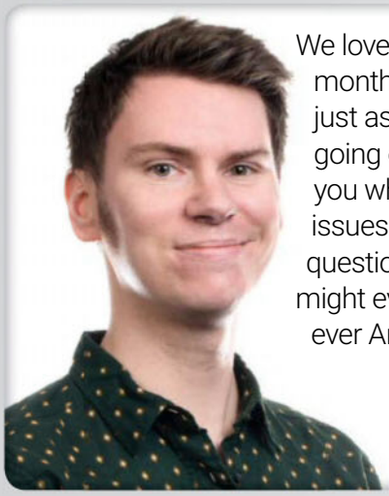
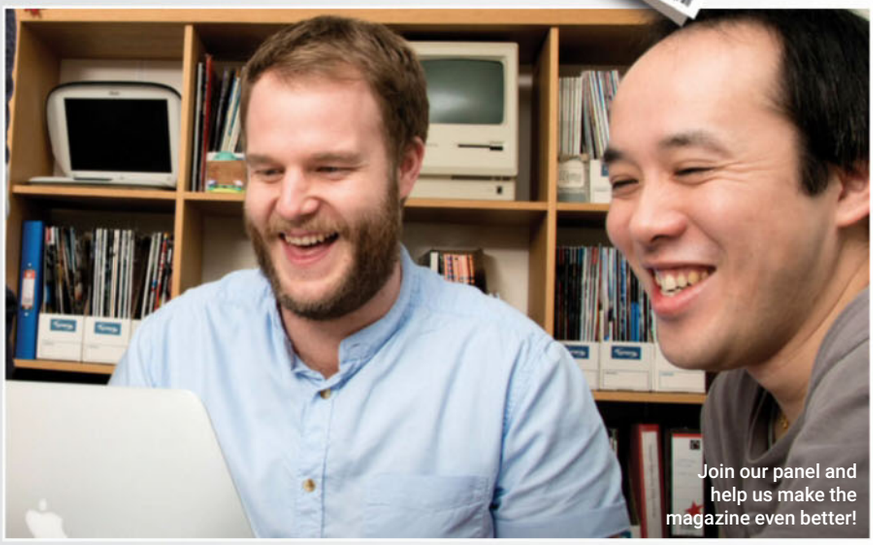


We love writing Android Magazine every month and hope you enjoy reading it just as much. However, this year we're going one step further and want to ask you what you would like to see in future issues. By answering just a few quick questions, you could really help us – you might even be selected to join our first-ever Android Magazine reader panel!

Jack

Jack Parsons
Editor



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Xperia Z4

» More information **www.sony.com**

technical specs

- » Operating system..... **Android 5.0 Lollipop**
- » Processor..... **Qualcomm Snapdragon 810 2.0GHz octa-core**
- » Memory..... **32/64GB storage/ 3GB RAM**
- » Dimensions..... **146 x 72 x 6.9mm**
- » Weight..... **144g**
- » Display size..... **5.2-inch**
- » Display resolution..... **1920x1080 pixels (424ppi)**
- » Front camera..... **5.1MP**
- » Rear camera..... **20.7MP (f/1.2 aperture)**
- » Connectivity..... **3G, 4G, NFC, Bluetooth**
- » Expansion slot..... **microSD (up to 128GB)**

LG G4 and Sony Xperia Z4 go head-to-head

Sony and LG have taken radically different approaches to their fourth-gen flagships

LG and Sony have revealed their next flagship models, following hot on the heels of the Samsung Galaxy S6 and the HTC One M9.

LG's offering is the G4, which is visually striking with a neon-coloured interface and leather case. It's also beefed up its specs, adding better front- and rear-facing cameras, more storage and a faster processor. Sony, meanwhile, has taken a different approach, launching the Xperia Z4 with minimum fanfare and only minor upgrades to the specs and little difference in terms of the visual design.

"We are living up to our promise of Innovation for a Better Life with a fashionable, premium smartphone," said Juno Cho, president and CEO of the LG Electronics Mobile Communications Company. "We wanted to give consumers a truly human-centric device that combined the analog sensibilities with technologies that delivered real world performance. This is the most ambitious phone we've ever created."

As well as the fashion-forward leather case, the LG G4 is also available with so-called 'Ceramic'

LG G4

» More information **www.lg.com**

technical specs

- » Operating system..... **Android 5.1 Lollipop**
- » Processor..... **Qualcomm Snapdragon 808 1.8GHz hexa-core**
- » Memory..... **32GB storage/ 3GB RAM**
- » Dimensions..... **148.9 x 76.1 x 6.3-9.8mm**
- » Weight..... **155g**
- » Display size..... **5.5-inch**
- » Display resolution..... **2560 x 1440 pixels (538ppi)**
- » Front camera..... **8MP**
- » Rear camera..... **16MP (f/1.8 aperture)**
- » Connectivity..... **3G, 4G, NFC, Bluetooth**
- » Expansion slot..... **microSD**

LG is banging the drum for its camera. The f/1.8 lens is one of the widest in the business, which should really improve any dark photos. The 16MP rear-facing camera sounds like a really good prospect, as well

LG says that the QHD screen on the G4, despite being the same resolution, trumps the previous model. It is 25 per cent brighter and has a 20 per cent larger colour range than the G3

One of the G4's biggest selling points is its looks. As well as offering a leather case in a range of colours (pictured), its also available in so-called Ceramic cases, which have a highly textured, angular design

cases, which are actually made of plastic, but have a futuristic angular texture. The 5.5-inch Quad HD display is also slightly curved – not to the extent of the LG G Flex 2, but it does add an elegant finish.

However, its not just about the looks. The camera has also been upgraded, with a 16MP rear shooter that sports a wide f/1.8 aperture lens. The laser-guided sight that was so popular on the LG G3, also remains on the G4 as an added plus. The G4 will also be the first device to officially use the Qualcomm Snapdragon 808 processor.

"LG and Qualcomm Technologies collaborated from the initial stage of the Snapdragon 808 introduction to expertly tune the technologies and make several of the LG G4's unique features possible," said Paul E. Jacobs, the executive chairman of Qualcomm International. "The resulting G4 smartphone is an ideal example of how the best optimised technologies come together to meet consumers' needs."

The LG G4 has also gained a 3,000mAh battery, which LG says is also 11 per cent faster than its previous model. Crucially, the battery is also removable, a feature Samsung abandoned for the Galaxy S6, much to fan's consternation.

Sony's new Xperia Z4 is 6.9-mm-thick, 144g metal-and-glass body is very much in line with the company's prior design language, including its renowned water- and dust-resistance. It has a 5.2-inch 1080p LCD screen, which like its predecessor, the Z3, has been upgraded to QHD to preserve battery life. It also has the same 20.7-megapixel rear camera as the Z3.

The only real differences between the Z4 and the Z3 is that it runs Android 5.0 out of the box, is fractionally thinner, has a more powerful 2GHz 64-bit Snapdragon 810 processor and 3GB RAM. It's 2930mAh battery is actually slightly smaller than the Xperia Z3's, but the logic behind this is that the new Snapdragon chipsets – despite being octa-core – are much more power-efficient than older chipsets, allowing for smaller batteries. The Z4 may also have a fingerprint scanner, but this hasn't been officially announced.

The biggest difference thought is that, while the Xperia Z4 has been confirmed for a Japanese release, there has been no official word on a wider world roll out. Unusually, a Compact version of the Z4 hasn't been announced at all either. When we spoke to a representative for Sony about this, they said the company was considering "the feasibility of other markets."

Both manufacturers have taken radically different approaches to their fourth-generation phones and it remains to be seen how well either will fare against the Samsung Galaxy S6. Though it is only a minor upgrade, the Xperia Z4 can still go toe-to-toe with the Galaxy S6 in terms of specs, but it's a wonder how it is going to distinguish itself on the market. The LG G4 has clearly carved out an identity for itself as the fashionable phone of choice, arguably stealing this spot from the HTC One range, with its only modest updated M9.

But is this enough? Let us know what you think of the LG G4 and Sony Xperia Z4 via Facebook (/littlegreenrobot) and Twitter (@lgrobot). ■

The Android Wear Book

This unofficial guide to the Moto 360 and more is packed with user advice to set your watch by

Find out how to set up and use your smartwatch with The Android Wear Book. This independent guide is packed with over 80 tutorials, from setting up your Moto 360 or G Watch R to customising its look.

The ultimate Android accessory, your smartwatch is designed to enhance your lifestyle, making it easier to respond to notifications and track your fitness without using your phone. However, with functions split across your watch and phone, it can be difficult to dig deeper into Android Wear's features.

The Android Wear Book makes it easier with step-by-step instructions on everything from sending and receiving text messages on your watch, to tracking your health with Google Fit. As well as getting to grips with Android Wear's new quick settings, it also includes apps that can enhance your smartwatch, such as finding your parked car and using it as a universal remote for music and TV.

Entirely unofficial, The Android Wear Book also offers advice on rooting your smartwatch, sideloading apps and flashing the Gohma ROM. As well as tutorials, the guide also includes buying advice and compares different Android Wear smartwatches to help you decide.

The Android Wear Book is available to buy in all good shops now for £9.99/$19.99. You can also order it online from **imagineshop.co.uk** and download it as a digital edition from **greatdigitalmags.com.**

S6 secrets revealed

You've bought Samsung's latest and greatest handset, the Galaxy S6, now what do you do with it? Find out in The Samsung Galaxy Book Volume 5. In the same series as The Android Wear Book, this edition has been updated for the new model, but is just as useful for Galaxy Note 4 and Galaxy S5 owners. It is packed with easy, step-by-step tutorials on everything from adding widgets to your homescreen to mastering Samsung's apps, including S Planner and S Fit. The guide is available for £9.99/$19.99, from all good shops.

Watch this face

Some of the best watch faces around for Android Wear

Ustwo Watch Faces

»**Price** Free

From the makers of indie game Monument Valley, it's no surprise that this watch face app is packed with bright and beautiful designs. Featuring some fantastically abstract concepts, Ustwo Watch Faces will appeal to anyone who enjoys some of Android Wear's more out-there default faces, such as Orbit and Polar, for example.

Pujie Black

»**Price** £0.97/$1.39

The best smartwatches are as much a fashion accessory as they are a high-tech gadget, so it stands to reason they should match your personal taste. Pujie Black enables you to create and customise Android Wear watch faces, choosing both how they look and what they do – from displaying the date to showing what your local weather is doing.

Behance Watch Faces

»**Price** Free

Turn Android Wear into a work of art with Behance. Similar to DeviantArt, Behance is a network for artists to showcase their illustrations, photographs and more. This official app has picked some of the finest works and turned them into watch faces. Each face includes an alternate image for Ambient Mode too.

Weather Time

»**Price** Free + IAPs

If you're a fan of how the Yahoo Weather app uses photos to illustrate the weather where you are, then you'll love Weather Time. It does much the same thing, with a full-bleed contextual background image to match the weather condition and temperature that's displayed on your watch's homescreen.

GALLERY OF... DAZZLING DIALER APPS

1 True Contacts

The era of the unknown caller is finally over. True Contacts will put a face and name to any call that you receive. Swipe controls make it simple to answer or hang up on a caller, as well as quickly redial if you need to call them back.

» **Price:** Free

2 drupe

With so many different ways to stay in touch, from making a phone call to Facebook Messenger, drupe tries to simplify the process. Just drag the contacts profile picture to the logo of the relevant social network app and you will be connected.

» **Price:** Free

3 Simpler Contacts & Dialer

Simpler Contacts will help you tidy your address book by creating a favourites list, deleting duplicates, and customising the colour of your dialer. You can also search by name or number for super fast dialing.

» **Price:** Free + IAPs

4 Truedialer

When dialing a number for the first time, Truedialer will search its extensive database of numbers to provide you with additional contacts details, which you can then save to your phone. Move between number pad and keyboard with a swipe.

» **Price:** Free

5 Humin

Can't remember the name of that person you met last week? Instead of providing you with an alphabetical address book of your contacts, Humin enables you to search according to when you met them last, your location and where they work.

» **Price:** Free

6 Hangouts Dialer

The successor to Google Voice, this app is not just for making free calls to your friends on Google Hangouts. You can also call domestic and international calls without using your minutes plan and at a reduced rate.

» **Price:** Free

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NEW TECH | Android-powered ATMs

Brand new banking

Use your phone to access your money with Kalpana ATMs

Imagine going to an ATM and being able to withdraw cash without having to touch a button. This may seem like futuristic fancy, and even a little insecure, but thanks to Android technology it is on the cusp of becoming reality.

The Cx110 ATM is a new breed of hole-in-the-wall that uses cloud-based Android computing software called NCR Kalpana to deliver a safe, personalised experience for every bank user. The expectation is that within very soon, we will be able to use our smartphones and Android Wear devices to complete transactions at ATMs, speeding up the whole operation.

Not only will ATMs become much quicker and efficient to use, but banks will be able to offer a more personalised service to each customer. The cloud computing will also be able to learn from your habits, potentially meaning that you can perform your regular transaction with just a push of a single button. This system could revolutionise how we use ATMs and it's thanks to Android's open source platform that this has become a possibility.

Finger scanning

Rather than entering a PIN code into this next-gen ATM, all you have to do is use the fingerprint scanner on your phone. Working with your bank's companion app, your phone will then verify your identity for the ATM

Personal touch

By keeping a log of your transactions stored securely on the cloud server, ATMs could soon learn what you want to do and provide personalised options on the screen

Paperless banking

NCR also plans to integrate mobile receipts which bypass traditional paper receipts. Instead, a text or email will be sent to your device

Faster finance

Android synchronisation is the next step, so you could have selected your transaction before you have even reached the machine. No more waiting in long queues for your cash

At a glance

» **Product name Cx110 ATM**

The Kalpana NCR-driven ATM is an Android-based thin client machine that will provide greater speed and personalisation to bank customers.

Q&A

We spoke to **Andy Monahan**, VP of Kalpana software engineering and **Robert Johnston**, NCR global director, about the Cx110 ATM

Why have you tried to re-invent the ATM?

RJ: Today, most ATMs are thick, client, Windows-based PCs and that has been the model for the last 10-15 years. Two years ago we sat down with a blank sheet of paper and asked 'If we started again with an ATM, what would we use?'. The answer was Kalpana.

So what make Kalpana better?

AM: Banks are pressured by customers who have higher expectations of what technology delivers. The Kalpana system is thin client, meaning it's cloud enabled, driving more functionality to the back-end data centre, rather than putting code on the device. Cloud computing lets banks put time into offering a more personalised experience at an ATM.

What made you choose Android as the operating system?

AM: We decided that Android was the best operating system to use because it has a great ecosystem of software developers, a greater set of tools for building it up and a high degree of functionality. Android also offers support for web technology like HTML 5. Each of our ATMs run on KitKat 4.4.4.

What difference will customers notice?

RJ: We can learn your transactions, so if you repeatedly perform the same action, it can learn from that and enable you to do that with a push of a single button. By changing the ATM platform, you can start the process before you've reached the ATM. Input your transaction on your smartphone or Android Wear device, scan a QR code on the machine and you can have your money without touching the machine.

How secure is this system?

RJ: All the news about Android security comes from social engineering that could contain malware. We work with the Android Open Source Project, are in partnership with Intel and have customised the operating system so it suits an ATM, but it's pretty much core Android. There's no hard disk in the device, so it operates like a tablet with a secure boot loader. NCR signs the software stack and confirms it hasn't been modified and malware hasn't been added.

When might this all be operational?

AM: We are working with Cardtronics, who are the world's largest independent ATM deployer. We will see units in two or three countries by the end of the year.

Get in touch

Let us know what you think of the Galaxy S6

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Like us on Facebook to send your comments

1 Pixel density

The S6 is to the iPhone as the Nintendo 3DS is to the first GameBoy. The S6's 2560 x 1440 Quad HD screen provides a dense 490ppi, while the iPhone sports a less impressive 326 ppi on its 1334 x 750 screen.

2 Taking low-light photos

One phone has a 16MP camera with a f/1.9 aperture and OIS capable of keeping the shutter open without shaking and becoming blurry. The other has an 8MP snapper without OIS and a smaller f/2.2 aperture. Guess which is which.

3 Recording video

Imagine you're at a festival, wedding, christening or any other event when you want to capture a series of moments in stunning clarity. Would you rather record in 4K or 1080p? We thought so. S6 all the way.

10 ways the Galaxy S6 beats the iPhone 6

4 Controlling your TV

The remote control is never where you left it, so what's better the ability to control your TV with your smartphone without having to download third party apps? The S6 comes installed with Peel and an IR Blaster? Brilliant.

5 Charging wirelessly

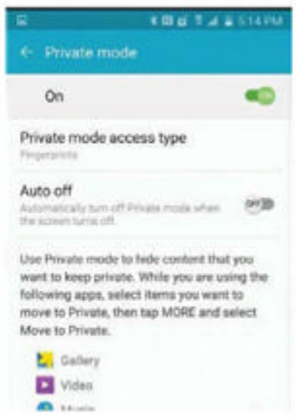
Apple is rarely slow to charge their customers, but apparently not so quick to charge their phones wirelessly. You have to get a special case for iPhone wireless charging, while the S6 comes with that ability already pre-installed.

6 Charging quickly

Although Apple has made strides here and it's possibly to get to 90 per cent battery in two hours, you only need 80 minutes for the S6 to go from zero to hero (100 per cent charge).

7 Keeping your privacy intact

Private mode is available to all Android Lollipop users so you can hide anything you want securely. The iPhone, meanwhile has a hide option that still displays files in their folders, which rather defeats the object, don't you think?



8 Mobile payments

Over 90 per cent of retailers in the USA accept payments made via the Samsung-owned LoopPay. The iPhone's Apple Pay is only valid at three per cent of stores. LoopPay also works with over 1,000 cards, compared to 107 for Apple.

9 Customisation

It's your phone, you should be able to make it look how you want. Samsung has improved its TouchWiz Android skin, but you can also add your own themes and quick settings, unlike on the stick-in-the-mud iPhone 6.

10 Running multiple screens

If you're trying to message someone directions it can be annoying to switch between screens. Multi Window mode has been part of the Samsung system since the S3 and has been improved for the S6. The iPhone is still stuck at just one.

20 LOLLIPOP FIXES

Simple solutions for Android 5.0 and 5.1's biggest problems

When it was launched last October, Google described Android 5.0 Lollipop as a "quantum leap forward" for the company. Overhauling the look and many of the features, Lollipop was an ambitious update that intended to provide a better mobile experience for existing users and attract new ones away from Apple. For many, the update was as sweet as Android 5.0's nickname promised. The Material Design makeover looks fabulous, and features like the Project Volta's battery-saving tools, Guest mode and lockscreen notifications, have made Android much better.

However, as with every new rollout, there have been bugs. Biggest of all is a so-called 'memory leak', in which a fault with the way RAM is managed has led to apps crashing and homescreens refreshing on devices running Lollipop. Then there have been features that have led to mass complaints from users, such as replacing Silent mode and introducing heads-up notifications.

As Google has released subsequent updates, many of these issues have been fixed. However, with the rollout taking longer than expected many are only just getting Android 5.0, so you might be waiting a while for the official patches. In the meantime, here are twenty workarounds to help solve Lollipop's biggest problems.

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Bring back Silent mode

Get to grips with Lollipop's new interruption modes

In Android 5.0, Google removed Silent mode and seemed to replace it with two different settings. While this might not sound like much, it has caused chaos for many users. Pressing down on the volume key now loads a pop-up menu of options, letting you choose whether All, None or Priority notifications get through. Lollipop's None mode is Silent mode on steroids – it blocks everything; calls, messages, even your morning alarm and LED light. Priority mode gives you greater control, enabling notifications through silently, with only your preferred apps and contacts making a noise. However, you have to dive deep into the settings to set this up.

After many complaints, Google has tried to make amends in Android 5.1 by restoring the LED light and giving you extra controls over interruption options. However, if you don't think you'll be getting 5.1 soon or just don't like Priority mode, download True Silent Mode for Lollipop from Google Play. This app from XDA member tonyp works in tandem with the corresponding Xposed module and will restore KitKat Silent mode to your device.

> "Lollipop's None mode is Silent mode on steroids – it blocks everything; calls, messages, even your morning alarm"

Cool overheated handsets

Some users have complained about their phones and tablets, anything ranging from Nexus 7s to Galaxy S4s, saying that they have been getting very hot since installing Lollipop. If this happens to you, try closing any apps or games that you have open when it gets warm, restarting your device and then leaving it a few minutes before booting it back up. If the problem persists, we suggest updating apps in case one is not configured for Lollipop and is causing the problem.

Random reboots

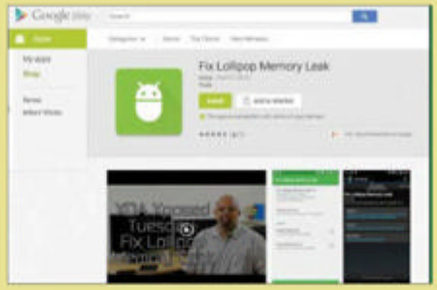
If you've noticed your Android has been switching itself on and off again, then you're not alone. Just like overheating handsets this could be caused by an errant app, so put your device into Safe mode to find the culprit, then update or uninstall it. Alternatively, the reboots could be caused by the memory leak problems that are plaguing Lollipop. If you don't have Android 5.1.1 then there's little that can be done to fix this, but a soft reset has been known to help for some people.

Plug Colour Fade memory leak

If you have been experiencing poor performance in Android 5.0, this hack should fix it until Google releases an official patch

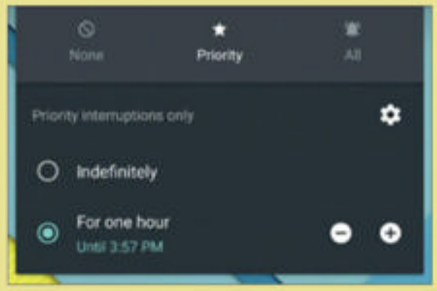
1. Check that you are running 5.0-5.0.2

While this Xposed module reportedly works, there are some caveats. As well as needing a rooted device, it will only work with Android 5.0 to 5.0.2. If you're running anything higher, find out how to downgrade on page 19.



2. Download the app

Download 'Fix Lollipop Memory Leak' by XDA Forum mod tonyp from Google Play. It is completely free, doesn't require permissions and is open source. Here you can manage your Xposed settings and contact developers.



3. Get Xposed

If you've only just rooted your device, ensure that you have downloaded Xposed Installer. Then follow the in-app links to download the Xposed module called 'Fix Lollipop Memory Leak' (**bit.ly/1JHl3wl**) to finish the process.

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5 ways to fight battery drain

1. Delete apps that are power-hungry

Obviously using apps will use up your battery, however, there are instances where apps will drain more power than they are supposed to. Track how much juice apps are using in the Battery section of Settings. Once you've found an offender, delete and reinstall it, and if this doesn't work then you will have to consider permanently uninstalling it.

2. Regularly restart

This doesn't sound like a very technical solution, but restarting your Android will clear your cache and could make your battery last much longer. However, we don't recommend letting your device run down more than a few times a month. Instead, keep it charged regularly, restart it on occasion and you could see positive results.

3. Disable unnecessary services

It might come as a surprise to some that Wi-Fi and Bluetooth can waste your battery if they're left switched on and you're not connected to anything. Turn off these connections along with NFC, GPS and your cellular radiio, to save power. Most of these can be toggled on and off in quick settings.

4. Go back to black

It is no secret that dimming the brightness of your device's screen is going to help save power, but did you know that the colour of your background wallpaper could also be draining your power? Due to AMOLED screens, you're likely to get a longer charge by switching to a black or darker wallpaper.

5. Try a different launcher

You may want to use another launcher. Some launchers, like those that make heavy use of the internet to fetch data for widgets, for example, might be putting your phone under a lot of strain. Fortunately, there are tons of different launchers to choose from, though the Nova Launcher is probably our top choice.

> "Some launchers might be putting your phone under a lot of strain"

Repair broken Wi-Fi

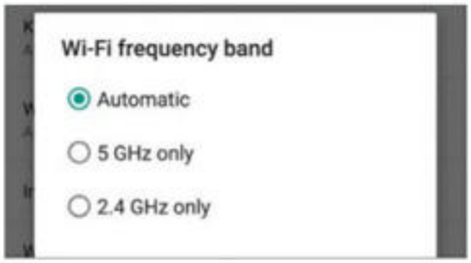
Owners of older Android devices have reported problems getting online after updating, here are some top tips to reconnect

1. Forget the network

In your Settings, go to the Wi-Fi menu, then tap on the name of the network you want to join and press Forget when the pop-up menu appears. Reboot your router, then try and set up the connection from the beginning.

2. Uninstall apps

Users have reported that deleting apps can help. Unfortunately, some suggest uninstalling apps not yet updated for Lollipop, and others say remove those that have. Best option: boot into Safe mode, see if any apps are acting oddly, then delete them.



3. Adjust frequency band

Some have reported changing the Wi-Fi channel has helped them establish a connection. Go to Settings>Wi-Fi, tap the three-dot menu and then tap 'Wi-Fi frequency band' to adjust. You can also adjust the channel on many routers.

4. Factory reset

This old trick fixes a lot of problems. Go to Settings>Backup & reset and under Personal Data, tap Factory data reset>Reset phone/tablet. Warning: this will delete everything on your phone so backup data first.

Change the look of Battery Saver mode

The first time our battery dropped to 15 per cent while using Lollipop, we thought a national emergency had been declared. Our navigation bar, notification bar and other elements of the interface turned a seering DEFCON 2 Orange. Okay… we'll admit it, this isn't a huge problem and can be a reminder to charge our phone. However, we're not alone. There are enough people irked by this that someone's done something to resolve it. A developer known as 'TheFragen', has created an Xposed module called Remove Battery Saver Warning Color (**bit.ly/1OkwoZX**) that lets you enjoy the benefits of power-saving, but removes the colourful banners.

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Apps that vanish into 'Air'

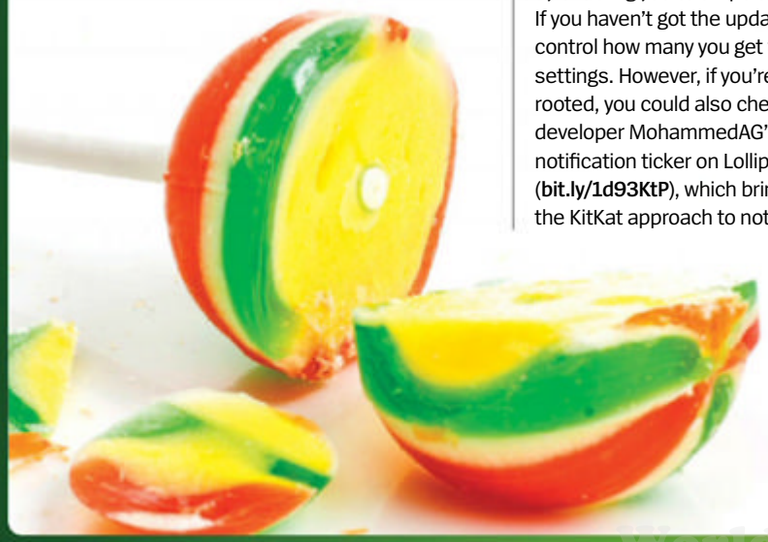
One of the more bizarre Lollipop-related bugs, some Adobe AIR apps are throwing up error messages or disappearing altogether in Android 5.0. AIR is a piece of tech that enables Flash and Dreamweaver tools to create software, in particular, indie games. *Machinarium, Hero Mages* and *Empire: Four Kingdoms* all use AIR, while non-gaming examples include Instaweather Pro and Conqu. Unfortunately, the only solution is to wait for the Android 5.0.1 update, install it and then re-download the apps.

Bring back Bluetooth

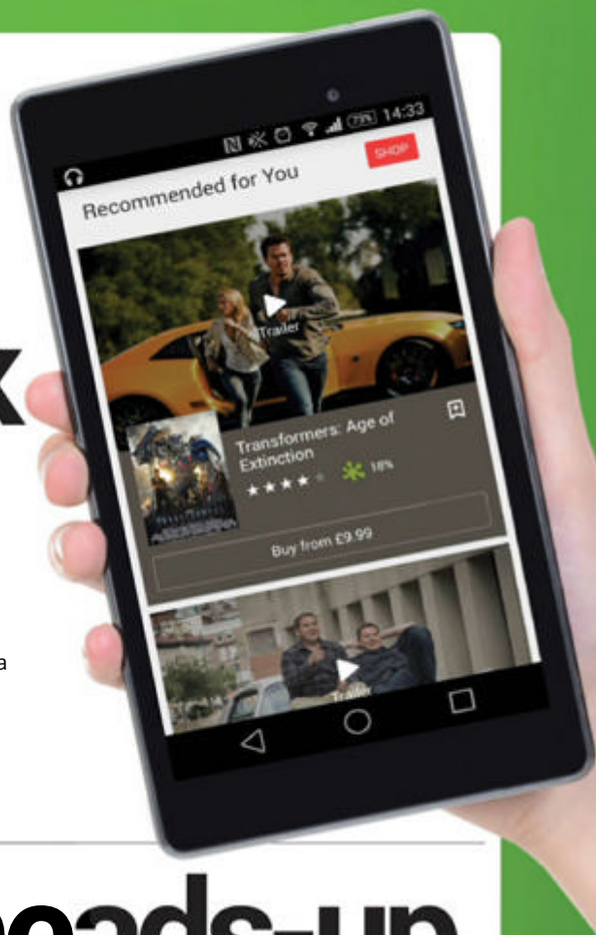
Like GPS and Wi-Fi, some users have complained about Bluetooth connectivity in Lollipop, reporting that they have trouble pairing devices. Firstly, check you are trying to pair correctly. If that's not it, try deleting old Bluetooth profiles in Settings> Bluetooth as you may have reached your limit. If you still can't connect, then delete the profile on both devices again. After that, go to Settings>Apps> All>Bluetooth share and see the Clear data and Clear cache options. To finish, restart the phone and set the connection up from scratch.

Fix your flashlight

If you're a Nexus 5 owner, you may have found that if you leave your phones flashlight turned on for a while, it automatically times out and then the flashlight and in some cases, your camera, will no longer work. If you can, install Android 5.1.1 as this should patch the problem. If not, the only solution is to reboot your Nexus and avoid leaving the light on too long in future.



Restore video playback



Nexus 7 owners have reported bugs with video playback following the update to Lollipop. The issue doesn't seem to be restricted to any particular app, but YouTube is a culprit and any app using the default Android video player suffers too. If YouTube is the issue, hit Settings>Apps and find the entry for YouTube. Clear the cache and try again or do a reboot for a temporary fix. You can try uninstalling and re-installing the app if problems persist, though some users say that this solves the problem, while others continue to suffer. Worse case scenario: backup your data, do a factory reset and clear the cache partition.

Disable heads-up notifications

Heads-up notifications are small floating windows that appear when you receive a call, message or app alert. In principle, they're useful because they let you respond or dismiss a notification without leaving the app you're in. But in Android 5.0 you have to instantly deal with them or wait ten seconds for them to disappear. Fortunately, Android 5.1 has fixed this by enabling you to swipe upwards to hide them. If you haven't got the update yet, you can control how many you get with Priority mode settings. However, if you're device is rooted, you could also check out developer MohammedAG's, Restore notification ticker on Lollipop module (**bit.ly/1d93KtP**), which brings back the KitKat approach to notifications.

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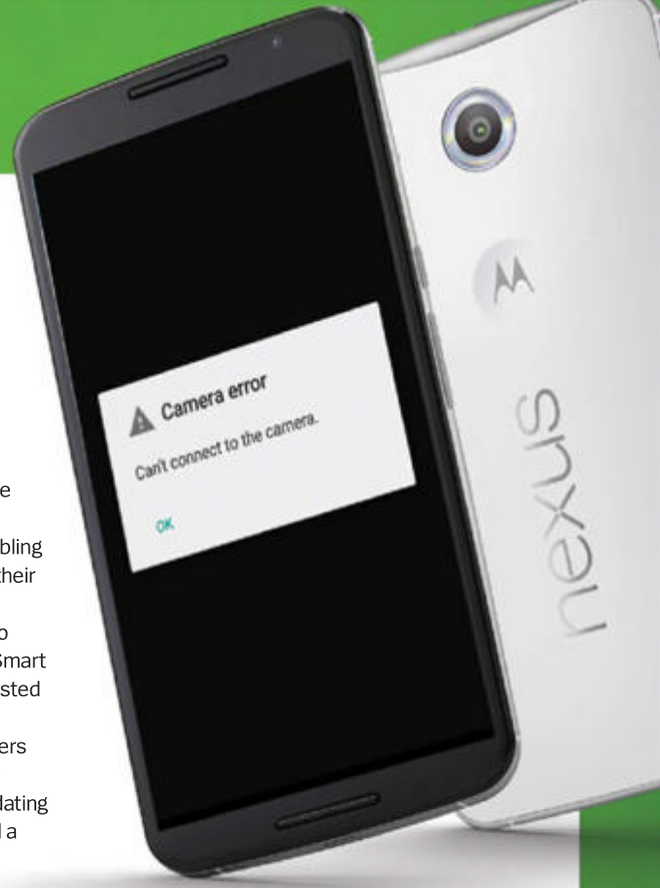
Stop camera crashes



We've heard multiple accounts of the stock camera crashing in Lollipop on Nexus and Samsung Galaxy devices. If you own a Nexus 5 and the camera has stopped working along with the flashlight, first turn back to 'Fix your flashlight' on page 17 and try the options there. If that doesn't work, or your camera keeps crashing but your flashlight is unaffected, there are a few suspected causes for the problem and users have found different solutions.

Some users find the problem occurs when third-party apps, like Facebook or Snapchat, attempt to access the stock camera. At the risk of repeating ourselves, try rebooting to Safe mode to disable these apps and then find the malfunctioning app that could be the cause.

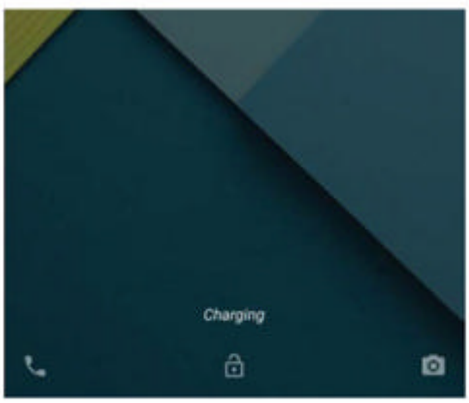
If this doesn't work, others have found disabling the Trusted Face security feature has solved their camera woes. If you've been using the facial-recognition log-in feature, turn it off by going to Settings>Personal>Security. From here, tap Smart Lock, go to Trusted face, then touch Reset trusted face and press Reset to confirm.

If you're phone is rooted, some Galaxy owners have found changing the root permissions for camera drivers have helped, whether just updating the firmware or disabling it, so they can install a different camera app from the Play store.

Solve slow charging

Charging problems have plagued Nexus devices for years and we're already seeing complaints about slow charging in Lollipop. If a Nexus device starts exhibiting charging problems after Android 5.1, there are steps to take. One method for our Nexus devices involves a few easy steps. First, charge the Nexus up to 100 per cent. Once it's there, let the charge start to fall. Before it gets down to zero per cent, to around the five per cent mark, charge it up to 100 per cent once again. Repeat this three to four times and it could return to normal.

If that doesn't work, there are a few more things to try. First, make sure that the Nexus is being charged with the cable it came with. If it is and it still doesn't work, try using another charger with the same voltage rating as the stock charge. If that still doesn't solve it, try out a USB cable. Plug the Nexus smartphone or tablet into a computer and charge it that way. Charging through a CPU is slower but still efficient.



Stop apps crashing

As we've mentioned, Lollipop's biggest bug is a memory leak which means the operating system has a problem handling RAM, increasing the memory load without any limit, thus slowing the device to the point that apps crash and cause random reboots. Android 5.1.1 should patch the problem, but if not then we've shown you how to fix this with an Xposed module on page 15. However, if you're unable to update or are unwilling to root, there are still some tricks to stop apps crashing.

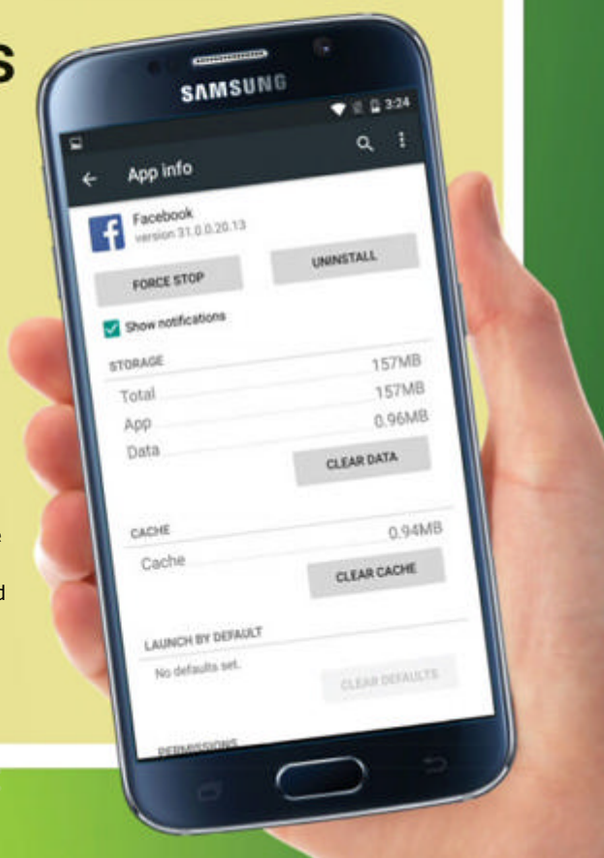
First, check the crashing app for updates in the My Apps section of the Google Play app. If there are none listed or the problem continues, try force stopping the app to completely shut it down. To do this, go to Settings>Apps, select your app from the list, then tap Force Stop. In the same menu, you can tap Clear Cache to remove temporary files and make it less bloated. Another option is to Clear Data which will have the same effect but will permanently erase any information that you have stored.

Fix Chrome tabs

Chrome Browser on Lollipop is set by default to store new tabs in the recent apps card stack, but for many this represents one of the biggest Lollipop fails of all. Fortunately, all you need to do is head to your Chrome settings and disable 'Merge tabs and apps' to return to the more familiar tabs list, with a box next to the URL field in Chrome displaying the number of tabs you have open. Tap to view your tabs separately from open apps.

GPS Problems

Connectivity issues are common with every OS update, so we'd be surprised if we didn't see complaints after the arrival of Android 5.0. There are a few fixes to try before contacting the service provider though. First, go into Settings>Location and make sure the mode is set to High accuracy. If that doesn't solve the issue, it's time to boot the phone into Safe mode to see if it's a third-party app that is causing the problem.



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Brighten up the Nexus 6

Designed with Android 5.0 in mind, it might be a surprise to find the Nexus 6 has suffered from any Lollipop bugs. However, some users have reported that they have had problems with the adaptive brightness feature which is supposed to lighten or dim the screen depending on the surrounding light. Sometimes toggling this mode on and off in Settings>Display helps, and you can always manually adjust it from the notification drawer. As ever, a factory reset should help sort things out if the problem persists.

Solve location security bug

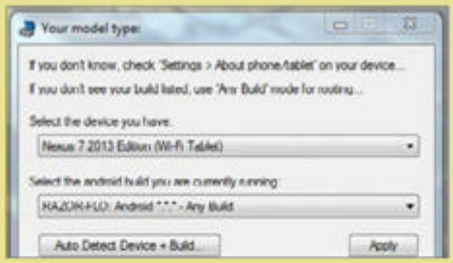
Despite being a baked-in Lollipop feature, some people have had trouble with the Smart Lock's Trusted places feature which is supposed to automatically unlock their device, like when they are at home, for example. If this has happening to you, first check Smart Lock is enabled. If that doesn't work, go to Settings>Accounts>Google >Location settings and make sure that High accuracy mode is on. Another workaround that some have found works, is to turn on Google Maps or another app that uses the GPS to help pinpoint your exact location.

Still not working? Revert to KitKat

If none of our suggestions have solved your Lollipop woes and you own a Neuxs, you can always reinstall an old factory image

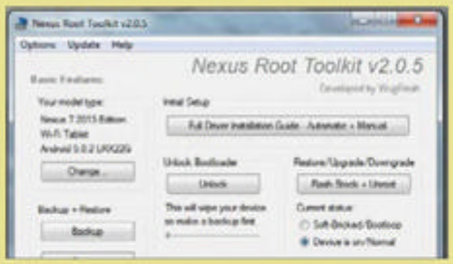
1.Tools for the job

For this we need to user the Nexus Root Toolkit (NRT), an excellent tool that lets you perform many advanced techniques on your device, such as backing up, installing custom ROMs, rooting and downgrading. Install it after downloading from the tool's website from **bit.ly/1A9SRwP**.



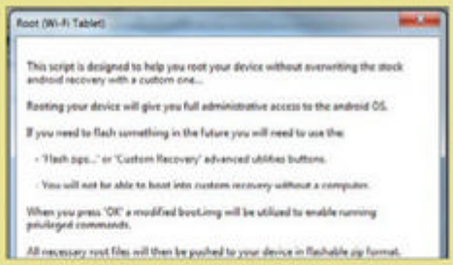
2.Choose your model

During install, NRT will ask you about the model of Nexus that you have. Plug it in and then click Auto Detect. If that's not working, select the correct device from the dropdown menu and find the build from the About menu in the settings section on your device.



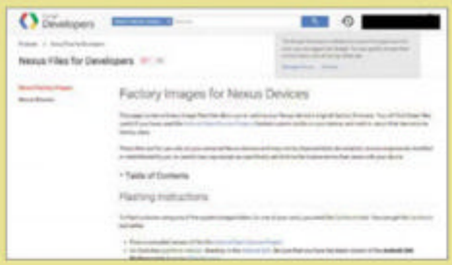
3.Unlock your device

This step will wipe your device, so back up any settings, files or contacts you have stored. Follow the instructions on how to activate debugging mode, then download the files it wants. It will then present you with the main interface, so click Unlock Bootloader to start the process.



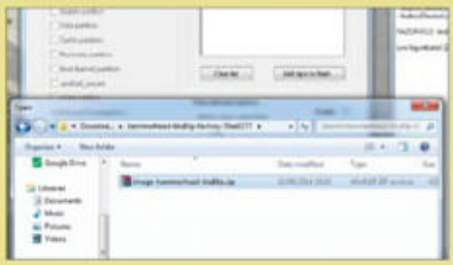
4.Root your device

Once that's complete, you'll need to root your device. We'll be wiping the device again shortly, so do the minimum to set up your device and activate USB debugging again. Now go back to Nexus Root Toolkit, check the Custom Recovery option and click Root.



5.Download the old image

On the Google Developer's site (**bit.ly/1u561dQ**), find your device on the list and look for the version of Android that you want to go back to. It will download as a tgz file, uncompress the file and make a note of where the ZIP of the image is stored on your computer.



6.Install old image

Back in NRT, click on Launch under Advanced Utilities. On the next screen, click Flash zip with 'File is on the computer' selected. Add the ZIP file, enable wiping of partitions and click all check boxes. Then hit Confirm Operation. It will process and revert your device back to the older version.

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WHAT TO EXPECT FROM GOOGLE I/O 2015

From Android M to virtual reality, what does I/O have in store for us?

Google has undoubtedly had one of its most ambitious years yet. Whether it's launching its on wireless Fi network, roadtesting driverless cars, or innovating what smartwatches can do with Android Wear, the tech giant has been consistently pushing the boundaries of the world around us, amounting in record profits and a wider user base than ever before.

So what does the future hold? Google always uses its annual I/O conference keynote presentation to show off their plans for the upcoming year. Some of these never see the light of day (remember the Nexus Q, anyone?), but many make it into our households in some form.

This year's keynote is scheduled for 28 May. While the subjects it will cover are top secret, we've come to expect a few things. For instance, the latest version of Android will formally be announced, this time under the codename Android M. It's also likely that will see more of Android Wear, Android TV and possibly a new Nexus device. Ahead of this year's event, here are the most anticipated announcements to expect, plus a rating of how likely we think they are to be mentioned.

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What should Android M be called?

Source: 70 votes in littlegreenrobot.co.uk reader poll (16-28 April)

Android M

The next generation of Android is coming

One of the things you can always guarantee at the annual I/O event is some sort of announcement of the next Android OS update. However, it's not always straightforward. At last year's I/O, Google only announced the Android L Developer Preview, waiting until Autumn for a full release and to reveal that it would be called Lollipop. Always named alphabetically, we know the next update will be codenamed Android M. In fact, Android M has already been spotted in the wild, listed on the Android Open Source Project website, mentioned in regard to Logcat and the data interchange format.

Where Lollipop was a massive overhaul of the operating system, both visually and in terms of features, Android M is rumoured to be a smaller, more concise update that looks to help fix some of Lollipop's bugs. As this update looks likely to be an evolution rather than a revolution, we don't expect its version number to be Android 6.0, rather Android 5.2 or 5.3.

However, that doesn't mean Android M won't have any fun features. Online chatter suggests it will make sure phone or tablet is the hub of Google's interconnected world. Whether it's your Android Auto car, Android Wear watch, Nest home appliance or Android TV, M will bring them all together and create a more seamless user experience. As with any new Android update, the release of M will be staggered, with Nexus and Motorola devices getting it first, and then the Samsung Galaxy S6, LG G4 and HTC One M9 receiving the update soon after.

How likely is this to happen?

100%

Expect to see some sort of Android M announcement

What we would like to see in Android M

Further gesture support

We'd love more intuitive taps and swipes available on stock Android.

Landscape home screens

Being able to navigate your phone in landscape mode would be handy.

Messaging hub

Syncing your texts, Whatsapps and emails, much like Blackberry Passport.

Google product synchronisation

Making your phone work seamlessly with Google Auto and Nest would be great.

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What else could Google announce?

Chromecast 2

It's highly anticipated that Google will announce a revised update to their fantastic HDMI stick. This time around it could ship with its own remote control for easier use.

85%

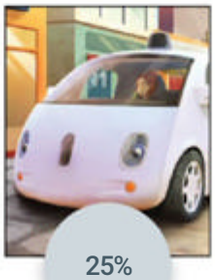
Google Wallet

In direct response to Apple Pay, Google will show off the newest software update to their own Wallet service. However, any major improvements seem highly unlikely.

Google wallet

70%

Android Auto



Google has been testing the first prototypes of their driverless cars. With several problems being noted, Google may be reluctant to make any official announcement.

25%

Fitness tracker

A few lesser-known sites have reported Google is working on their own fitness tracker. In such a crowded market, they will struggle to find their own niche they can appropriately fill.

5%

How likely is this to happen?

20%

We may see a small glimpse, but no major reveal is likely

Project Ara launch

Project Ara is Google's plan to produce smartphones that you can not only upgrade the software on, but the hardware too. So rather than buy a brand new phone, you can just swap out your old processor for a newer model, or customise your phone with a bigger battery when you're going on long trips. This might sound a little fanciful, but Google has already shown off working models of this technology.

Google are also set to begin their first real-world trial later this year, selling Project Ara phones exclusively in Puerto Rico. Given how innovative this technology is, it's not hard to imagine that Google will be keen to crow about it during this year's keynote, discussing the Caribbean trial and possibly showing off the Spiral 3 modular smartphone. This model is supposed to have 4G connectivity, support for a broader range of modules (including those made by third-party manufacturers) and improved battery life. Those holding out for a worldwide launch will be sorely disappointed though.

Cardboard VR

Virtual reality has been the hot topic of 2015 so far, with the likes of Samsung teaming up with Oculus Rift and HTC with Valve. For their part, Google has the Cardboard VR headset – literally, a cardboard flatpack with optical lenses that you assemble and use you with your existing Android phone. For the last year, this DIY headset has been given to developers to test out the technology. The results must have been good as Google recently announced "Works with Google Cardboard", a new licensing programme that enables manufacturers to produce their own Cardboard headsets that work with Google's companion app. Knoxlabs and DODOcase are among the first to sign up, producing weird and wonderful headsets made from cardboard, metal and wood.

It's hard to imagine these headsets won't make an appearance during I/O along with a live demonstrations. However, it remains to be seen if Google will also announce any Cardboard software updates for developers.

How likely is this to happen?

80%

We expect to see a live on-stage demo of the VR headset

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Nexus Watch

One of the ideas that has been banded around the past 12 months is the likelihood of Google ever producing their own smartwatch. This seems even more likely now that the Apple Watch has been announced, not to mention both Samusng and LG flirting with non-Android operating systems for smartwatches. Perhaps to this end; Google, Intel and premium Swiss watchmaker TAG Heuer have recently announced they are going into partnership together.

But, even if this is the long rumoured Nexus Watch, it's still fairly unlikely that Google will be set to announce anything just yet. What we can say for sure, however, is that Android Wear will undoubtedly be centre stage at Google I/O. With Google currently rolling out a huge update to the smartwatch OS, including Wi-Fi support, a new interface and emoji-drawing, they will no doubt want to showcase this further.

How likely is this to happen?

95%

The latest Wear update will be discussed, but a Nexus Watch seems doubtful

> "With Google currently rolling out a huge update to the smartwatch OS, including Wi-Fi support, they will no doubt want to showcase this further"

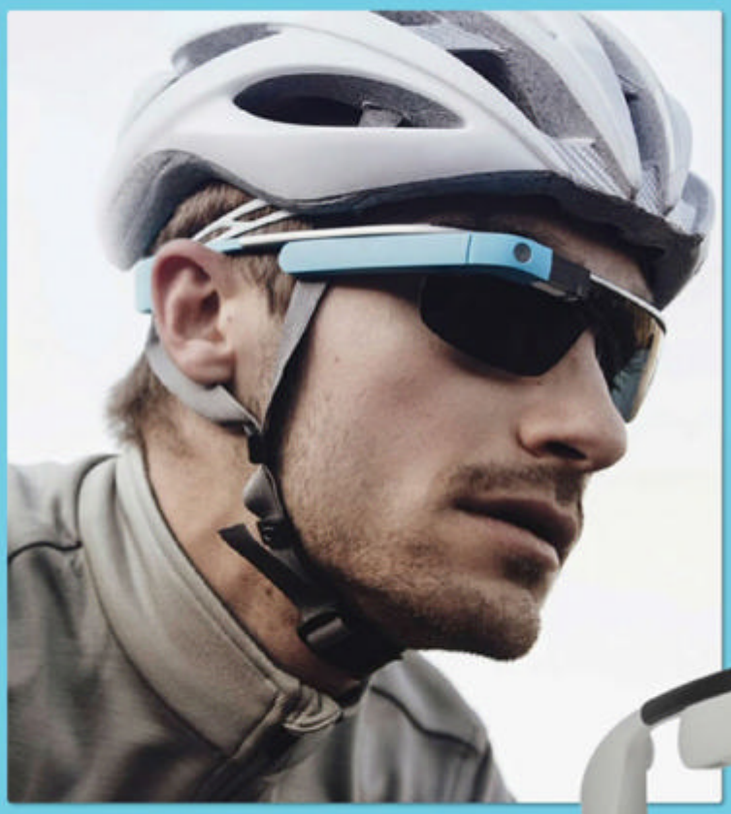
What to expect from the future of Android Wear?

Chrome integration
The Chrome browser will be readily available to use in the next update

Control your TV
Use the built-in controls to pause and play your TV

No loading times
Small tweaks to the software will help eradicate loading times between apps

The return of Google Glass



How likely is this to happen?

20%

We're unlikely to see new hardware, keep an eye out for a software announcement

Google Glass is dead, long live Google Glass! Back in February, Google announced they were withdrawing their smart glasses from market, prompting critics to say the project was a flop. However, in the same month new patents were filed and prototypes for the Google Glass 2 were given to a select few. Recently the CEO for Italian eyewear maker Luxottica, Massimo Vian, announced they were working on a new version of Glass. Mr Vian didn't give any further details, but the second iteration is said to be cheaper, smaller and will have more apps readily available for it on its public release. However, after having developed the original Google Glass in public, being ridiculed for clunky design and critiqued for privacy invasion, we expect the second-gen eyewear to be worked on in private, so a Google I/O appearances seems unlikely.

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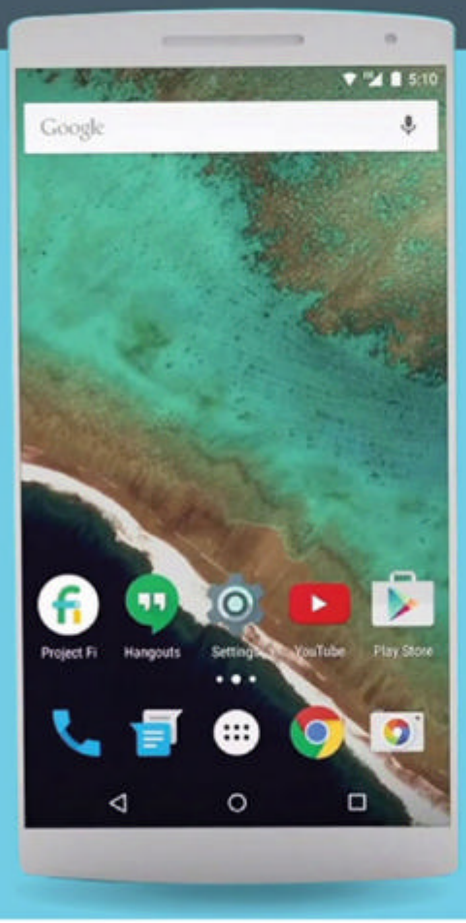

A new Nexus 5

Will there be a revised version of the Nexus 5 revealed at I/O?

Google executives have been spotted in South Korea, prompting speculation LG could be working on the next Nexus handset. If this was the case, could Google and LG be cooking up a new version of the Nexus 5? Given both the commercial and critical success of the two company's last collaboration, it would not be surprising. However, where we loved the Nexus 5 for its fantastic low price point, it's expected that Google will buck the trend and put a premium price tag on any new Nexus that does appear. The added price will likely pay for a full metal casing and octa-core processor included, which is a massive plus and should put it toe-to-toe with the lightning quick HTC One M9.

How likely is this to happen?

45%

Google may opt for a separate event for the Nexus launch

Adding fuel to the fire, the image on the left appeared in a recent promo video for Google's now Project Fi wireless network. Could this be the Nexus 5 (2015)? Sadly, we think it's unlikely there will be an actual product reveal at this year's I/O. However, we'd love to see a little hint that an updated 5-inch Nexus with incredible specs is at least in the pipeline ahead of an autumn announcement.

Google's home invasion

Could Google unveil plans to completely dominate the home?

Throughout 2014, Google made a huge push toward home automation. Their first step was to purchase Nest, the smart thermostat company founded by Tony Fadell, the man that helped design the iPod. They then spent the rest of the year hovering up various other home automation firms like Dropcam and Revolv, so it is clear that home automation is very much on the agenda. Google I/O 2014 came a little too early for any major news about Mountain View's plans for home automation, so this would be the perfect stage for them to demonstrate their rival to Apple's HomeKit. We expect that Google is planning full Android integration with Nest's thermostats, Dropcam's home webcams and Revolv's home hub to create an entire home that can be controlled from your phone or maybe even your Android Wear device. Full integration may still be some way off, but we are certainly expecting some kind of aspirational connected home from Google during the keynote speech, even if it is just Sundar Pichai turning a lamp on with his Nexus.

How likely is this to happen?

75%

Google must make the most of their acquisitions and challenge Apple's HomeKit

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Google I/O bingo

While the I/O keynote is shrouded in mystery, over the years there are certain things we've come to expect. See if you can spot all of them in the live stream, cross them off your list and let us know if you get a full house.

Someone makes a joke about Bendgate	Android M is announced	Apple is referenced as 'some other companies'	An awkward 'real life situation' is set up on stage	Google Glass isn't mentioned at all
The word 'innovative' is used five times by a single speaker	Someone walks on stage wearing a VR headset	Self-driving car drives itself onto the stage	Sergey Brin makes an extravagant entrance	Larry Page's standing ovation tops two minutes
Material Design is mentioned by three consecutive speakers	Sundar Pichai steals the show		Google uses a robot to present an item	Chromecast 2 announced
Huawei is confirmed as the next Nexus manufacturer	Google Fit video starts with running feet montage	Overenthusiastic people using Nest	'Here's one we made earlier' Project Ara phone	Bored-looking audience shot during technical explanation
Crowd go crazy for Nexus Watch	Spotlights swirl across the stage before a keynote speaker or product	This time the countdown clock is a giant Moto 360	Video of Google I/O viewing parties from around the world	Matias Duarte wears an outrageously bright shirt

Google's keynote is expected to begin at 9am PDT/ 4pm GMT on Thursday 28 May. Visit **https://events.google.com/io2015** for the live video and follow us @lgrobot on Twitter.

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World of Android

POWER UP YOUR LIFE

30 amazing apps to enhance your everyday life

Our phones are by our side morning, noon and night, holding everything we need to get through the day inside their cases. Phones have evolved rapidly to become essential tools in our everyday lives helping us get to work, keep track of our exercise, decide what to watch and much more besides. Take a quick look through your apps and realise just how many functions your phone performs. It can act as an alarm clock, personal organiser, newspaper, diet coach… the list is endless. This wealth of apps is one of the great advantages about Android's open source platform, as there can almost be an app for every thing you do throughout your day. To prove the point, we've put together a list of the best Android apps that will make your life easier or more entertaining.

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Get up in the morning

If you aren't much of a morning person, you might need a bit more of a push to get yourself awake. There are a number of alarm clock apps on the Google Play store, but we think one of the best is I Can't Wake Up. The interface is easy to work but the main draw is the range of tasks you have to complete to stop the alarm. This app should put an end to accidentally hitting the off button and missing your bus, as by the time you've solved a maths puzzle or shaken the phone for 30 seconds, a return to sleep is practically impossible. You can add multiple alarms and the variety of challenges means you'll be kept on your toes.

» **App name** I Can't Wake Up!
» **Price** Free
» **Requires Android** 2.2

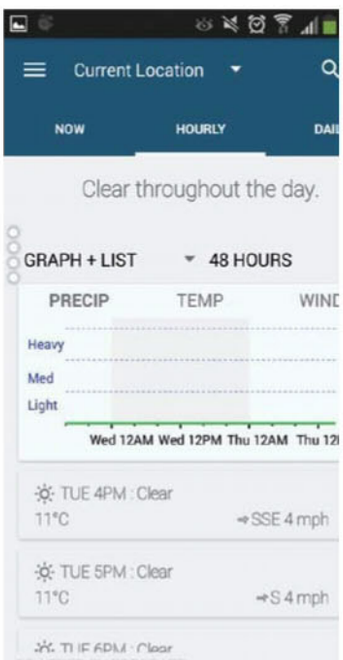
There is a wide range of task options if you just can't face morning maths

Would you be able to handle this first thing in the morning?

Check the weather before you leave

Most weather apps give a fairly generalised overview of the weather, taking reports for the county and pretending they are local to your town. Arcus Weather provides 'hyper-local' weather forecasts, getting reports from the Forecast.io API to give you incredibly accurate information. It can tell you when rain is likely to hit and for how long, so you can plan your outfit and activities accordingly. It is well set out and you can save a second location so that you're able to keep track of the weather at your destination. This really is very useful because having a knowledge of the weather forecast for the next ten minutes could be the difference between you arriving at your destination soaking wet or dry and smug.

» **App name** Arcus Weather
» **Price** Free + IAPs
» **Requires Android** 4.03



Don't take a risk, use Arcus Weather to check the weather before you go out

Dress appropriately for the weather

The Sun can be deceptive. You can look out of your window, see a bright, shining Sun and step out in shorts, only to find it's freezing. Swackett, slang for sweater, jacket or coat, tells you the temperature, what it feels like and recommends an outfit to suit. You can also easily edit the temperature at which you feel warm or cold.

» **App name** Swackett » **Price** Free + IAPs
» **Requires Android** 2.2

Get to the office on time

MapFactor is one of the most comprehensive mobile maps in the world, covering pretty much every country on the planet. Maps download to your SD card so you can navigate while offline, ideal for those rural journeys. It's simple to operate and the maps are incredibly detailed.

» **App name** MapFactor: GPS Navigation
» **Price** Free + IAPs
» **Requires Android** 2.3

Get tailored news blasts

Newspapers are becoming obsolete and they're usually filled with loads of news that doesn't interest you. News360 offers personalised news blasts based on your selected interests and feedback on individual stories. Over a short period of time this will provide the news you want at the touch of a finger.

» **App name** News360 » **Price** Free
» **Requires Android** Varies

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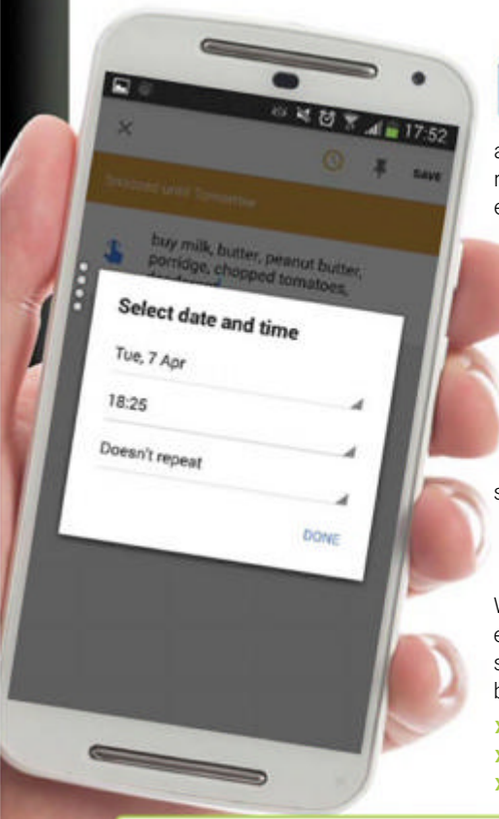
Create a timely shopping list



Inbox by Gmail is Google's new take on what an email inbox should look like. As well as being part of the Material Design revolution, the app makes it much easier to find emails from particular contacts. However, one of its key benefits is the ability to make lists and pin them to the top of your inbox. It's so easy to create a message, note or list and select a time and date for Inbox to remind you to perform the task in hand. This could prove particularly useful for a trip to the shops. You can create your list so you don't forget a thing and make it remind you to go to the shop, so you don't instinctively go home. What's also useful is that it will enable you to snooze the alert for a set period of time, in case you become delayed for some reason.

» **App name** Inbox by Gmail
» **Price** Free (invite required)
» **Requires Android** 4.1

Tap & Pay

Although it is currently only available in the USA, Tap & Pay with Google Wallet is a great system for paying for items anywhere a Debit MasterCard is accepted. Instead of fumbling around in your bag or pocket for your wallet, finding the right card and entering your PIN, simply open up the app and swipe your phone on the terminal. Transactions are completed in a flash and you'll never have the inconvenience of getting to the till and finding you have left your wallet at home. Samsung Pay is on its way soon, too.

» **App name** Google Wallet
» **Price** Free
» **Requires Android** Varies with device

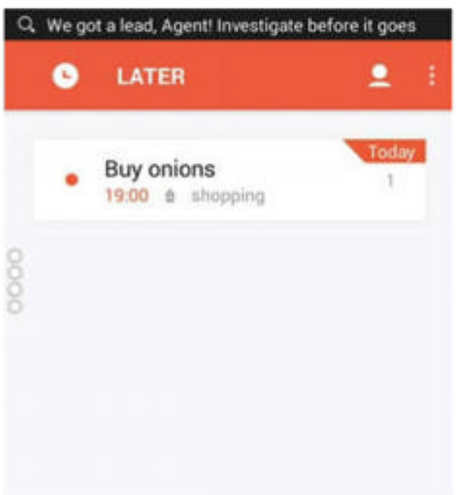
Keep count of your calories

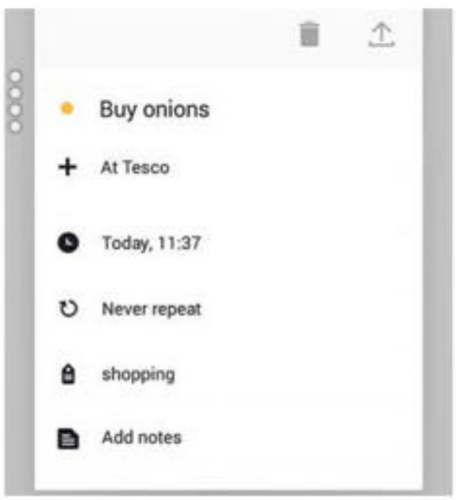
With summer on the way, many of us are looking to drop a bit of weight or gain a bit of muscle. MyFitnessPal is an excellent, comprehensive app for keeping track of your calorie intake and output. It has a huge list of foods and meals from various supermarkets and brands, so you can quickly and easily find out how much you've eaten. You can save favourite foods and meals for speed too. MyFitnessPal is easy to use, very clear and a great partner for helping you reach your weight and fitness goals.

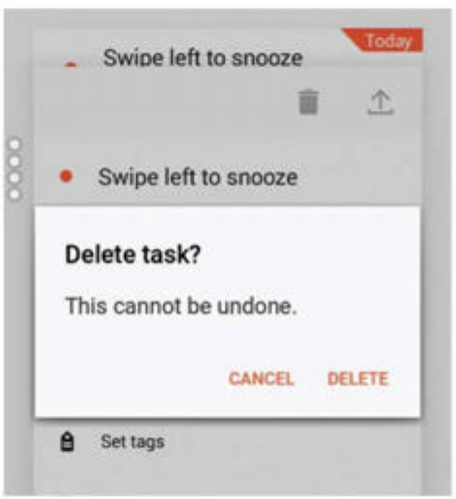
» **App name** Calorie Counter – MyFitnessPal
» **Price** Free
» **Requires Android** Varies with device

Manage your to-do list

Use **Swipes** to create a to-do list and conveniently order your tasks







1 Set up the app

Download Swipes from the Google Play store and open it up. Tap the plus sign in the lower-left hand corner to set up the first item on your To-Do list.

2 Set reminders

Select the category that your note needs to go in and type it in the box provided. If it isn't urgent, then swipe left to keep it saved until a specified time.

3 Complete your tasks

Once you have finished your task, swipe right to put it in the Done folder. To clear a task, tap on the name and select the bin icon for it to be permanently deleted.

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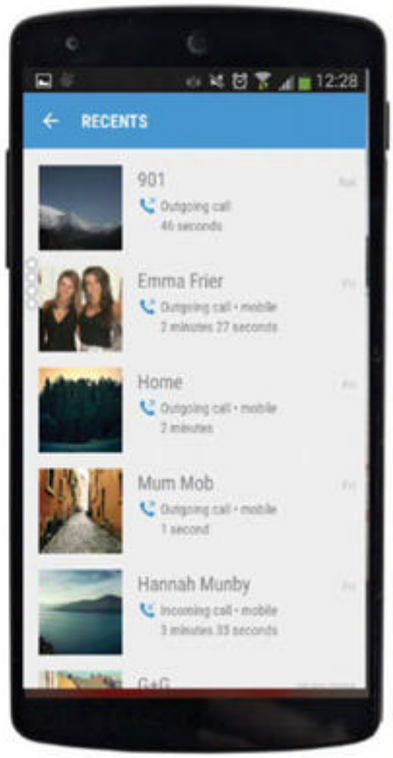
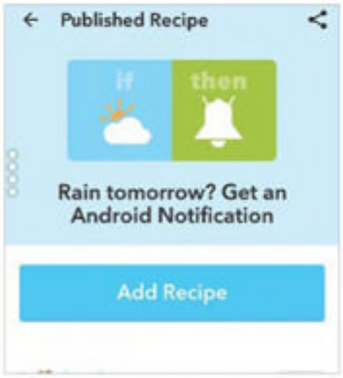
Keep up to date with all

When you're trying to remember the name of that person whose number you got last week, stock phonebooks are generally quite useless. Humin, however, comes to the rescue in the form of an attractively designed app that gives you a wealth of options for finding a contact whose name has slipped your memory. With Humin you can quickly find your favourites contacts list and there are also search options based on keywords, such as 'worked at' 'went to school with' and 'you missed a call from last month'. By going beyond the normal most called or alphabetical contacts list, Humin has created an intuitive phone book that will help the forgetful among you find the number that you need.

» **App name** Humin
» **Price** Free
» **Requires Android** 4.0.3



Find that lost contact that you've been racking your brains trying to remember



Create a command chain

IFTTT stands for If This Then That. This means that the app can link two of your phone's services, creating an action chain between them. So if you take a photo with Instagram, you can set it to directly upload to Twitter or if your weather app detects that rain is on its way, you can receive a warning text. This is a really useful time saver.

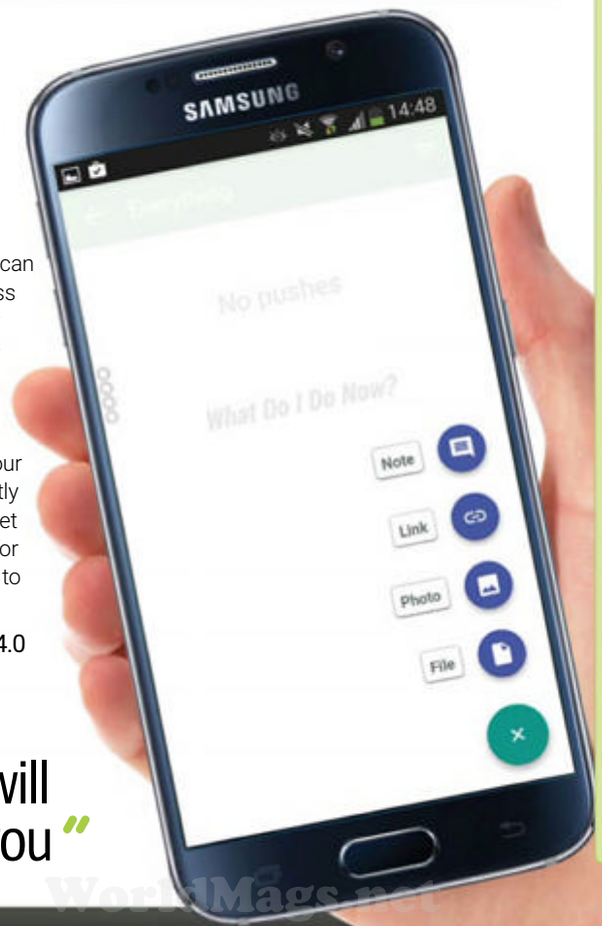
» **App name** IFTTT » **Price** Free
» **Requires Android** 4.0.3

Sync your devices

One of the great advantages of smartphones and tablets that can do the job of a PC, is that you can work anywhere you want. However, it can be annoying to have to transfer that data across to your work computer. Pushbullet avoids all that hassle by syncing your phone, tablet and computer so you can move files and documents from device to device with ease. This means you can work in the office, at home and on the move, without worrying about transferring big files via email. It's also really handy if you want to be able to view your phone notifications, text messages and phone calls instantly and without being seen to look at your phone, as you can set up notifications to appear on your computer screen. Both for work and recreation, Pushbullet is an essential companion to make your working day that little bit easier.

» **Price** Pushbullet » **Price** Free » **Requires Android** 4.0

> "Humin has created an intuitive phone book that will help the forgetful among you"



Boost your productivity at work

OfficeSuite 8

» **Price** Free + IAPs » **Android** 4.0

OfficeSuite Pro is one of the most comprehensive office program bundles on Google Play. It has well-stocked word document, spreadsheet and slide generating programs, and a PDF reader. All ideal for working on your tablet or smartphone and sliding across to your computer.

Dropbox

» **Price** Free + IAPs » **Android** 4.03

If you do a lot of work away from your desk and need to transfer big files across that are likely to bust your email attachment limit, Dropbox is the ideal solution. Bundle all of your files in one folder and send it to your Dropbox account, which is synced on your computer.

Cloud Print

» **Price** Free » **Android** Varies

In days gone by, printing could be a chore and printing from your phone was forgotten about. However, Cloud Print from Google connects to printers regardless of whether they're set up for cloud computing, and even takes files straight from your phone to the printer.

Evernote

» **Price** Free + IAPs » **Android** Varies

If you have to keep lots of different plates spinning in your personal and professional life, Evernote is perfect for you. You can create notes and reminders like normal, but the main draw saves them to lots of different notebooks, keeping everything accessible.

CloudMagic Email

» **Price** Free + IAPs » **Android** 4.0

Many of us have got lots of different email addresses, from official work ones to that Hotmail account you made in your teens. CloudMagic Email works with different types of email accounts, puts them together but also lets you split them up effortlessly.

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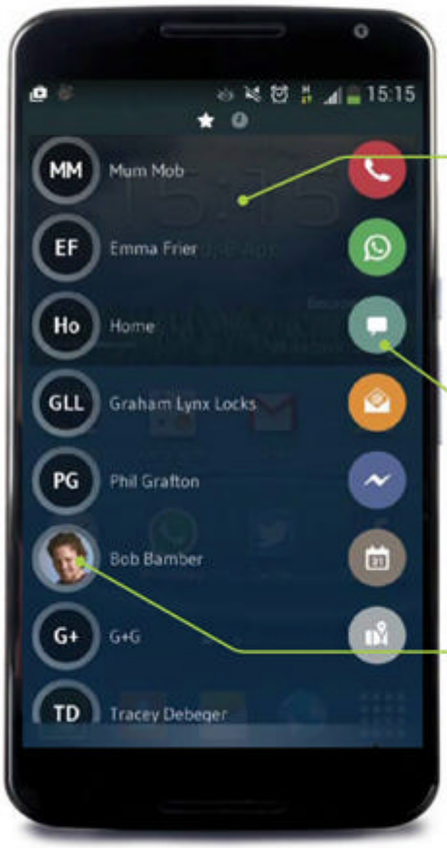


Multi-sorting
One swipe lets you choose your most contacted friends or your recent contacts, saving a lot of scrolling

App shortcut
You can also tap on the messaging icons to be taken straight to that app, so they also can act as a widget

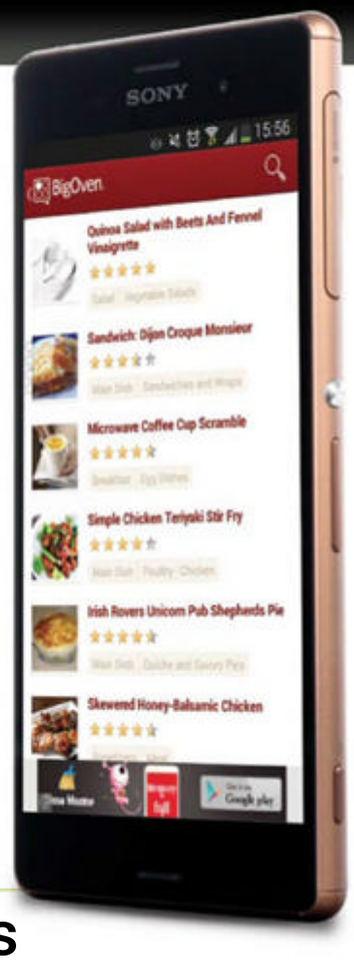
Drag and drop
Select the chosen contact and drag the icon over to whichever contact method you want to use

Organise a night out

With so many different messaging options available to us, such as Whatsapp, Facebook Messenger, email and even the humble text message, it can be a hassle to have to repeatedly open various apps to communicate. Drupe sets your favourite contacts on one side of the screen and a range of communication channels on the other.

» **App name** Drupe » **Price** Free » **Requires Android** 4.1

Get culinary inspiration



If you get a bit stuck in the kitchen, Big Oven is the place to go. There are over 35,000 recipes available with easy-to-follow methods and ingredient lists. There are dishes ordered by main ingredient, as well as a list of the hottest dishes of the month. Its main bonus, however, is the feature that takes three things you've got in the cupboard and suggests dishes that you can create from those three ingredients, perfect for getting rid of perishables just before a holiday. It's attractively laid out and the sheer volume of recipes will help you become a culinary master.

» **App name** BigOven
» **Price** Free + IAPs
» **Requires Android** Varies

Discover what's on TV

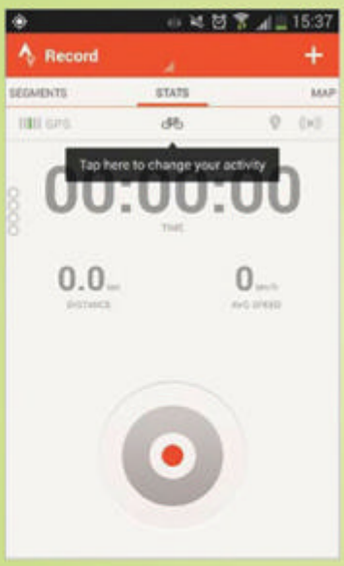
If you are planning a nice, settled evening in, the TV is often the first port of call. There are a large number of TV guide apps that will let you know what's on the box but one of our favourites is the TVGuide.co.uk app. It is very simply laid out and it only takes a touch to bring up programme information so you can discover if the episode of *Big Bang Theory* is the one you've seen a dozen times already. You can also watch movie trailers and search programs by genre, rating and actor.

» **App name** TV guide
» **Price** Free
» **Requires Android** 3.2

Keep in shape

There is little point in exercising if you've not got some kind of record of your progress. Strava is a great app for tracking your runs and cycles, telling you your split times and motivating you to beat your personal best. It only takes a couple of clicks to get going and you can save favourite routes and upload your runs or rides straight to social media for that extra motivational boost to keep you going.

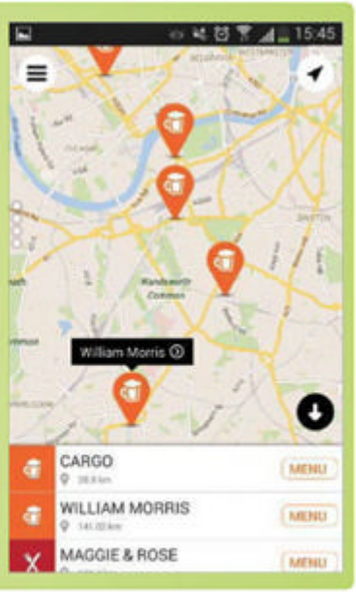
» **App name** Strava
» **Price** Free + IAPs
» **Requires Android** 4.0



Ultimate fast food

One of the most frustrating things when you're in a bar or restaurant is waiting to get served and get your drinks or food. Boppl enables you to bypass this by viewing a venue's menu before you're even there. You can also order and pay before you've sat down, speeding up the entire process. It is only in a limited number of locations but should prove a fantastic boost to your evening out.

» **App name** Boppl
» **Price** Free
» **Requires Android** 4.0



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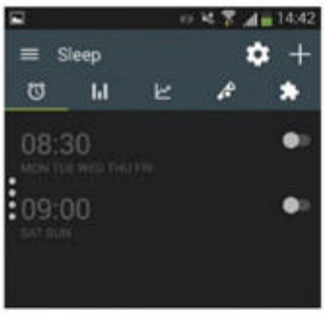
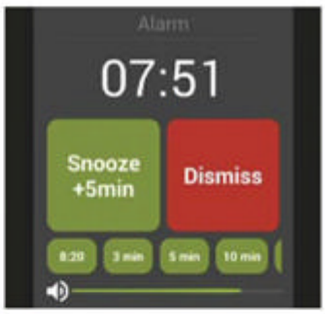
Sleep as Android

Get a great night's sleep with Sleep as Android, the app that tracks your slumber and wakes you up at the time that's right for your body



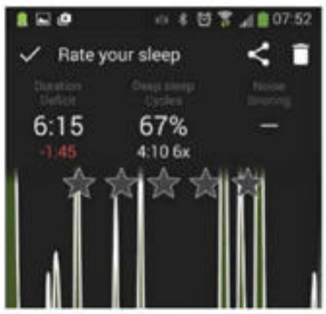
1 Set your targets

First, download Sleep as Android from the Google Play store. Set your sleeping targets and your alarm time, so it can alert you when it's time for you to go to bed.



2 Track your sleep

Set the phone down on the bed next to you. The accelerometer in the device will measure when you've fallen asleep and when you're in deep, REM or light sleep.



3 Measure your progress

The app will wake you up as you are exiting a REM sleep cycle so you should awake naturally. You can track the quality and length of your sleep on a graph.

Turn off to turn on

Durex recently ran a viral marketing campaign saying that they had developed an app that could revolutionise a couple's personal time. When it came to the reveal it was simple – the off button. This app encourages couples to set a time when their phones go off and they can spend time interacting with one another. This is a remarkably simple idea but very effective, and the app itself is also simply designed but attractive. In this age of constant smartphone use, this app helps you to put it down and spend quality time with your partner.

» **App name** Durex Connect
» **Price** Free
» **Requires Android** 4.1

Guarantee yourself a truly good night's sleep

The day is over, you've laid your head down to rest, you're just drifting off and all of a sudden you get a Facebook notification from a friend asking for help with *Candy Crush*. Do Not Disturb prevents this by muting all notifications but keeping your alarm in tact, something a few other silent mode apps fail to do. It only requires a few, non-personal permissions as well so is less intrusive than many others. It is quick and easy to set up quiet periods during meetings and on-going periods of quiet, such as at night time. Do Not Disturb is well designed, reliable and adept at keeping those pointless night time notifications at bay.

» **App name** Do Not Disturb
» **Price** Free
» **Requires Android** 4.0

"It is quick and easy to set up quiet periods during meetings and ongoing periods of quiet"

Can't sleep? Top 5 games

Snail Bob

» **Price** £0.79 » **Android** 2.3

The popular iOS game comes to Android. This slow paced puzzler sees you helping the title character crawl his way across the screen by shifting objects around to create a path from A to B. Charming, entertaining, tough but not a heart-raiser.

Royal Trouble

» **Price** Free + IAPs » **Android** 2.3

This entertaining escape game features the constantly arguing Prince Nathaniel and Princess Loreen attempting to find their way out of a castle. The banter is good fun and the puzzles are tough, which should hopefully tire your brain out for the evening.

Sky Wings

» **Price** Free + IAPs » **Android** 4.0

Sky Wings is an entertaining cartoony endless flier. You have to dodge other planes, rocks and bridges to try and score the highest total possible. As there is no end game, this is the kind of game you can put down at any time which is useful.

Honey Heroes

» **Price** Free + IAPs » **Android** 2.3

If you want that warm, fuzzy feeling just before bedtime, then Honey Heroes could be right up your street. Create links between tiles to explode them and save creatures, but the added bonus is every time you find a golden bee, the game creators save a real bee.

Swords & Poker Adventures

» **Price** Free + IAPs » **Android** 4.0

This might be a bit on the stimulating side for last thing at night, but if you want to just play a bit of poker to wind down after a tough day then this is a great game with the added bonus of an RPG to keep things really interesting.

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» masterclass

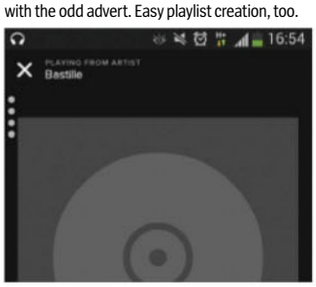
Enjoy Google Play Music everywhere

Optimise your Google Play Music experience on your mobile, laptop and smartwatch

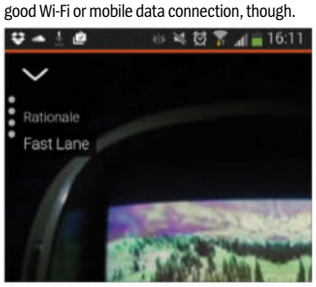
You may not be aware that Google Play Music offers a number of options for doing more than just music playing. Not only does it integrate well with other services, but you can also use it with your Android Wear device. It comes with pretty much every Android phone so you won't have to work hard to download anything beyond your music. As with so many mobile apps there is a free and paid option, with the latter giving you full access to the Google Music library and the YouTube Music Key. Therefore, we will show you what you can do with Google Play music, including editing songs, creating playlists and syncing it with your iTunes account and Android Wear. We will also show you how to share songs and use Google Play Music on your laptop.

Indie alternatives Don't like Google Play Music? Try this alternatives

Spotify Music
Spotify is generally the first port of call for music lovers. It provides an array of songs to choose from, with the free version propped up with the odd advert. Easy playlist creation, too.



Soundcloud
Soundcloud is an online streaming service where users can share music and discover new music via their contacts. It needs a good Wi-Fi or mobile data connection, though.



Tidal
New from Jay Z, Tidal is the first music streaming service to offer High-Fidelity sound quality, which means it has less distortion and is closer to what you hear listening to a CD.

Use Google Play Music without any cost

1. Subscribe
You can use Google Play Music for free, although the paid option lets you listen, without any adverts, to Google's back catalogue that contains millions of songs. Google is currently offering a 30-day trial for free, but after that it will cost you £9.99 per month.

2. Sample songs
Google Play Music does give you the option to listen to short samples of each song on an album before you download it to give you the chance to have a taste of it before forking out for the whole record.

3. Discover new music
Google also offers a free song, usually from an up-and-coming artist, so you can get to discover new music without it costing you a penny. Remember to keep checking back to see if the free track has changed and a new artist is taking the spotlight.

4. Use Wi-Fi to download
If you are downloading those free tracks, don't forget to make sure Download via Wi-Fi only is ticked in the Music Settings. You can find this by going to the hamburger menu located in the top-left hand corner.

5. Stream via Wi-Fi
As well as the previous tip, make sure that Stream via Wi-Fi only is ticked in that section as well. This is not automatically checked, so tap the tick box to ensure that you don't get charged for listening to music via the service. It could quickly get expensive otherwise!

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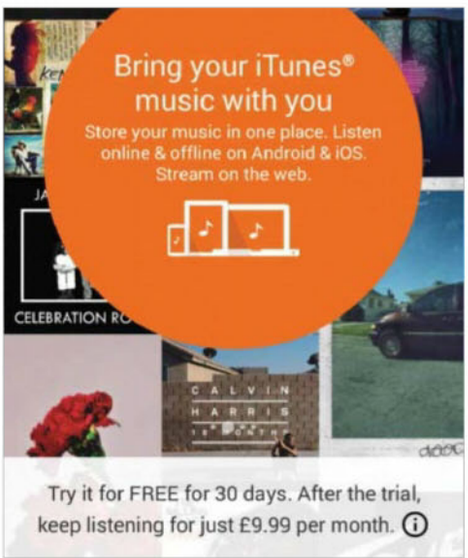
Get your free trial

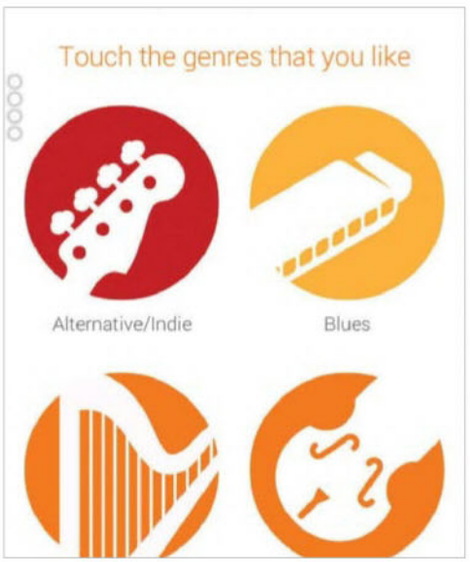
Enjoy 30 days of All Access music for absolutely nothing

Google offers new users 30 days of free music streaming and downloads before it starts charging, so here are a few steps to help you make the most of that amazing month and also ensure that you don't accidentally keep paying long after you wanted to stop.



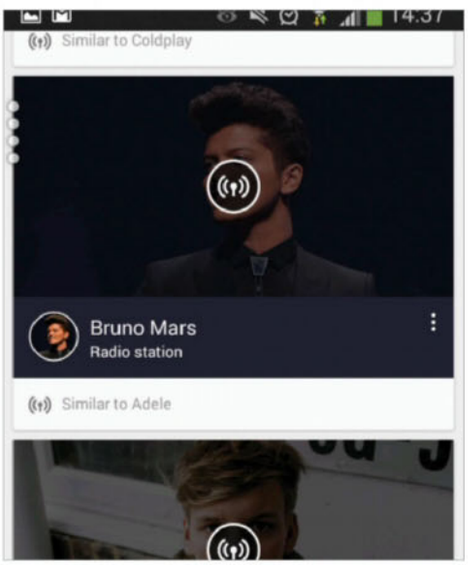
1 Get started

The first step towards claiming your free trial of Google Play Music is to load up the app and simply click on the Get Started button which is in the bottom-right hand corner of the app's main homescreen. You can't miss it!



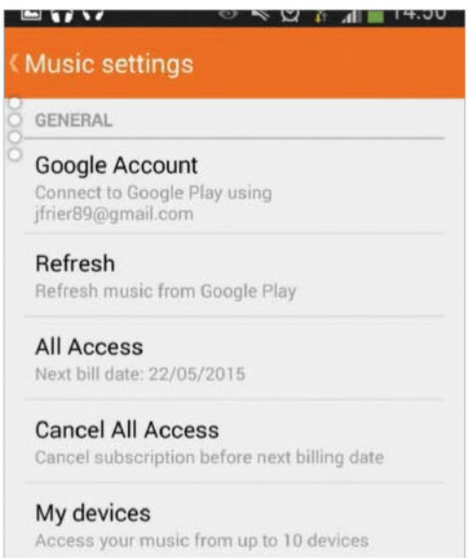
2 Select your preferences

The app will then give you the option of selecting what music genres you are a fan of and, following that, what artists within those genres you particularly like. This helps Google Play Music put together suggestions to suit your tastes.



3 Choose your tunes

Now, just enter your Gmail address and you will be good to go. The app will create various playlists for you or you can use the magnifying glass in the top-right corner to search yourself and explore what's available.



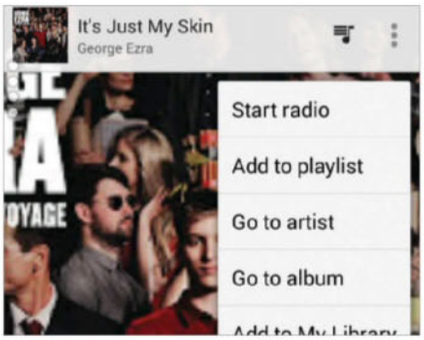
4 Don't pay accidentally

Head into your music settings by clicking the hamburger menu in the top-left hand corner, where you should see the option to cancel your subscription before the next billing date. This will delete your trial automatically.

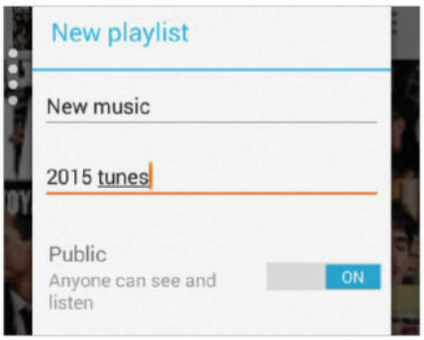
2 min guide

Whether it's your Saturday night jam or a Sunday chillout, here is how to create the perfect playlist

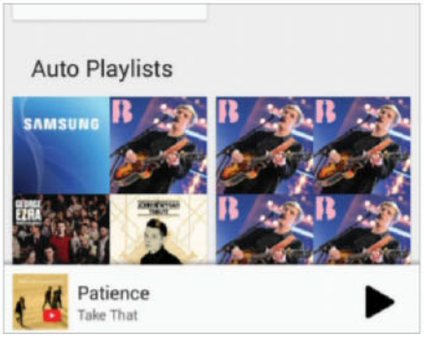
Make your own playlist



1 Select your song and press the triple dot menu in the top-right hand corner. This will bring up the menu bar. Then press 'Add to playlist'.



2 If you have existing playlists it will give you the option to add the song to them. If not, you can create a new one. The slider makes your playlist private or public.



3 Continue to add songs to your playlist via this method. You can find them again by going to the hamburger menu and selecting the Playlists option.

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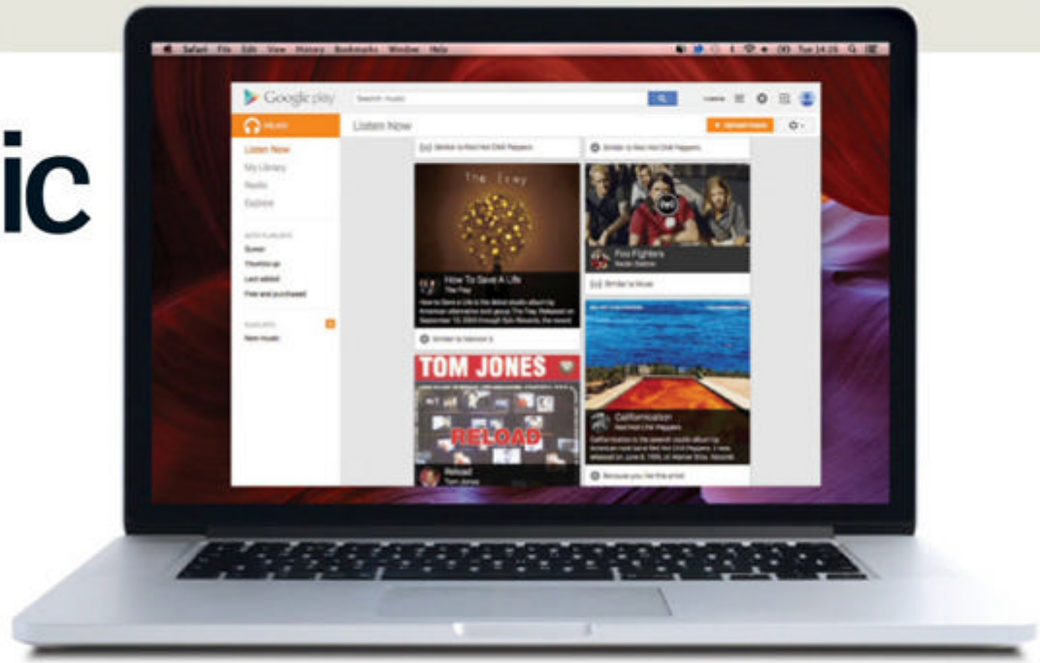
Add music to your desktop

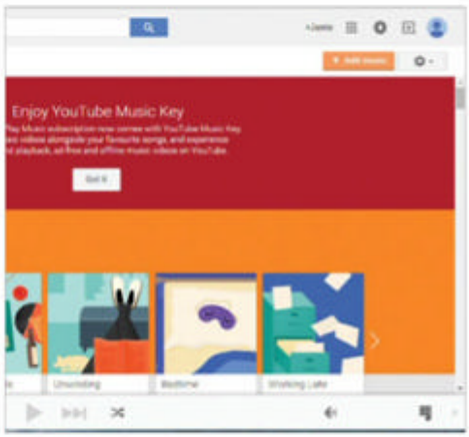


Port all your songs from your various accounts to Google Play Music

While Google Play Music is great to have on your phone, it's also good to have your music available on your computer so you don't use up every bit of your battery if you're listening to your music at work all day. Google Play Music is not only playable through your browser with just one download and a bit of uploading, but it also has all the functionality of the mobile version. It integrates well, as anything you upload or download via one platform will automatically show up on the other, making it easy to switch between devices and not have to change devices when you want a particular song. You will have to use Google Chrome to begin with and manage your music, but after that any of the browsers will work for you. This tutorial shows you how to set up Google Play music on your Chrome browser, add music from your collection onto your Google Play Music account and then add it to your playlist.

1 Download the app

Fire up Google Chrome on your PC and search for Google Play Music in the Chrome Web Store. In the top-right hand corner you will see the option to 'Add To Chrome'. Click this and follow the instructions until the app is added.

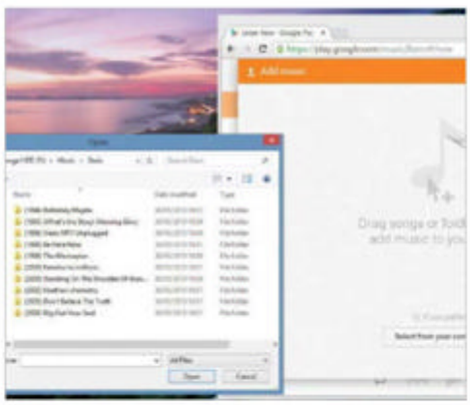


2 Add music

Open up Google Play Music by either the Play Store app or by typing **play.google.com** into your search bar. In the top-right hand corner you'll see an orange box that says Add music. Click on this. Alternatively, go via the Settings cog next to it.

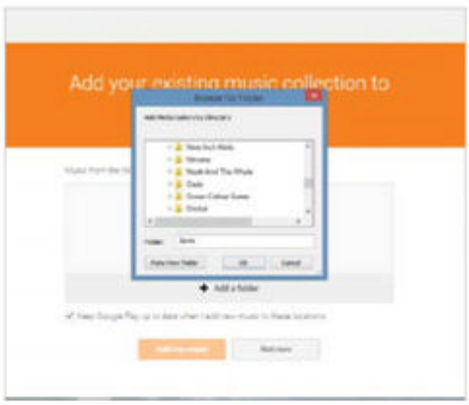
3 Choose your add method

This screen gives you two options for adding music to your account. If you have an iTunes library or an external hard drive storing music, you can drag, while music on your hard drive or SD card will be selected manually.



4 Drag songs on

The slightly more complicated option is dragging songs onto your account. If you're doing it via iTunes, Windows Media player or an external hard drive, load that up, find the song or album you want, then click and drag it onto the browser.



5 Add music folders

You can choose to add a whole folder to your account. Choose the option 'Select from your computer' and click 'Add a folder'. This will bring up a dialogue box that will let you upload all your tunes and start listening to them mid-upload.

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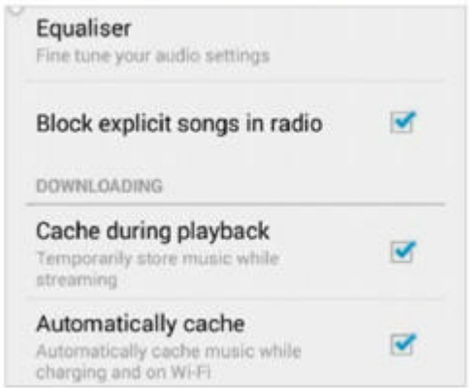
Change audio settings

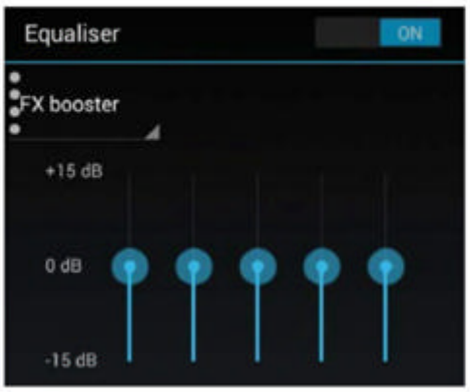
Alter the equaliser to get the best sound for your favourite genres

While many people are happy to just listen to their music and not worry about subtleties such as bass and treble levels, there are a lot of people who care about getting the sound just right. Google has added the option to change the equalisation on individual songs or even entire genres with some easy-to-operate sliders. This will prove really useful to music lovers that want to crank up the bass on certain tracks but have a much more mellow experience for others. This customisation is yet another addition to Google Play Music that has set it apart from its rivals. This tutorial will show you how to find these sliders and change them to suit your musical tastes.



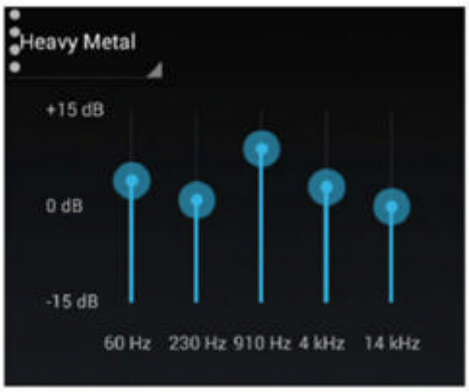
1 Locate the equaliser

Open up the Google Play Music app and tap on the hamburger menu in the top-left hand corner. Scroll down until you see Music Settings near the bottom and click on that. Scroll down again until you see the Equaliser menu option.



2 Adjust sound levels

Click on Equaliser and you will be taken to this screen. Here you can adjust the bass levels and surround sound settings. If you're into musical customisation, you can change the power output at certain frequencies to get that sound just right.



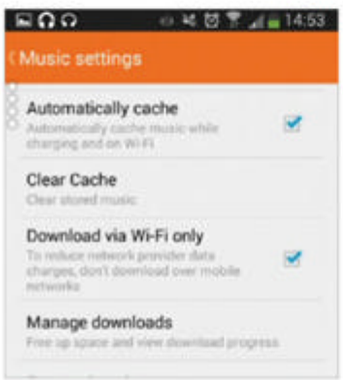
3 Change levels for different genres

Click on the menu in the top-left that says FX booster. This will create a dropdown menu that has all Google Play's music genres. Adjust the settings to affect all music you play in this genre.

2 min guide

Use Google Play with Android Wear

Leave your phone at home and stream music through your smartwatch with these top tips



1 Download music

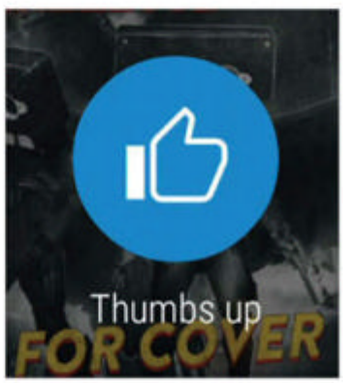
Go into your settings from the Google Play Music app on your phone. Scroll down until you see the option to 'Download to Android Wear'. This syncs everything across to your Android Wear device so you can listen without being online.

2 Customise for watch

Start playing your music via your phone, making sure that it's connected to your smartwatch. You should see the track title and artist on the face of your watch. You can customise this to show the album artwork too.

3 Adjust sound

If you want to make adjustments to the song you're listening to, such as turning it up or down, skipping it or returning to the start, swipe left on your watch screen. This will bring up the screen that is shown above.



4 Rate track

You can also rate the song you're listening to by swiping left again and tapping the Thumbs Up icon. You can't give a song a thumbs down, unfortunately, but your positive reaction can be seen by anyone on Google Play Music.

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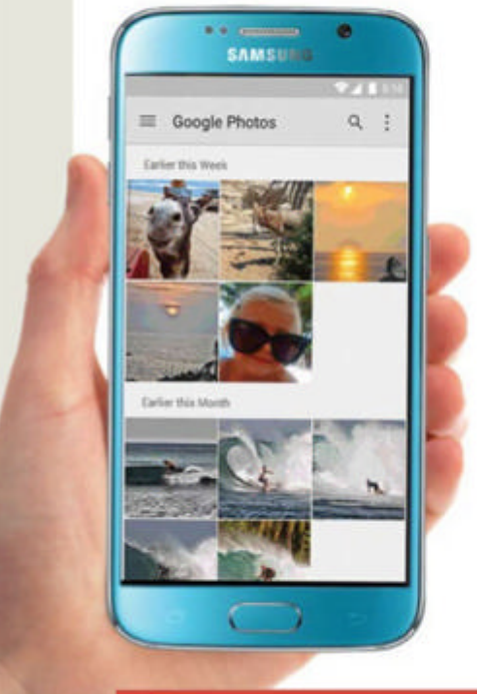
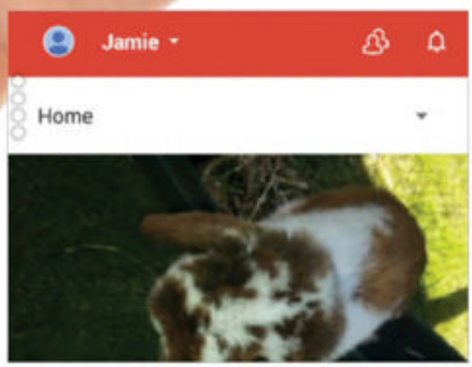
App used » Google Drive **Works with** » Varies with device



Manage photos and videos

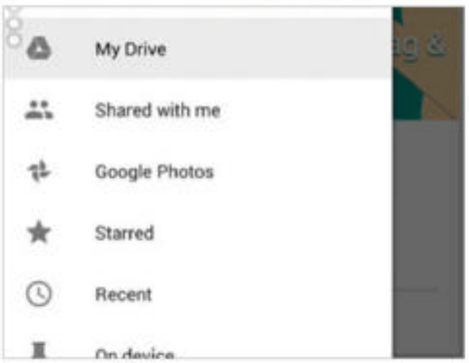
Make the most of Google Drive's latest update to manage your picture and video files

For a long time, users of Google+ have had to back up their pictures to Google Drive manually, by clicking the Share button and sending them over to their cloud storage account. However, in the latest round of Google app updates, pictures that are uploaded to Google+ will also be automatically backed up to the user's Google Drive account. This is accessible via a new tab in the Google Drive menu, under the heading Google Photos. You are also able to back up and sort your pictures into files in your My Drive section. You needn't worry about wasting valuable space in your Drive account either, because even if you back up your pictures in the two different places, it only registers one photo-worth of storage space. This tutorial will show you how to locate your My Photos section and manage your pictures.



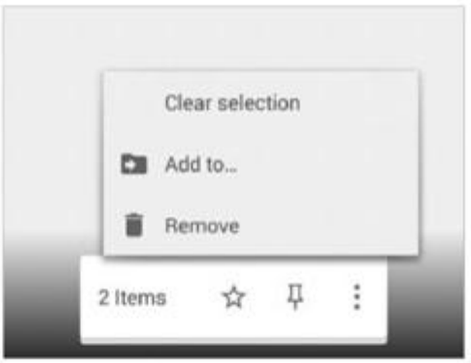
1 Set up accounts

Go to the Google Play store and download Google Drive onto your phone. If you haven't already, set up a Google+ account and upload your photos. Once you've uploaded a picture, it should automatically get added to your account.



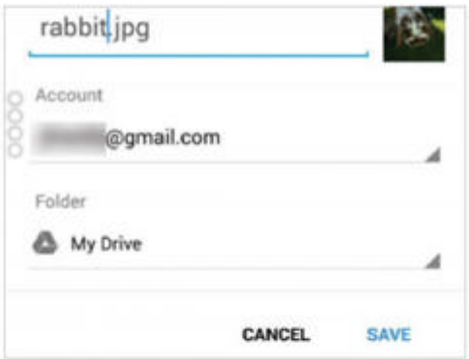
2 Find your photos

Load Google Drive and click the hamburger menu in the top-left. You should see a Google Photos option, but if not, you may have to update your phone's OS or Google Drive. Click Google Photos and it should show your Google+ pictures.



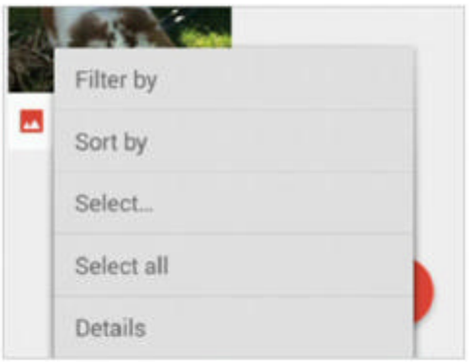
3 Manage your pictures

If there are pictures you don't need or want to have added to your Google Drive account, it's easy to get rid of them. Long-press on any image and an action box will appear at the bottom of the screen, letting you delete or move them.



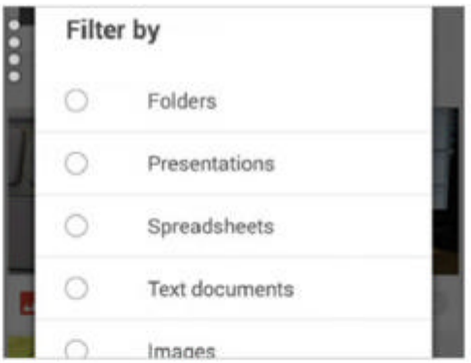
4 Move your pictures

If you want to group your photos into albums, click on Add To. This will show you with the various locations photos can be moved to. Either create a new folder or choose an existing one, re-name your photo if required and click Save.



5 Sort them out

Once they've been saved in your chosen folder, you can sort them. Press the menu button which will bring up options to sort your photos via date added and last opened, among others. This should help you find pictures much more quickly.



6 Filter your search

As you're able to add videos and other documents to your Drive, your folders could start to get large and tricky to navigate. In your chosen folder, press the menu button again, then Filter by and you can elect to show just specific files.

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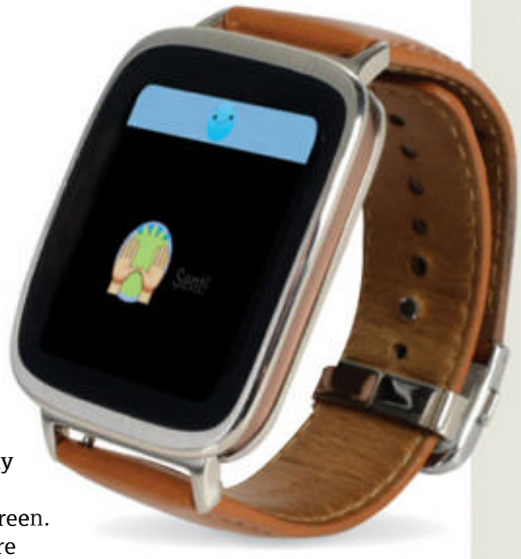
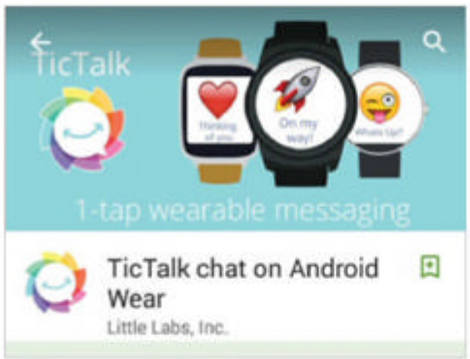
App used » TicTalk **Works with** » 4.4 and up

Chat with emoji via Android Wear



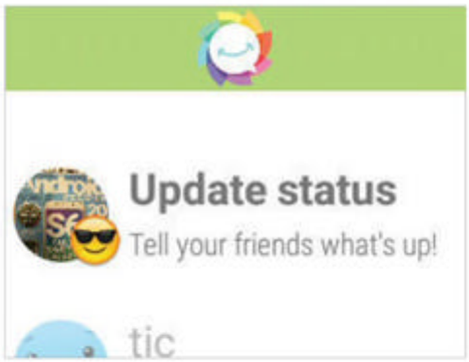
Still waiting for the Android Wear update? Try TicTalk's free app instead

One of the hottest features of the Apple Watch is not only being able to send friends doodles. Google has started rolling out its own rival gesture-based emoji communication system for Android Wear, but a feature very similar to this has actually been available for a while via the TicTalk messenger app. Arguably superior to the official Android Wear feature, TicTalk is packed with the most used messages to start a conversation as well as predefined responses. Represented by an emoji, such as space rocket to say 'On my way,' you can easily select one of these messages with a tap and understand them with only a glance at the screen. Here's how it all works, as well as how to share your heartbeat with loved ones, Apple Watch-style.



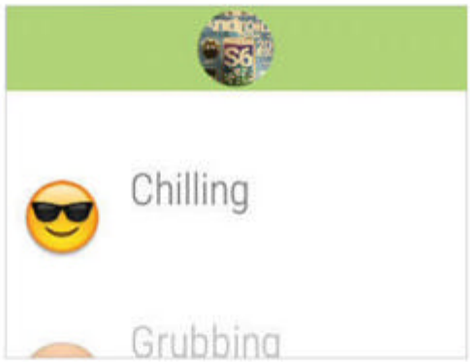
1 Download and sync

Search for TicTalk chat on Google Play and download it. If you haven't already, sync your smartwatch with your phone so that they are connected. When this is done, scroll down your smartwatch where the TicTalk app should appear.



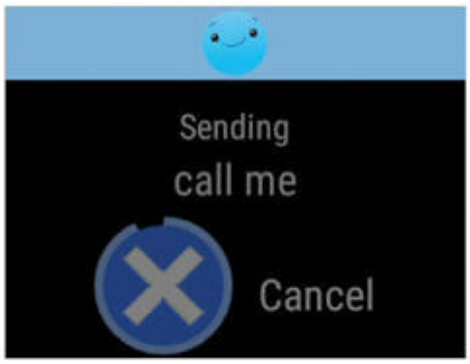
2 Set up the app

Sign in to TicTalk chat with your details and select a profile picture from your store. This will then automatically appear on your watch. You are now set up on the app and can start sending messages to your fellow Android Wear users.



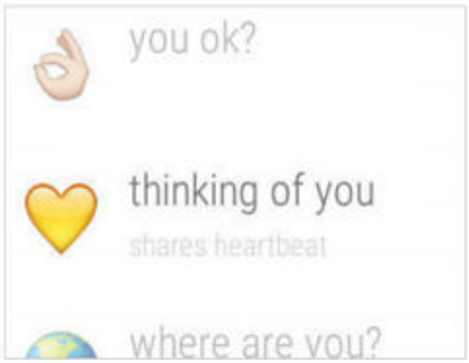
3 Start to send messages

Tap on the Update status icon on your smartwatch. This will take you to a screen that gives you options to say what you're up to, such as Chilling or Grubbing (Eating). Tap on this and it will send an alert to anyone you're linked with.



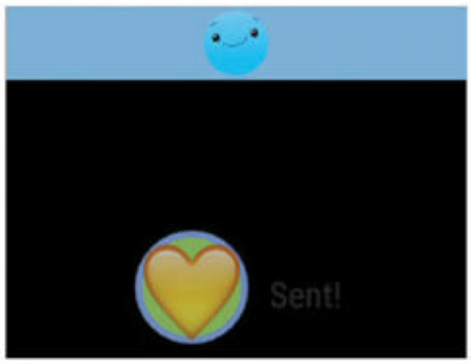
4 Send a page message

Scroll down through the homescreen and you will find the option to send a message to a contact to 'call me'. This is handy if you are out of credit but need to contact someone, or if you've lost your phone and need a ringtone to locate it.



5 Check friends' locations

The home menu has the option to send a message asking where someone is. They can reply with a single click that brings up a map, showing their current location. They can do this with their phone for you to navigate via your watch or phone.



6 Give a heartbeat

TicTalk chat already has a system for sending heartbeats. Scroll down the home menu and tap on 'thinking of you'. If your Android Wear device has a heart-rate monitor, it will measure and send your heart-rate to your contact.

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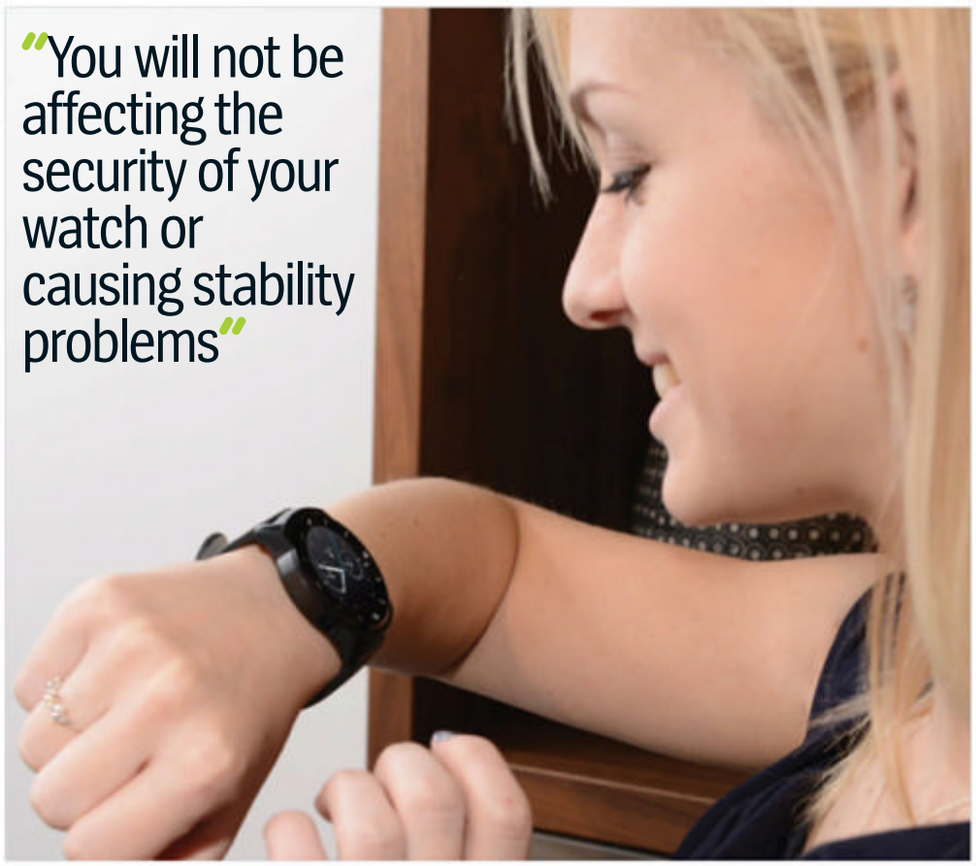
App used » Android Wear **Works with** » Android 4.3 and up

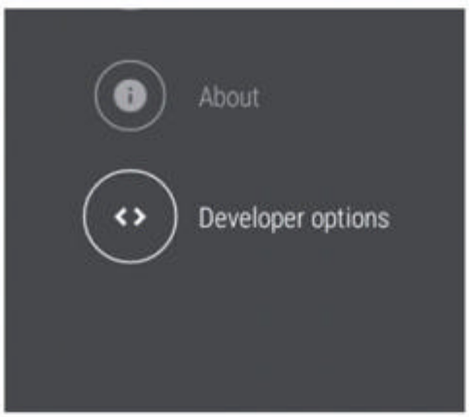
Take a screenshot of your watch

Capturing the screen of your Android Wear device for use in different circumstances isn't difficult, your phone does all of the hard work

You may not need to capture screenshots of your Android Wear smartwatch often, but it is a technique that has proved to be very popular on phones and tablets. They can be used when you have a technical problem and need to share evidence with a support team, or even to show off your preferred interface with others. In fact, once you learn how to do it, you may find that you start taking them a lot more often than you anticipated.

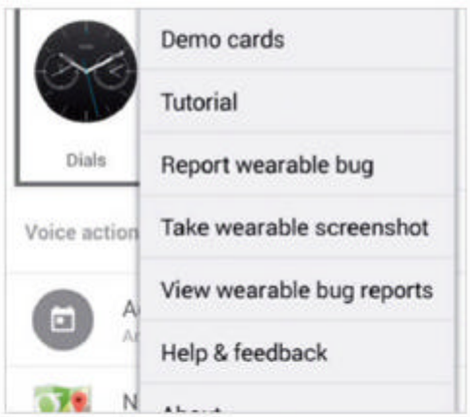
Developer Options have to be enabled and while this may feel like it is opening the device up to areas that you would not normally require, if you just use them for screenshots alone you will not be affecting the security of your watch or causing any stability problems. Your phone will use the Android Wear app in order to capture the current Android Wear screen and will initiate a new email that can be sent immediately, so that you can share the image or edit it as required. This method highlights how much of the work your phone or tablet does when it comes to Android Wear watches, but it also shows how well the two can work together wirelessly to help you get things done. This is a simple process that can be understood in a matter of minutes.





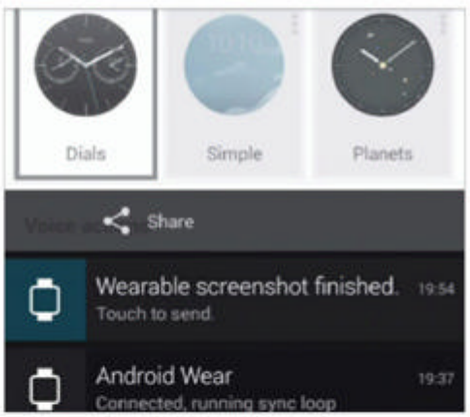
1 Enable the options

Enable Developer options on your Android Wear device to be able to take screenshots. You can do this by tapping the Build number in Settings>About multiple times.



2 Select from the menu

When you open the Android Wear app on your phone and tap the menu icon, you will see a 'Take wearable screenshot' option within the list. This is all you need to proceed.



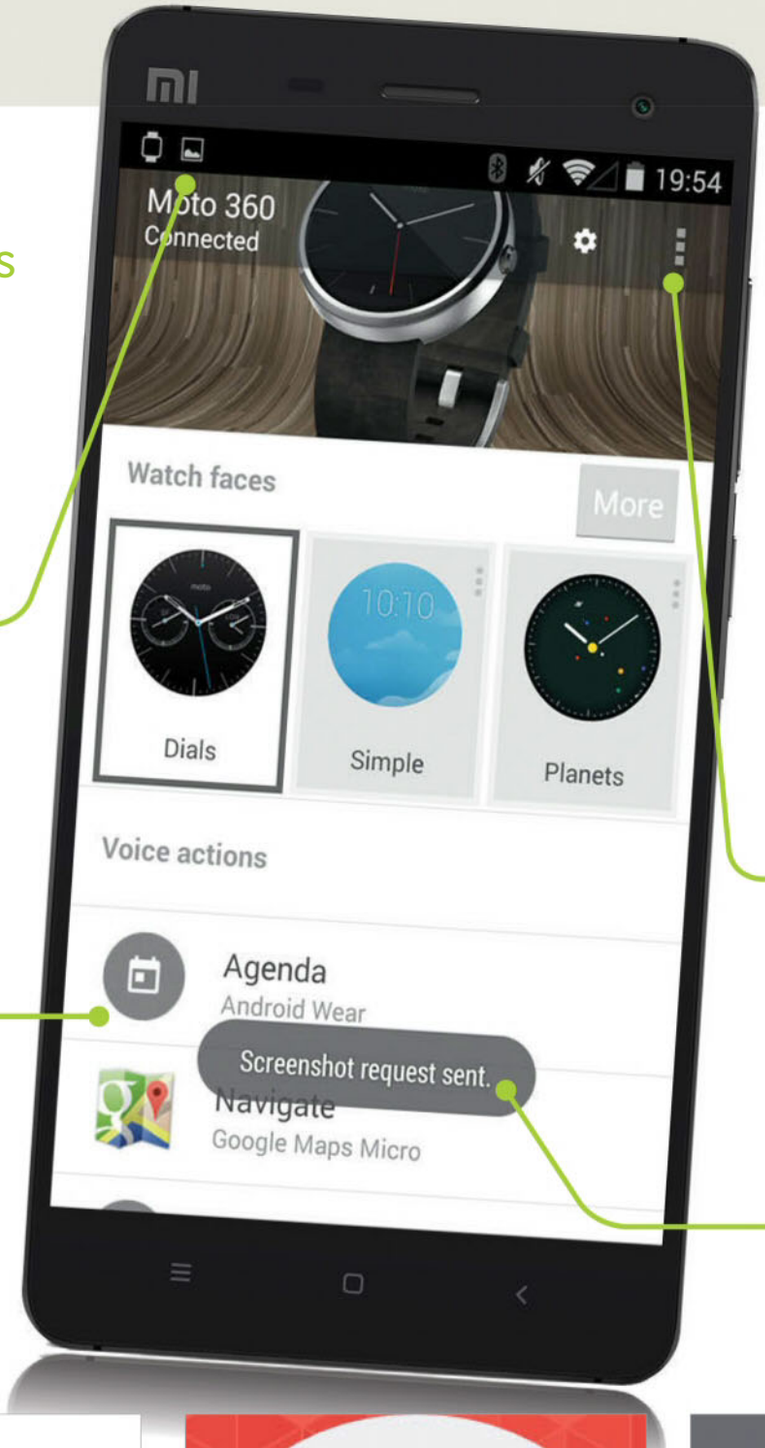
3 Read the notification

Tap the option quoted in Step 2 and after a few seconds a new notification will appear at the top of the screen. Pull the bar down to see 'Wearable screenshot finished' listed.

WorldMags.net

Quick Android Wear screenshots

Snap a shot at any time with just a couple of taps on your phone



Send the screen

You can now pull down the notification bar at the top and tap the screenshot bar. It will open the Gmail app straight away so it's ready for you to add an email address and send a new message

Square or round?

Even if the watch you're using is round, the saved screenshot will still be square. Round devices, such as the LG G Watch R, will leave a black circle on the final image that is created

Use the menu

Tap this icon and then 'Take wearable screenshot' at which point the image will be grabbed immediately. Once you start using this process, it will feel perfectly natural to do

The confirmation

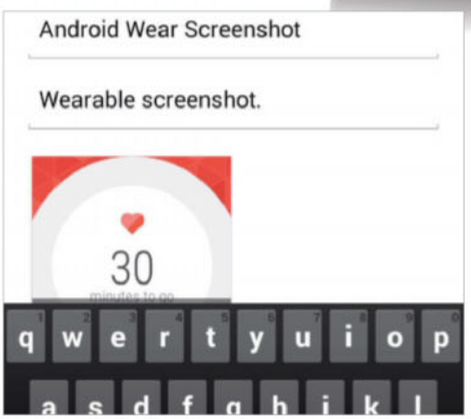
This alert will appear as soon as the screenshot has been captured and it has been added to a draft email in the Gmail app. No other notifications will be shown on the screen at this point

faq

Ask your own question online at **littlegreenrobot.co.uk**

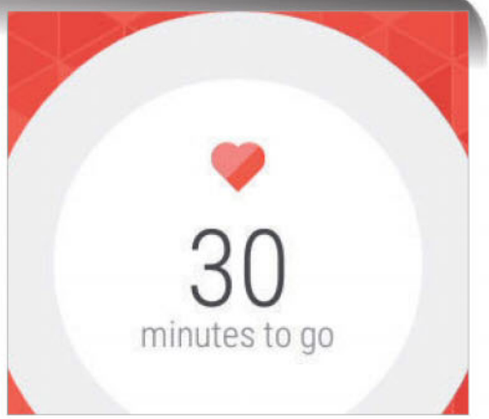
It didn't work. Do I have to start over?

Sometimes the emails will not always send, particularly if many are taken close together. In this case, you can hit the back button in the Gmail app and the screenshots will be saved in Gmail drafts for you to pick up from a desktop PC or other device. This works every time and is a useful workaround if you have problems when sending them normally.



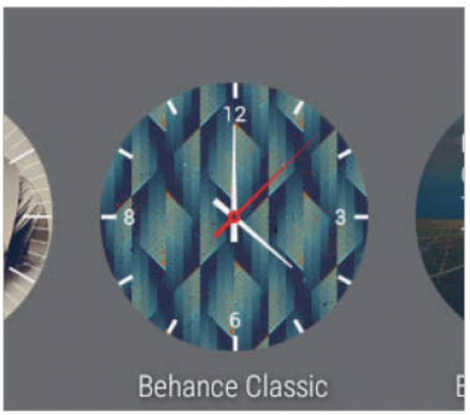
4 Send the email

When you tap the notification you will then be taken to the Gmail app, which shows an email ready to send with the screenshot file included. Enter an email address and tap Send.



5 Save the screenshot

You can now save the screenshot from the received email which will show exactly what was on the Android Wear screen at the time you took it. They will be quite low resolution.

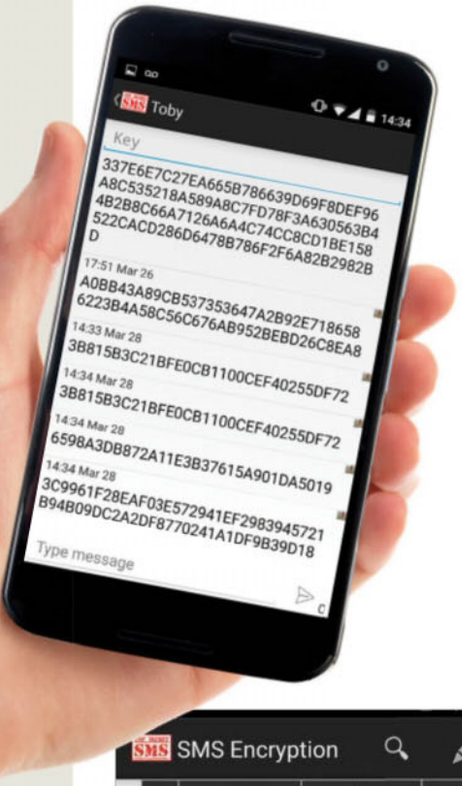


6 A square screen

Even if your Android Wear device is round, the resultant screenshot will be square because this is the natural environment for the software. Some edges may sometimes be cut off.

WorldMags.net

App used » SMS Encryption **Works with** » Android 4.0 and up



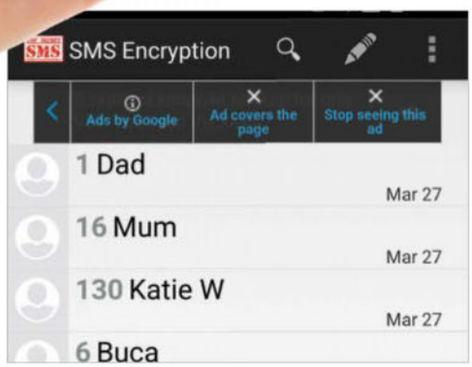
Send encrypted SMS messages

Make sure your private text messages remain secret, use the SMS Encryption app

Are you concerned about privacy? Maybe you're sending and receiving messages that contain sensitive information, or you just want to make sure your private messages stay that way!

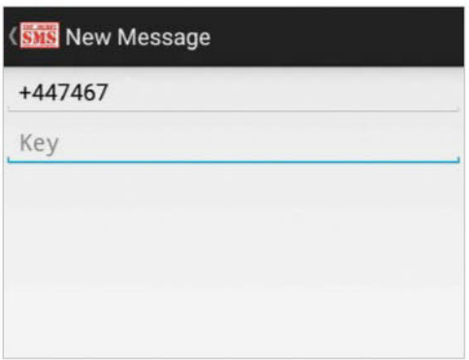
SMS Encryption is an app you can use to send and receive encrypted messages. It encrypts your messages on the sender side, so that the 'sent' message is encrypted on your device and arrives on the receiver's device in the same way. It's also encrypted in transit between the two devices.

Whenever you want to send a message through SMS Encryption, you create an encryption key which the receiver must enter to read your message. You can create different keys for different contacts and multiple keys during the same conversation as well. Download the SMS Encryption app for free from the Google Play store.



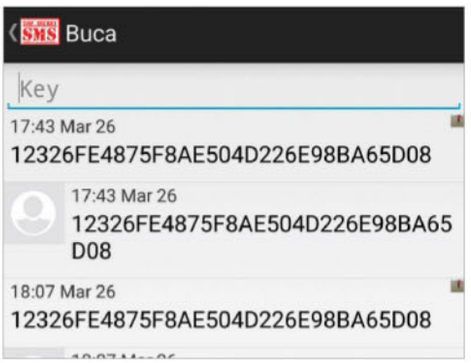
1 Select a contact

Launch SMS Encryption. You'll see a list of contacts, so tap the one you want to message. Messages sent before you installed SMS Encryption will appear un-encrypted, don't worry if you see un-encrypted messages at this point.



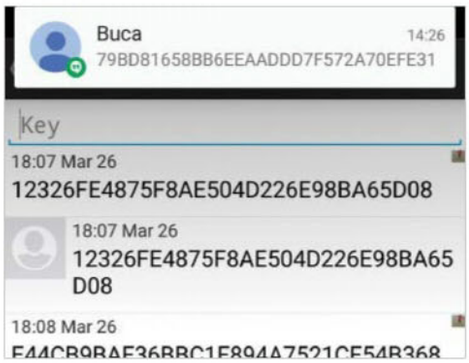
2 Create your key

In the Key field create your encryption key. This is the key the recipient must enter to read the message. It's also the key you'll use to read your sent message. It isn't stored anywhere in the app, so make sure it's something memorable.



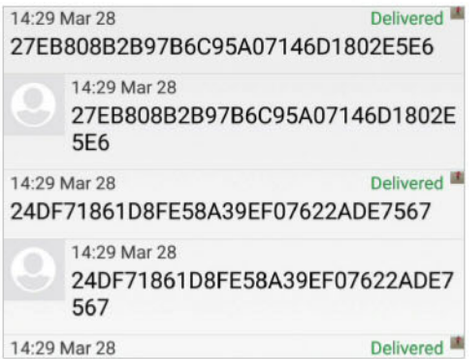
3 Send encrypted message

When you're happy with your message, click Send. The sent message will change into a string of numbers and letters. If you want to see the sent message in its un-encrypted form, tap the Key field and enter your encryption key.



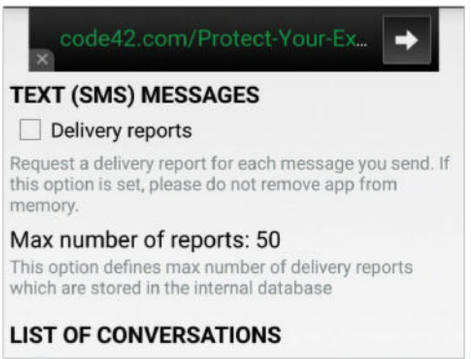
4 Receive messages

When you receive a message that's been encrypted, open the app, find the encrypted message and enter the encryption key in the Key field. When having an encrypted conversation, it's easier if you both use the same key.



5 Get delivery reports

It is useful to add delivery reports to your messages. Tap the menu icon in the upper-right corner, select Settings and then Delivery reports. Once enabled, a green 'Delivered' appears next to each sent message.



6 Sort list by date

Contacts are stored in alphabetical order, but you can arrange them based on the date of your sent and received messages in Settings>Sort list by date. You can also opt to 'Exclude messages which are sent by unknown person'.

WorldMags.net

App used » Ampere **Works with** » Android 4.0.3 and up

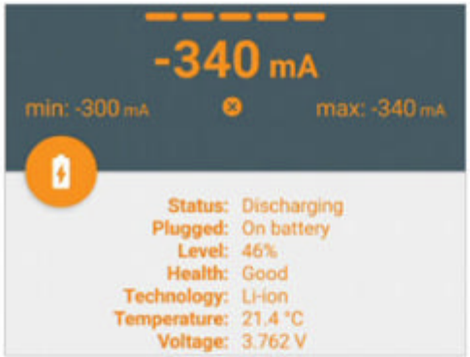
Test your chargers and USB cables

Find the perfect charger and USB cable combo for your device with Ampere

Does it seem like one charger or USB cable charges your device quicker than another? Well, now you can see if this really is the case.

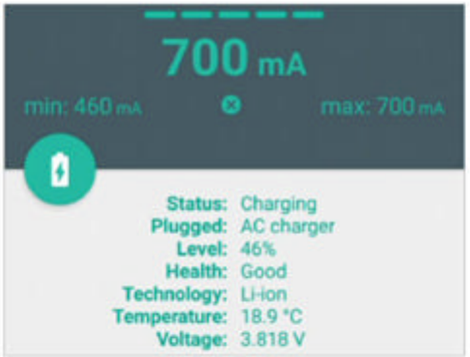
The Ampere app measures the battery charging and discharging current. If your device isn't connected to a charger, you'll see a negative, discharging current, but if you connect it to a power source, you'll see the amount of current that is going into your device. This means you can test different combinations of cables and chargers, and identify the combination that works the best.

You can download Ampere for free from Google Play. Although it's compatible with devices running Android 4.0.3 and up, some Android devices lack an appropriate measuring chip which prevents Ampere from working properly. Find a list of unsupported devices on Ampere's Google Play page.



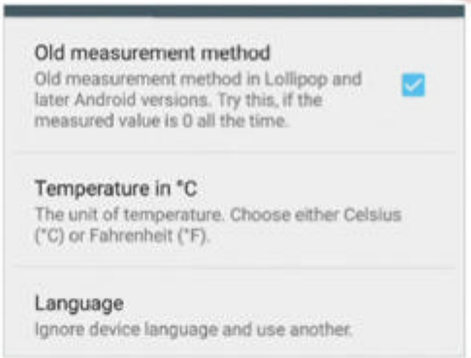
1 Check discharging current

First, launch Ampere. The app will then display stats about your device. Next, plug your device into a power source using one of the chargers and USB cables that you want to test, and you'll be given a measurement for the current.



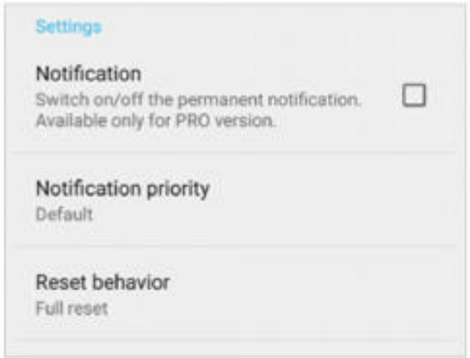
2 Test cables and chargers

Ampere's readings aren't exact, but they're good enough to measure how different chargers and USB cables fare with your device. Once you've got your first reading, try different cables and chargers to find the highest charging current.



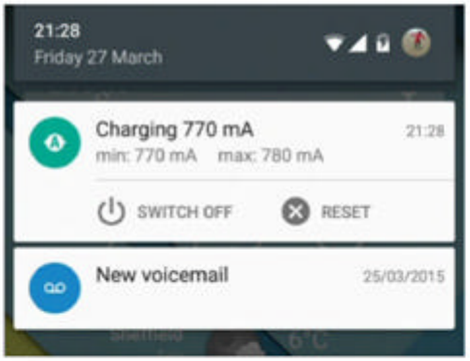
3 Stuck at zero?

If Ampere is displaying 0, your device could be missing a working power profile. The app may work by tapping the cog in the top-right corner and selecting 'Old measurement method'. Return to the main screen and see if the value has changed.



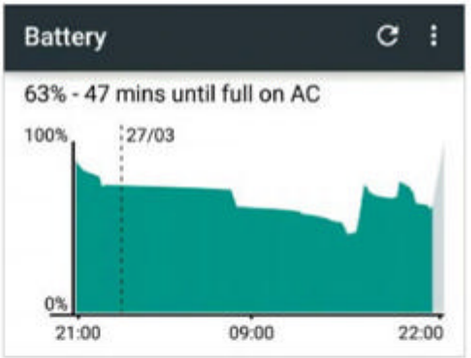
4 Additional Pro features

You can disable adverts and enable some additional features by buying the Pro version (£0.75). To purchase, tap the key icon in Ampere's toolbar and follow the on screen instructions. If you go Pro, tap the cog icon to see added options.



5 Add a notification

Tap Notification to add an Ampere notification to your notification drawer, and then open the drawer to see the stats. Here, Ampere can perform calculations from scratch through Reset, or remove notifications with Switch Off.



6 Examine battery usage

Use Ampere's shortcut to the Battery page to see your battery usage. Tap the battery icon to go to a screen where you can examine which apps or services are being used and to track your battery usage over time.

WorldMags.net

App used » Android-x86 **Works with** » N/A

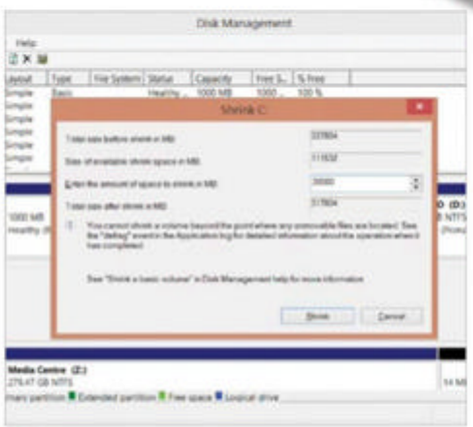
Use Android as your desktop OS

You've put your phone down – but the Android experience doesn't have to end there

Ever sat at your desktop PC or laptop and moaned about the lack of apps to help you complete simple tasks? Whether you're missing Instagram or a Facebook chat app on your PC, or something more involved like a game or competent Twitter app, there really is no reason to continue suffering in silence. If you're fully signed up to Android on your smartphone and/or tablet, you might as well install it on your computer too!

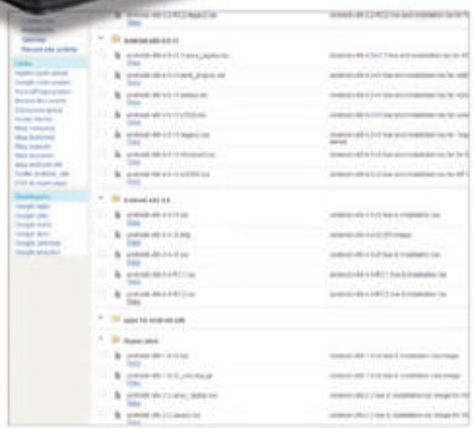
This is possible thanks to the development of Android-x86, a build of Android that is tailored to machines running Intel and AMD processors, rather than the ARM-based CPUs of Android hardware. Installation is relatively straightforward, although you'll get better results on a machine with a touch sensitive display, even with the mouse attached.

Installing a new OS can be tricky; if you get it wrong, it could result in the loss of your personal data, so it's a good idea to try Android-x86 in a virtual machine first before proceeding with a full install.



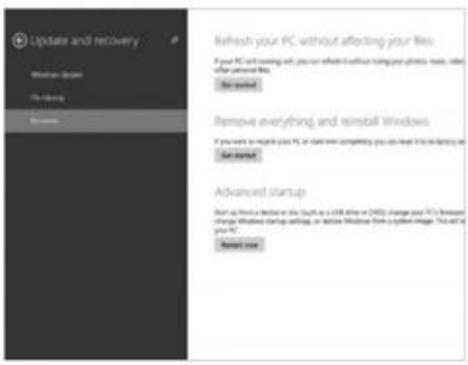
1 Prepare your computer

Create a new partition on your Windows computer by opening Disk Management (the quickest way is holding the Windows key, pressing R, then entering **diskmgmt.msc**) and right-clicking your hard disk drive. Select Shrink Volume, reduce by 8 GB and then create a new 8 GB partition.



2 Download Android-x86

Get a copy of Android (**bit.ly/1jviil6**) and find the version of 4.4 KitKat you want to download. Some notebooks/netbooks have dedicated builds of Android-x86, so these are recommended for corresponding hardware. Once downloaded, burn to optical disc or write to USB flash device.



3 Restart your computer

Next, insert the disc and restart your computer to boot from the DVD or the USB device. If you're using Windows 8 you may need to open Settings>Change PC settings>Update and Recovery>Recovery and select Restart now to select the USB device with Android-x86 on.

4 Test Android-x86

Prior to installation, you may opt to get a preview of how Android will run on your computer. Three Live CD options are available, so using the keyboard, select the first – 'Run Android-x86 without installation'. If you have display issues, reboot and select 'Live CD – VESA mode'.

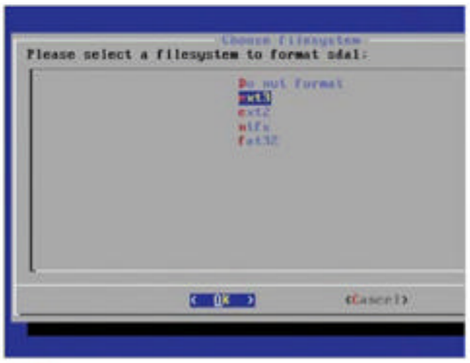
5 Install Android on your PC

If you're happy with the results of the Live CD version of Android-x86, reboot again using the hardware power switch. On the installation CD menu select 'Installation – Install Android-x86 to harddisk'. You'll be prompted to select a partition. To install locally, select 'Create/Modify partitions'.

WorldMags.net

6 Create your partition

The disk formatting tool will display available partitions and space. Use the arrow keys to select New and create a new partition, setting it as Primary and tap Enter again to select the partition. Select Bootable to make the partition bootable and Write, confirming with Yes.



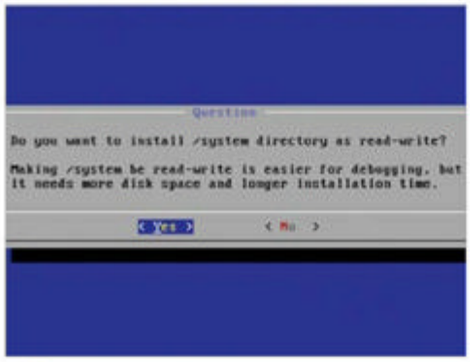
7 Select the partition

Exit the disk formatting app with Quit and select the new partition in the new screen. Follow this by selecting the ext3 file system and confirm the selection, paying attention to the warning that any existing data on the partition will be deleted. Then select Yes to proceed.

faq Ask your own question online at **littlegreenrobot.co.uk**

Can my PC run all Android apps?

Unfortunately there are still games and apps that cannot run in the x86 environment (a system using Intel or AMD processors). Although the Android ARM processor is emulated in Android-x86 4.4 KitKat, successful compatibility remains a case of trial and error, but in most cases things should work fine.



8 Install system directory

Not long to go. In the next screen, select Yes to install GRUB and again to add Windows to your boot menu. Finally, select Yes to set-up the / system directory as read-write. This will increase the installation time, but is best for debugging. At this point, Android will begin installing.

9 Boot Android-x86 on a PC

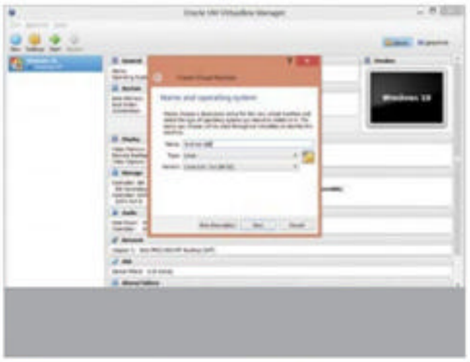
You should see a message confirming a successful installation. Select 'Run Android-x86' to boot the newly installed mobile operating system. Soon you'll see the usual Android set-up screen, asking you to set a language, connect to Wi-Fi and sign-in with your usual credentials.

10 Navigate with a keyboard

Android 4.4 KitKat has support for USB keyboards and your mouse, so you shouldn't have any problem finding your way around. Some shortcuts are available, however. For instance, the Esc key will exit out of apps, while the Windows key will return you to the homescreen.

11 Try a virtual machine

If you don't want to bother with the new partition but still want to install Android on your computer, do so with a virtual machine, set up in Oracle's VirtualBox software from **www.virtualbox.org**. After installing, launch the utility and click New to start setting up a new virtual machine.



12 Name your virtual OS

Name the virtual machine as Android-x86, and then select the Type, which should be Linux. Set Linux 2.6 as the version, click Next, and proceed to set the memory as 512 MB and the hard disk drive 3 GB or more. With set-up complete, click Start to launch the virtual machine.

13 Install on your VM

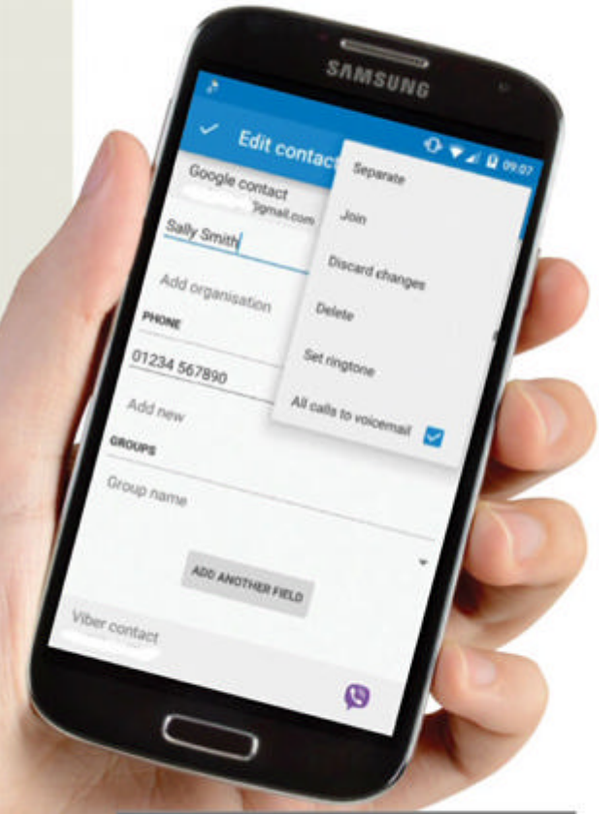
To continue the installation of Android on your virtual machine, follow the instructions from Step 5 above, noting that there will be no requirement to add Windows to your boot menu. Using the VM method, you can run Android on your PC while you use Windows, useful for multitasking!

WorldMags.net

App used » Stock Android Contacts app **Works with** » Android 5.0

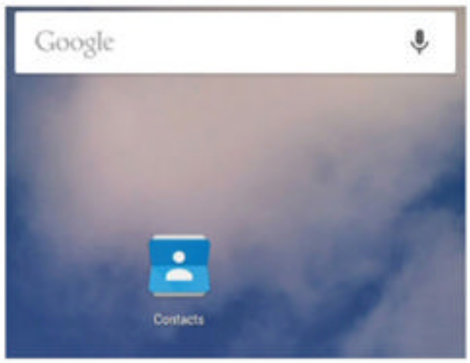
Send unwanted calls to voicemail automatically

It is easy to send calls to voicemail instantly with Android Lollipop



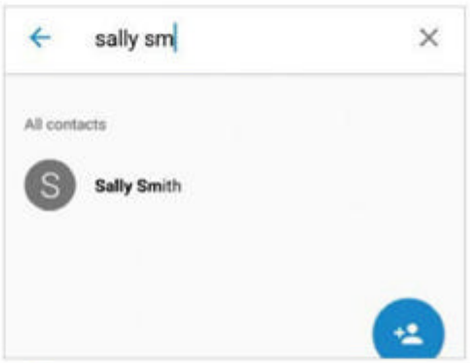
We all have callers that we don't want to hear from, yet we like to keep them in our handset's contacts list. The company you like to use from time to time but don't want to be cold-called by, the people you know but don't particularly want to spend time chatting to, the friends who are only in your list because you are too polite to remove them. However, you don't have to take every call that comes in and you can send some automatically to voicemail every time they call. That way you can keep numbers in your handset for when you want to call them, but you don't have to be interrupted by them if they try to call you.

There are third party call blocking apps, but Android 5.0 users don't need them. Lollipop can send calls direct to voicemail easily. You have to set this up contact by contact, but once it's done, it's done.



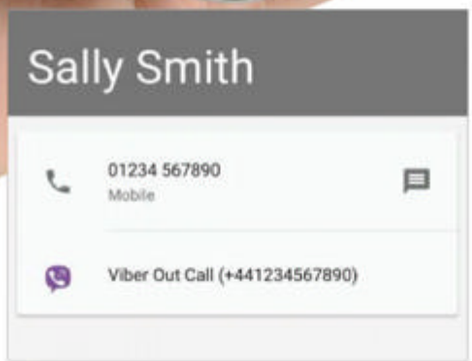
1 Get into the contacts app

Firstly and most importantly, you have to have some contacts in your handset, and to get to the ones you want to send to voicemail automatically, you need to go into the contacts app. Hit the icon on your homescreen or find it in the apps tray.



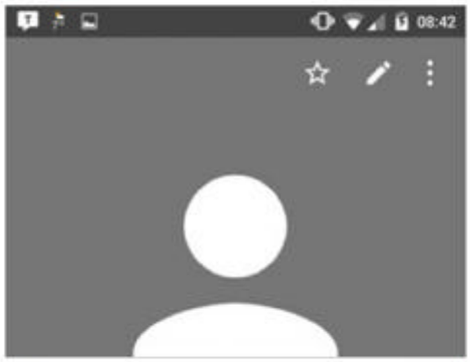
2 Find the contact

Find the contact that you want to send to voicemail automatically. You could do this by simply scrolling through all of your contacts, or if you've got a lot of them, use the search button in the top-right of the screen to find to the contact that you want to send to voicemail.



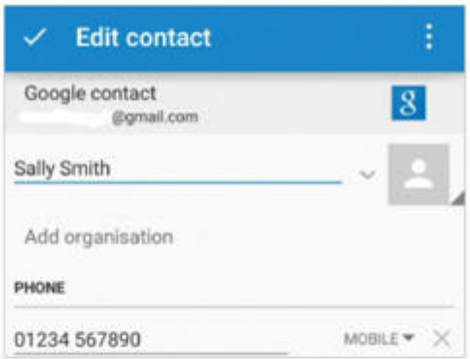
3 Open up contact info

When you've identified the contact you want to send to voicemail, tap their shortcut name to open up the full contact details. This is where you would normally go to edit contact information on your device, but we will make a different kind of setting edit here.



4 Find the edit screen

To get to the area where you can send a contact's calls directly to voicemail, go into the contact editing screen. You will see that there are three menu options in the top-right of the contact summary screen – a star, the pen icon for editing contact details, and a menu.



5 Enter the edit screen

Tap the pen icon and this will take you through to the contact editing screen. You will see that this screen shows all of the information for the contact. You can change any of the details or add more fields and a photo of your contact at this point if you want to.

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5 quick tips

A few tips to help you with unwanted interruptions

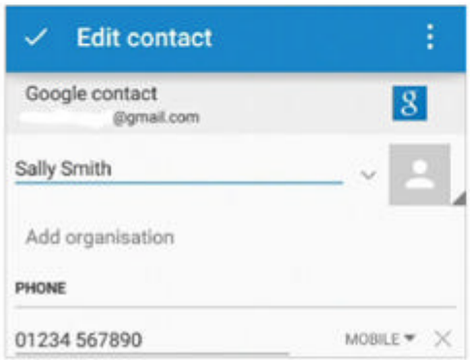
1 Silence when you want it
Use the volume button to tap Priority or None to enable starred or no calls in for a set period.

2 Multiple send to voicemail
Group numbers you want to send to voicemail in a single contact and send them to voicemail.

3 Third party apps
Lots of third party apps offer sophisticated caller management like blacklisting, so experiment.

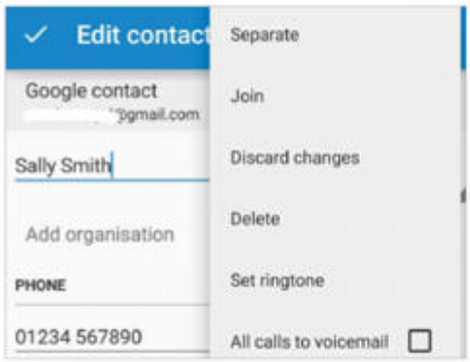
4 Dismiss call with a SMS
In the phone app settings, set up SMS messages to respond to calls that you don't want to take.

5 Extreme silence
Another option is to set the ringtone for a particular contact to None. You'll never hear them call!



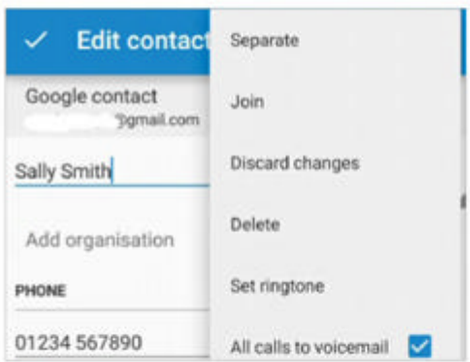
6 Get into the menu

In the contact editing screen you will notice that there's a menu icon at the top-right of the screen. This takes the usual format of menu icons in Android 5 Lollipop – three vertical dots. Hit this to get into the menu and create the setting you need.



7 Check out the menu

This menu has a number of different setting options that are specific to an individual contact, such as setting a special ringtone so you know it is someone important. Check them out in case one is better than sending to voicemail (see the 5 quick tips for one option).



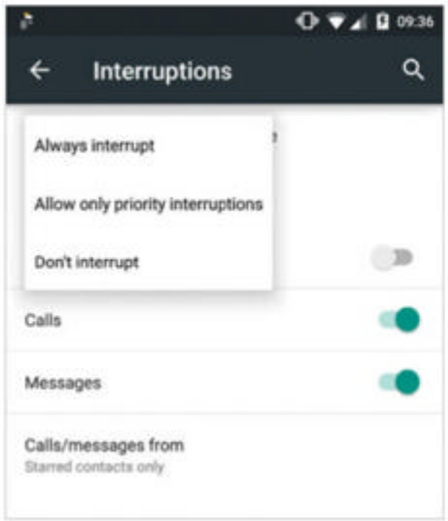
8 Make the setting

Tap the small box next to the 'All calls to voicemail' option on the menu and a tick will appear in the box. Now, until you come back in and tap again to change the setting, all calls from this person will go to voicemail.

2 min guide

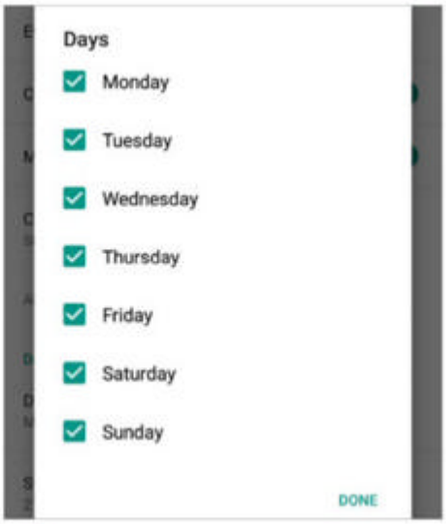
Keep everything quiet at night

To only be interrupted by very important contacts or notifications. For such times, set up Downtime to silence calls and notifications



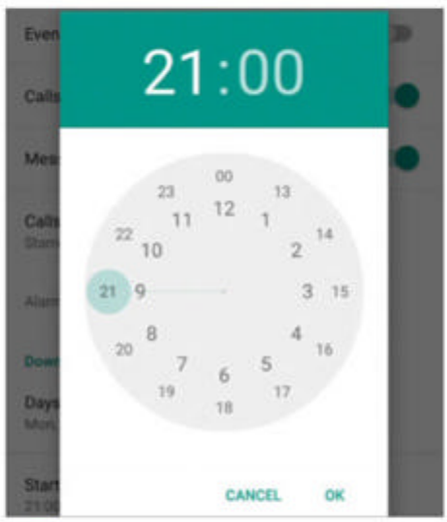
1 Make some notifications settings

Tap the Settings icon in the app tray, then pick Sound & Notification>Interruptions and ensure 'When calls and notifications arrive' is set to 'Always interrupt'. Tap it to change the setting if it is set to something different.



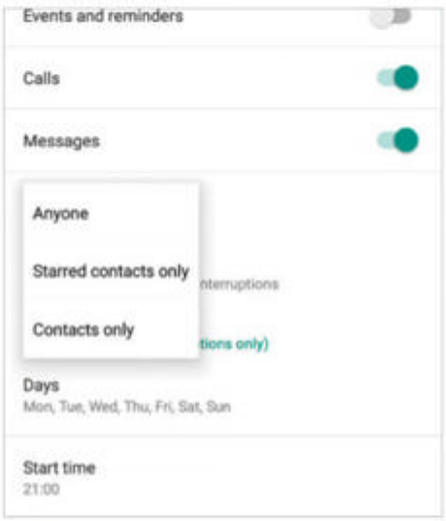
2 Create downtime settings

Now scroll down to the Downtime option and tap Days to pick the days of the week when downtime is relevant for you. You can leave specific days out of the selection if you don't mind being interrupted overnight on those days.



3 Set downtime

Finally, you need to set a start and end time for your downtime using the final two options on this screen and making selections on the clock menu that pops up when you tap Start time and End time. For overnight silence you might want to start at 10pm and stop at 7am, for example.



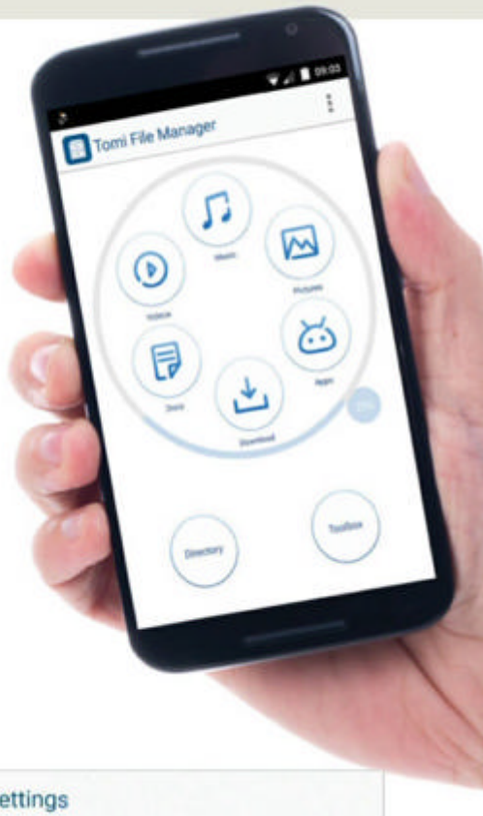
4 Tweak the settings

There are likely to be some very important people that you want to let through this system, like close family or very special friends. To let those people through tap 'Calls/messages from' and make sure 'Starred contacts only' is checked. Remember to star those important contacts individually.

WorldMags.net

App used » Tomi File Manager **Works with** » Android 4.0 and up

Delete unwanted downloads



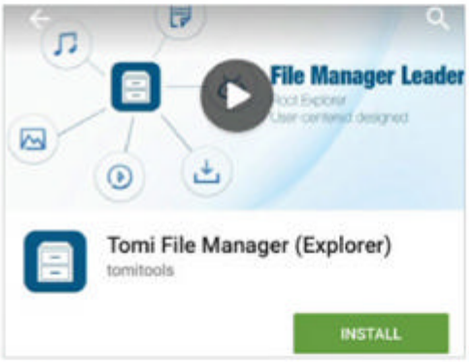
Use Tomi File Manager to quickly and easily delete excess downloads

Tomi File Manager is a serious all round file manager with a really great visually rich interface. It really comes into its own when it comes to freeing up space on your device.

Tomi File Manager divides everything you've got on your device across six categories – Music, Pictures, Apps, Videos, Docs and Downloads. You can use this to bring the different file types to one place and for general file management such as copying, moving renaming or deleting files.

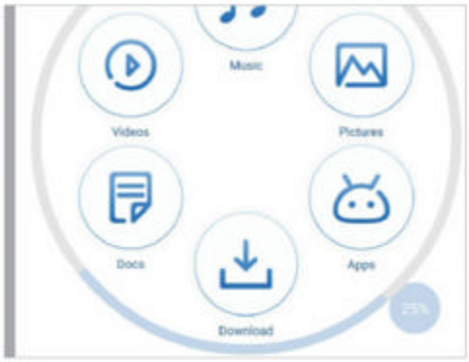
There's a Directory button that enables a more traditional folder-by-folder view of your device, which can cope with microSD and cloud storage.

But what we're exploring here is the deleting option, and Tomi makes that really easy. So easy, that we are giving you a warning – don't delete anything unless you're sure you don't need it!



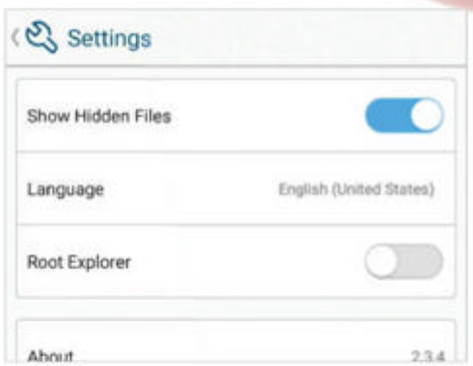
1 Get Tomi File Manager

Your first step is to go to the Google Play store and search for Tomi File Manager. You have two options: there's a version with a white theme interface and one with a dark theme interface. They're both the same in terms of features.



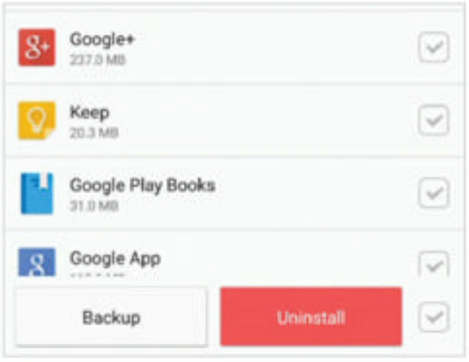
2 See your storage use

When you run Tomi File Manager you'll see this circular menu screen. Pay special attention to the percentage marker around the edge of the circle, this shows you how much of your internal storage is currently full.



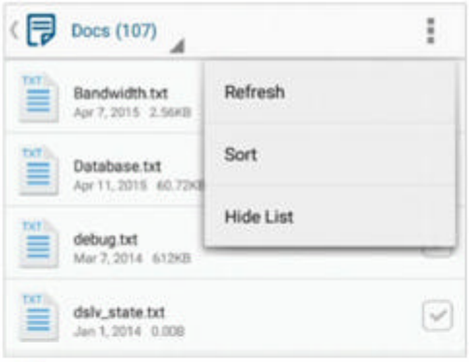
3 Tweak the Settings

To change how Tomi File Manager works, tap the three dot menu in the top-right of screen and pick Settings. Decide if you want to show hidden files and send anonymous usage statistics. Advanced users can note the root option.



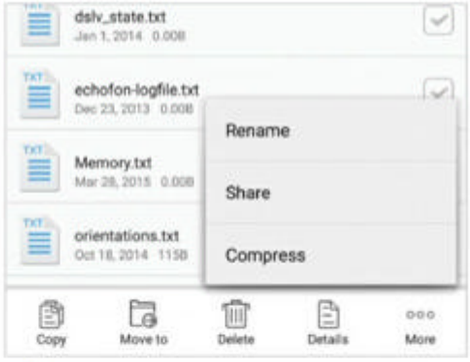
4 Find and delete apps

Tap the apps icon and you'll see a list of apps. Switch between downloaded, pre-installed and APK files (that latter are app installers you get from places other than official app stores). Check any you want to uninstall and hit Uninstall.



5 Examine documents

Tap the Docs icon and you'll see a list of your documents. These can easily accumulate – email attachments are only the start. Sort these by size and the last modified time, to make it easier to decide what to delete.



6 Manage documents

To view a document, tap the icon to its left, or its name, and it will open. Select a document with its tickbox and a menu appears offering Copy, Move and Delete options. The More button lets you Rename, Share and Compress.

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Apps used » Gmail **Works with** » Varies with device

View all of your email accounts in Gmail

Gmail's latest update enables you to access all of your different email accounts from one inbox

These days, many of us have more than one email address. If you're a student, you may have one account for school, one for a campus group you belong to, and one for your blog. If you're a parent, you might have one for family and one for your business. However many email addresses you have, new improvements to the Gmail app for Android make it easy to manage all your mail from all your accounts – even if they're @yahoo and @outlook – while you're on the go. Here we will show you to set up, sort and view all of your inboxes in one place.

> "View all of your inboxes in one place"

Select an account

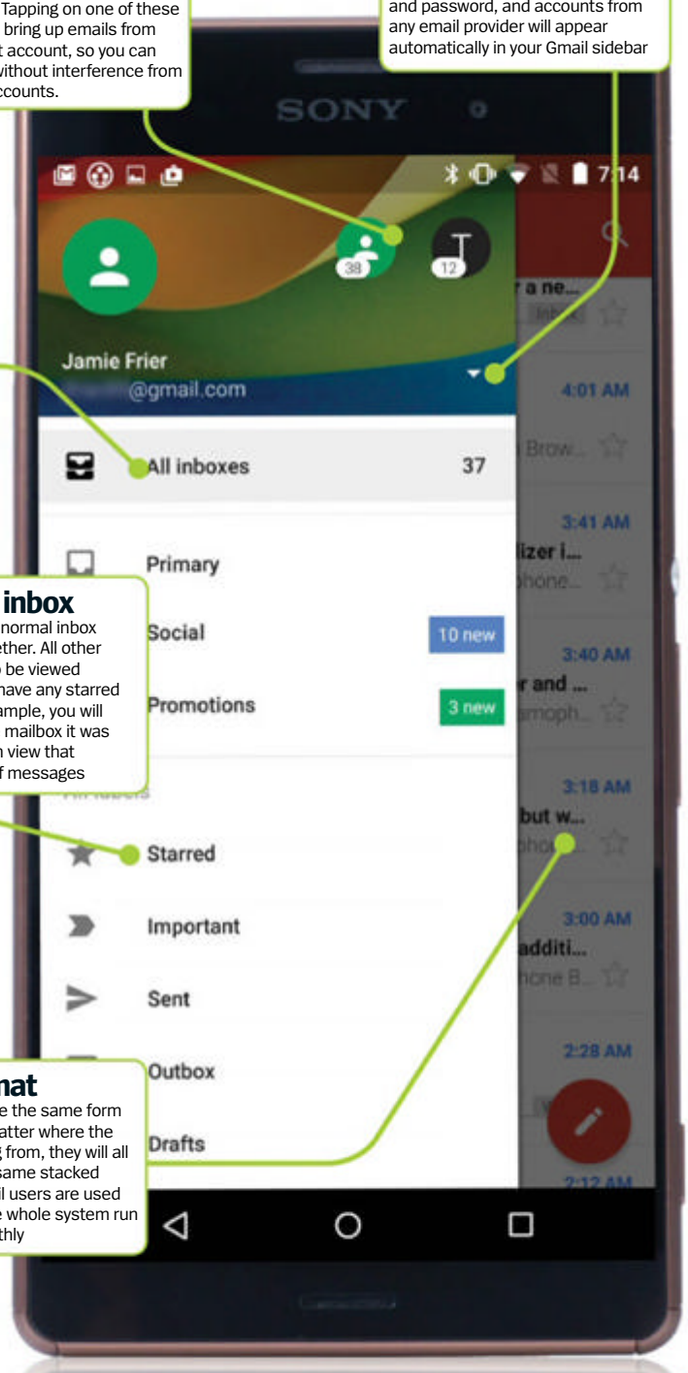
Each extra email account has its own icon at the top of the screen. Tapping on one of these icon will bring up emails from just that account, so you can view it without interference from other accounts.

Sync accounts

Tap the downward arrow to add the extra accounts you want to sync with your Gmail account. All it takes is the input of your email address and password, and accounts from any email provider will appear automatically in your Gmail sidebar

Sort emails

All Inboxes synchronises all of your emails from various accounts by date and time received, so emails from all of your accounts will get mixed in together. However, you can return to just see your Gmail emails by tapping Inbox or one of your other Gmail folders instead



View your inbox

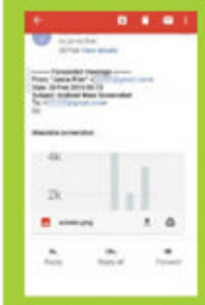
You can only view normal inbox messages all together. All other mailboxes have to be viewed separately. If you have any starred messages, for example, you will have to select the mailbox it was sent to so you can view that particular group of messages

Same format

All emails now take the same form as Gmail, so no matter where the emails are coming from, they will all be laid out in the same stacked method that Gmail users are used to. This makes the whole system run much more smoothly

Some other changes to Gmail

Along with adding multilple accounts, Google has made a few other changes to its email client app



Quicker search settings

Google has also updated the auto-complete setting so you can find a particular email much quicker. As you type, options based on words in headlines and body text appear, as well as the emails themselves.

Save to Drive

The update to the app has added the option to save any attachment straight to your Google Drive account. It is only a minor alteration and saves you a couple of clicks, but it is definitely handy to have the icon there to use when you're short of time.

Cosmetic upgrades

You may also notice that there are a couple of design enhancements to the Gmail app. The animations have been updated for when you are opening and closing emails, and attachments are also slightly larger.

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App used » Android Wear **Works with** » Android 4.3 and up

Adjust your smartwatch's settings

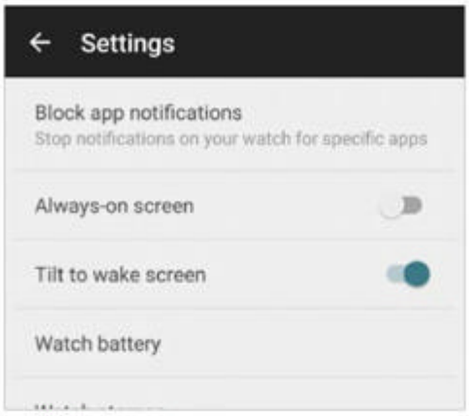
Take control of your watch's finer features by diving into the settings options, both on your watch and in the Android Wear companion app

Just like your phone, tablet or any other smart device, you don't have to settle for the default setup of how it works. You can customise it to your preferences by exploring the settings options. However, because of your watch's limited screen size, these controls are split between those you can easily adjust on your watch, and those that are a bit more complex or that you're less likely to use on a regular basis. The latter can be adjusted on your paired phone, via the Android Wear app.

If you're not sure where to find the settings menu in the Android Wear app, tap the cog icon next to the three-dot drop-down menu. On your watch, you can open settings by commanding Google Now, or navigating there via the list of options that appear when you scroll upwards from the Google Now screen. Alternatively, you can also find a shortcut to the settings menu in the Quick Settings. In all cases, just look for the cog symbol as before to reach your destination.

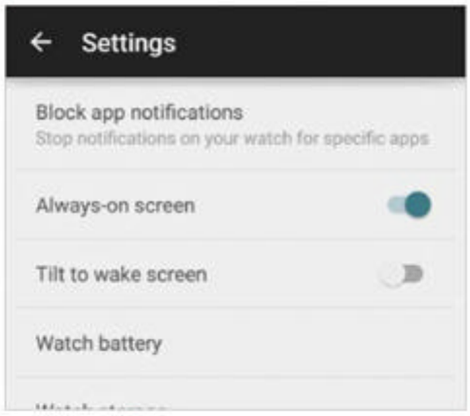
Whether you want to turn off all notifications temporarily during a flight, or block individual apps from being able to send you notifications at all, read on to begin.

Manage settings in the Android Wear app



1 Turn off the screen

By default, your watch will always display the time. Tap 'Always-on screen' in Settings so the line turns from green to grey. Now the screen will only turn on when you tap it.



2 Deactivate the light

When you tilt your wrist, your watch will instantly light up. However, if you tap 'Tilt to wake screen' in Settings so the line turns grey, this will instantly be deactivated.

3 Check the battery life

View how much power your watch has left by pulling on the watch homescreen. However, select Watch battery in the app's Settings menu and you can see a more detailed breakdown.

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Tweak settings on your watch

Tap the homescreen and scroll downwards until you reach a cog symbol to view a range of settings on your watch

Adjust brightness

Select this option from your watch's Settings to set the brightness level. You will be given the option to select from one (darkest) to six (brightest) by sliding up or down

Aeroplane mode

If you're on a plane, you can select this option in your watch's Settings to turn off the watch's wireless or mobile data connection. Tap it again to turn connection back on

Find Bluetooth devices

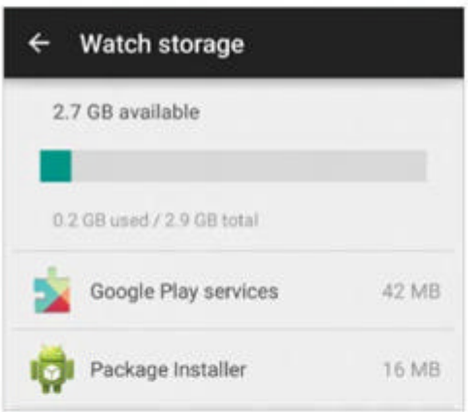
If you've saved music to your watch, select Bluetooth devices in Settings to connect it to wireless headphones. This way you can enjoy music on your jog, but leave your phone at home

faq

Ask your own question online at **littlegreenrobot.co.uk**

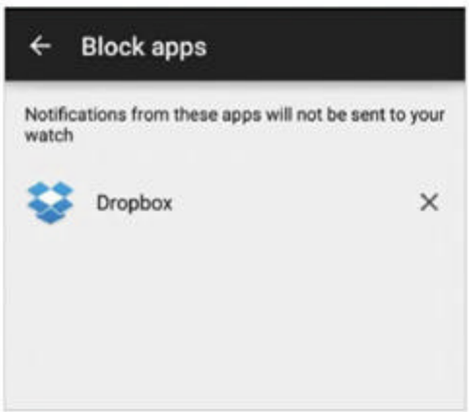
Can I reset my watch?

If your watch seems to be running a little slow, try a factory reset. Over time, it may have accumulated files. Select Reset device from the Settings on your watch to completely wipe all data stored on the watch. Be warned: this data includes active notifications, fitness data and your preferences. After the reset, you will have to pair your watch and phone again.



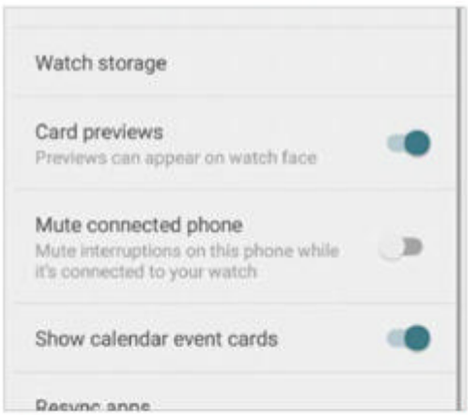
4 Monitor memory

Tap Watch storage to find out how much RAM is available on your watch. Organised by size, you will be able to see which of your apps are using the most memory.



5 Block notifications

To stop alerts from species apps appearing on your watch, tap Block app notifications in Settings. Press the + symbol and select the app. Press X next to the app's name to unblock.



6 Restore phone alerts

Usually, notifications on your phone redirect to your watch when devices are paired, but tap 'Mute connected phone' so the line turns from grey, and your phone will continue to buzz.

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Jargon Buster

Get up to speed on all the terms you will need to know when hacking your phone

OS
Short for 'operating system'. Often the Android ROM will be referred to as the OS – this just means the system files on the Android device that make up your user experience, similar to Windows, Mac OS X or Ubuntu on a desktop computer.

ROM
Stands for 'read-only memory'. In the context of Android, the ROM refers to the files that make up the operating system installed on your device. Gaining root privileges allows for replacement of the standard ROM with a custom one.

Root
'Rooting' your phone gives apps access to parts of the OS that are normally hidden from consumers. This enables you to run more powerful software and install custom ROMs on your phone.

ROM Manager
An app available from the Android Market that enables you to install a whole new version of your OS with a single click. It requires a rooted phone to use and is ideal for those new on the scene.

Titanium Backup
This app from the Market enables you to back up everything on your phone – apps, data, settings and all. It means that you can restore your phone to how it was, even after you've updated or changed the ROM.

Unrevoked
Available from **www.unrevoked.com**, this is a one-click tool that can be used for rooting many popular HTC smartphones.

ADB
Stands for 'Android Debug Bridge'. ADB is mainly used for software development, but it also has some uses for hacking your phone. It can be used to push files onto the system folder, for instance.

Nandroid
You might come across the phrase 'perform a Nandroid backup'. This means using a custom recovery tool to make a back-up image of everything currently on your phone: OS, apps, data, etc. It's very useful should you wish to restore your phone to its previous state later.

Radio
'Radio' refers to the software on your Android device that deals with making phone calls and data connections. Updating your radio version can bring better battery life and signal strength to your device. Some ROMs require the latest radio.

Flash
The storage in your device comprises flash memory, a type of solid-state storage. The terms 'flash' or 'flashing' mean installing new software onto your device's storage.

THE MOD GENERATION

Why it's the perfect time to join the CyanogenMod revolution

CyanogenMod is a custom ROM that's been around for about six years, a constantly evolving open source piece of software that offers a swathe of options and features that vanilla Android doesn't. With five million users worldwide and manufacturers clamouring to adopt it as their default OS, read on to find out not only why now's the time to join the Mod Generation, but how to install it on your device today. →

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The OnePlus One, one of the smartphones that ship with Cyanogen

There are now three devices – OnePlus One, YU Yureka and Alcatel myTouch Hero 4G – that run the CyanogenMod as their default OS. A commercial company, Cyanogen Inc., has been built up and received $80 million in a recent funding round. In a move to make the ROM less reliant on its Android origins, Cyangen have just done a deal with Microsoft to include its apps in the new OS. On top of that Cyanogen has partnered with Qualcomm to create software for its Reference Design products, which enable manufacturers to make and ship smartphones in quicker order. Cyanogen Inc. will provide software and UI features for devices running Qualcomm Snapdragon 200, 400 and 600 processors. In short, Cyanogen is a pretty massive player around these parts nowadays and it looks like it's only going to get bigger.

But what's the reason behind CyanogenMod's success? Well, for one thing it offers a Lollipop-like experience to phones and tablets that are unlikely to be updated to the latest version of Google's own operating system. CyanogenMod essentially gives older phones a new lease of life, giving you a huge load of choices that either aren't currently supported in Android, or have come along with updates that your phone didn't get. You'll often find that phones tied to different networks don't receive upgrades as quickly, or that a problem with a company's third-party Android overlay means that a new build of an OS is too unstable to run on a particular device. All of that means it's easy to find yourself a generation behind after only owning your phone or tablet for a few months.

> "CyanogenMod essentially gives older phones a new lease of life"

Thanks to CyanogenMod though, that doesn't have to be the case. It might take a bit of fiddling to get things up and running, but in the long run it's definitely worth it.

Another bonus of running the custom ROM is that it often features new innovations before they make it into the AOSP. For instance, the new CyanogenMod 12 offers native themes, FLAC audio codec support and CPU overclocking, to name just a few of the extra things that the custom ROM has over vanilla Android at the moment.

For hackers, CyanogenMod offers far more freedom for customisation over regular Android builds. Almost everything about the OS can be tweaked and twisted to fit the way you want to use your phone or tablet. If you know what you're doing you can take even tighter control, playing around with the source code of the ROM and creating your own applications and services that could end up as part of the Cyanogen package – such is the wonder of open source development.

If that wasn't enough, CyanogenMod is a constantly changing beast, updated and altered regularly by an army of volunteers. You can test nightly builds of the latest version of the software and get an idea of where Cyanogen is likely to be headed in the future. Then there's the raft of apps that only work on rooted devices and a helpful support community that's always at hand with hints and tips if you're having trouble with your device. The CyanogenMod revolution is very real and it's constantly gathering pace. Thanks to the openness of the Android platform, it's not likely to slow down any time soon which makes now the perfect time to jump on board and see what all the fuss is about.

OnePlus coming up for air?

Despite CyanogenMod's continued success, it's not all going swimmingly. Recently, OnePlus One announced that it intends to drop the OS for its current and upcoming smartphones, and replace it with its own version of the Android operating system, OxygenOS. This new OS has been developed by a team that includes coders who worked on Paranoid Android, a competing ROM to Cyanogen. The update should be available right now, but it's not being delivered over the air. Instead it's an optional download, so you can choose whether to stick with Cyanogen or install the new custom OS. Some of this stems from an exclusive agreement Cyanogen has with Indian manufacturer Micromax, which saw the OnePlus One banned there. OnePlus has at least two smartphones under development, although it's unclear whether all territories will get OxygenOS, with OnePlus only confirming it for Chinese models. The ROM will exclusively be compatible with OnePlus hardware, with the first build based on Android 5.0.2.

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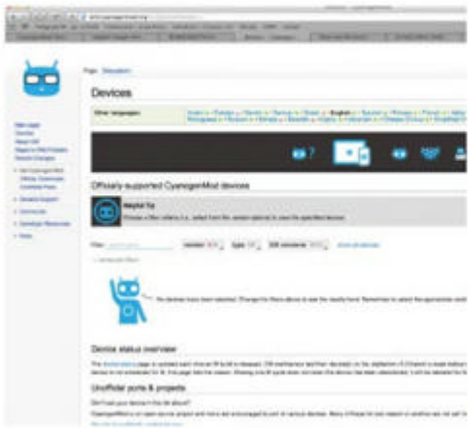
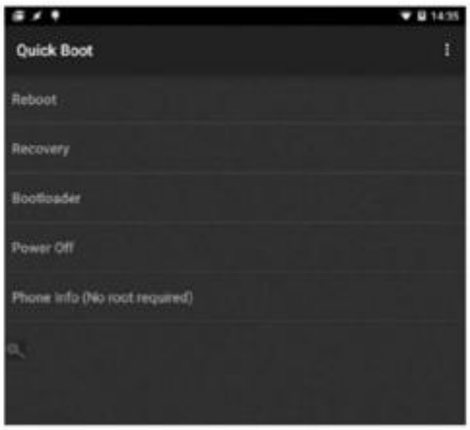
Easily install CyanogenMod

Here's how to get the custom ROM everyone is talking about on your rooted device



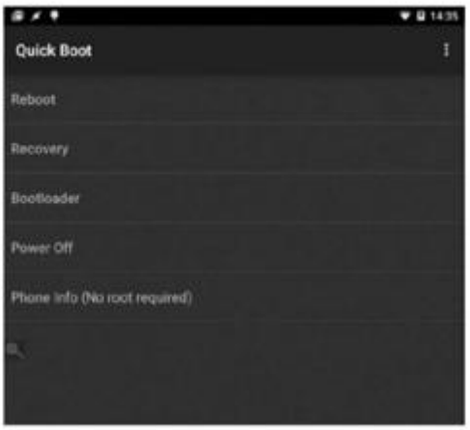
1 The right stuff

First up you're going to need to find out if there's a build of CyanogenMod 12 for your device. Head to this URL **tinyurl.com/mbnk3vw** and check if there's an official build. There aren't loads of these yet so you're probably going to have to find an unofficial build, which means that it's not 100 per cent checked and safe. You can find unofficial builds at this link: **tinyurl.com/chd49tb**.



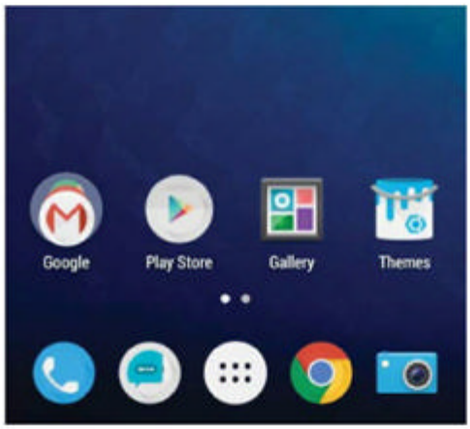
2 Download the ZIP

You will need to download the ZIP file and send it across to your unlocked device. Don't unzip the files on your computer, then connect your phone or tablet via micro USB and drag and drop the ZIP you've downloaded onto your device's memory. Once it's moved over, you can disconnect the USB cable. Next, you will need to reboot your device to recovery mode.



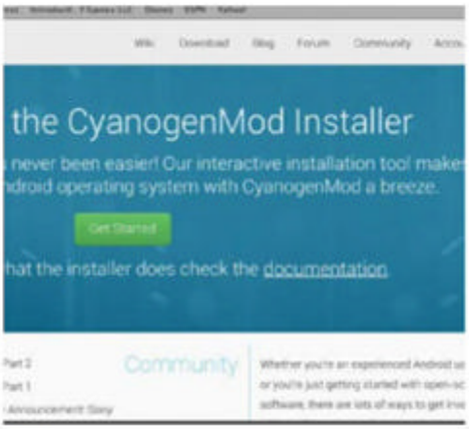
3 Flash the ROM

Now you'll need to install the ROM from your memory in recovery mode. There are a number of ways to get to recovery mode, but the easiest is probably installing the Quick Boot app from the Play store. Once you're in recovery mode, use TWRP to wipe the /data and /system partition of your phone or tablet, then hit the Install button and find the ZIP file you transferred.



4 Success or failure

You now need to reboot your device from recovery mode. There should just be a button marked Reboot, so tap on that. This first time of booting up a new OS can take some time, so be patient and leave it a while before getting panicky that you've bricked your device. Just to be on the safe side, make sure you've got a Nandroid backup ready to go before you start.



5 The alternative options

If you're a little wary about installing an unstable build of CyanogenMod on your device, you can take the easier route and stick a version of Cyanogen 11 on there instead. If you're running the right firmware you can do this with the handy CyanogenMod installer. Go to **tinyurl.com/oyq4bwg** on a PC or Mac and click on the Get Started button to get things in motion.

6 If you're not supported

If your device isn't supported by Cyanogenmod there are ways to try and get the ROM up and running, but you'll need Android SDK Tools, ADB and Fastboot to get it working. You'll also need a bit more know-how than we can cover here. The basics involve connecting your device to a PC and using ADB and Fastboot to wipe the memory before manually loading the ROM.

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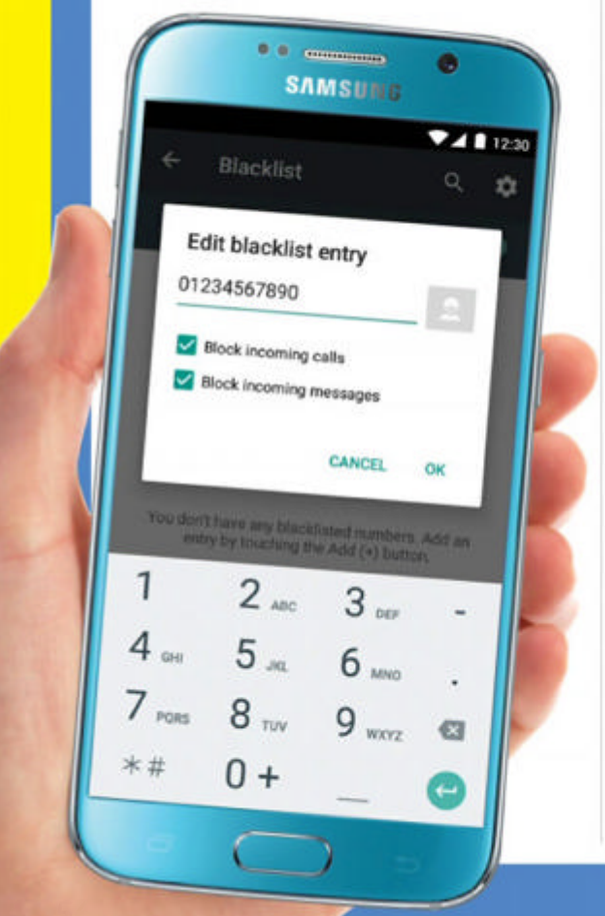
12 features to try in CyanogenMod 12

The 12 best features available in CyanogenMod's latest version

1 The Blacklist

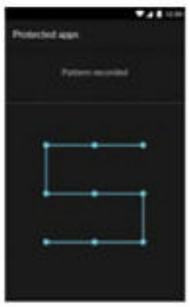
Use Blacklist to stop unwanted calls

One of the most annoying things about mobile phones is the number of calls you get from unwanted numbers. Well, CyanogenMod has a response to that in the form of the Blacklist. This enables you to add numbers to a list that you don't want to receive calls or texts from. If they try and call you, the Blacklist kicks in and they won't get through. You can choose to ignore calls, texts, or both, and adding a number is as simple as typing it into your phone. This is definitely one of those features that we expect to hit stock Android at some point in the future.



2 Protected apps

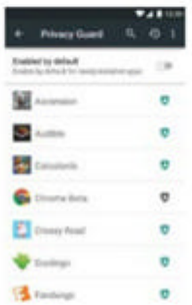
Protect your apps with a pattern



Protected apps adds an extra layer of security to any apps that hold sensitive information. As well as being able to lock your screen, this feature means you can add another pattern-based block on anything you wouldn't want falling into the wrong hands. There are apps that let you do this on stock Android, but it's much easier and safer to be able to do it directly through the OS. It also keeps apps out of the app drawer and could be useful to parents who don't want their kids getting into places they shouldn't.

3 Privacy Guard

Protect the info your apps send



Privacy protection is another great security feature of CyanogenMod. This one lets you take better control of the permissions that the apps you've got installed on your device have. If you don't want data collected about you, you can turn off settings to make sure that it isn't. It's really simple to use and it ensures that it's you that's in control of the information that your device is sending out about you. If you're worried about digital security, then CyanogenMod is definitely worth installing for this reason alone.

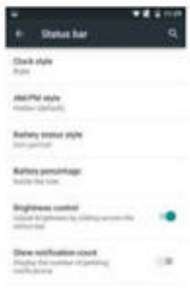
4 Rearrangeable notifications

Swap and choose the notification bar settings you want

Sometimes it's the little things that make the most difference. CyanogenMod lets you rearrange the settings that you can access by swiping down your notifications bar. This means you can put the settings you use most in positions that are the easiest to access. It won't save you a lot of time, but messing around trying to find something can be a real annoyance and being giving the freedom to put things where you want is definitely going to change that.

5 Status bar

Change you status bar's style



CyanogenMod also lets you play around with the look and feel of your Status bar. There's plenty here that you can switch around, and while the feature isn't as expansive in 12 as it has been in previous builds of the OS, you can still end up with something that's unique to you. In time, expect to see more customisation options included as well, as developers get to grips with the newer versions of Android that they're working with. You can find the options in the Settings menu of your phone or tablet.

6 Filter notifications

If you find your notifications bar filling up with things you don't care about, CyanogenMod lets you filter them out. This means you'll only be notified about the things you want to know, rather than having to swipe away a load of updates.

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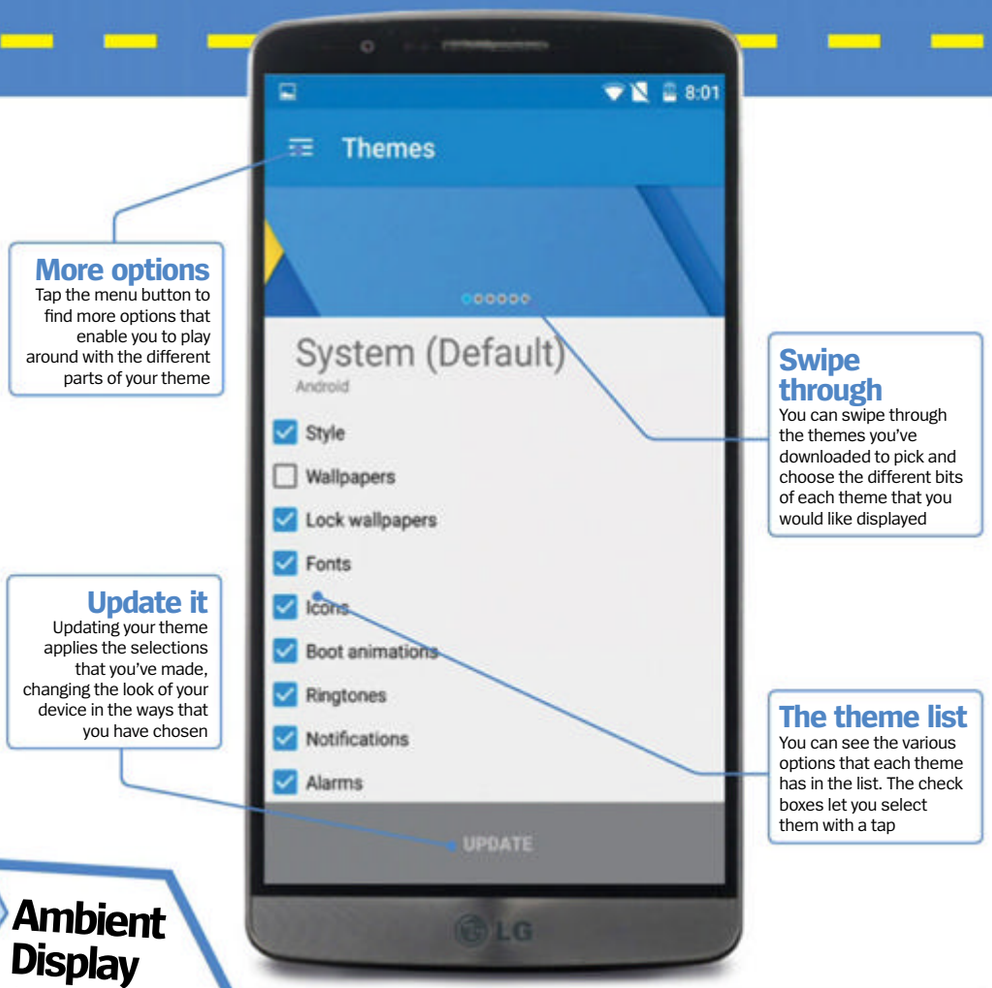
7 Themes

Change your device's look

One slight complaint about the Themes settings in CyanogenMod 12 is that it's that they're not as expansive as they have been in previous releases. This is partly down to a lack of themes that support the new version of the OS, so it's something you can expect to change in the coming weeks and months. One thing that the newest version lets you do is swap and change between aspects of different themes. This is all down to the Themes Engine which lets you quickly install and change themes that you can download straight from the OS. You might want the icons pack from one theme, the system font from another and the boot up animation from a third. All it takes is a few taps to get them up and running. You can use older themes as well, but because they're not designed for Lollipop's Material Design, there's a good chance that they're not going to look all that great. If you're feeling fancy you can take a shot at building your own theme too. You can get more information on how to do that over at Cyanogen's Wiki by heading to this link: **tinyurl.com/l3ucptm**.

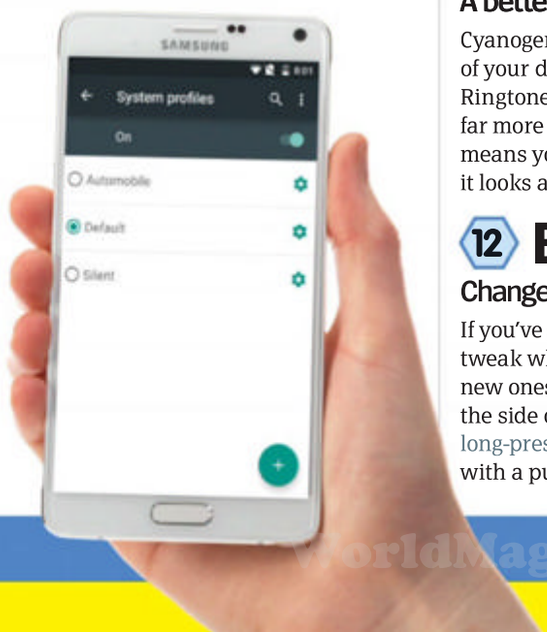


8 Profiles

Use the profile manager to tweak settings

The OS lets you set up different profiles that trigger when certain situations are met, so you could set your phone to change its settings when you walk into work. It's a pretty powerful tool and it means you're not going to need a separate app to control that sort of thing. You can even set the profiles to trigger when you place your device near an NFC tag.

> "The OS lets you set up different profiles that trigger when certain situations are met"



9 Ambient Display

This is a feature your hardware will need to support, but if it does, you'll be able to check notifications without turning on the whole screen. It's a great way to save battery and means you can keep up to date with just a tap on your screen.

10 Trebuchet toggle

Swap how Trebuchet launcher works

This is a feature of CyanogenMod 12.1 and lets you swap how the OS's app launcher works. Rather than the normal app drawer, you can swap to a vertical layout that lets you scrub quickly to an app so you can open it faster. To access the feature, long-press on the Trebuchet app, then slide a finger up to get more options.

11 Sounds good

A better sound control system

CyanogenMod offers a more in-depth way to tackle the sound profiles of your device. You're given a number of sliders that let you tweak your Ringtone, Vibration, Alarm and Speaker settings independently. It's far more useful than the default way Lollipop handles sound and means you can change settings on the fly much quicker as well. Plus, it looks a lot nicer.

12 Buttons

Change what your buttons do

If you've got software buttons on your device, CyanogenMod lets you tweak what they do. You can change the button positions and add new ones. There's also a left-handed mode which shifts the buttons to the side of the bar for easier use. You can even change what the long-press actions of hardware buttons are and wake up your device with a push of the volume button.

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status update

Which devices are best for the hacking scene?

Galaxy S6 Edge

Rooted? Yes
Active Development: Medium
Available to root the day it won't on sale, try XDA member amk19's camera mod to boost photo and video quality.

HTC One M9

Rooted? Yes
Active Development: High
HTC's latest flagship has been rooted and numerous ROMS, mods and kernels are now available for it.

Nexus 7

Rooted? Yes
Active Development: High
While Google may have discontinued this tablet, if you can get hold of one, its the ideal device for new hackers to practise on.

Moto 360

Rooted? Yes
Active Development: High
Try the Gohma 2.3 smartwatch ROM to boost the battery, reduce lag and improve overall performance.

Tips & Tricks

Sync screenshots to your PC

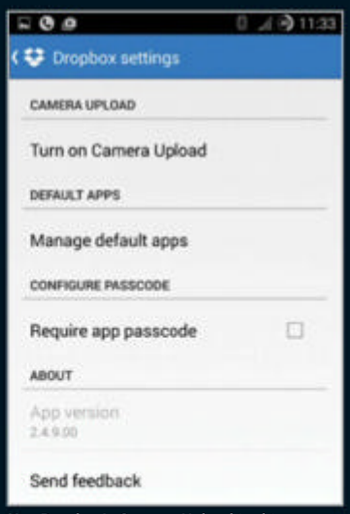
You can capture screen grabs on Android by holding the power and home or power and down-volume buttons together. But what do you do with the screenshots after you have captured them?

Rather than leave them in the Screenshots folder, you might share them on Facebook or Twitter. But if you want to store them on your PC, the best option is Dropbox.

Using the cloud storage app's photo sync tool, you can automatically sync an image from your phone to your desktop computer soon after the screenshot has been captured. Begin by ensuring that you have Dropbox installed on both devices and that you're signed in using the same account.

On Android, switch to the Pictures tab. If you don't have Camera Upload activated already, you'll have the chance to do so now. Otherwise, open the menu, tap Settings and select Turn on Camera Upload.

As long as your Dropbox is setup on your desktop computer or notebook, images will be sent to the synced folder on that device. They can also be accessed by visiting **Dropbox.com** and signing into your account.



Use Dropbox's Camera Upload tool to automatically sync screenshots to your PC

Share clipboard with Windows

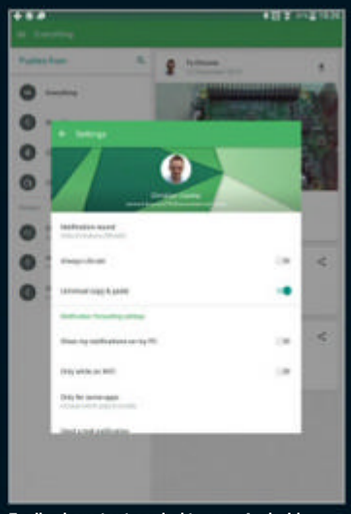
You've captured a portion of text on your Android device which you need to send to your desktop computer. Perhaps you paste it into an email, or create a document in your preferred mobile office suite, paste it and sync that document to Dropbox or Google Drive. All a bit slow, isn't it?

Several solutions are available but the best is probably Pushbullet, available as an Android app and a Windows app (a Mac OS X version is also available). Once you're signed into your usual Google account on both devices, you can open Advanced Settings on the Android app and enable Universal copy & paste. Similarly, open the desktop version from the system tray, click Settings, then check the Universal copy & paste option and click OK to confirm the selection.

With this set up, Pushbullet will enable you to copy and paste to and from your Android and Windows devices quickly and easily.

Share anything from Android

Taking the universal clipboard of Pushbullet a step further, the native sharing facility on Android is incredibly powerful and useful, whether you're sharing to your



Easily share text copied to your Android clipboard with a Windows PC or Mac

quickhacks

Play games on your tablet – using your smartphone

Why play games on your smartphone if you've got a larger display on your tablet? You can still use your phone, but use it as a game controller instead.

1 Install Tablet Remote twice
Go to Google Play and install Tablet Remote on both devices. Ensure they are connected to your Bluetooth or Wi-Fi. The tablet will be the receiver, the phone the transmitter.

2 Configure Tablet Remote
On your tablet, run the app and open Setup. Select Enable Tablet Remote>Tablet Remote in Android Settings. In the app, select Change The Input Method>Tablet Remote.

3 Connect your phone
On your phone, open Connection>Make Device Discoverable. Then on the tablet, tap Scan Devices. Select Remote on your phone and start to run a game on your tablet.

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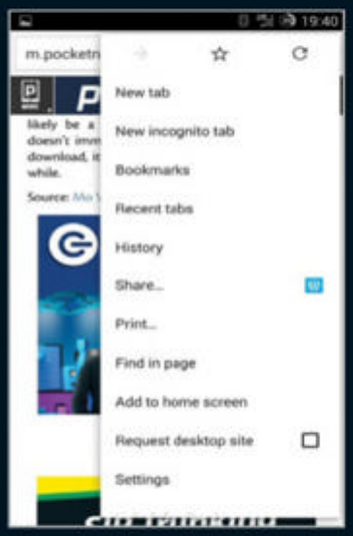
Share your tips

Got a great tip, or found a cool shortcut? Let us know!

»facebook /littlegreenrobot
Like us on Facebook and join our online community

»twitter @lgrobot
Follow us on Twitter to send us your tips & tricks

»email qa@littlegreenrobot.co.uk
Discovered anything good about your Android phone? Let us know!



You can share almost any media from any app on your Android device

friends, saving material to read later or you're logging useful links for one of your blog posts.

Of course, what you can share and how you share it all depends on what apps you're using. For instance, you can share links to Twitter if you have the app installed and have signed in. From your Android Chrome browser, just tap the menu and then Share – you'll see all sharing options listed – and the last-used service will appear as a shortcut in the menu.

Some apps include support for specific sharing services. Feedly, for instance, supports Instapaper, Pocket, OneNote and Evernote natively, which is useful.

Using Android's sharing feature can seriously improve productivity, whether you're a professional on the move or someone who just wants to share links with their friends.

Recording your Android display

Need to help someone find their way around an app? Perhaps you have older relatives engaging with their first Android tablet or phone and want to demonstrate how to do something, but you're finding that relating this information by phone or email isn't practical.

Making a video is the best answer, something that you can do with a screen recorder app. Two types exist: those that are for rooted pre-Lollipop devices and those for Android 5.0 Lollipop and later (see below). If you're using an Android 4.4 KitKat or earlier smartphone or tablet, then you'll need something like SCR Screen Recorder which works on older rooted devices running Android 4.0.3 and above.

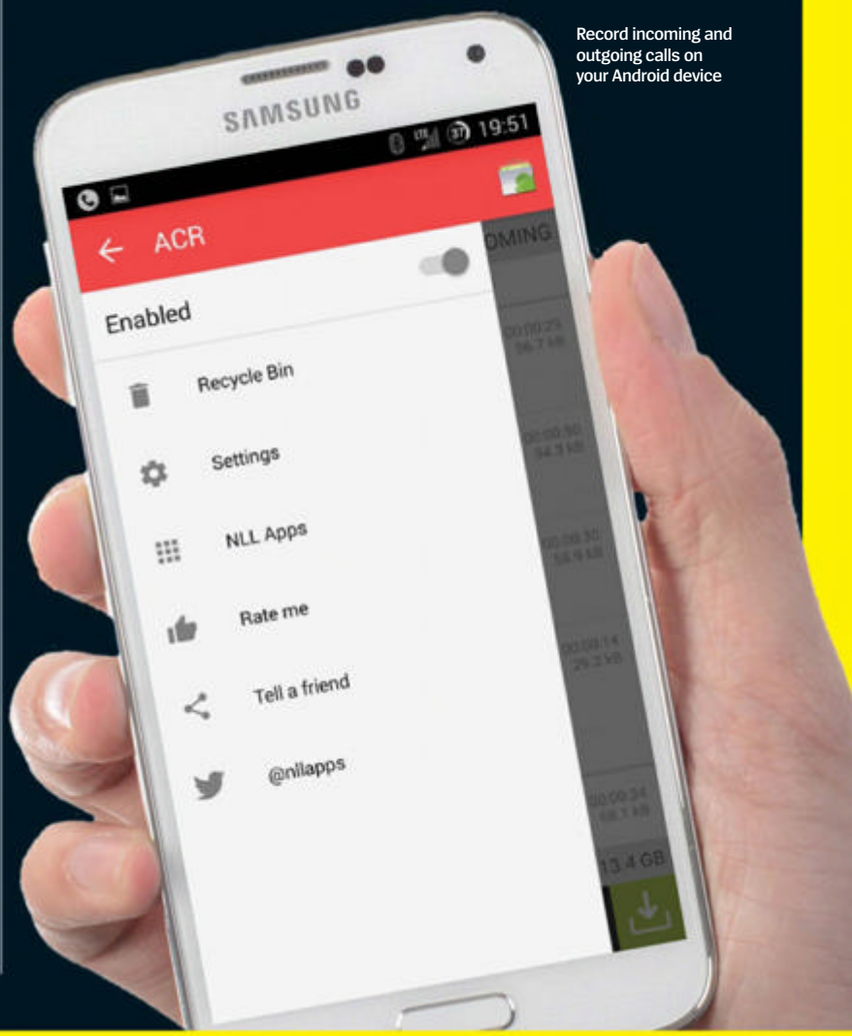
These apps work with a simple user interface and record not only the actions on the Android display but also audio from your device microphone, enabling you to talk the subject through the steps they need to take. Once you're done, all you need to do is share the video, perhaps using YouTube, Facebook or Google Drive, making sure the recipient knows where to find it. Screen recorders are also great for recording the progress that you are making in video games.

Record all calls on Android

Whether you're interviewing someone over the phone or you just want to keep a record of conversations you've had with service providers (such as gas, electric or mobile network) installing a call recorder app is a great idea.

Several are available, with the free Call Recorder ACR perhaps the most popular (the £9.99 pro version adds support for cloud storage). Once installed, this app will automatically record all incoming and outgoing calls on your Android device. Recordings can be grouped, deleted, highlighted and even password protected for security.

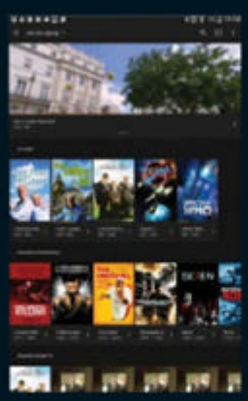
Note that not all phones are suitable as some don't support call recording. You may need to spend time tweaking the app to select the optimum audio file format.



Record incoming and outgoing calls on your Android device

Hacking the easy way

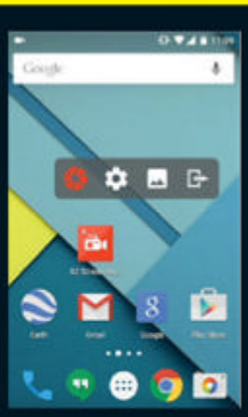
Get great new features without getting your hands (too) dirty



Plex for Android

Price: Free + IAPs
From: Google Play
Need root? No

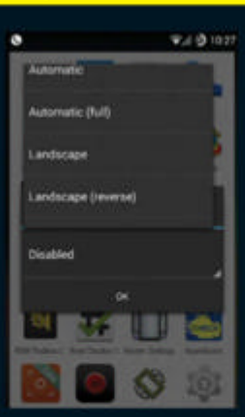
If you're using Chromecast and want to stream content from your PC or media server to your TV, this Plex remote app also streams data to your Android device. So you can stream content across different devices quickly and easily without any problems.



AZ Screen Recorder

Price: Free + IAPs
From: Google Play
Need root? No

This screen recorder doesn't require a rooted device as the feature is native to Android 5.0 Lollipop. It combines advanced features such as front camera recording to create polished results.



Set Orientation

Price: Free
From: Google Play
Need root? No

If you have an app or game that is difficult to use, force your Android device to display upside down or reverse portrait, for example, and experiment to find what display you are comfortable with and that suits your usage.

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Works with » Android 5.0 **Difficulty** » Easy

Customise your Lollipop lockscreen

Change your lockscreen's left and right swipe shortcuts, and explore lockscreen replacement apps

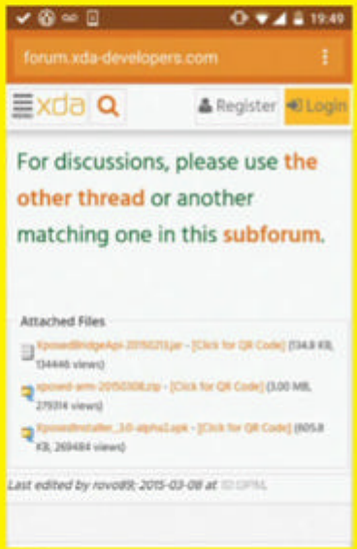
Android's lockscreen has changed a lot over the years. For the Lollipop lockscreen, Google has got rid of widgets and replaced them with notifications and two shortcuts that launch the Camera and Phone apps.

On the surface, there may not seem much scope for customisation, but you can edit these two lockscreen shortcuts so that they launch apps of your choosing. To do this, you'll need to install the Xposed framework and then use the framework to download the 'Custom Stock Lollipop Lockscreen' Xposed module.

The catch is that Xposed for Lollipop is currently only available as an alpha, so it isn't as stable as previous Xposed releases, and there's a higher chance of encountering bootloops and other issues. This means that you must create a full system backup of your device before attempting this hack.

You'll need a rooted device running Lollipop, plus a file explorer app such as ES File Explorer. This hack works the best on stock Android and other Android Open Source Project ROMs, although you may have some success with other custom ROMs.

If you want something more dramatic than custom shortcuts, you can always download a lockscreen replacement app. You'll find lots on Google Play – many are free and compatible with rooted and non-rooted devices. After showing you how to customise your lockscreen shortcuts, we'll look at an example of a lockscreen replacement app.



1 Download Xposed Framework

On your Android device, go to **bit.ly/1DLOwEr** and download the latest version of xposed-arm zip and the installer. Boot into your device's custom recovery. Select Install zip, navigate to your xposed-arm download and confirm that you want to install this file. Reboot your device.

6 Create your shortcuts

These two options refer to the swipe gestures that you can perform on the lockscreen. Tap either of these options and you'll see a list of all the apps installed on your device. You can then choose a new app that will launch whenever you swipe left or right on your lockscreen.

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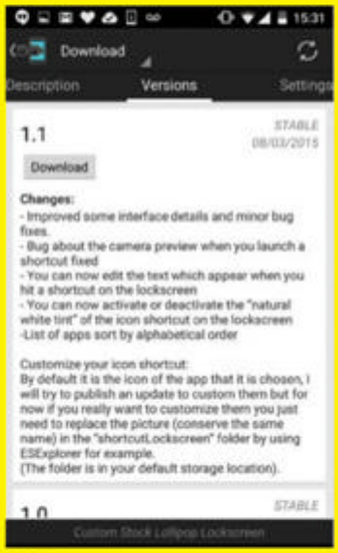
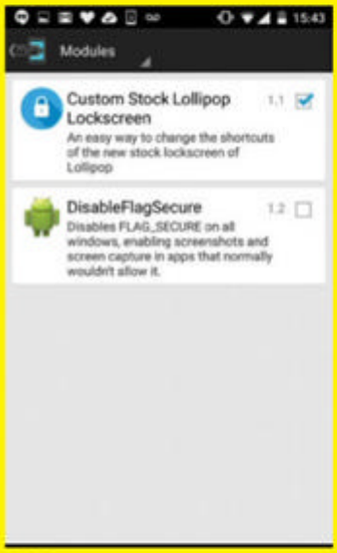
2 Install Xposed launcher

Use ES File Explorer to navigate to where you downloaded the Xposed installer file. Give this file a tap and confirm you want to install it. Open your app drawer and launch your new Xposed Installer app. Tap Download and search for 'Custom Stock Lollipop Lockscreen'.



3 Download Lollipop module

Tap the 'Custom Stock Lollipop Lockscreen' module. Read the information, then swipe right to the Versions section, tap Download and then Install. Once installed, open your notification drawer and you'll see an 'Xposed module is not activated' notification.

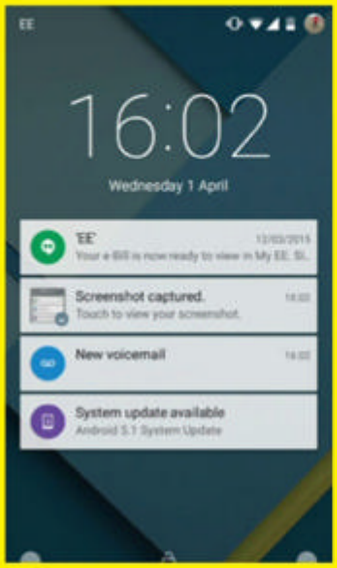


4 Modules screen

Tap the 'Xposed module...' notification. This takes you to the Modules screen which lists all the Xposed modules that you have installed. Tap 'Custom Stock Lollipop Lockscreen' so the box is selected, and you'll see a popup telling you that you need to reboot before this module becomes active.

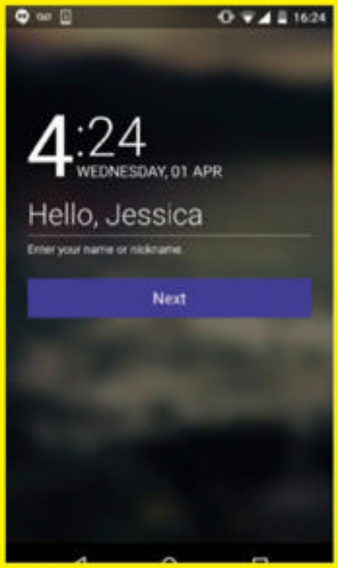
5 Reboot your device

In the toolbar, tap Modules and select Framework from the drop-down menu. Tap the Soft reboot button and let your device reboot. Now open the app drawer and launch your new Custom Stock Lollipop app. This has two options: Left Shortcut and Right Shortcut.



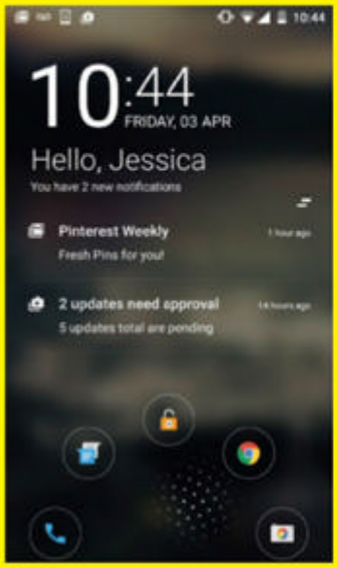
7 Test your shortcuts

Once you've created your shortcuts, go to the lockscreen to test them. You'll notice that the icons in each corner of the lockscreen are the same, even though they now link to different apps. Reboot your device and the icons will become white dots.



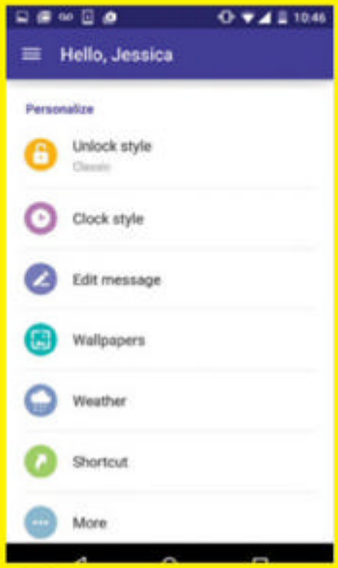
8 Try something different

For something different, you could try a lockscreen replacement such as Hi Locker. This app combines the Lollipop lockscreen with features from earlier versions of Android. Download it from the Play store, then launch it and enter your name when prompted. Tap Next.



9 Test your lockscreen

Tap 'Turn on "Notification access"' and select Hi Locker. Read the disclaimer and tap OK. To see the app in action, go to your lockscreen. To dismiss a notification, swipe the notification to the left. To launch the app relating to a notification, swipe to the right.



10 Customise Hi Locker

Hi Locker has options for customisation, so relaunch the app and scroll to the Personalize section. Here, you can make changes such as choosing a new clock style or wallpaper, and editing the message on your lockscreen (it's 'Hi Name' by default).

WorldMags.net

Works with » Android 4.4 **Difficulty Level** Advanced

Add a music visualiser to your notification panel

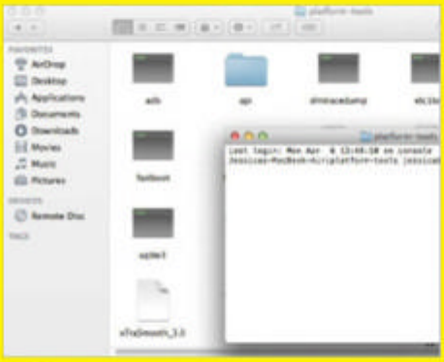
Use Graphic Equalizer to enhance your lockscreen and notification panel

Graphic Equalizer is a mod that adds a music visualiser to your notification panel and lockscreen. It's reported to work across CyanogenMod and Android Open Source Project ROMs, running either KitKat or Lollipop.

We have carried out this tutorial on a Mac, but the steps are the same for Linux and Windows users – just watch out for the ADB (Android Debug Bridge) commands which may vary.

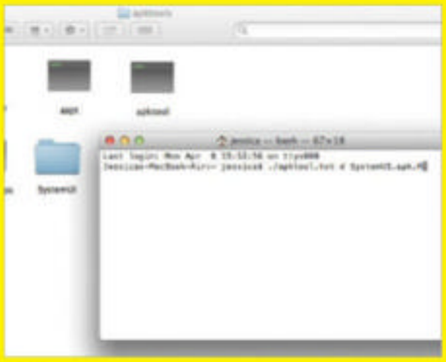
Before attempting this hack, install ES File Explorer and Xposed Installer on your device, plus Android Studio (**bit.ly/IKeIqs**) and Apktool (**bit.ly/1PRXdSA**) on your computer – place Apktool in a new folder, called 'Apktools'.

Then go to **bit.ly/1P2eHJD** and download Graphic Equalizer on your computer. Leave this open as it contains code that you'll need later. Attach your device to your computer and you're ready to go!



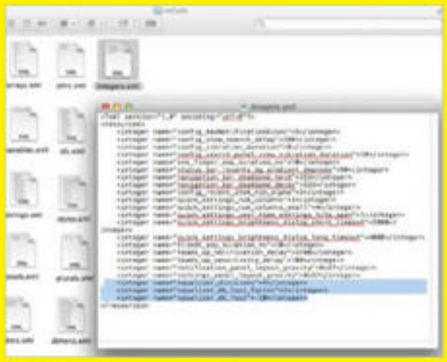
1 ./adb pull SystemUI.apk

Open your platform-tools folder, then the Terminal and change the directory so it's pointing at platform-tools. Check the location of SystemUI.apk on your device and then ./adb pull it onto your computer.



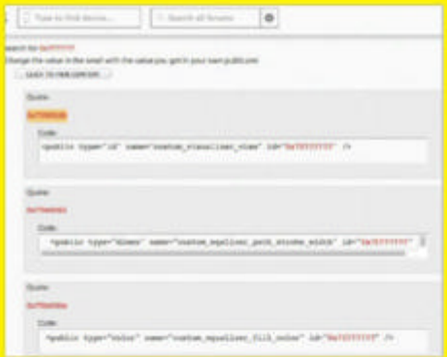
2 Merge with Graphic Equalizer

Move SystemUI.apk to the apktools folder. Point your Terminal here: (cd /Users/username/apk tools). Decompile SystemUI.apk with: **./apktool.txt d SystemUI.apk** and open the new folder. Copy the Graphic Equalizer folder to smali/com.



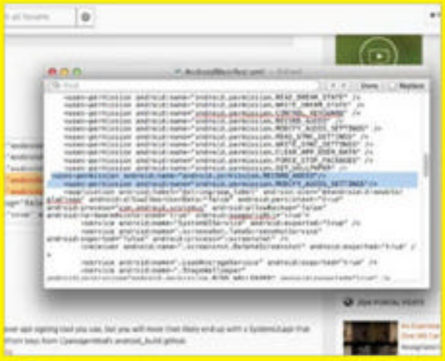
3 Change your SystemUI files

Check Step 2 of the webpage mentioned in the introduction as it lists all the files you need to edit and the code to add. Open each file in a text editor and make the changes. Then, recompile SystemUI using: **./apktool.txt b SystemUI**.



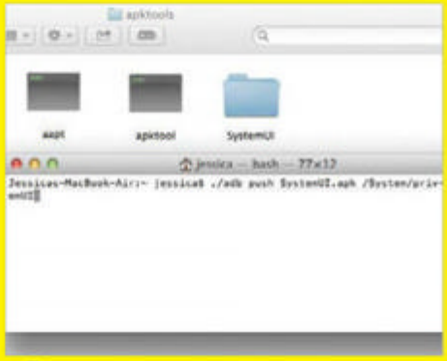
4 Alter Music EqualizerVisualizer.smali

Decompile System.UI.apk and open the SystemUI.apk/smali/com/adi/rom/interface/MusicEqualizerVisualizer.smali file. Open system ui/res/values/public.xml. Replace in .smali with public.xml values (listed in Step 4 XDA thread).



5 Edit your manifest

Open AndroidManifest.xml and add the permissions listed in Step 5 of the XDA thread. Re-compile (./apktool.txt b SystemUI). You need to disable application signature checks to push this to your device. Open Xposed Installer and download Xinstaller. Activate this, then reboot.



6 Use ./adb push

Check your device's SystemUI.apk has read/write permissions by launching ES File Explorer, opening its side-menu and enabling Root Explorer. Next, tap Root Explorer>Mount R/W and set System to RW. Now replace SystemUI.apk with your modified one, using ./adb push.

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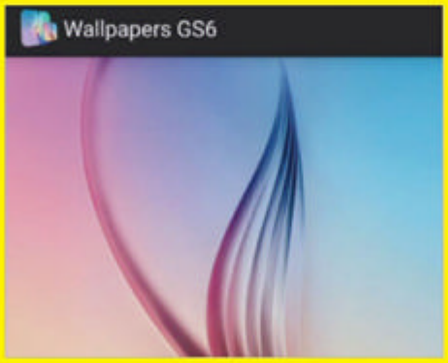
Works with » Varies with device **Difficulty Level** Easy

Get your own Galaxy S6-like lockscreen

Simplify and modernise your TouchWiz device lockscreen without having to do complex hacking

The Galaxy S6 includes a beautiful lockscreen which offers useful functionality in a minimalist way, and it is surprisingly easy to replicate this without having to hack your device. You can in fact download the .apk file for the lockscreen online and then spend time decompiling and recompiling using Apktool. However, that is time consuming and the end result won't be markedly better than the method we are going to show you. Using a free app and widely available wallpapers, you can create an S6-like lockscreen in minutes and also have the added flexibility of adding the shortcuts and productivity features that you will find useful every day. Hacking a device to perfectly replicate another is an advantage of Android, but so is the ability to make quick changes for free. Therefore, this S6-like lockscreen is a perfect example.

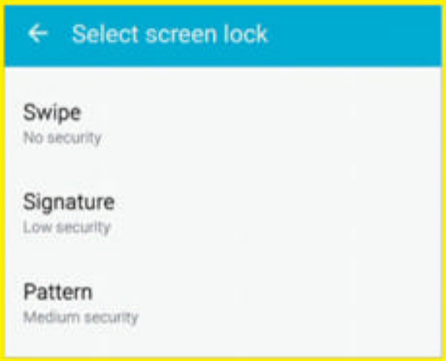


1 Download an S6 wallpaper

The first step is to download a genuine Galaxy S6 lockscreen wallpaper. Go to Google Play and search for 'Wallpapers (GS6)'. Once installed, open the app and scroll to one of the S6 wallpapers. Now select 'Save to SD card'.

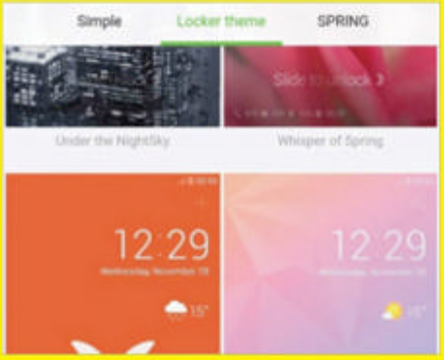
2 Grab an app

You will also need to download and install 'dodol locker - wallpaper' from Google Play. It's a free app that lets you add themes and different features that work in place of your current TouchWiz lockscreen. For a free app, there are plenty of themes included.



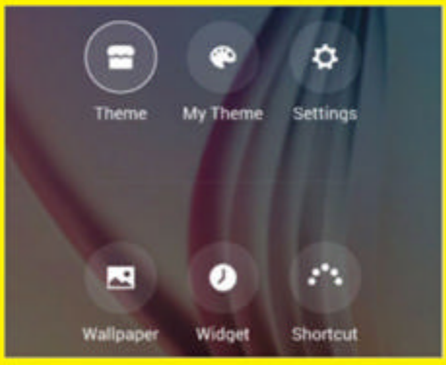
3 Change system settings

Go to Settings>Device>Lock Screen and make sure that None is chosen for the lockscreen security. This will ensure that there is no conflict with the theme you choose in dodol locker, and that you don't have to swipe through two lockscreens when starting your device.



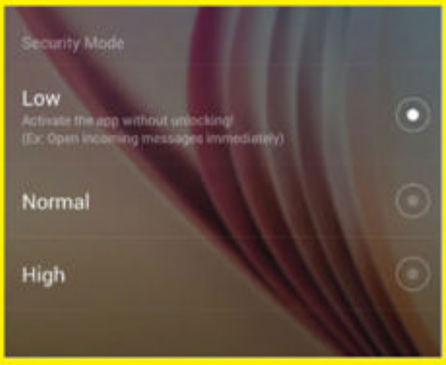
4 Select a theme

In dodol locker, you should spend some time perusing the included themes. It may take some time to find one that looks exactly like the default S6 lockscreen, but there are many in the Simple section that offer the time, weather and camera shortcuts that you will need.



5 Enable the wallpaper

Go to Wallpaper in the app and tap the +wallpaper icon to browse for the wallpaper you saved in Step 1. Now make sure that it is ticked and that the others displayed are unticked, so that it forms the backdrop for your new S6-like lockscreen that has been created.



6 Set a security method

You should now choose a security method within the dodol locker app. This will not interfere with anything else, provided that you have chosen None in the main system security settings. In effect, you will now have a lockscreen that feels almost exactly like the S6.

WorldMags.net

Works with » Sony Xperia devices running Android 5.0 **Difficulty** » Advanced

Build a custom stock kernel on Sony devices

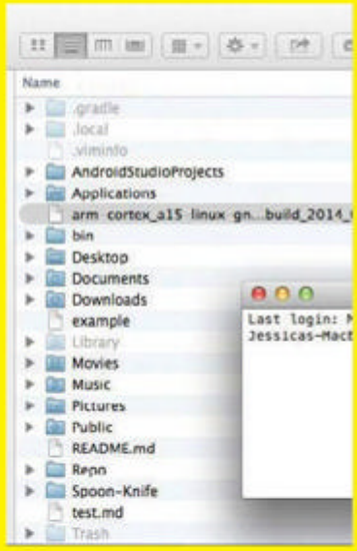
Create your own stock kernel for your Lollipop-powered Sony Xperia with the Linaro GCC toolchain

On an Android device, the kernel is responsible for controlling how the system and your device's hardware interact. Therefore, building a custom kernel enables you to make specific modifications to your device that normally won't be supported by the manufacturer.

This tutorial shows you how to build a custom stock kernel for Sony Xperia devices. In this custom kernel, sony_ric is disabled by default, so /system is always writable. The kernel also includes a fix for the unknown baseband version issue that cause problems with your Wi-Fi, network and Bluetooth connections.

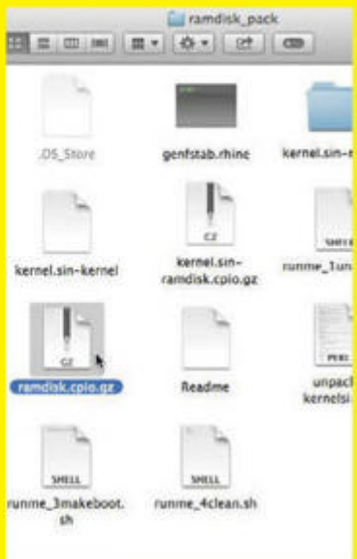
We have assumed that you're running a Mac that's prepared for Android development, but if not you can find instructions on how to prepare your build environment at the official Android docs (**bit.ly/1Hd3Z3P**). You will also need to be familiar with the terminal and have a GitHub account with git installed on your computer.

Remember to ensure that your device's .ftf stock ROM is stored on your computer too. To flash your custom kernel you'll need to have root with a custom recovery installed. As always, make sure that you have backed up your device before attempting to flash your kernel, just in case.



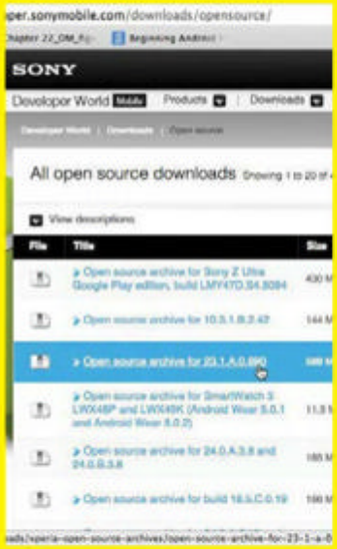
1 Download your toolchain

Go to **bit.ly/1EmYVZZ**, download the arm-cortext_a15 toolchain and place it in your home directory. Then, download and install Homebrew from **http://brew.sh/**. Once Homebrew is installed, you can use it to install the Xz tool by opening a terminal window and running: **brew install xz**.



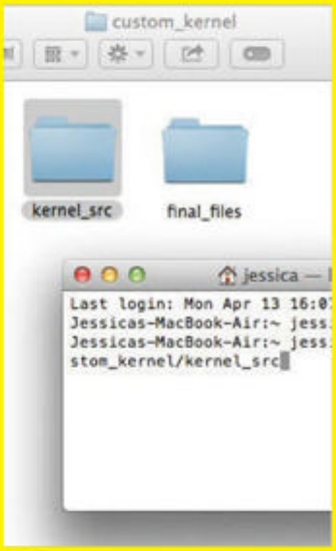
6 Unpack ramdisk

In the terminal, run the command: **./runme_1unpack.sh**. This creates a kernel.sin-ramdisk directory. Patch and repack your ramdisk by running a second terminal command: **./runme_2repack_mod.sh**. If successful, you'll get a new ramdisk.cpio.gz file. Move this to your custom_kernel/final_files directory.



2 Download the kernel source

Change directory (cd) so terminal is pointing at home directory. Extract your arm-cortex file using: **tar Jxvf arm-cortex_a15-linux-gnueabihf-linaro_4.9.1-2014.04-build_2014_04_25.tar.xz**. Then, download the kernel source you want from **bit.ly/1cUrhyN** or **bit.ly/1cYTww3**.

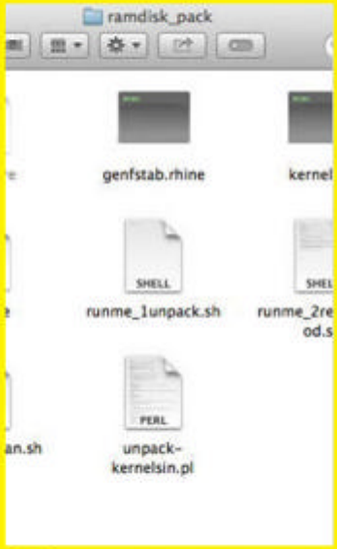


3 Create additional directories

Make folders in your home directory, using terminal's make directory (**mkdir**) command. Create a ramdisk_pack and custom_kernel folders in Home. Then in custom_kernel make a final_files and kernel_src.folder, and move downloaded sources here.

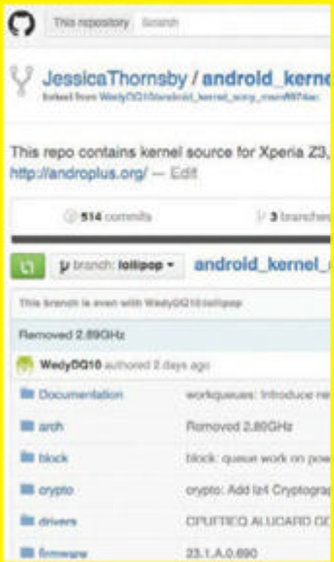
4 Move kernel.sin

Change directory so terminal is pointing at custom_kernel/kernel_src. Issue the following command: **bzip2 -dc (kernel source) | tar xvf**. Next, navigate to your .ftf file and change its file extension to .zip. Unzip, then open the unzipped folder and move its kernel.sin file to your ramdisk_pack directory.



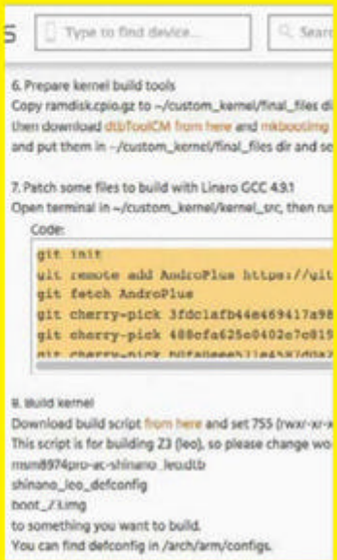
5 Download ramdisk_pack.zip

Go to **bit.ly/1QdGWs4** and download ramdisk_pack.zip. Unzip and make sure you have read, write and execute permissions. Move the contents of the ramdisk_pack to ramdisk_pack directory. Change directory so your terminal is pointing at the ramdisk_pack directory.



7 Prepare your build tools

Log in to your GitHub account and download the dtbToolCM (**bit.ly/1D97Abq**) and the mkbootimg (**bit.ly/1Dbexdl**) repositories. Make sure you have read, write and execute permissions on these downloaded files, then move them to your final_files directory.



8 Copy and paste commands

Change directory so your terminal is pointing at custom_kernel/kernel_src. You'll then need to enter several lengthy terminal commands. The easiest method, is to go to **bit.ly/1QdHNZK** and copy and paste all the commands in Step 7, into your terminal.

9 Build your kernel

Now, it's time to build your kernel. First, go to **bit.ly/1GdYcb1** and copy and paste the build script into a text editor. Note that this script is targeting Z3 (leo), so you will need to go through the text itself and change all of the references to specifically suit the device you're using.

10 Create a flashable file

Store the text file in your final_files directory, with the name 'buildit_4_leo'. Change directory so your terminal is pointing at the final_files folder, then enter the command: **./build_it4_leo**. If successful, you'll get an .img file that you can then flash to your device.

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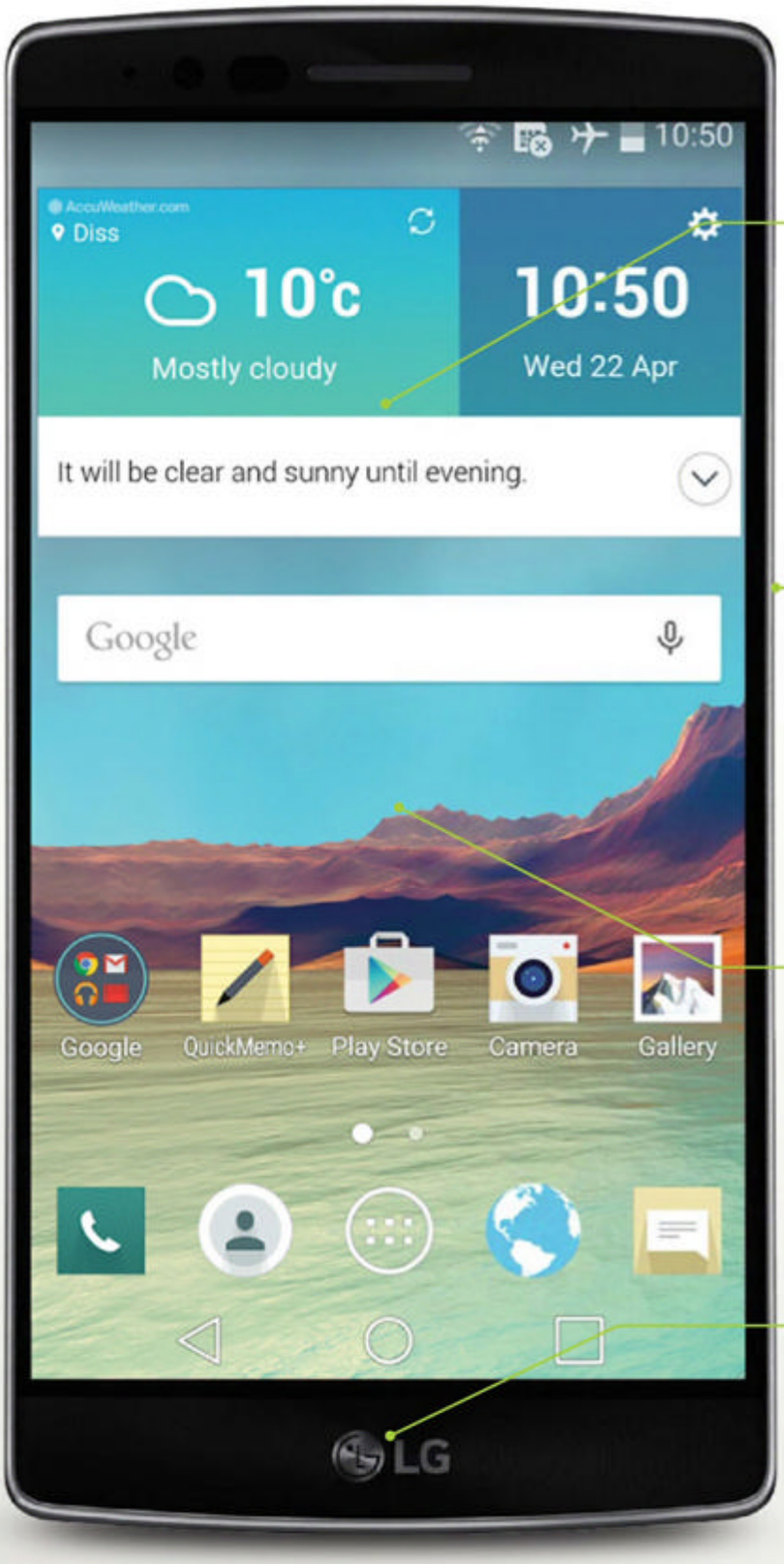
LG G Flex 2

LG are back with a second iteration of their innovative curved screen device, this time touting genuine flagship specs



Screen display

The G Flex 2 features a Gorilla Glass topped P-OLED panel, which uses plastic backing rather than glass to enable the signature curve on the screen. Unlike the original G Flex, this model has a full HD 5.5" display

Back buttons

Like its G2 and G3 siblings, the G Flex 2 has power and volume buttons on the back of the phone, enabling LG to use smaller bezels on the device. Double tap to wake and sleep are really convenient for quick use

Android Lollipop

Lollipop 5.0.2 comes preloaded on the G Flex 2, together with LG's own tweaks and enhancements. The changes on the whole feel relatively lightweight, with the exception of the notifications pull-down that is heavily tweaked with toggles and sliders, which is a shame

Storage

UK variants of the G Flex 2 have 2GB RAM and 16GB ROM, while international versions have 3GB RAM and 32GB ROM. MicroSD expansion is also included, supporting up to 128GB

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Fast snaps

The 13 megapixel camera on the G Flex 2 is shared with LG's G3 flagship, which means it has the clever, ultra-fast (sub 0.3 sec) laser autofocus and takes great pictures. The 2.1 megapixel front facing camera is less impressive though

Self-healing

The back of the G Flex 2 uses self-healing plastic, enabling small scratches to repair themselves in around ten seconds, rather than several minutes on it's predecessor. The phone is available in Titanium Grey in the UK and red in other countries

Samsung can make curved screens. They proved it with the Galaxy Round, Note 4 Edge and, most recently, Galaxy S6 Edge. LG can make curved screens too. They proved it the original G Flex and here we have that device's successor, the appropriately named G Flex 2. The observant among you may notice that while Samsung have clearly chosen to curve their screens from left to right, LG instead think top to bottom is the way to go, and you know what? We are inclined to agree.

The Galaxy S6 Edge takes the curve on its screen and tries to make it useful, with software gimmicks that in reality, don't offer much functionality over a regular flat-screened phone. LG's approach is simply to make the phone look great and feel even better, with the curve a more natural shape to store in your pocket and hold next to your face.

The screen itself is a 5.5" panel (down from 6" on the original) with a 1080P resolution (up from 720P on it's predecessor). It uses P-OLED technology which replaces the glass backing on the screen with a plastic alternative, enabling it's signature curved shape. The screen is bright, vibrant and up there with the very best. Don't be concerned by the fact it's 'only' full HD – the screen is far superior to the QHD screen on its LG G3 sibling, for example.

Behind that screen LG have crammed in all the latest tech you'd expect to find in a £500 phone – the latest Snapdragon 810 processor, 2GB RAM, microSD expansion, LTE connectivity, a 13 megapixel camera with laser autofocus on the back, a 2.1 megapixel camera on the front, a sizable battery and a clever 'self-healing' removable back cover that improves on the tech that first debuted on the original G Flex.

The G Flex 2 is certainly a looker. With its shiny black front edged by silver highlights and its signature LG rear mounted volume and power buttons, you are likely to get interested looks and questions from passersby wherever you use the phone. It's unfortunate that we only get the Titanium Grey model in the UK, as the Flamenco Red really does suit the device.

The phone is running Lollipop 5.0.2, very nearly the latest release of Android. As you'd expect, it's Lollipop with LG's own improvements bolted on and it's nicely done. It's certainly less intrusive than LG's version of KitKat, no doubt helped by the fact that LG's choice of colours for their OS customisations gel nicely with those that Google have adopted for Lollipop.

So the hardware looks good, the software looks good, how does it perform? Sadly, not very well. In the unit we reviewed, the powerful Snapdragon 810 processor that beats at the heart of the device seems to be causing issues. When you start taxing the device even slightly, it gets hot. When it gets hot, it throttles the processor. When it throttles the processor, things start to lag a lot. The upshot is that does not feel like a 2015 flagship phone or even close – when you have had a gaming session or even if you've just been installing applications, the device will stutter horribly. If you're really unlucky it might even drop the screen brightness and prevent you turning it back up until things have cooled down. These performance issues have a detrimental effect on battery life too. We found that the G Flex doesn't last as long as similar devices with much smaller batteries, again no doubt due to the processor (we have seen other Snapdragon 810 devices have similar poor longevity).

It's hard to know whether the issues above can be fixed by LG in software or whether there is a deeper hardware problem here. It's a real shame because the G Flex 2 is otherwise a lovely device. Unfortunately, as the phone stands right now, it's hard to recommend as a purchase. ■

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LG G Flex 2

information

Price **£499.99/$504**

» More information **www.lg.com**

Battery life

The battery life on the G Flex 2 is hugely disappointing given its impressive 3000mAh capacity

technical specs

- » Operating system ..... **Android 5.0.2 Lollipop**
- » Processor ..... **Qualcomm Snapdragon 810, 2.0 GHz octa-core**
- » Memory ..... **16GB storage / 2GB RAM**
- » Dimensions ..... **149.1 x 75.3 x 8.9mm**
- » Weight **152g**
- » Display size ..... **5.5 inch**
- » Display resolution ..... **1920x1080 pixels (400ppi)**
- » Front camera **2.1MP**
- » Rear camera ..... **13MP (F/2.0 aperture)**
- » Connectivity ..... **4G, 3G, Bluetooth**
- » Expansion slot ..... **microSD (up to 128GB)**

Performance

Performance of the G Flex 2 struggles as soon as the device is given a lot to do

Design

The look of the device wows at first, but the self-healing plastic doesn't feel premium

Features

All of the features you'd expect to find on a flagship phone are included

Value for money

With the G Flex 2 it's hard to feel you're not paying just to be a bit different

» Verdict

The G Flex 2 has the specs of a great phone, but the lag and heat issues are hugely disappointing

Moto G 4G (2015)

Is Motorola's upgraded budget buy still value for money?

Officially, the 'G' in 'Moto G' is meaningless. Android fans have long speculated that it stands for 'Google,' 'generation,' or even 'geek,' but Motorola themselves say it was just a randomly assigned letter. For our part, we've always thought it stood for 'game-changer'. Back in 2013, the original Moto G turned the phone industry on its head, offering the specs and user experience of a much more expensive handset for only £135. So can we say the same about the Moto G 4G (2015)?

The answer depends. If you're upgrading from the first-generation Moto G 4G, which came out in Spring 2014, you will be impressed. The original Moto G 4G was only a minor upgrade on the Moto G, adding LTE connectivity and a microSD slot. However, if you're upgrading from the Moto G's official successor, the second-generation Moto G which launched last autumn, you're not going to notice much of a difference, as it's another incremental update.

The new Moto G 4G looks the same as the Moto G (2014), turning the palm-size smartphone into a 5.5-inch phablet. The dual front-facing speakers deliver impressive-sounding audio for all your musical needs, while the display is easy on the eyes. The display technically has a lower pixel density than the original with 294ppi, but it still looks perfectly crisp and sharp, both for reading small text and watching 720p video.

The Moto G 4G also now runs near stock Android Lollipop out of the box, adding only a couple of helpful new apps, including Motorola Assist. This app will automatically put your phone on silent when you're sleeping but still let priority phone calls through, as well as read out text messages when you're driving.

All of this may be familiar to Moto G (2014) owners, with the only upgrades being 4G connectivity and a bigger battery. The new Moto G 4G's 2,390mAh cell is the same as the premium Moto X, which coupled with Lollipop's own power-saving features, Motorola claims can deliver an all-day battery life. We found it had enough juice to last 20 hours of moderate use and 10 hours of heavy video-streaming, but we were suitably impressed.

But it's not all good under the hood. The handset's Snapdragon 400 quad-core processor and 1GB RAM is the same as the original Moto G sported two years ago. The phone scored 18,678 in an AnTuTu benchmark, which is a lot lower

One SIM slot

Something the 4G Moto G lacks is the second S M card slot of the 3G second-gen Moto G. This isn't a surprise. Dual-S M devices are targeted at developing markets while 4G devices are not. A dual 4G version does exist, but its exclusive to China

Long-life OS

The original Moto G was launched running Android Jellybean, but was always near the front of the queue for updates. This Moto G 4G runs Lollipop 5.0 out of the box, so should get the latest features for years to come

Booming speakers

The front-facing stereo speakers are another worthwhile upgrade. Loud and composed, they certainly wouldn't disgrace an HTC device with BoomSound written on the back

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than we'd like to see from a high quality phone in 2015, but we can't say we noticed much lag using it day to day.

However, our main issue with the Moto G 4G (2015) is the price, which is £150. On the one hand, Motorola deserve credit for selling this handset for almost the same price it was three years. In a world where the Samsung Galaxy S6 costs £600 and most midrange phones are around £200, this is still a competitive price tag – but not as much as it used to be. The ZTE Blade S6 also offers 4G and Android Lollipop, along with a superior 64-bit processor, 2GB RAM and a 13MP camera for only £30 more than Motorola's latest offering. Other manufacturers, including HTC and Huawei, are also zoning in on the Moto G's sweet spot of high specs, low prices. With only an incremental update, we're not sure the Moto G represents the value for money it once did.

Inexplicably, Motorola may have also released the Moto G 4G's biggest competitor at the same launch event: the Moto E (2015). It lacks the camera or screen quality of the new Moto G 4G, but runs Lollipop, has a superior Snapdragon 401 processor and, crucially, offers 4G. All for £99.99.

If you're considering getting a Moto for the first time, this handset is still a contender, but its not the clear winner it once was. Unless the inevitable third-generation Moto G radically shakes things up, Motorola may find that this time the game has changed around them.

8MP camera

The rear camera is an upgrade on the original Moto G 4G's 5MP camera. The flash is also brighter and the camera focuses faster. The f/2.0 aperture also ensures that photos are brighter. We got the best results when using the HDR mode

Style on a shoestring

Like all Moto phones, you can customise the device to suit you. The back of the Moto G 4G pops off and can be replaced with any number of 'shells' – interchangeable cases available in a range of colours

Moto G 4G (2015)

information

Price **£149/$TBA**

» More information **www.motorola.co.uk**
» Supplied by **Motorola**

Battery life

The 2,390mAh battery is impressive for a low cost handset and delivered a near full-day charge

technical specs

» Operating system	**Android 5.0**
» Processor	**Qualcomm Snapdragon 400 1.2 GHz quad-core**
» Memory	**8GB storage/ 1GB RAM**
» Dimensions	**141.5mm x 70.7mm x 11mm**
» Weight	**155g**
» Display size	**5.0 inch**
» Display resolution	**720x1280 pixels (294 ppi)**
» Front camera	**2MP**
» Rear camera	**8MP f/2.0 aperture**
» Networks	**3G/4G**
» Expansion slot	**microSD up to 32GB**

Performance
While it benchmarked poorly, we can't say we noticed any real lag using it day to day

Design
A slick-looking phablet that feels high quality, with a customisable back cover

Features
The few proprietary apps it has are very useful, plus impressive camera and speakers

Value for money
More expensive than the original, while other budget phones offer more for less

» Verdict

With a phablet makeover and moderately improved specs, this is the best Moto G ever – but only just

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Camera
The less said about the cameras the better. The rear camera is a 5MP affair, while the front is a 2MP offering. Neither are particularly sharp and the front one especially is very inefficient in lower light conditions

Storage
16GB internal storage isn't bad for this device and you're able to bump it up to 64GB with an SD card. It does have to be formatted to fat32 standard, which shouldn't be a problem

Screen
The Full HD screen produces a crystal clear image. Videos and web pages are reproduced in excellent quality, making this an ideal mini home cinema experience. The viewing angles are very good as well

E-reading
One highlight of the 101 Oxygen is the standard Android e-reader. There is a handful of pre-loaded books on the device and it is easy to read, especially in landscape mode where you get two sizeable pages of content to view

Archos 101 Oxygen

Is the Archos Oxygen tablet a breath of fresh air in the Android tablet market?

Archos has a healthy suite of tablets, aimed at the budget end of the market, challenging the likes of the Amazon Fire, Tesco Hudl and Alcatel OneTouch ranges.

The French company started out in 1988 and have been developing Android products pretty much since the birth of the platform. However, they haven't made a huge dent in either the smartphone or the tablet industry, and it doesn't look like the 101 Oxygen will buck that trend.

The first thing you notice about this tablet is the weight. It's a hefty device that tips the scales at 570g – a good 100g heavier than the similarly sized Samsung Galaxy S Tab 10.5. This is instantly noticeable and sadly makes it an unappealing device for prolonged use.

Visually, it doesn't have a lot going for it either. It has a standard screen but is topped with an extra half-inch strap that houses six ports and the volume button along the top. This could have been a nice touch as it's annoying to have to negotiate cables that trail down the side of a device. However, the device is already big enough to accommodate a charger cable, set of headphones and your hand, so while this solves a problem in landscape mode, it creates a one in portrait mode. The backing is cheap and plasticky and the whole device looks like an old portable TV screen rather than a tablet.

However, once you turn on the device you realise it's not all bad. It runs stock Android 4.4 KitKat with no customisation and the only gripe is that the app menu doesn't look very exciting.

The 1920x1200 screen is sharp and, coupled with the fairly speedy 1.8Ghz quad-core processor, plays videos and games with excellent clarity. We didn't notice any lag when completing tasks, playing games or browsing the web, which was a real positive for the 101 Oxygen.

Although this is a very reasonable device underneath the heavy, unattractive exterior, at £169.99 it is battling the likes of the Samsung Galaxy TabPRO, LG G Pad 8.3 and (now defunct) Nexus 7, which is a fight it's not going to win. If all you want is a large tablet with decent specs for playing games and watching movies, then this isn't a bad device. However, the 101 Oxygen disappoints in terms of build quality, weight and practicality, so if you're spending that kind of money, it might be worth thinking twice.

Archos 101 Oxygen information

Price **£169.99**

» More information **www.archos.com**
» Supplied by **Archos**

Battery life

You should be able to get over nine hours of video playback form the 7,000mAh battery

technical specs

Operating system	Android 4.4.4 KitKat
Processor	Rockchip RK 3288, ARM Cortex A17 1.8GHz quad-core
Memory	16GB storage/ 2GB RAM
Dimensions	240 x 172 x 10mm
Weight	570g
Display size	10.1-in inch
Display resolution	1920 x 1200 pixels (224ppi)
Front camera	2 MP
Rear camera	5 MP
Connectivity	Wi-Fi, Bluetooth
Expansion slot	MicroSD (up to 64GB)

Performance
Fairly speedy and fast to load web pages. Games and videos played smoothly too

Design
Uncomfortable to hold, cheap feel and unattractive row of port placements

Features
Nothing to get excited about. Stock Android apps, plus preloaded OfficeSuite is good

Value for money
The specs and internals are okay, but you can get a better product for a cheaper price

» Verdict

This tablet is a pretty good mid-range tablet but very much a stay-at-home device for watching movies

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Prestigio Multiphone 5550 Duo information

Price **£123.11/$TBC**

» More information **promo.prestigio.com**
» Supplied by **Prestigio**

Battery life

This sizeable 3000mAh battery is more than able to handle the limited screen and processor

technical specs

- Operating system: **Android 4.4 KitKat**
- Processor: **MediaTek MTK6582 1.3GHz quad-core**
- Memory: **8GB storage/ 1GB RAM**
- Dimensions: **156 x 78.1 x 9.2mm**
- Weight: **155g**
- Display size: **5.5 inch**
- Display resolution: **720x1280 pixels (267 ppi)**
- Front camera: **2 MP**
- Rear camera: **13 MP**
- Connectivity: **3G, Wi-Fi, Bluetooth**
- Expansion slot: **microSD (up to 32 GB)**

Performance

Doesn't work well under pressure but no major hold ups during medium-energy tasks

Design

The phone is too large and feels cheap despite the attempt at a premium look

Features

Runs near stock Android and has a decent camera, but has far too much bloatware

Value for money

For £120 you get a phone that does the job and has a good quality screen

» Verdict

This phone is robust, functional and practical with its dual-SIM and long battery, despite falling down on design

Dual SIM

The dual-S M mode supports a normal S M and a micro-S M, although with an adaptor you can operate two micro-S Ms. t's easy to switch between S Ms but you don't get notifications on one if the other is in action

267 ppi display

The HD screen has a resolution of 720x1280 and a pixel density of 267ppi. This makes it sharper than models such as the Sony Xperia Z2 Aqua and Vodafone Smart 4 Power, which is impressive for such a budget model

Lots of juice

The 3,000mAh battery could last the careful user a couple of days. As you're unlikely to want to play many graphics-heavy games on it, this is easily achievable. t is also removable so you can easily swap it out if you want to

Storage

n terms of storage the 5550 is very limited, coming with 8GB of storage, over half of which is taken up with pre-loaded apps. However, many of these can be deleted, and the microSD port can add an extra 32GB as well

Prestigio Multiphone 5550 Duo

Is Presigio's latest budget phone truly prestigious?

Prestigio are a budget electronics firm that makes everything from eReaders to GPS devices. Their range of smartphones target a low-to-middle place on the market. Prestigio's latest release is the Multiphone 5550 Duo, running Android 4.4 KitKat.

The battery is a healthy 3,000mAh, especially considering the phone it has to power. There is no Super AMOLED screen or super-fast processor here to suck power, meaning that the handset comfortably has over a day's worth of juice, possibly running to two if you're careful.

The camera is very good for the price point. Its impressive 13MP rear-facing snapper takes a while to focus, but once it does it takes sharp images, although it doesn't deal well with low light conditions. The 2MP front-facing camera does the job for selfies, but avoid the Beauty Face mode. The editing options are stock Android, with the only addition being Live Camera mode which takes a few seconds of video. In general, though, it's a good piece of kit.

Dual-SIM is a feature in many of Prestigio's phones, but is advertised as a major selling point for the 5550 Duo. Users can insert a normal SIM and a micro-SIM and switch between the two. However, the extra SIM fits into the microSD port, so user's can't expand the tiny 8GB storage.

The side bezels are thin but the top and bottom bezels are huge. The edges are unconvincing, with neither the smooth curves of a Samsung or the sharp lines of a Sony. The model we tested was gunmetal grey, but the back was plastic and inlaid with Prestigio's elaborate logo. This mix of aspirational design and cheap materials sits uncomfortably and a simpler design would have worked better.

The screen is a reasonable 5.5-in with a 720x1280 display resolution, covered in a layer of Gorilla Glass 3. The colours aren't deep but it's only rarely that you notice a lack of sharpness and videos play very well. The 1.3GHz quad-core processor isn't capable of managing more than one task at any speed and the transitions and website loading is on the slow side, but basic tasks are managed well.

While its not a Moto E, this is quite a good phone if you're looking for a dual SIM device. If you're fine with the cheaper design, and a bit of a wait when loading screens, this is a great budget phone for the travelling businessperson.

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Small storage
The preloaded apps take up almost half of the 8GB memory, but thankfully a number of them can be deleted. MicroSD support can also add an extra 32GB

Quick snaps
The volume button doubles as a quick load for the camera, although you do have to wake it up with the power button first, which rather negates the benefit. t's an appreciated touch in an otherwise poor camera set-up though

Smart design
The build is fairly quirky. The sides and top have sharp, squared edges like a Sony but rounded corners like a Samsung, while the bottom is a sweeping upward curve

Clear screen
At 720x1280 pixels and sporting a pixel density of 245ppi, this is not the sharpest screen you'll ever see but it's far from being bad. The viewing angles are really excellent as well with no colour distortion whatever the angle

Vodafone Smart 4 Max

Can this big phone with a small price tag challenge the mega phones?

We've heard a lot about Samsung, Apple and Nexus' six-inch phones, but now they have a new challenger in the form of Vodafone's Smart 4 Max. This is the latest in the carrier's range of smartphones, aimed to provide an affordable option. It's only available on pay-as-you-go which seems a little archaic, but at just £125 for the phone, you will save a packet compared to the Galaxy S6 or Nexus 6.

Corners have obviously been cut, mostly in the build and camera. The back is a textured plastic that doesn't feel premium but it is easy to hold, and it's scratch and fingerprint resistant too.

The rear camera, despite boasting 13MP, is a poor affair. It takes ages to load and shoot and when it does, the image isn't sharp. The front facing camera, however, is surprisingly good and snaps quality selfies even when facing the light.

The phone's other big selling point is its battery. It houses a 3,000mAh power source that can provide you with more than a day's life, thanks to its size and the fact it only has to power a 720x1280 full HD screen and 1.3GHz Qualcomm quad-core processor. It drained just ten per cent in 16 hours when left on standby.

On the subject of the screen, it's good without being spectacular. The 245ppi density is an ample level and our eyes can barely detect a difference much above this. The colours, however, could be more vibrant.

In terms of its speed, the Smart 4 Max performs admirably. There is hesitation when loading and transitioning but video playback and gameplay, even with fairly CPU intensive games, is generally smooth. Its Antutu benchmark score of 17302 is right in the middle of the market, dropping just behind the Asus ZenFone 5.

It comes with the standard suite of Android apps as well as a handful of Vodafone apps, which, let's be honest, you're unlikely to use. The addition of Potential and OfficeSuite is a nice touch, though and it eats up less than half of the device's 8GB memory. While this is slightly below what we expect in terms of storage in 2015, it can be boosted with an extra 32GB thanks to a microSD slot.

The Smart 4 Max is a decent, mid-range phone and if you don't mind the shoddy camera, the strange design and the fact you're tied to a Vodafone PAYG deal, this is quite a good model.

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Vodafone Smart 4 Max information

Price **£125**

» More information **www.vodafone.com**
» Supplied by **Vodafone**

Battery life

With only medium use, the large 3,000mAh battery will ;ast for well over a day without charging

technical specs

Operating system	Android 4.4 KitKat
Processor	Qualcomm MSM8926 1.2GHz quad-core
Memory	8GB storage/ 1GB RAM
Dimensions	164 x 83.4 x 7.9mm
Weight	170g
Display size	6-inch
Display resolution	720 x 1280 pixels (245ppi)
Front camera	13MP
Rear camera	2MP
Connectivity	3G, 4G, Wi-Fi, Bluetooth
Expansion slot	microSD up to 32GB

Performance
Not the fastest to load but no issues with playing videos or games

Design
It feels a bit cheap and the design is unique. Easy to hold, though

Features
Nothing different as regards added features, but some nice third-party apps

Value for money
It's really cheap and for the price you get a huge screen, massive battery and sizeable processor included

» Verdict

By entering the 6-inch screen market Vodafone is taking a risk, but it is a good quality, cheap alternative

Sony SmartWatch 3 information

Price **£189.99/$TBA**

» More information **www.sonymobile.com**
» Supplied by **Sony UK**

Battery life

Sony claims that the 420mA battery will give you two days of normal usage

technical specs

- Operating system..... **Android 4.3 Jelly Bean**
- Processor..... **ARM A7 1.2Ghz quad-core**
- Memory..... **4GB storage/ 512MB RAM**
- Weight..... **45g**
- Display size..... **1.6 inch**
- Display resolution..... **320x320 pixels (282 ppi)**
- Connectivity..... **Bluetooth, NFC, GPS**
- Expansion slot..... **N/A**

Performance
The Smartwatch 3 runs very smoothly and quickly, completing all tasks with ease

Design
Although the square watch face is more practical, it loses a lot of style points

Features
Mostly standard Android, but added GPS and waterproofing set it apart

Value for money
At under £200 it is in the middle bracket for smartwatches, but with added functionality

»Verdict

This is generally a very good smartwatch, but the silicone design isn't going to be for everyone

Sony SmartWatch 3

Is it third time lucky for Sony's Android Wear device?

Sony has been lagging behind the likes of Samsung, Motorola and Pebble in the smartwatch sector since wearable tech took off a few years ago. It is now onto its third version of the Sony SmartWatch, hoping to make a dent in this rapidly expanding market.

It runs stock Android Wear, which is surprising as the previous iteration ran Sony's own customised Android platform. This was probably a wise move as Android Wear is a user-friendly platform that many people are comfortable with.

The SmartWatch 3 we tested was coated in silicone rubber, with a large screen inset into the band. On the face of it, this makes the wearable look like a step back for Sony – the SmartWatch 2 resembled a more premium watch. However, the SmartWatch 3 is better designed for an active lifestyle, with an IP68, meaning it can be completely submerged in water.

If you're more interested in a fashion accessory than getting fit, Sony also offer a stainless steel version of the SmartWatch 3 with a metal link wristband. It costs slightly more at £229.99, but currently Sony are offering one of the rubber straps as a free gift.

Navigation is easy and responsive, and the 320x320, 1.6-inch display is very sharp. Admittedly this is where the square screen comes into it's own, as swiping and viewing messages is a breeze. Running stock Android Wear, there aren't really any surprises to be found. However, the addition of a built-in GPS sensor makes using Google Maps and Google Fit much easier. A couple of swipes takes you to a map where you can see a route to home or another chosen location. This automatically opens it on your phone, but also provides directions so you don't need to fish your mobile out of your pocket when you need to take a turn. This works well and demonstrates a real benefit of a smartwatch.

If you're the athletic type, it will also help you to work out without your phone. The SmartWatch 3 can work independently from your phone due to the GPS, so now you can jog to your heart's content and get all the important updates without lugging your phone around with you.

Sony certainly hasn't quite got the look of the smartwatch sorted yet and hopefully the next version will go back to the drawing board as far as style goes, because the square face and sharp corners grate quite a bit. However, this is a very solid device, the screen quality is good and the GPS addition is fantastic.

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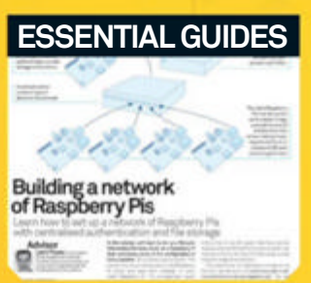

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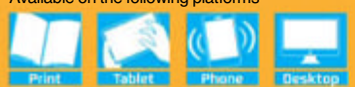

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Perfect phone cases

Finding the right phone case for your device can be a nightmare. We have gone through some of the latest models to help you make the right choice

ArmourDillo

- **Price** £12.99/$16.49
- **More information** www.mobilefun.co.uk

The ArmourDillo case is very much a 'love it or hate it' design, with bumps and grooves all over the case. The solid exoskeleton provides the impact resistance in vulnerable areas such as the corners and sides, creating fairly comprehensive protection. It comes with quite a neat stand on the back with a small yet useful range of angles, but it does feel a little cheap and tough to prise apart.

Otterbox Commuter

- **Price** £24.99/$TBC
- **More information** www.clove.co.uk

The Commuter case from Otterbox is only slightly thinner than the Defender but feels a lot less rigid. While the design of the case isn't terribly attractive, it will save your phone from most normal drops. It comes with just one screen protector, which is a shame because at this price we'd like a few more. The flaps to enable access to the microphone and charging port are quite stiff as well, so although they work we wouldn't recommend the case.

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Otterbox Defender

- **Price** £29.99/ $TBC
- **More information** www.clove.co.uk

The Otterbox Defender is a lightweight case that offers you three layers of protection. There's a solid-feeling screen protector, polycarbonate shell and finally a silicon wrap to give any drop that extra bit of cushioning. It doesn't weigh much but is obviously pretty thick, so you wouldn't really want it as your everyday case. The case also comes with a belt clip and holder to make general access easier, but would also be handy if it can't fit in your pocket.

Olixar Leather-Style Wallet

- **Price** £12.99/$16.49
- **More information** www.mobilefun.co.uk

The Samsung Galaxy S6 is a stylish phone and that calls for a stylish cover. This brown leather wallet-style case looks pretty sleek but falls a little bit short on the feel, as it's slightly too smooth to fool most people. It feels very secure, however, and doesn't add too much bulk to the device. It also converts into an angled stand quite easily, but there isn't much choice as regards the actual angle it sits at, unfortunately.

S View Cover

GROUP TESTWINNER ★★★★★ Android magazine

- **Price** £39.99/$50.99
- **More information** www.mobilefun.co.uk

This official flip case from Samsung is quite pricey but you get an excellent product. The case is lightweight and adds barely anything to the S6's depth. It doesn't feel like it will protect the phone from a big drop but enables you to accept incoming calls with the transparent display. You can also wirelessly charge your device with it still on and, as a final show-off, your phone can detect what colour the cover is and change the background accordingly.

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Tinkerplay

Design and 3D-print custom toy figures

EDITOR'S CHOICE ★★★★★ Android magazine

2 hour wonder

Want your money back? You've got 120 mins to decide!

- **»0-40 minutes** Easy to build models using drag and drop
- **»40-80 minutes** Some subtle texture effects can be achieved
- **»80-120 minutes** Good range of export options for 3D printing

keep refund

The concept of designing your own custom models and 3D-printing them is appealing. However, for those of us lacking the patience and skill required to create our own designs from scratch, Tinkerplay offers an easier alternative. It's so simple, even kids can use it to design their own articulated toy figures!

The app involves dragging and dropping interchangeable parts which are optimised for 3D printing as fully poseable characters. There's a decent range of preset parts to choose from: a box of basic ones, along with parts for seven model templates, ranging from robots to insectoids. You can follow the instructions by selecting the highlighted parts, or mix and match elements to design your own.

Located in each corner, the menus have a carousel-like design with concentric rings, enabling quick and easy location of the items you need. The parts menu features sections for head, torso, abdomen, limbs, appendages and joints, along with things like wings and weapons – some of these require extra ball joints to attach, so you may need to switch torsos. Along with using an undo option, unwanted parts can be removed by dragging them off screen, accompanied by a popping sound as they're detached.

Gesture controls are used to rotate your model and zoom in and out, or tap the magnifying glass to focus on a body part. To see how your articulated model will move, you can drag parts into new positions and rotate them – it's quite fun just playing with your toy.

Once you've assembled your model, add some colour and texture, with the bottom-right menu. Colours are applied uniformly to each part, just tap a shade and then the item. The way textures are applied depends on the view used: when using the magnifying glass zoom function to focus on a part, you can brush the effect onto it rather than tapping to apply it as a preset.

Play with your articulated toy, moving and rotating its parts

The bottom-left menu enables to add a backdrop for your model – although obviously this isn't required for 3D printing, it's useful when taking a screen grab of your creation to share with friends.

When happy with your model, tapping the middle icon takes you to the print section of the app. This shows the layout of parts for 3D printing, sorted by colour, along with an estimated printing time and weight. Settings include printer type and model, along with export method – web browser download, MakerBot cloud library, Dropbox, Google Drive or Autodesk 123D.

Whether you intend to 3D print your models or not, Tinkerplay is fun to play around. A few more parts and templates would be nice though.

Build your figure from the various body parts and then paint it

»specification

Price **Free**

Designed for: Phone and tablet

Requires Android: 4.0

»verdict

Performance

Design

Value

A fun and simple way to create articulated 3D models

»best free alternative **123D CATCH** » Take photos of real-life objects to turn them into printable 3D models

Atari Fit

Gamify your fitness regime

We wouldn't normally associate retro gaming with fitness, but this is the curious combination featured in Atari's new app. The idea is that by completing workout routines, you earn virtual coins to spend playing the built-in retro games. So far there are only three on offer – Centipede, Pong and Super Breakout – though more are promised. It could prove a useful incentive, although you can always bypass the exercise and just buy a bundle of coins.

The app's selection of over 20 workout plans, designed by expert personal trainer Michael Porter, are arranged into a range of categories: Abs, Body Weight, Cardio, Gym and Classic. Alternatively, you can create your own custom plan. You only get one free workout plan, though, the rest are unlocked via individual purchase or monthly subscription from £2.33/$2.99 for three months. You can choose which days to exercise and tailor the routines to your preference – removing a particular exercise, for example. You can also log a single exercise and track a run via GPS.

Unlike some rival fitness apps, there are no tutorial videos to help you: just a single photo and step-by-step instructions for each exercise. What's more impressive though is the organisation of the app, which features a built-in calendar for your workouts. You can also link it up to RunKeeper and Google Fit, to import all your stats; US-based users can even earn points for real-life Walgreens Balance Rewards. Another plus is the ability to create or join a team, so you can see everyone's progress and motivate each other.

Exercise routines are presented in a pretty basic fashion

Sadly, we experienced technical issues on two different devices including a lack of responsiveness and screen freezes. We also soon realised that you can cheat your way to extra coins by simply claiming to have completed workouts! So you will definitely need self-discipline if you want to get fit.

» like this? try this!

Workout Trainer
Follow tutorial videos, create custom workouts, try challenges and link up with friends

» specification

Price **Free + IAPs**
Designed for: Phone
Requires Android: 2.3

» verdict

A novel concept, but there are definitely better fitness apps out there

Snapi

Give a wave for the camera

Taking a selfie, or grelfie, isn't so easy if you have to not only hold the phone at arm's length, but grapple with finding the shutter button as well. Snapi attempts to solve this problem by making the shutter-triggering process completely hands-free – without having to hold a silly selfie stick. Instead, you use simple hand gestures to take a photo. First, you raise an open palm toward the camera, then close and open it again to start the countdown, giving you enough time to lower your hand and get yourself into position. Helpful icons and beeps confirm that the camera has recognised your gestures. The app works from a distance of up to 4 metres (13 feet), great if you want to prop your phone up against something for a group shot. In our experience, it worked reliably and could well prove useful.

» **Price** Free
» **Designed for** Phone
» **Requires Android** 4.1

» best free alternative **WHISTLE CAMERA** » Take selfies and other photos by whistling to trigger the shutter

Beatport

It's all about that bass

Fans of electronic dance music will love this new app, which offers unlimited free streaming for millions of tracks. While it may lack most of the latest chart hits, it features a lot of major artists in the genre and is great for music discovery. A simple but clean UI lets you browse and search for tracks while listening – hit the headphones icon to see the current song, 'heart' it and skip to others in the playlist. Selecting the shows option reveals DJ sets and dance music shows happening in your area.

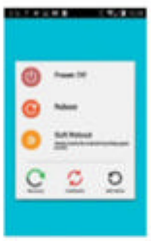
» **Price** Free
» **Designed for** Phone
» **Requires Android** 4.0

EDITOR'S CHOICE
Android

Material Power Menu

Make Lollipop's stock power menu more varied

Disappointing many users, the power button menu in Android Lollipop only offers a Power Off option. To add extra ones, try out Material Power Menu on a rooted device (otherwise it will run as a demo). Once set up, it's triggered when you long-press the power button and tap the Power Off option. You're shown a menu with a choice of Reboot, Shut Down and Soft Reboot, with options for Recovery and Bootloader too.



» **Price** Free
» **Designed for** Phone
» **Requires Android** 4.0

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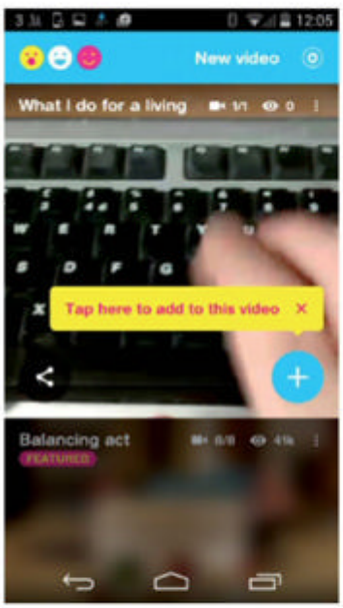
Riff

Make video stories with your friends

Collaborative video apps have been attempted before (remember Krowds and MixBit?), but maybe Facebook's Riff can make the idea really take off this time. After signing in with Facebook, you're greeted by a colourful interface and featured videos to demonstrate the concept. For instance, Balancing act shows clips of people and animals balancing on things. You can swipe left to skip clips, while tapping the + icon lets you shoot your own clip to add to that video. Unlike Vine, there appears to be no restriction on clip length and you get the option to reshoot and confirm before adding it.

Since the only other videos you can see in the menu are those your Facebook friends have started or added clips to, you may want to start your own to get the ball rolling. Give it a topic title, shoot the first clip, tap the option to share with Facebook friends, and it'll be uploaded and posted. That closed network should prevent unwanted/unsuitable clips, but you can delete or report them.



Start a new video by choosing a topic and shooting a clip

» **Price** Free
» **Designed for** Phone
» **Requires Android** 4.3

Star Walk 2

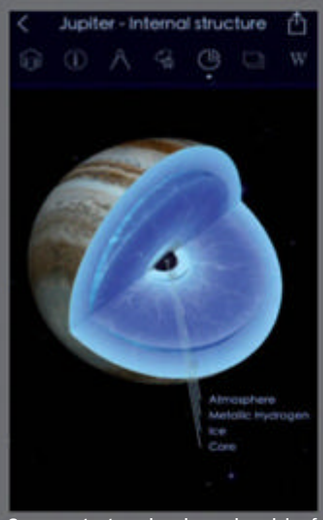
Night Sky Guide – see the stars in all their glory

Anyone fascinated by the recent solar eclipse might well fancy a bit of stargazing. In which case, the arrival of Star Walk 2 on Android – it launched on iOS last year – will be a boon. Billed as 'the next generation', this completely new version was rebuilt from the ground up to be faster and smoother, and features an all-new interface. Its celestial view looks heavenly, complete with glistening, hand-drawn artwork for constellations and even the option of shimmering water to reflect the sky.

As usual in a stargazing app, you can either swipe around the view manually (and zoom in/out) or have it orientate automatically to where you point the device. The standout feature for the latter is the augmented reality option, which superimposes the graphics and info onto the view from the device's camera, turning it into a virtual planetarium. This is brilliant for identifying stars and other objects, particularly if you're a new stargazer.

Back in manual mode, there's also a search function to help you find items with the list arranged into categories such as stars and planets. However, tapping on certain types reveals that some content is locked behind in-app purchases,

This is one of the best-looking astronomy apps we've ever seen



Some content, such as layered models of planets, is unlocked via IAPs

The Sky Live option shows rise/set times and bearings for major objects

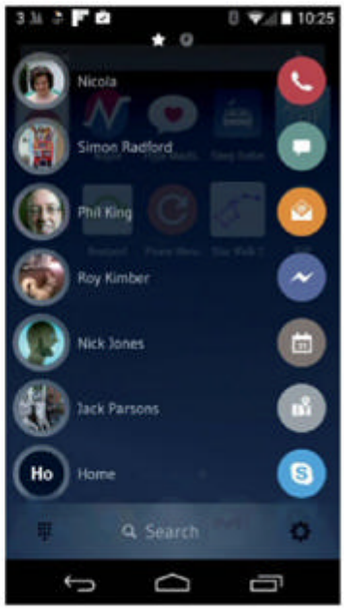
Drupe

A one-stop shop for contacts and messaging

Drupe is designed to make communicating with friends quicker and easier. You can access it from anywhere within the Android ecosystem, including another app, just by swiping its four-dots icon – which you can position where you like. You're then greeted by a screen showing favourite contacts on the left and various apps on the right. Simply swipe a contact to an icon to interact with them using that app.

Swiping left switches the favourites list for recent interactions. Drupe already supports a wide range of apps, including Skype, Hangouts, WhatsApp, Facebook Messenger, Calendar and Google Maps, plus SMS, email and phone. It's very versatile, but the best feature is probably the ability to communicate with the same custom-created group across all apps.

» **Price** Free
» **Designed for** Phone
» **Requires Android** 4.1



Simply drag a contact to one of the app icons on the right

» like this? try this! **IM+** » One of several apps to support multiple messaging services, plus multiple accounts

WorldMags.net

including meteor showers, satellites and deep sky objects such as nebulae. While this is annoying, it's well worth the extra £1.53/$2.31 to unlock everything. The layered dissections of planets and 3D models of nebulae are impressive and you can see how constellations look from other angles.

Other features include the ability to view the sky at any point in time, apply spectral filters (eg X-ray and infrared), plus a Sky Live option that reveals the rise/set times and angles for the Sun, Moon and planets.

» like this? try this!

Sky Map While not as sophisticated, Google's free app is good for locating celestial objects

» specification

Price **£1.96/$2.99**

Designed for Phone and tablet

Requires Android 4.0

» verdict

Performance

Design

Value

An excellent astronomy app with some truly heavenly views to admire

2 hour wonder

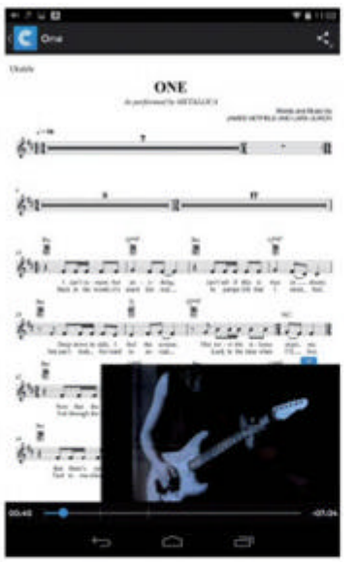
Want your money back? You've got 120 minutes to decide!

» 0-40 minutes
A slick UI and the celestial view is stunning

» 40-80 minutes
IAPs are required to unlock certain content

» 80-120 minutes
Augmented reality makes it easy to find objects

keep refund



The synced video can be hidden so you can concentrate on the sheet music

Chromatik

Play popular songs on any instrument

There are plenty of apps with guitar chords for popular songs, but what if you play another instrument? Chromatik offers free sheet music arranged for piano, guitar, violin, trumpet, flute, percussion, voice and other string/brass/woodwind instruments – over 20 in total.

The app's main screen features an array of categories, including musical genres and topics like The Beatles Songbook, Disney and Best of 2014. You can also use the search facility to find an artist or tune. However, there are some glaring omissions and even present artists may only have one or two songs. Still, the catalogue is being expanded and the developer accepts email requests.

Upon making a selection, you're presented with the sheet music and a relevant video. It works well, though you may struggle to see the notes and lyrics on a smaller phone screen.

» Price Free
» Designed for Phone and tablet
» Requires Android 4.1

» like this? try this! **MUSESCORE** » Listen and play along to free sheet music with real-time adjustable tempo

quickhits

5 top apps for... DIY

Smart Tools £2.20/$2.99

This collection of 16 tools enables you to measure lengths, distances, angles, area and more. There's even a compass, metal detector, sound level meter, magnifier, flashlight, plus a handy unit converter.

Home Improvement Tools £1.47/$2.25

This app's 27 tools mainly comprise calculators for all sorts of DIY-related tasks, including carpeting, painting, wallpapering, tiling, roofing and building. So you'll know exactly how much material you need.

wikiHow Free

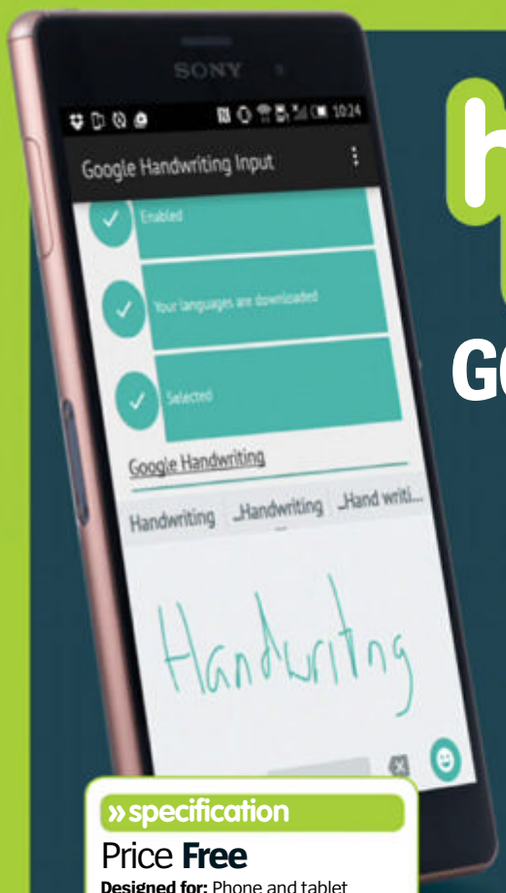
Among the numerous categories of this 'how to manual' is a section for Home & Garden, which contains many DIY-related topics. Each step-by-step guides is fully illustrated with photos.

Houzz Free

Get inspiration for your home makeover from the millions of hi-res photos in this comprehensive resource, labelled the 'Wikipedia of interior and exterior design'. Some ideas might be a little pricy, though.

Home Design 3D Free + IAPs

While a bit fiddly and requiring an IAP to use properly, this app enables you to create 3D rooms and play around with furniture and décor. So it could prove handy for visualising interior designs.

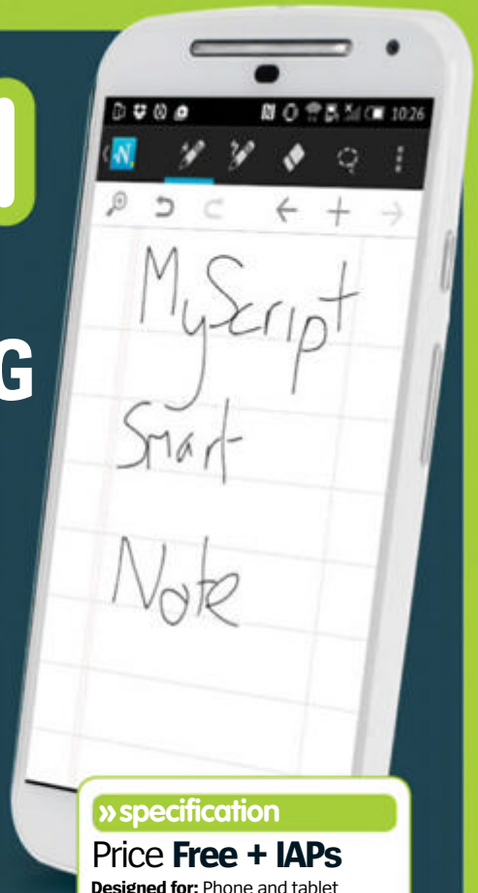


head to head

Which app can make the most sense out of your messy handwriting?

GOOGLE HANDWRITING INPUT VS MYSCRIPT SMART NOTE

If you don't like traditional keyboards, there are apps to send your texts, tweets or emails by handwriting. We've tested two of the best, Google's Handwriting Input and MyScript Smart Note.



»specification

Price **Free**

Designed for: Phone and tablet

Requires Android: 4.03

»specification

Price **Free + IAPs**

Designed for: Phone and tablet

Requires Android: 4.0

Google Handwriting Input		Smart Note
WIN — Google Handwriting is pretty quick to set up and at 19MB is marginally smaller than Smart Note. Only a few simple steps are needed and you are into your test instantly.	SET UP	Smart Note is a three-step set up as well so loading is equally quick. The added features tutorial adds a tiny bit of time onto the initial download time though. — LOSE
DRAW — This is a piece of handwriting recognition software, pure and simple. No frills at all, other than the support for emojis, which we guess is pretty cool feature.	FEATURES	As well as messaging from the app, Smart Note is also a pretty good note-taking app, although it might not quite be enough to challenge the likes of Evernote. — DRAW
WIN — Fortunately for us, even the worst handwriting is recognised by this app, though you do have to be exact when it comes to symbols like the pound sign.	HANDWRITING RECOGNITION	Smart Note does have a few issues when it comes to spacing, sometimes running several words together when it really shouldn't. It is generally excellent though. — LOSE
LOSE — There isn't anything within the app that helps you to correct errors, beyond the ability to undo an action, which could take a while if you notice an error early on.	ERROR CORRECTING	One of the best features in the MyScript app is the ability to scribble out letters and drop into the middle of words to add in letters. Innovative and easy-to-use. — WIN
LOSE — Beyond the introduction there isn't any real extra support for Google Handwriting users, although because there is not much too it, that is no great loss to worry about.	ASSISTANCE	You get taken through a fairly thorough but quick, tutorial before starting and you're also able to download a further instruction manual. — WIN

And the winner is...

GOOGLE HANDWRITING INPUT

Although there's more to MyScript Smart Note, Google Handwriting Input wins. This is mostly due to the fact it's a better app to use when performing the primary function of writing instead of typing. Both are excellent products, though, and the note-taking in MyScript is great.

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LEGO Marvel Super Heroes: Universe in Peril

Experience marvellous mayhem and countless characters

Loosely based on the 2013 PC/console game, the Android version drops the open world aspect and splits the levels into shorter stages to suit the mobile form. It's still a huge download though, mainly due to the large number of cut-scenes featuring trademark LEGO humour.

While the character roster isn't as colossal as the original, you still get to play as over 91 characters. Ranging from fan-favourite superheroes to minor characters, these are unlocked during play or earlier via IAP bundles. Naturally, they all bring their unique powers to the table and while the main character for each stage is preset, you get to choose a tag partner. During play you can switch characters at any point, or hit the tag button to use both

Tapping the tag button summons your buddy to help out for a while

Boss battles are spectacular; here Spidey takes on Sandman

Starting off with Iron Man and The Hulk, we soon got used to the touch controls, although there's an option for on screen buttons as well. You simply drag your finger around to move, tap on enemies to attack, swipe to dodge and flick up with two fingers to fly. You can also throw heavy objects and once the super meter is charged, unleash a mega attack on your opposition.

Each of the 45 missions features ten special challenges, such as beating a time limit, collecting enough studs and defeating all enemies. There's plenty of replay value here, particularly as some feats can only be achieved using certain characters, so you'll need to return to stages later once they have been unlocked. Red bricks can also be found, or bought, to increase your powers and enable cheat modes during your gameplay.

Marvel Super Heroes is well presented, fun to play, features nice boss battles and offers plenty of content to keep you returning.

» **Price** £3.30/$4.99 + IAPs
» **Designed for** Phone and tablet
» **Requires Android** 4.0.3

what we've been playing

Angry Birds Stella Pop Free + IAPs
While there's a bathful of bubble-popping games around, this one has that special *Angry Birds* charm. We're still trying to three-star all the levels, which can be frustrating, but it's still fun.

Modern Combat 5: Blackout Free + IAPs
The popular FPS has had a spring-clean. We like the extra weapons, character customisation and new zone control multiplayer mode.

Recommend a game...
» twitter
@lgrobot

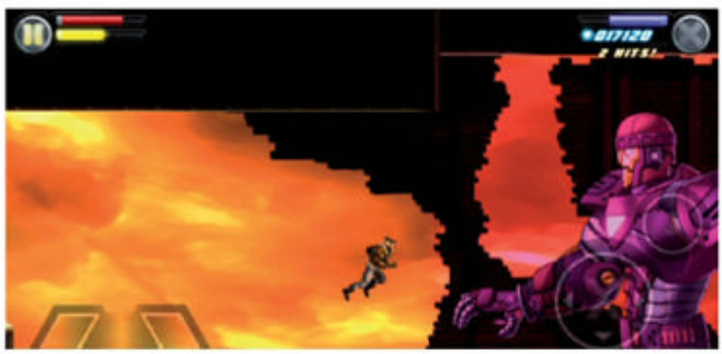
X-Men: Days of Future Past

A future setting for truly retro gameplay

Based on a classic 1981 story arc from the *X-Men* comics, this side-scrolling brawler lets you play as characters including Wolverine, Cyclops and Scarlet Witch. Each has their own skills, which can be upgraded.

Starting in a dystopian future, the game switches to a variety of locations for you to battle, all well presented. Exploring stages lets you uncover secrets and gain rewards, so there's replay value as you revisit levels with unlocked characters.

The main trouble is that – the rare use of special powers aside – the characters are quite alike in practice, jumping around the levels similarly. It's mostly lots of button-mashing, baddie bashing and XP collecting.



Wolverine battles a giant end-of-level boss

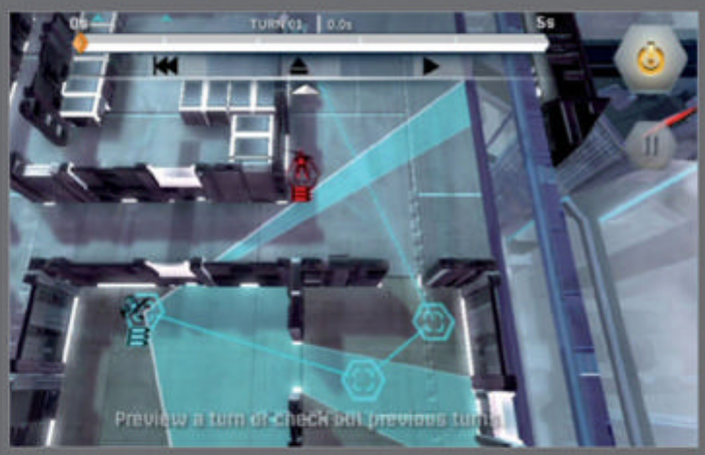
» **Price** £3.17/$3.94
» **Designed for** Phone and tablet
» **Requires Android** 4.0

WorldMags.net

Frozen Synapse Prime

A really unique take on turn-based strategy

There's one huge omission in this Android port of the PC strategy game: a lack of multiplayer modes. It does retain the original's unique take on the genre, though. Unlike most turn-based strategy games, both sides' planned moves are played out in real-time. As well as resulting in a different feel, this aspect affects tactics. Missions take place in rooms and corridors shown in a top-down view, with each soldier's line of sight being a coloured beam. Cautious positional play is needed, since all soldiers will shoot on sight and hits are fatal. Once your units' waypoints are set and commands issued, you can preview what might happen, although the outcome may be different depending on who the enemy is. With a sizeable campaign of 40+ missions, along with a skirmish mode, it's a tense affair but more accessible than most.



Plot each unit's path using waypoints and issue commands

» **Price** £2.99/$4.99
» **Designed for** Phone and tablet
» **Requires Android** 2.3

Scrape zombies off by driving close to debris on the highway

Zombie Highway 2

Clarkson goes on the rampage?

Combining zombies and driving, this sequel improves on the original with some new weapons and redesigned vehicles. As before, tilt controls are used to steer your vehicle along a highway while fending off zombie attacks. Mow them down if you can, but if they manage to latch onto the vehicle, you can shoot them or brush them off by knocking the scenery.

Since it's a survival game, you're ultimately doomed, but if you make a mistake you can use rewind to go back a few seconds. There are plenty of challenges and rewards to keep you playing. New weapons and vehicles are gained as you progress and while IAPs can be used to unlock them early, they're not essential.

» **Price** Free + IAPs
» **Designed for** Phone and tablet
» **Requires Android** 4.0

Motion Tennis Cast

Use your phone as a racquet

Hats off to Rolocule for making this amazing concept possible. Via screen mirroring – to a Chromecast or other compatible technology – it lets you play games on a TV, using your phone as a Wii-style motion controller. Sadly, this debut tennis game is basic. Control is intuitive as you swing the phone to make shots, tilting it for slices and lobs. However, we found it hard to aim accurately which made it frustrating against tougher AI opponents. Losing a match costs one of three lives; run out and you have to wait to play again or buy tickets via IAPs. While the time attack mode sees you trying to an outscore an online player against an AI opponent in real-time, you can't play them directly in a match, which is a shame.

» **Price** Free + IAPs
» **Designed for** Phone and tablet
» **Requires Android** 4.2

Screen mirroring is used to cast the game graphics to your TV

quickhits

Lunchtime action

Boss Monster
Free + IAPs

This tabletop card game conversion casts you as a dungeon master, building rooms and battling the heroes of AI opponents or online humans. A fun game with a retro style.

Project Parkour
Free + IAPs

This first-person parkour game has no multiplayer mode yet and not many levels, but it's fun to run, jump, climb and slide around the geometric courses. Timed challenges will test your skills.

Fighting Fantasy: Record Keeper Free + IAPs

A sort of 'greatest hits' collection for RPG fans, this lets you relive moments from the Final Fantasy series. A huge character roster and weekly special events make it.

Dungeon Hunter 5
Free + IAPs

The latest instalment in Gameloft's action-RPG series has a new asynchronous multiplayer mode, Strongholds. While there's a fair amount of grinding, it's worth persevering.

RPG Alphadia Genesis 2
£4.99/$4.99 + IAPs

Build up your piloting skills in this 3D flight simulator. Everything is at a slow pace so you get to grips with the controls.

Blood & Glory: Immortals Free + IAPs

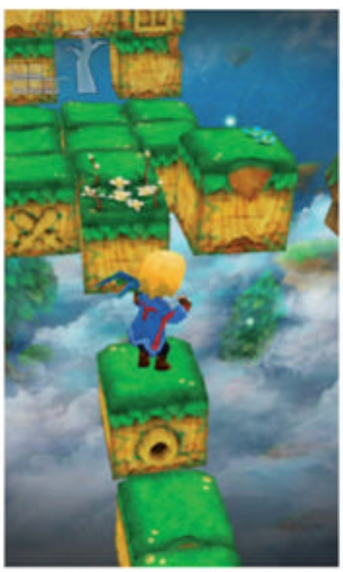
Offering a lot more RPG depth than the simple hack and slash action of its predecessors, Immortals features lots of weapons and armour, a guild system and some epic boss battles.

Almightree: The Last Dreamer

Save a crumbling world by solving puzzles

When your world is crumbling around your feet, what do you do? Start hugging trees! Well, that's what the wizard in this puzzle game does, as he searches for magical Almightree seedlings to awaken.

Each stage is a race against time as our blond hero attempts to navigate to the Almightree seedling before the crumbling ground catches up with him. The 3D viewpoint is fixed and there's no indication of which way to go, so you have to explore to find the correct route. A diagram at the top shows your progress and how much land has shattered behind you. There are obstacles to overcome, such as gaps and cliffs, both solved by 'plantsportation' which involves teleporting a wood block from one place to another. Special flowers also need to be avoided, while later levels add complications. It's well presented, challenging and a truly enjoyable puzzler.



Teleport blocks to new positions to enable further progression

» **Price** £1.32/$1.99
» **Designed for** Phone and tablet
» **Requires Android** 2.3

Star Wars Rebels: Recon Missions

The Force is strong in this one

The first game to be based on the *Star Wars Rebels* cartoon series, this side-scrolling platform shooter is set in the period between movie *Episodes III* and *IV*. The Jedi are no more and the Empire rules the galaxy with an iron first, bringing tyranny to the Outer Rim world of Lothal – the home of 14-year-old Ezra Bridger.

Playing as Ezra (although you can unlock other characters), you set off on the first of 35 missions to ambush Empire forces and rescue citizens. The Haven hub sees you interacting with other Rebels and trying out challenges, although the side aspect of building/customisation is an unnecessary diversion to the action. A mixture of platform jumping and shooting, it's hardly revolutionary, but is all very polished and proves fun to play. There's an exploration aspect in finding secret rooms to collect Hope (to spend on power-up boosts) and gold emblems. However, the main draw is the battling. Fortunately, the on-screen controls prove intuitive and responsive as you drag the thumbstick to fire in a particular direction, although Ezra annoyingly ended up facing the opposite way at points. Blasting Stormtroopers and drones is always satisfying, and you can take cover behind scenery during shootouts. There are also explosive barrels and alarms to aim for. You'll need to watch out for enemy airstrikes too – run away from the target before they hit.

While the bulk of the game requires an IAP (£4.02/$4.99) to unlock, the first four missions are free to play and even see you piloting an AT-MP walker, blasting enemies with lasers and missiles. The rest is well worth shelling out for, as you get to wield a lightsaber (as Kanan) and even battle bosses, including a TIE fighter! You can also buy extra boosts if you want to explore further.

Blast Stormtroopers and drones, while collecting the Hope emblems

Stormblades

Swipe, slash, hack and crash your way through

Bearing obvious similarities to *Infinity Blade*, but lacking the exploration aspect, Stormblades sees you duelling with foes. As well as swiping to slash, you need to parry the enemy's attacks by swiping in the other direction. Some attacks require you to dodge by double-tapping, although this can sometimes result in a sword slash by mistake which can be annoying.

While the enemies get harder, and you can upgrade to weapons with special powers, the main action stays the same, so it can get repetitive. In addition, we experienced glitches, including crashes, on a couple of devices. However, it doesn't overdo the freemium aspect and you could play it through without in-game currency.

» **Price** Free + IAPs
» **Designed for** Phone and tablet
» **Requires Android** 4.0

Swipe the screen to attack and also parry dreaded enemy attacks

WorldMags.net

Give collected Hope to rescued citizens to unlock the upgrades

»specification

Price **Free + IAPs**

Designed for Phone and tablet

Requires Android 4.2

»verdict

Performance

Design

Value

Nothing revolutionary, but a nicely polished and highly playable game

2 hour wonder

Want your money back? You've got 2 hours to decide!

»0-40 minutes It all looks very polished and it is instantly fun to play

»40-80 minutes We get to pilot an AT-MP walker which is just brilliant!

»80-120 minutes Lightsaber wielding, boss battles and more

keep refund

»like this? try this!

KOTOR Join the Knights of the Old Republic in a full-size RPG with added lightsaber battling, which is fun

Fotonica

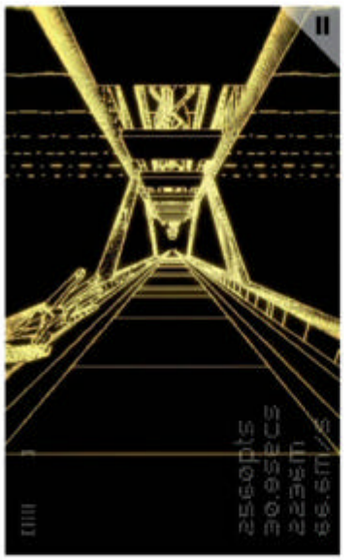
Truly otherworldly sprinting

This endless runner combines retro-style wireframe graphics with electronic tunes to great effect. It can make your eyes go funny after a while, but it's addictive.

Viewing the angular landscape from first-person, arms pumping, you tap and hold the screen to keep running in each course. Good timing is required to release and jump gaps, otherwise you may lower a level – if you fall off, it's race over – which can get frustrating as it's tricky to climb back up. You also need to time your presses to land efficiently and maintain momentum. Get up to max speed and the graphics turn gold as you earn bonus points. Collecting red dots also boosts the score.

The Arcade mode features eight multi-tiered courses, while Endless offers a repetitive challenge. Best of all, split-screen mode lets two players race on the same device.

»Price £0.99/$0.99
»Designed for Phone and tablet
»Requires Android 4.0



Keep on running, except when you need to jump a gap

»like this? try this! **TEMPLE RUN 2** »Builds on the classic original by letting you do more, such as riding mine carts

quickhits

5 top apps for... TV quiz show fans

Tipping Point
£1.49/$2.46 + IAPs

What might seem a daft idea for a TV show works well as a mobile game. Answering quiz questions is secondary to the business of playing that giant coin-dozer machine. Beware though, it's really addictive.

The Chase
£1.49/$2.31 + IAPs

Take on The Beast and co in this battle of knowledge. It follows the format of the TV show, culminating in the tense Final Chase. Up to four players can play on one device, too.

Pointless Quiz
£1.49/$2.49 + IAPs

While missing the comical banter between the TV hosts, it's a decent version of the innovative quiz show where you need to find the most obscure answers. You can also challenge your Facebook friends.

Blockbusters
Free + IAPs

I'll have a P please, Bob! Soak up the nostalgia while playing solo or multiplayer, and buzz in with the correct multiple-choice answers. It's tricky typing them in on a timed Gold Run, though.

Catchphrase
Free + IAPs

It's good, but it's not right! Actually, this Android version isn't bad. You have to identify the phrase shown by each cartoon animation. Instead of typing, you assemble it from jumbled words.

Android magazine

BUYER'S GUIDE

Discover the best smartphones, tablets and accessories to buy in our top ten charts

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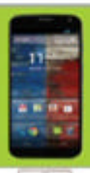
TOP 10 SUPER SMARTPHONES

THE BEST FLAGSHIP AND MID-RANGE ANDROID PHONES ON THE MARKET

1		**Moto X (2014)** While the previous Moto X was something of a flagship underdog, the second-gen model is bigger and better. Its 1080p screen, 13MP and the Snapdragon 801 quad-core processor still offer competitive specs, despite the handset being launched late last year. The Moto X (2014) also offers a near stock Android experience with 15-minute Turbo charging, but is much cheaper than the Nexus 6, which offers the same features. Its biggest problem is a lack of microSD support.	£395 See issue 45	
2		**Sony Xperia Z3** While it is only a minor upgrade on the Z2, the Xperia Z3 is still a very impressive handset. Artfully crafted from glass and metal, the Z3 is not just stylish, but also 100 per cent waterproof. Its 20.7MP camera is one of the best we've seen and the PlayStation Remote Play feature will appeal to gamers.	£499 See issue 44	
3		**LG G3** Though its expected to soon be replaced by the G4, the LG G3 continues to impress us with its pin-sharp QHD 5.5-inch screen, laser-focused 13MP camera and lightning-fast processor. However, its faux metal plastic casing is disappointing, as is its mono speaker.	£284.98 See issue 41	
4		**HTC ONE M9** We marked the M9 down for only being an incremental update on the M8, but it is undeniably a superb phone. Underneath its elegant silver and gold chrome shell, it houses a superfast Snapdragon 810 processor, 20MP camera, 3GB RAM, 32GB memory and some clever customisation tools.	£579.99 See issue 50	
5		**HTC ONE (M8)** While the M9 has bumped the M8 down a peg in our chart, it remains a fantastic phone. An all-aluminium design, with a bright 1080p screen and powerful dual speakers. Not only will its price slash with the launch of the M9, it can be upgraded to Android Lollipop as well.	£549.99 See issue 37	
6		**Samsung Galaxy Note 4** To look at, the Note 4 is a modest update on the Note 3, with a same-size display and continued emphasis on using the S Pen stylus. However, it has been revamped in almost every area. The TouchWiz interface handles better than ever, it has a 16MP camera and has an extra-long battery life.	£569 See issue 45	
7		**Nexus 6** Google's first phablet, the Nexus 6 is larger than either a Galaxy Note 4 or OnePlus One. This can make it an awkward fit for one-handed use, but the gigantic 5.9-inch QHD display looks fantastic. It also has a super-fast processor and 3GB RAM for zippy use, along with a commendable 13MP camera.	£499.99 See issue 47	
8		**ZTE Blade S6** The best ZTE Blade in years, it runs Android Lollipop, has a 64-bit Snapdragon processor, 2GB RAM and the exact same IMX214 camera as the Sony Xperia Z3 – which costs around the three times as much. It's overall iPhone-inspired design is disappointing, but at 7.7mm it is surprisingly thin.	£189.99 See issue 50	
9		**Honor 6** This 5-inch phablet is Huawei's attempt to win over the Western market. While the imitation iPhone design and skinned Android KitKat interface are a bit generic, it is positively packed with features, including an incredible octa-core processor, 1080p display and long-lasting 3,100mAh battery.	£233.99 See issue 47	
10		**Xiaomi Mi4** While OnePlus is the bigger name in Chinese exports, Xiaomi is selling millions of units in its home country. The Mi4 manages to undercut the OnePlus One on price while maintaining impressive build quality. Like OnePlus, Xiaomi uses a non-standard OS but it's equal to KitKat 4.4.	£263.95 See issue 44	

In case you missed it... Amazing earbuds **Read more in issue 50**

Trendz in-ear headphones
» **Price** £10/$TBC
» **Website** amazon.co.uk

While very cheap, these earbuds don't lose much in terms of quality. They sound a bit tinnier than the others but you don't lose clarity at all. The gold buds are a little garish for us, but the silver ones look a lot sleeker.

KS Hive Buds
» **Price** £24.99/$TBC
» **Website** kitsound.co.uk

A comfy pair of reasonably priced in-ear headphones with 11mm drivers that create a clear sound. The range isn't spectacular, but as long as you aren't listening to a thumping low bass, you will have a good experience with these.

RHA T10 earphones
» **Price** £139.95/ $189.95
» **Website** rha-audio.com

The RHA T10 have a very premium finish, with stainless steel earphones and customisable earbuds. Overall sound quality and noise-cancelling is top knotch, but we found the metal finish makes them quite heavy.

Sennheiser CX 5.00G
» **Price** £69.99/$89.95
» **Website** maplin.co.uk

The Sennheiser CX 5.00's ergonomic earbud design makes for an incredibly comfortable listening experience. Secure, comfortable and great quality music playback, these are definitely worth the money.

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Buyer's Guide

TOP 10 BUDGET BUYS

IF YOU'RE SHOPPING FOR A SMARTPHONE ON A SHOESTRING, CHECK OUT THESE LOW-COST MOBILE MUST-HAVES

1		**Moto G 4G (2014)** The Moto X's budget cousin set new standards for the low-cost phone with support for 4G. While it's made of a cheap plastic, the Moto G has not compromised on screen quality, which is 4.5 inches of sturdy Gorilla Glass 3 and offers 1280x720 pixels. The small memory can be boosted thanks to a microSD slot. Running near-stock Android, Motorola has confirmed Moto G 4G's next upgrade will be Lollipop, ensuring future-proofing for some time despite the launch of a new Moto G (2014) model.	From £111 See issue 42
2		**Moto G (2014)** While the second-gen Moto X has won us over, the Moto G (2014) has fallen short of the top due to a lack of 4G despite the similar price point. However, this is a trade-off if you would rather have the slightly larger 5-inch screen or the useful addition of a dual SIM.	£149 See issue 44
3		**Moto E (2014)** Available for under £100, SIM-free and no contract, the Moto E is the ultimate no-strings-attached smartphone. With a sturdy, splashproof case, 1980mAh battery that will go the distance and microSD slot to expand the tiny 1GB memory, the Moto E is an impressive build that won't break the bank.	£82.91 See issue 40
4		**Asus ZenFone 5** While it is one of the most expensive phone in our budget buys chart, the ZenFone 5 offers an awful lot for less than most mid-range phones. A stylish metal design is available in a range of colours, it has a sharp 5-inch screen, powerful Intel Atom processor 8MP camera with a range of shooting modes.	£129 See issue 48
5		**Sony Xperia M2 Aqua** Just like Sony's flagship Xperia Z3, this midrange marvel is waterproof to at least up to 1.5 metres. Sony's other top feature is here as well, with an 8MP rear camera and a suite of photography tools. The only downside is that, after you factor in all the preloaded apps, it only has 4GB's of storage.	£125 See issue 48
6		**Honor 3C** The low-end alternative to the Honor 6, this frugal 5-inch phablet is a bit behind the times running Android Jellybean and only offering 3G signal. However, a 2MP front-facing selfie camera, generous 2GB RAM, expandable memory and dual SIM support help to make up this. Great for first time users.	£109.25 See issue 49
7		**HTC Desire 510** At 4.7 inches, with a budget price tag and LTE connectivity, this is HTC's answer to the Moto G 4G. However, cost-saving measures such as a 5MP camera and poor screen quality mean it just can't compete. HTC's Sense 6 UI is still here though, offering one of the best custom interfaces for Android.	£129 See issue 44
8		**Samsung Galaxy Ace 3** While Samsung's high-end handsets get a lot of attention, the company has a much broader range. The Galaxy Ace 3 is now on its third incarnation and at £81 it sits neatly in the budget to mid-range category. This is a 4G handset with a distinctive Samsung look and features.	£120 See issue 34
9		**Acer Liquid Z5** A good-looking phone with tapered edges, the Acer Liquid Z5 offers a stylish alternative to most black brick handsets. Its innovative Float Apps interface also makes it easy to multitask apps. However, humdrum specs, like a low-res screen, leave it ranking low in the competitive world of budget phones.	£110 See issue 39
10		**Alcatel OneTouch Idol Mini** The understated style and low-end specs make the Alcatel OneTouch Idol Mini a great option for first-time or light users. SwiftKey as the default keyboard is a welcome addition. However, it's hard to justify the excessive bloatware on a phone that only has 4GB storage.	£79.99 See issue 39

In case you missed it... Racing games

Read more in issue 50

Daytona Rush

» **Price** Free

Like stock car racing for the small screen, Daytona Rush is a mix between a racing career game and an endless runner. Drive your car around the famous Daytona Speedway circuit until you crash, earning points for completing challenges. It's very basic though.

Taxi Driver Mania 3D Racing

» **Price** Free + IAPs

Like a mobile version of classic console game *Crazy Taxi*, the aim of the game is drive your taxi around the city picking up fares and dropping them off as fast as possible to earn cash to upgrade your car.

Trial Xtreme 4

» **Price** Free + IAPs

Prefer two wheels to four? Take the motocross challenge in this career game. It can be frustrating when you keep on crashing time after time, but is a lot of fun. For added carnage, it also includes online multiplayer.

Real Drift Car Racing Free

WINNER

» **Price** Free

A lite version of the £0.63/$0.99 game, it still does exactly what it says on the tin. Earn points for drifting and money for winning races to customise your virtual motor.

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TOP 10 BEST TABLETS

WHETHER YOU'RE LOOKING FOR A SEVEN OR TEN-INCH DISPLAY, THESE ARE THE TOP TABLETS AVAILABLE ON ANDROID

1		**Sony Xperia Z3 Tablet Compact** With its 8-inch screen and premium price tag, Sony is pitching the Z3 squarely against the iPad Mini in a bid to compete with its rivals. Weighing just 270g, it is slim and slender with a stylish minimalist design that belies the blazing processor and 3GB RAM under the hood. Its Triluminos display can give Samsung's Super AMOLED screens a run for their money and works fantastically with Sony's PS4 Remote Play feature so you can enjoy console-quality games on the go.	From £269 See issue 46	
2		**Google Nexus 9** A mighty Nvidia Tegra K1 processor and 3GB RAM mean that even running the most graphic-heavy games won't slow this 64-bit tablet down. The built-in BoomSound speakers also offer great sound quality, making Google's new tablet an all-round media consumption device.	From £319 See issue 45	
3		**Samsung Galaxy S Tab 10.5** Ultra thin and ultra bright, colours look vibrant and details distinct on this powerful Super AMOLED screen. Samsung's iPad slayer also puts many other Android tablets to shame, with a multi-window mode to display several apps at once and octo-core processor ensuring lightning-fast performance.	£349 See issue 43	
4		**Sony Xperia Z2 Tablet** Arguably one of the most portable 10-inch tablets available, the Xperia Z2 Tablet is waterproof and can support a SIM card for 4G use. It is also surprisingly thin and light to carry, and includes power-saving modes to ensure longer battery life. Reasonably high-spec, it has a whopping 3GB RAM.	£329 See issue 39	
5		**Tesco Hudl 2** This sequel to the supermarket chain's own-brand tablet can't compete with premium models, but sets a new benchmark for budget tablets. Upping the display size from 7 to 8.3-inches, the Hudl 2 also runs Android 4.4.2 KitKat and can handle anything you throw at it thanks to an Intel Atom processor.	£99 See issue 44	GOING UP
6		**LG G Pad 8.3** A well-rounded tablet, the LG G Pad 8.3 offers solid specs with a selection of impressive built-in apps. These include Polaris Office so you can write documents on the go, and QPair, which shares your smartphone notifications to your tablet so you never miss important updates.	£179.99 See issue 40	GOING UP
7		**Samsung Galaxy TabPRO 8.4 Wi-Fi** The smallest tablet in Samsung's collection, the TabPRO 8.4 proves that good things do come in small packages. A stunning 359ppi screen puts the Nexus 7 to shame, though we'd prefer higher-quality speakers. However, an 8MP camera and intuitive interface are good compensation.	£199 See issue 38	GOING UP
8		**Archos 101 Oxygen** This wedge-shaped tablet is seemingly tilted to give you a better angle for watching videos, plus a mini-HDMI port to connect it to your TV. But we're not sure why as it has a spacious 10-inch screen of its own, with full HD display and good viewing angles. Speedy ARM Cortex A17 CPU is a bonus too.	£169.99 See issue 38	NEW ENTRY
9		**Alcatel OneTouch Pixi 7** This 7-inch tablet can't be faulted for its price, which is one of the most affordable on the market. It runs Android KitKat 4.4, offers 1080p video playback and has a triple-core processor. It's also incredibly lightweight for added portability, but lacks memory with only 4GB RAM.	£49.99 See issue 48	
10		**Amazon Fire HD6** Despite only having a 6-inch display and a budget price tag, the Fire HD6 is a decent tablet for watching movies and listening to music. However, the inferior forked OS and lack of third-party app support make the Fire HD6 hard to recommended for regular let alone heavy-duty use.	£79 See issue 46	

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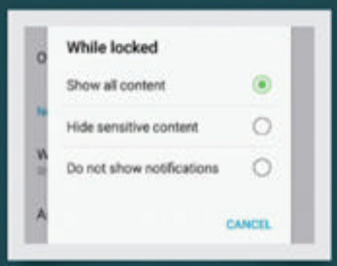
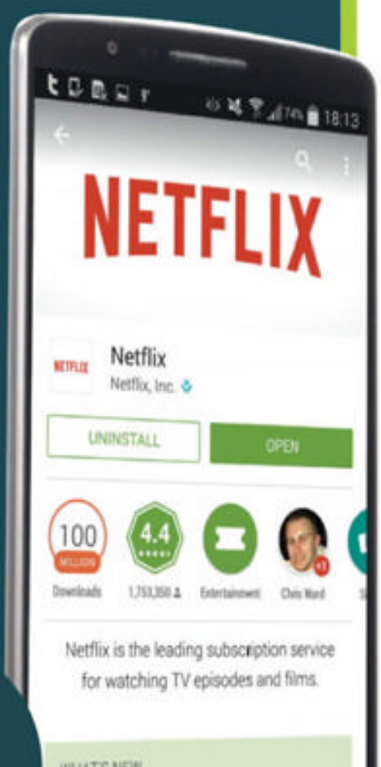


Did you know?

In Lollipop, you can hide sensitive notifications from the lockscreen by going to Settings>Sounds and notifications>When device is locked and selecting 'Hide sensitive notification content'. The notification will be shown, but the sensitive content will be hidden.



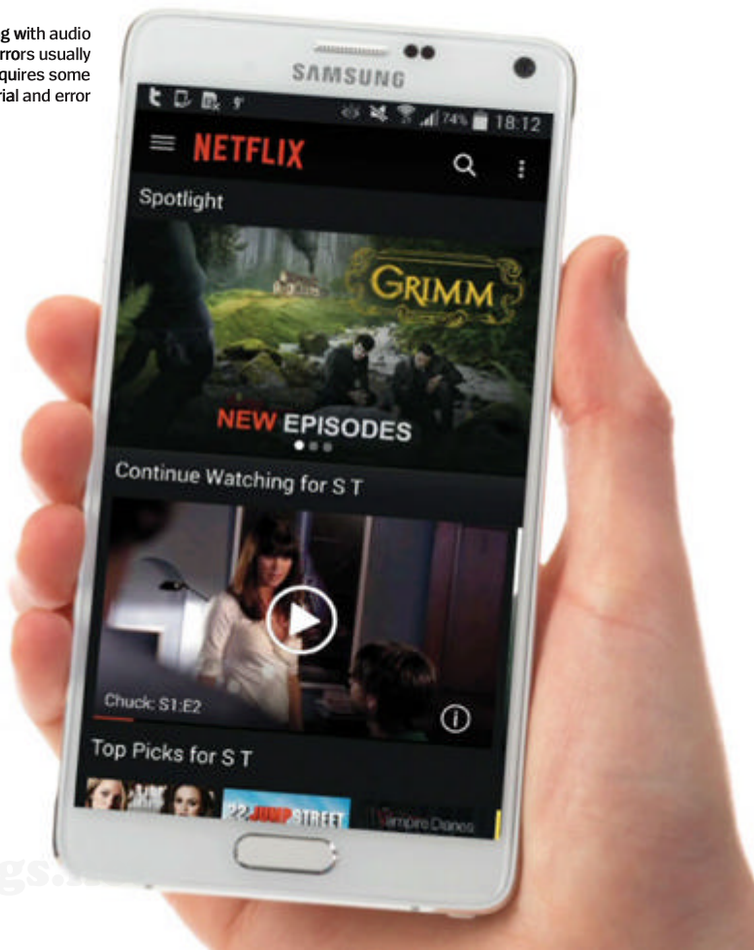
Why does audio not sync properly?

"When I play movies on my Galaxy phone through Netflix or even locally stored films, the sound always seems to be slightly behind. I use Bluetooth headphones on my journey to work for audio and it is getting very annoying."

Mickey Dobson

A **Hi Mickey.** This is a very common problem and there are plenty of possible reasons. The obvious place to start is your Bluetooth headphones and we have to ask if you have tested the sync with standard headphones or through the external speaker. At times Bluetooth speakers and headphones can suffer from lag and it is not always the price of the equipment that will determine the likelihood of this. We have seen very expensive headphones suffer from lag and cheap sets experience no problem at all, so try different sets and see what happens. There is, however, a potential problem that will be more difficult for you to fix. We have read reports of some Samsung devices suffering this problem with the Netflix app and it seems that there is no fix at this time. It could be a problem with the Samsung hardware or the Netflix app and until a fix is released, you will unfortunately have to wait. You do also mention that it occurs on locally stored videos as well, so we are tempted to believe that it is either a problem with your Bluetooth headphones or that your phone is running at full capacity and is struggling for system memory. Try turning your phone off and back on and uninstall any apps or games that you do not really need. It is not guaranteed to solve the problem, but some trial and error may be needed to find the ultimate cause of the problem.

Dealing with audio sync errors usually requires some trial and error



Netflix works extremely well on phones, but behaves differently on each model

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Ask your questions

Got a problem with your Android phone or tablet? Send it to us and we'll find the solution

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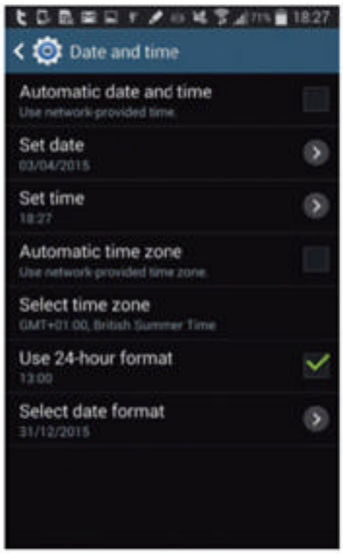
Get help from our Facebook community

»email qa@littlegreenrobot.co.uk
Send your questions for our team of experts to tackle

My alerts are appearing at the wrong time

"I have been racking my brains to solve a problem which is really driving me mad. Whenever a new alarm sounds on my phone it is an hour late and no matter what I do, I cannot seem to find a fix for the problem!" *Christine Harris*

Hi Christine. Hopefully this will be an easy problem to solve and even if it isn't, we are fairly sure that we can point you in the right direction. That fact that you state the alerts are one hour late leads us to believe that there is a time zone problem. Go to Settings and look for the 'Date and time' option, where you should make sure that both the time zone and time are set to update automatically. With your location known and a valid internet connection, this means you can be assured of perfect time every day. If you already have the correct settings enabled on your phone, you will need to look at the provider of your online calendar service. Google Calendar shouldn't be an issue, so we're going to guess that you may be using a corporate Outlook set up and it is quite possible that the server-side time zone is set incorrectly. Add to this the fact that an administrator will likely be the only person able to make changes and so you will need to raise a request to get the zone amended. A quick check will be to either try accessing your online calendar through another device or by using a different service, such as Google's, on your current phone. It shouldn't take long to find the cause of the problem and to then know where to look to get it fixed.



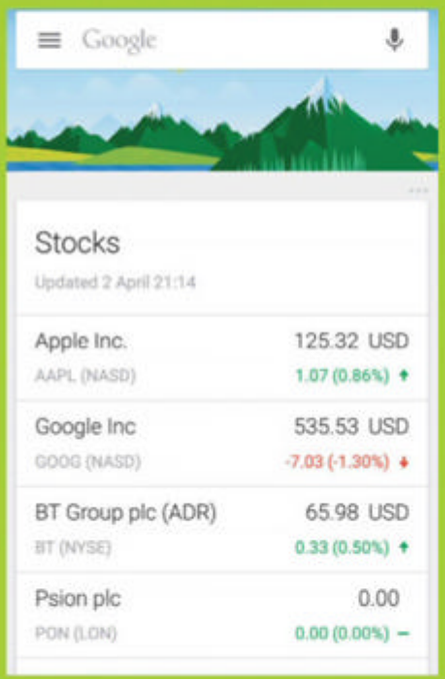
Some phones can be set to manual time reception by default

Automate the settings for the most accurate timing

hints & tips Get more from your Android phone with our handy hints

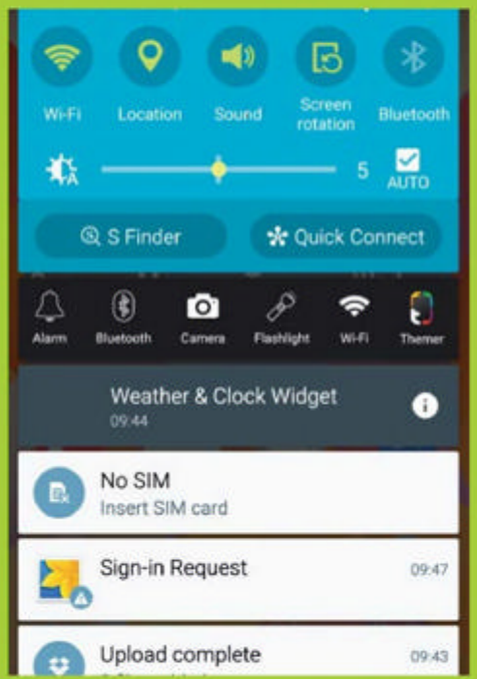
Google Now anywhere

1 Did you know that you can launch Google Now by holding your finger on the home navigation icon and swiping upwards to the Google icon that appears. You don't need a dedicated shortcut icon to jump straight to it.



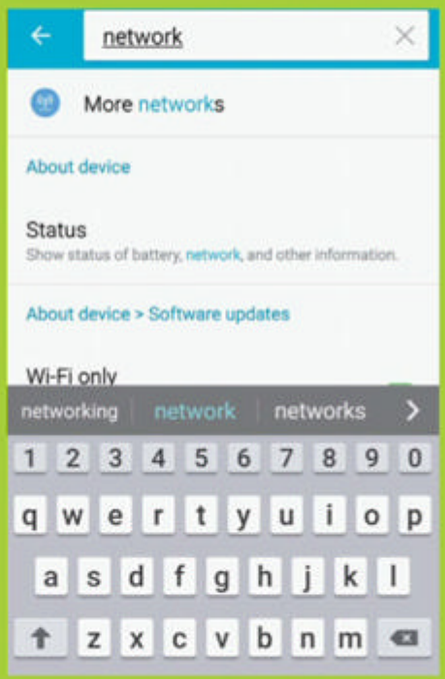
Stop notifications instantly

2 You can now stop notifications from an app or service by tapping and holding on a new notification and waiting for the 'i' icon to appear. Tap this and you'll be taken to a screen to block notifications.



Search for settings

3 There is a huge list of settings available in Android, but with the release of Lollipop you will now see a search option at the top of the Settings screen. It intelligently helps you find anything immediately.



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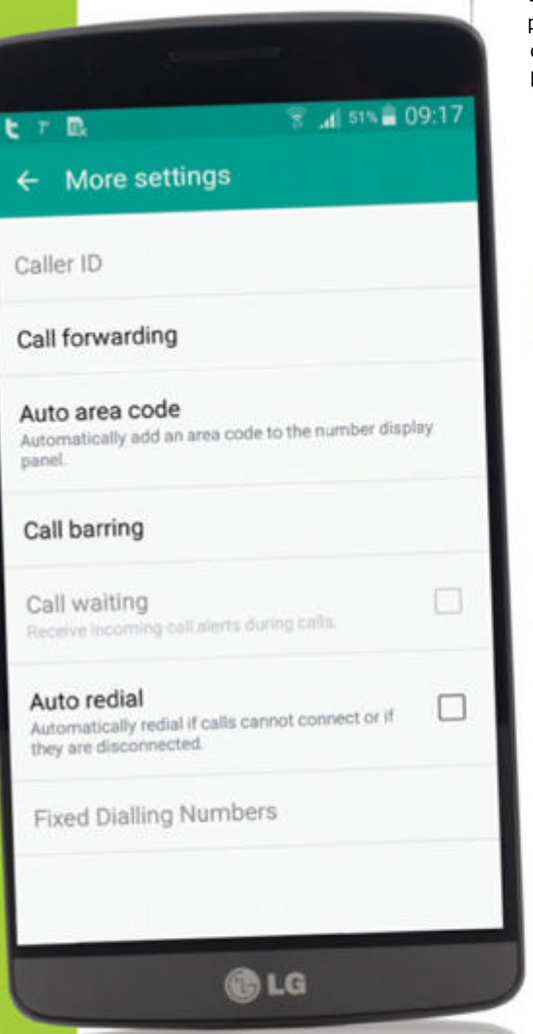
I can no longer receive calls!

I bought a phone off a friend and everything seems fine except for the fact that I cannot receive any calls. My SIM card works in another phone so it is not that, but even stranger is that I can make outgoing calls without any problems.
Jon Godfrey

A **Hi Jon.** It would be extremely unlikely for this to be a hardware problem because, as you say, you can make calls so we will instead look at software, and more specifically the settings you have enabled on your phone. Go to the Settings in the Phone app and look for More settings. Here you will see a Call forwarding option which may be set up to divert all calls to a different number. Even if it isn't, try setting up a forward and then cancelling it to clear up the chance of some strange corruption in the Android settings. If this doesn't work, turn Airplane mode on and then off and wipe the SIM card as a final step. As a last resort, you can ask your network provider to re-provision the SIM.

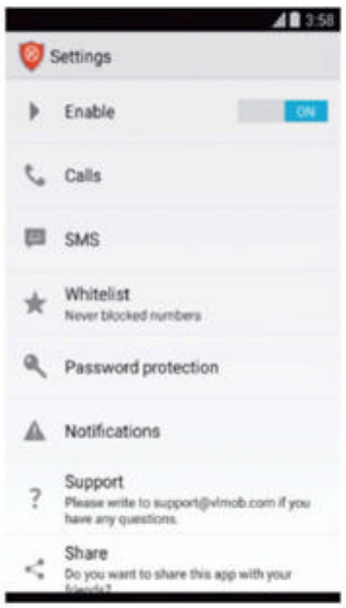


It is easy to accidentally forward all incoming calls

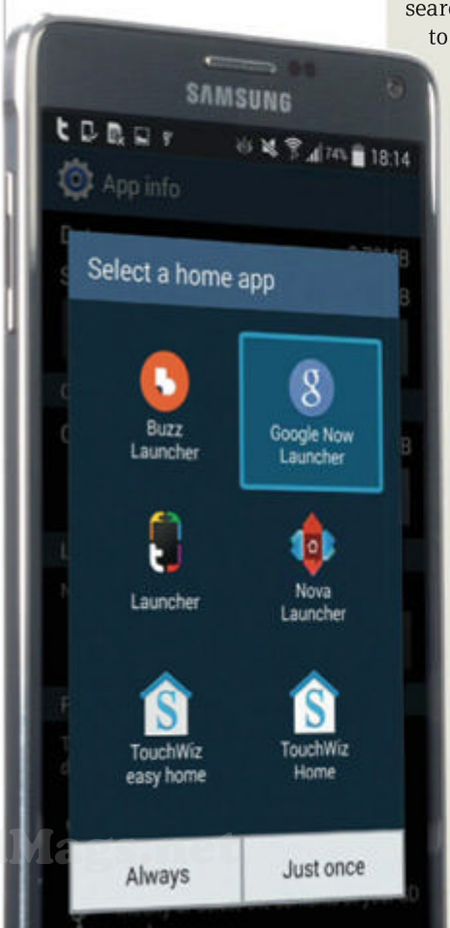
How do I stop spam calls?

As each day passes, I am receiving more and more spam calls and texts, and it has reached the point where I am considering changing my number. I have been told that there are ways to block number in the Android operating system, but I really do need a solution which makes this easy to set up.
Maurice Santiago

A **Hi Maurice.** There is indeed a feature in Android that lets you block calls which is accessible via the Settings in the Phone app. Look for Call rejection and then decide which mode you want to employ. The system, however, relies on your input and you will need to ensure that you have entered any numbers that you want to reject in the future. The quickest way to do this is to look at your call logs after a spam call has come in and then select the call in question. Now tap the menu key and select 'Add to Auto reject list'. Any future calls from that number will be rejected before you are even alerted, so you can enjoy the peace. If you are using Google Hangouts for text messages, you can select any contact and then tap 'Block (name)' to stop future messages. Finally, there are many third party apps on Google Play, such as Calls Blacklist - Call Blocker, which offer alternative and highly efficient ways to deal with unwanted calls and texts.



You can get close to automatically blocking all unwanted calls



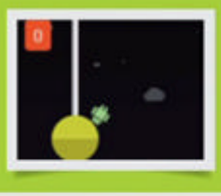
"There is indeed a feature that lets you block calls"

How can I lose TouchWiz?

A I love my Galaxy Note, but I'm not a fan of the TouchWiz interface. After spending a lot of time trying Nova Launcher and other third party offerings, I am still looking for a solution which is simple to use and which is easy to view no matter what I am doing. Is there a simple launcher available that just works? *Tricia Jefferson*

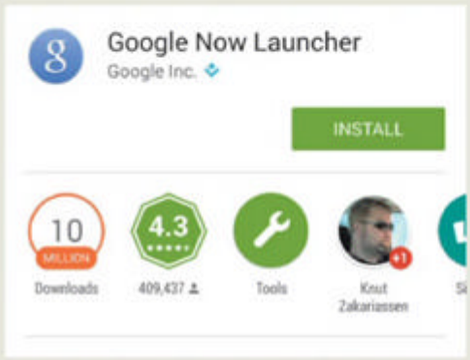
Hi Tricia. TouchWiz is indeed an interface which some appreciate and others find far too distracting to use on a daily basis, and this has led many to search for replacement launchers to ease the experience. In your case it sounds as though most of the third-party launchers feel unnatural as well and so we would like to recommend Google Now Launcher. It has been designed by Google which is an obvious benefit and it should feel familiar from the first time you use it, plus you can be virtually guaranteed of compatibility with everything you will want to do on your phone. We will run through the benefits of the Now Launcher step by step and also guide you through the set up process so that you can be up and running in as short a time as possible. We are sure you are going to enjoy it.

Google Now Launcher gives you exactly what you need



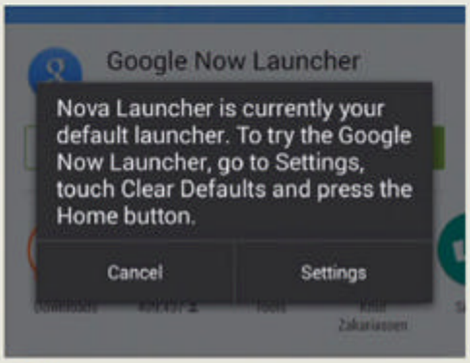
Did you know?

If you have Lollipop installed on your device, go to Settings>About device and tap the Android version number until the Lollipop screen appears. Now tap and hold the Lollipop word and you'll be presented with a free Flappy Bird style game!



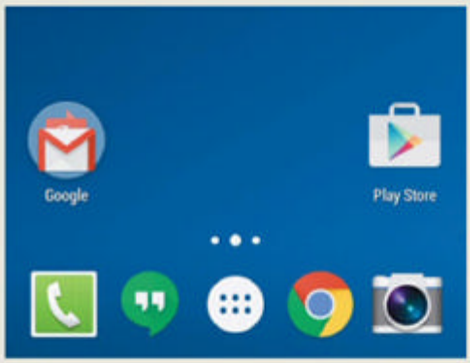
1 Install the launcher

Go to Google Play and search for 'Google Now Launcher'. It is completely free and doesn't take up much memory at all which is an indicator that it will not be slowing down your phone in the future. Once installed, check to see if any special instructions appear for you to follow.



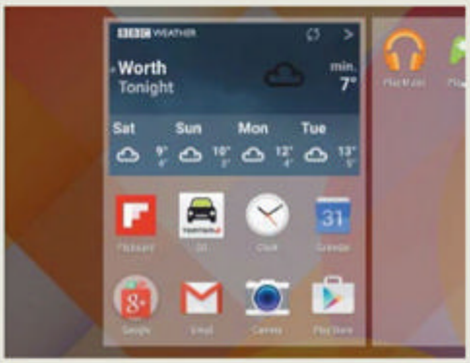
2 Deal with the past

If you have used another launcher in the past and have defaults activated on your phone you will need to follow the instructions that appear when first trying to run Google Now Launcher. It is a simple process which requires removing the current defaults you have activated on your phone.



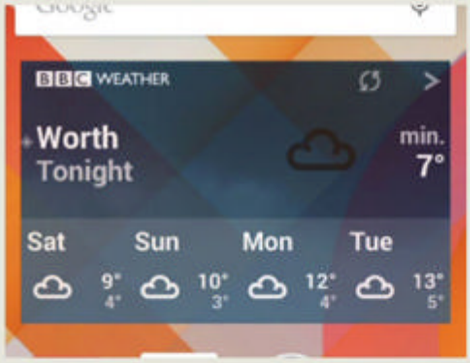
3 A very simple interface

When Google Now Launcher is opened you'll see a clean interface which is largely devoid of icons and unnecessary artefacts. You can see that focus has been placed on making the apps easy to open and the homescreen obvious to navigate. It feels completely different to TouchWiz.



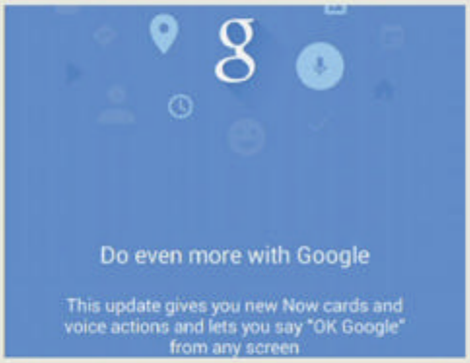
4 One-click settings

Press the menu key to see all of the home screens displayed horizontally and icons to set new wallpapers, add widgets and deal with the minimal settings. You can tap any panel at the top to jump to it or select Widgets to see all of the available widgets that are installed on your device.



5 Fill up the screen

You can now tap and hold any widget or app and drag it to the main homescreen. Everything completed by touch, tapping and dragging will also be used to create folders and move apps to a new customised order. The lack of touch points is quite refreshing and far from difficult to use.



6 Use Google Now

Swipe right from the homescreen and you'll see the Google Now welcome screen. This is a default part of the launcher and will prove useful if you are prepared to accept the permissions it requires. Google Now Launcher strips away the complexity and gives you only what you need.

Android magazine

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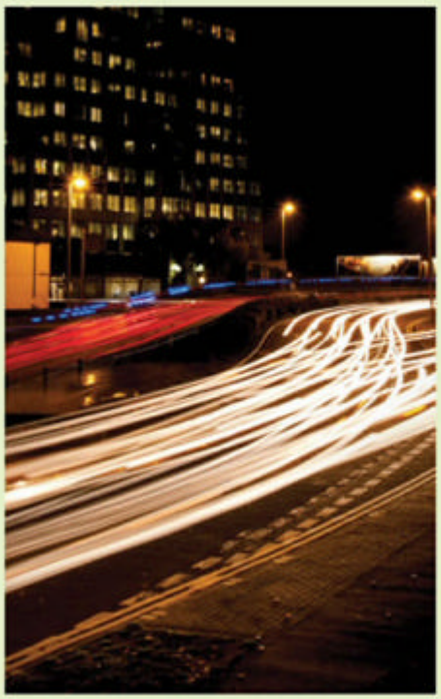

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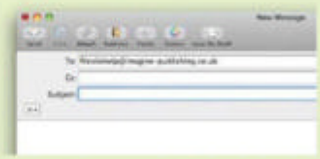

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