

**40+**  
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REVIEWS

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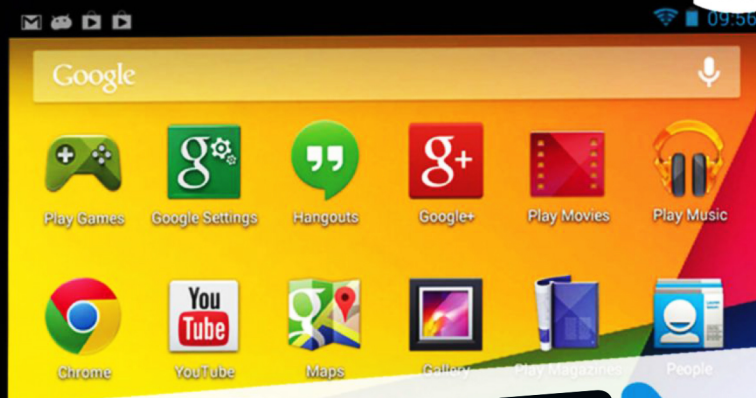
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# Android magazine

» App reviews » Tips & advice  
» Hardware tested » Hacking

**HTC  
ONE  
MINI  
REVIEW**



**NAVIGATION  
ROAD TEST**  
Which satnav app  
should you buy?

# NEW NEXUS NEW ANDROID

» Second-gen Nexus 7 review » Versus iPad mini » Why you need Android 4.3

Unlock the  
real potential  
of Android



## Hacker Zone

» Flash ROMs the easy way  
» Root your new Nexus 7  
» Get Netflix on OUYA

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**EXTEND YOUR  
BATTERY LIFE**  
Top tips to get more power

**MOTO X  
GOOGLE'S  
iPHONE  
KILLER**

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## HOW TO USE THE QR CODES

Zero-click access to the best apps in the Google Play store

A QR code is a 2D barcode that can act as a shortcut for delivering information, such as weblinks. You'll notice them throughout the mag – scan them on your phone and you can download apps and send us messages instantly.

### ShopSavvy Free

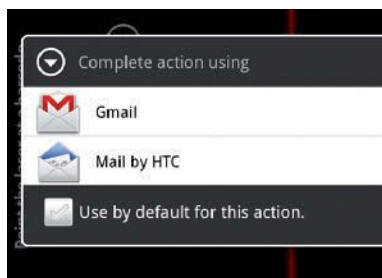


Download this free barcode scanner to use our QR codes. Handily, you can scan normal barcodes with it too, to help you find bargains on all your favourite purchases!



### 1 Get scanning

Open ShopSavvy, hit the Scan a Barcode button and then hold your phone over a QR code so that it appears in the window.



### 2 Launch the link

When it has read, the phone will beep and vibrate, then launch the link. You may need to choose an app to launch it with.

# Welcome

"It seems as though the new Nexus has got enough qualities to be able to repeat its success once more. It's a huge upgrade"

## MY HOME SCREEN

On (and off) Andy's phone this month...



It's hard to believe it has been more than a year since the original Nexus 7 was launched, and changed the tablet market. The combination of nice design, fast performance and a remarkably low price gave tablets, and Android tablets in particular, a new standard by which they should be compared.

The form factor was also significant. I can still remember the resident Apple fanboys in our office cooing over the more compact size and offering grudging praise to the device. They might not have been able to bring themselves to buy one, but they did hope Apple would produce a version of its own.

As the second-generation Nexus 7 goes on sale, most of the original's unique selling points are no longer so unique. Apple did, of course, produce an iPad mini, prices across the market have generally fallen, and performance and design have, with a few exceptions, gone up. Yet it seems as though the new Nexus has got enough qualities to be able to repeat its success once more. It is a huge upgrade, far more considerable than it may look on paper. It is what an annual refresh of a device should be, building on its strengths and fixing its weaknesses. You can check out our full verdict on the new Nexus 7 this month, along with a look at Android 4.3.

Also this month we've taken the best satnav apps for a spin, tested out Samsung's strange S4 Zoom, and looked at ways you can eke out a little more life from your smartphone's battery. Enjoy the issue!

Andy Betts

Andy Betts Editor



## GET IN TOUCH

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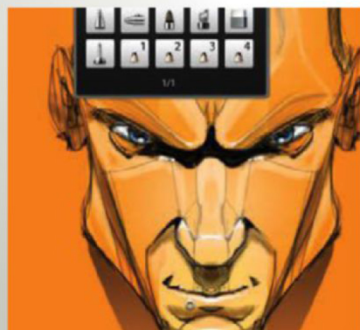
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# Launcher

All the latest from the world of Android devices

## Do specs still matter?

Is the era of specs coming to an end, and will a greater focus on the user experience be a good thing for Android?



THE **big** STORY

**W**e're spoilt for choice as Android users. Be it the latest high-end phone hitting all the headlines from Samsung, or a budget device from an obscure manufacturer in China, we well and truly have a superb amount of choice when looking to purchase or upgrade to a new Android device. Roll back two years ago and it was common place to see the likes of Samsung, HTC and Sony overloading the market with new phones and tablets with the sole aim to get their hands on more of that precious Android market share. These phones included the latest and greatest technology for users to invest in, sporting powerful processors, superb displays and sleek designs – and users were lapping them up. Although we can now snigger at those devices with the technology readily available to us, at the time, these devices were at the cutting edge of the Android ecosystem.

Fortunes have faded for many of the big players since. HTC has undergone extensive restructuring after low profit margins, Sony has scaled back its production and now purely focuses on its Xperia range, and even the mighty Samsung has cut down on certain areas of production. Users are changing and gone are the days where raw power reigns supreme, people want the latest features on their phones and that's exactly what manufacturers are delivering them. So the question stands, do specifications really matter nowadays?

### Design over speed

"The average user does not care what is 'under the hood'. Android phone manufacturers are beginning to understand that more and more, with phones like the Galaxy S4 advertising the Smart Pause and Air Gesture

### Our view

"Do specs matter? They shouldn't do, so long as the software on a device has been properly optimised. We've seen plenty of instances of apparently lower spec devices running perfectly smoothly, and of bleeding-edge high-end phones lagging and stuttering when performing apparently simple tasks."



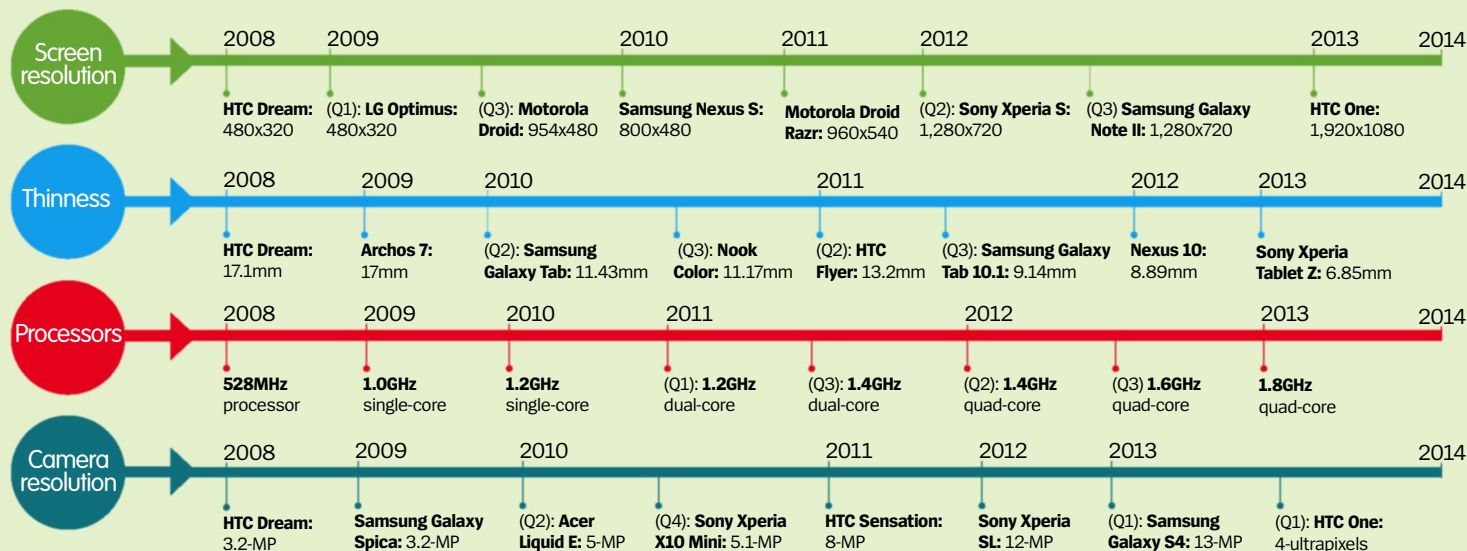
Andy Betts, Editor





## How have phone specs progressed?

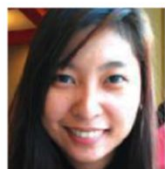
Long gone are the days of single-core processors and low-res screens, as this chart showcases



over the powerful quad-core processor it also included. The fact of the matter is that people want what they can easily see and experience: they will not think that their processor is powerful when their Facebook feed shows up quickly, they will think that their phone is fast," says Jake Konoske, Android Product Manager at Doximity. "The point is that most users will not go beyond what is at the forefront of their experience. And most of the time that is design, usability and importantly features."

In the latest round-up of high-end phones, it isn't just the Galaxy S4 that is pushing its ground-breaking features over sheer specs power. The HTC One has a distinct marketing campaign built around its unibody design and ultrapixels camera, rather than highlighting the processing power the device holds. But is this the right path to take, and more importantly, is it working?

Both devices have shipped in their millions and as Samsung usually do, it has spun out a range of variants which compromise on certain specs, but add new features to entice. The S4 Active, for example, has been cut down in some processing areas, but the entire marketing campaign around it has been to highlight its waterproof casing. Even though HTC is not famed for its need to create variants of its phones, it has already launched the HTC One Mini and the heavily rumoured HTC One Max, a six-inch phablet, should follow soon.



"Users are more critical because they are exposed to more info"

Twila Bergania, Technology Blogger for eCycleBest



"People want what they can easily see and experience"

Jake Konoske, Android Product Manager at Doximity

### Different audiences

Although the average user may be content with being fed the latest features when picking out their next smartphone, there are a growing number of more advanced users who like to really look at the whole picture before purchasing their next device. Having access to new features is obviously an important factor when investing in a new phone, but the more advanced user will also look to really sink their teeth into the specification side. They'll run benchmarks to see how it compares to other devices, evaluate the hacking opportunities readily available for it and seek out advice and reviews from one of the many technology blogs that litter the web, or even our very own Android Magazine.

The wealth of information online and in dedicated Android blogs has opened up potential users to have the chance to really get any information they need before parting with their cash, and if specs matter to you, then searching out all the nitty gritty details of a phone is easy online. Twila Bergania, Technology Blogger for eCycleBest, believes users are now more exposed than ever to necessary information: "Users are more critical in buying smartphones because they are now more exposed to information that would help them make an educated decision. The world of technology continues to change and so are its consumers."



LG G2 offers the next generation of specifications

For LG specs really do still matter

LG may have been fairly quiet as of late, but its latest phone is something to behold. The LG G2 is all about the specs, offering users a 5.2-inch, 1080p display and 13.1-megapixel camera. It doesn't stop there – the G2 also boasts a monstrous 2.26GHz quad-core processor and 2GB of RAM. If you care about specifications, the G2 might be the phone for you.

### Can specs improve?

As technology keeps on improving, the various components of our smartphones are also changing. Early adopters into the Android ecosystem will fondly remember the usage of single-core processors in most devices and that partnered with a low resolution screen and poor camera was the norm for most within the early years of Android.

Although we can look back and laugh at specifications back then, they were the basis of some of the incredible technology now included in our smartphones. Quad-core processors are now the norm for most devices, with the new LG G2 packing a 2.26GHz quad-core processor, which will be the biggest smartphone processor ever. Cameras are being more intertwined into smartphones, with devices like the Galaxy Camera proving that there's a market for smartphone





photography out there. Devices are becoming bigger and thinner and we're seeing vastly improved batteries to cope with the latest technology.

But where does it all end? Is there a time where we'll see a limit on what our smartphones can realistically do? Android Developer, Patryk Bukowiecki, reckons we won't see any slowdown just yet: "It isn't going to happen. It's like with the computer industry, it's much older and do we see any signs of slowing down? Maybe once we reach a time with photo-realistic graphics and then put them in our smartphone games there will be some cool down, but can you imagine any company saying: "OK, guys. This is it. The end. Go home. We won't outdo what we accomplished with our Galaga X bajillion". Me neither." Twila Bergania also agrees: "I cannot imagine a time where companies would just stop innovating mobile phones altogether." Specifications are still evolving and it seems the reliance on them will never subside.

## A new era for Android

Even though specifications are always getting better and better, one phone that is going against the grain is the new Moto X smartphone. Let's start by saying the phone is by no means a slouch thanks to a solid 1.7GHz dual-core processor and 2GB of RAM, but Motorola has stressed that this is a smartphone with its features at the centre of why people should look to invest in it.

Josh Konoske thinks the lack of high-end specs won't hinder the new phone: "The Moto X has less impressive specs, but it feels more impressive than other phones because of a few key 'wow features'. Shake the phone, the camera comes on. Pull the phone out of your pocket, it displays the lock screen. People will not only talk about it, but show



Patryk Bukowiecki, Android Developer

**"Will we see a limit on what phones can do? It isn't going to happen"**

people a feature like: "OK Google Now: how long is the great wall of China?", where as no one will open up their phone and point to their impressive GPU." Although it's still early days for the Moto X, early reviews have been more than positive, with many calling it a great distraction from the specs race that we usually see.

As technology keeps innovating and changing on a daily basis, the users who buy them are also changing. The same can be said about the smartphone industry. Manufacturers are always on the lookout for new and exciting ways to improve their devices and with a definite shift of users preferring features over specs, for the most part, it's a trend that manufacturers will need to get used to. Although there's a strong argument that there's much less focus on specs, it would be ridiculous to say that we shouldn't care about them anymore. Many of the best devices have been built on powerful processors and graphic cards, and we should be looking to educate the average user on the benefits of picking a quad-core phone over a dual-core phone instead of just highlighting the amazing features they could potentially own.

No matter your Android expertise, the market is opening itself up to some breathtaking devices, and the likes of the Motorola X and LG G2 show that both features and specifications can be used together to create superb Android smartphones. We can't wait to see what happens next.

## Fab or fake ?



Test your Android knowledge and tell us if these features are real or fake. Tweet your answers to @lgrobot

- 1 Dual-camera**  
Use your phone to take simultaneous pictures using both the front and rear-facing cameras on your device.
- 2 BlinkSnap**  
Using eye-tracking software in conjunction with the Camera app – blink twice to take a photo of anything on the S4.
- 3 OS Backtrack**  
Via a hidden menu in Android 4.0 you can choose to install an older version of the OS and then restore the most recent version.
- 4 Profile Protection**  
After creating a profile on the Nexus 7 in Android 4.3 you can set a reminder to notify you via email of people trying to access it.
- 5 Finger Lock**  
Use your fingerprint to securely lock and unlock your smartphone, enabling faster access to your device.

## The future of our smartphones

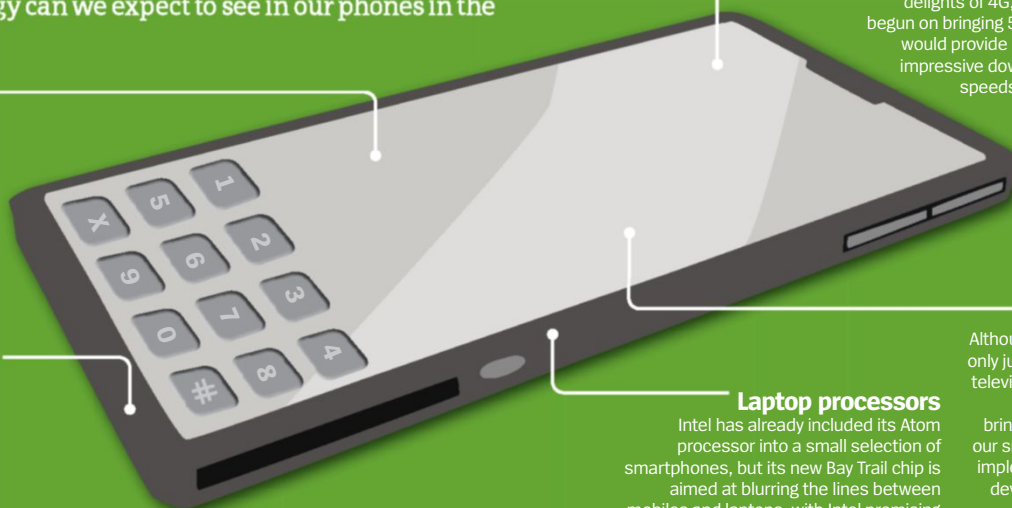
What sort of technology can we expect to see in our phones in the next few years?

### Flexible displays

Okay, so this one might be a little far fetched, but Samsung has previously displayed its own flexible displays it's looking to implement into its products. Flexible displays would require flexible components, so let's hope Samsung is up to the task.

### Week long battery life

One of the most anticipated features that's long overdue, is a battery life that can withstand more than a couple of days of heavy usage. With more power coming to our smartphones, everyone could benefit from having a battery that could cope with the demand.



### 5G

Many of us are yet to experience the delights of 4G, but work has already begun on bringing 5G to the market. This would provide users with even more impressive download and streaming speeds while out and about.

### 4K screens

Although 4K technology has only just been introduced to televisions, LG is reportedly already well away with bringing the technology to our smartphones. Seeing it implemented onto Android devices would see a new wave of ultra HD smartphones hit the global market.

### Laptop processors

Intel has already included its Atom processor into a small selection of smartphones, but its new Bay Trail chip is aimed at blurring the lines between mobiles and laptops, with Intel promising the new chip will be two-and-a-half times faster than its current Atom chip.



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on all things Android



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send your comments



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@grobot  
Follow us on Twitter for  
all the latest gossip

"Helps to distinguish  
the device from  
its standalone  
rivals"



The Chromecast  
could retail for as  
little as £30 on release

## Chromecast reinvents TV

Can Google find its way into your living room and beat Apple in the process?

It is said to be a rival to the £99 Apple TV. It was launched at the same time as Sky unveiled its £9.99 Now TV box. It will no doubt dent sales of Roku, which starts at £39.99. But what is it? It's Google's low-cost attempt to take over the living room as well as smartphones and computers. The search engine giant has created a small device called Chromecast which looks like a USB flash-storage drive and may well, when it arrives in the UK, retail at around £30.

Connecting straight to HDMI ports and costing \$35 in the US, it will enable buyers to stream footage from Netflix and YouTube. It will also allow browsing via Chrome and purchasing of movies, TV shows and music from Google Play with these four being the only apps so far to use the Googlecast API. The device, while not having screen mirroring, will also update automatically to work with new apps as and when they appear.

In order for Chromecast to work, you need to hook it up with an existing device, whether that be an Android tablet or smartphone running 2.3 or higher, an iOS 6 iPhone, iPad or iPod touch or Chrome on a computer. Video is processed on these devices before being sent to the Chromecast which doesn't actually trouble itself with any of this work.

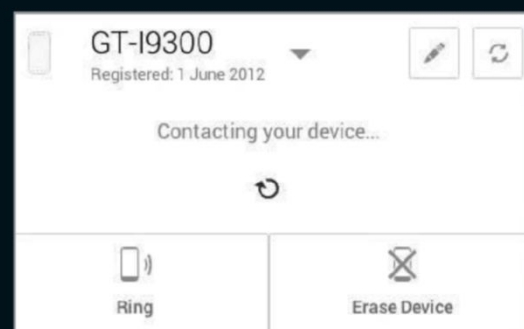
This helps to keep the cost of Chromecast down to a minimum and it also gets around the need to bundle a remote control with the package. Instead it is controlled by the streaming device and not only does this keep things incredibly tidy, it also means that you could pocket the device and take it away with you, plugging it into hotel TVs, for instance, to enjoy your own entertainment on the move.

There are some limitations. It will run Amazon Instant video, Hulu, HBO Go and Rdio, as well as media on Facebook and many other websites, but QuickTime won't work and neither will Silverlight.

Still, the low-cost and processor-free nature of Chromecast helps to distinguish the device from its standalone rivals, all of which process images on board and require a remote control. Chromecast follows on from the Nexus Q which was set up to deliver internet video to flat-panel TVs but was subsequently pulled. Given the Android 4.0 device was due to cost \$299 in the States, it was no bad thing especially in light of this latest development. Sarah Rotman Epps, of Forrester Research, says it will be a "disruptive device" and it would be interesting to see what Apple does to try and beat it. For now, Google is holding the right cards.

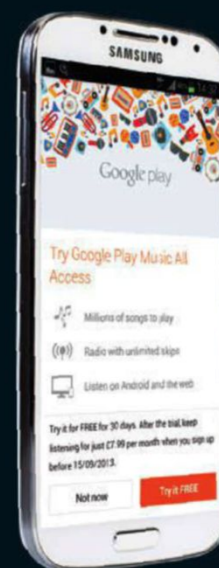
## WHAT'S HOT

Developments to watch in  
the Androshpere



### Finding your lost phone

Google has (belatedly) launched a device tracking system that will help reunite you with your lost phone or tablet. Called Android Device Manager you can activate it through Settings>Security>Device administrators then log in at [www.google.com/android/devicemanager](http://www.google.com/android/devicemanager) should you ever need to use.



### Google's Spotify killer

Google Play Music All Access, Google's answer to Spotify, is now available in the UK along with several other European countries, Australia and New Zealand. You can trial the music service for 30 days and get it for £7.99 if you sign up before September 15. It's £9.99/£9.99 thereafter.

### A better pattern lock

A newly granted patent suggests a much improved pattern lock for Android devices may be on the way. Instead of a single pattern to unlock your phone, multiple paths can be used to unlock into a specific app, removing the extra steps currently required.







# Google's iPhone killer

By focussing on style and user experience over raw power does the Moto X, the first phone built by Motorola and Google, represent a sea change for Android?

## QUICK CAPTURE

There is a ten-megapixel camera with a Quick Capture mode – shake it to turn it on. And the battery is supposed to last 24 hours

## ALWAYS LISTENING

Google Now is activated by voice. Simply say: "OK Google Now" and this killer app will launch immediately

## OLD ANDROID

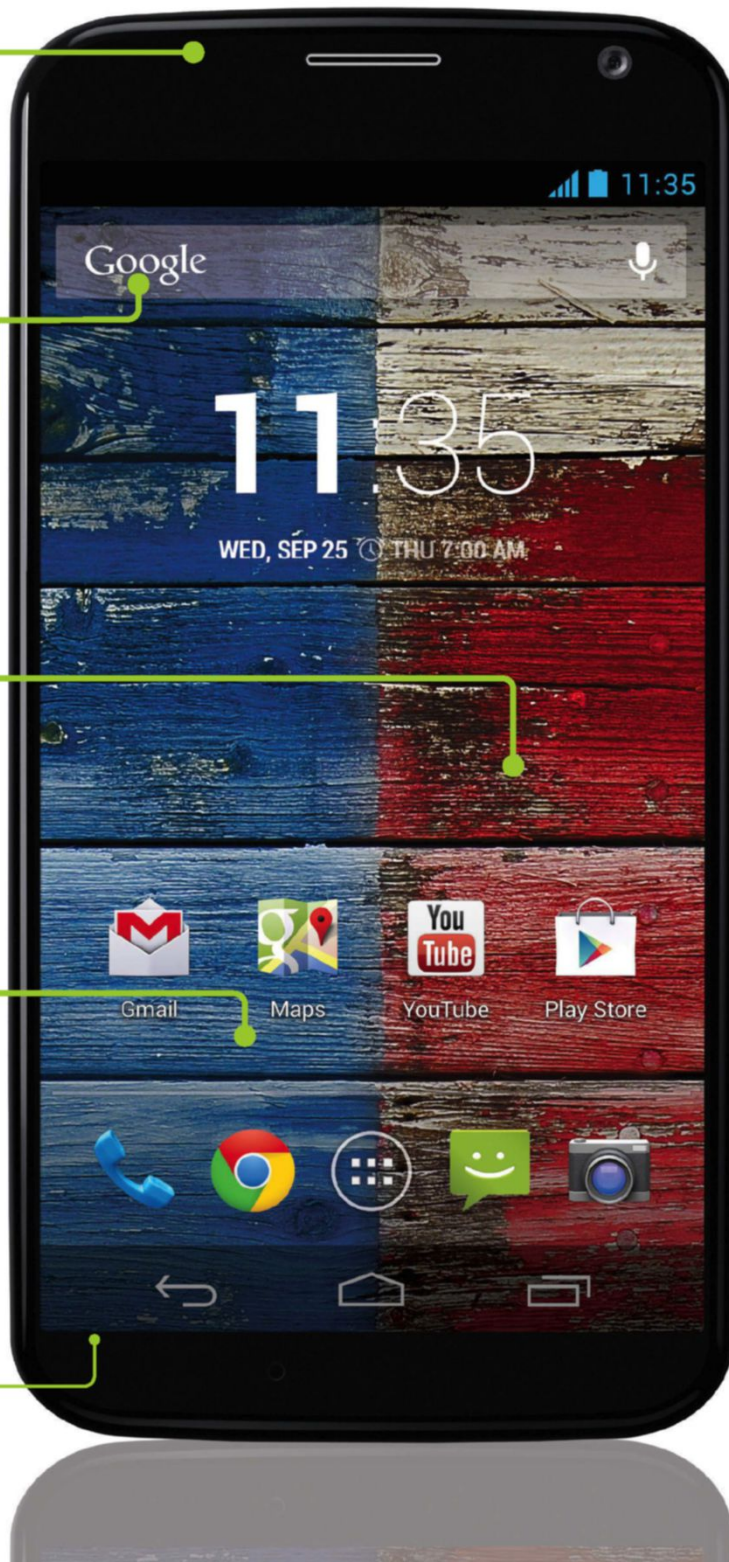
It feels solid, has Android 4.2.2 rather than 4.3, and you can choose between 16GB and 32GB (well, you can if you live in the US, Canada or Latin America, anyway – no UK launch)

## SHARP SCREEN

The 4.7-inch AMOLED display has a 1,280x720 resolution so it's not full HD but it still looks sharp

## MID-RANGE CPU

It runs on a Qualcomm Snapdragon S4 Pro processor that combines a 1.7GHz dual-core Krait 300 CPU and 400MHz quad-core Adreno 320 GPU



## technical specs

|                           |                                             |
|---------------------------|---------------------------------------------|
| » Operating system.....   | <b>Android 4.2.2</b>                        |
| » Processor.....          | <b>Qualcomm Snapdragon 1.7GHz dual-core</b> |
| » Memory.....             | <b>2GB RAM, 16-32GB storage</b>             |
| » Dimensions.....         | <b>129.3 x 65.3 x 10.4mm</b>                |
| » Weight.....             | <b>130g</b>                                 |
| » Display size.....       | <b>4.7-inch</b>                             |
| » Display resolution..... | <b>720 x 1,280 pixels</b>                   |
| » Expansion slot.....     | <b>None</b>                                 |

Choice is a good thing, by and large. It may get a bit too much when you're trying to choose a decent washing powder but when it comes to hardware, we really can't get enough. Motorola's new Moto X takes choice to the extreme, however. It lets you design the way your phone looks and operates. It's the Mini of the mobile phone world.

You can choose the front, back and accent colours and there are 360 colour combinations. You can customise matching accessories such as headphones and speakers. As well as straightforward colours, you will soon be able to choose wood finishes. There is an option to have a signature printed on the back of the handset too. Indeed, just about the only thing that it makes easy is the choice of storage size: simply 16GB or 32GB.



**"This is the first phone designed by Motorola since its acquisition by Google"**

Charles Golvin, Forrester Research

Quite what all of this does to the resale value of your handset, we're not sure. It may well depend on someone else sharing your taste but this approach is certainly unique, if not a little gimmicky. And yet the significance of the Moto X runs a little deeper than the mere aesthetics.

"This is the first smartphone designed by Motorola following the company's acquisition by Google," says Charles Golvin, principal analyst at Forrester Research. "The most interesting aspects of it are the focus on utility – the devoted voice processor tied to Google Now, the battery life and resiliency. The customisation and personalisation with the colour, texture and engraving is rather unique and it helps it to stand out but there's more to it than that."



“There is feeling that Motorola has aimed for experience rather than specifications when it comes to this handset”



The Moto X will sport an unrivalled number of customisation options

The phone itself is well specced but it is still a mid-range phone, with a 4.7-inch AMOLED display capable of 720p HD (so no 1080p panel) and a Qualcomm Snapdragon S4 Pro 1.7GHz dual-core processor with 2GB RAM. There is a 10-MP clear pixel rear camera with an LED flash and a 2-MP front-facing camera, both with 1080p video. It runs Android 4.2.2 and it is near Vanilla which is brilliant news for purists (but why no 4.3?). There is feeling that Motorola has aimed for experience rather than specifications when it comes to this handset.

But still, it seems to come down to the looks for a lot of people. “Moto X is designed for the way people increasingly buy phones: as a status symbol and personal jewellery,” says analyst Rob Enderle of the Enderle Group. “It is also a showcase for pure Android. The phone’s big thing is the number of choices in the final finish allowing the buyer to create a phone that matches the look they want making it far more personal. This is positioned as a direct challenge to Apple’s ‘one-size-fits-all’ model and I would expect some of the advertising creatives to mirror that famous old 1984 Apple ad but with Apple on the wrong side again. Motorola has done this previously.”



Rob Enderle, Enderle Group

“The Moto X will sell well but will not alter the iOS versus Android balance”

So when do UK buyers get their mitts on the Moto X? The 16GB version is \$199 in the United States with 50GB of free Google Drive storage which sounds great. But here is the bad news. The Moto X is only being launched in the US, Canada and Latin America. Europeans are being promised “something new” but it’s not the Moto X.

This is to be expected of Motorola which usually releases in the US first, but for now it is saying it doesn’t have any immediate plans for a European release. Still, should we be bothered? “I believe the Moto X will sell well but will not significantly alter the iOS versus Android balance,” says Mr Enderle. “Its impact would be greater if its price were lower – say, \$99 with contract – and if the customisation options were available across all carriers and not just AT&T.”

## The future for Nexus

Whether or not Google will axe the Nexus now that it owns Motorola is not clear. The Nexus 7 and Nexus 10 tablets are made by Asus and Samsung respectively so Google can either keep things as they are or move production to Motorola. What we do know is that the new Nexus 7 has been released and a new Nexus 10 is coming soon and will both be among the first to run Android 4.3. We can also note that the Moto X does not run 4.3. Perhaps Google had a deal with Samsung that pre-dated the Motorola rollout but it does seem rather strange. If we were betting people, then we would suggest that future Nexus device will come under the arm of Motorola and will have the most up-to-date tech and software from next year onwards.



# Android magazine

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## Million sellers

Inside Android's most popular apps

# Rocket Music Player

Downloads: 5mil-10mil Developer: JRTStudio Launched: 2012

Price: Free Playstore rating: ★★★★★

There's an abundance of music players on the Google Play store, from the stock Play Music app to the subscription-based Spotify, there's plenty of choice. Rocket Music Player looks to encompass some of the best features of many of its rivals and put a unique spin on them to make it one of Android's premier music players. From the get-go, you have a range of music controls at your disposal and a simple uploading system that transfers all the music stored on your device directly into the app without any hassle. If listening to music plays a big role on your smartphone, then there's no denying that Rocket Music Player is an app worth checking out.



## Q&A with Justin Tipton, Rocket Music Player creator

### How long did it take to get Rocket Player from just an idea to a fully working product?

I have a passion for music. My first app, iSyncr, was focused on how to transfer your music from iTunes to Android so I could listen to music without carrying an iPod. Soon after I released iSyncr, I developed the free app Android Music Player so others could enjoy their music on their Android devices. Eventually, I wanted to take that to the next level and create a full featured music app that really let listeners take control of their music. So that's when I began working on Rocket Player. To release the first version of Rocket Player took three months of intense work. But of course that was just the initial release and I have put a lot of effort into continually adding and working on Rocket Player.

### Is it an easy process to get your stored music playing through Rocket Player?

When you first launch Rocket Player it will scan your device for music, adding it to its library. If all your music is already on the device, it works right away. You can even navigate through your music via playlists, albums, artists etc. So it makes it easy to find the music you want. If you don't have your music on your phone yet, iSyncr will help you transfer your playlists from iTunes. If you use iSyncr with Rocket Player, we can even update your play counts, ratings, bookmarks etc in iTunes when you sync back.

### How often do you update the app?

Rocket Player receives about an update a month, maybe a little more. I'm constantly monitoring user feedback and implementing exciting

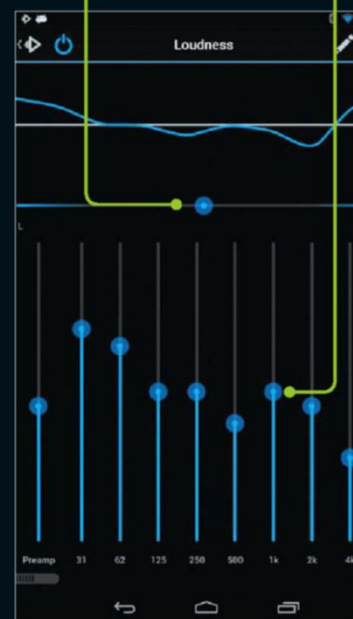


Use the star ratings to leave your opinions on songs

All your stored music is automatically uploaded to Rocket

Tags can be added to differentiate between various genres

Find the best sound for you using the detailed equaliser



new features to help keep the player competitive. I think one of our biggest differentiators is that we are all about supporting our customers. So if you email in, whether it is for the free or paid version, we will give you top level support. We do this because it is in these exchanges that you learn the most about your users and what they want and need in an app. We can then roll that into the next update.

### Was there a big team working behind the app's development?

The crazy part is the development team is just me working out of my house with my two dogs at my side. Sometimes I wish I had a bigger development team but I also realise what a perfectionist I am and working solo let me build Rocket Player exactly how I wanted it. It also

better lends itself to late night code writing sessions which happen very often around here. I get an idea and I can't stop working on it until I at least have a prototype. I have to add that I do have some excellent contractors to help me out with hard features and user interface design. I am not much of a graphic designer.

### How do you see Rocket developing?

My strategy for all my apps is to continue making them the best at what they do, as long as users still love and use the apps. As I mentioned earlier, by providing support for all our users, I get a pretty good idea of what my users are wanting to see in future versions. For Rocket Player, I plan on splitting my time between new features and tracking down issues across all 3,000 Android devices.

## A brief history of...

## Form factors



There's not much variety in Android phones these days. A rectangle with rounded corners is about the best you can hope for. There have been experiments with other form factors in the past, some more successful than others, and we lament their passing. Here's our pick of the highlights from the past.



## The slate

The template for just about every Android phone. You may get it in black or white, or sometimes even another colour, but at heart it will look exactly the same as every other phone.



## The slider

A popular form factor in the early days of the smartphone, the slider still has its fans but the improvement in touch keyboards means they're unlikely to be back.



# Android's fragmentation problem is getting worse

Report suggests there are over 11,000 distinct devices in use

11,868

Distinct Android devices seen this year



Android versions still in use

3,997

Distinct Android devices seen last year

47.5%

Samsung's share of those devices

37.9%

Android users on Jelly Bean

Source: opensignal.com, surveying 682,000 devices

Android devices come in a vast range of sizes and there are different operating systems and specifications. This is great for consumers because they are able to find a device that suits their needs and budget, but it has led to fragmentation which, as the website OpenSignal.com reported in an extensive article, is "both a strength and weakness".

It highlighted a startling figure from a developer which said 11,868 distinct devices downloaded one of its apps. It also compared Android with iOS, its most fierce rival. While 95 per cent of Apple users had iOS 6, just 37.9 per cent of Android users were using a form of Jelly Bean and 23.3 per cent were on Ice Cream Sandwich. A whopping 34.1 per cent were still on Gingerbread.

Such problems appears to put some developers off. "Perception that Android is fragmented definitely led to our decision to choose iOS over Android," says Ste Pickford who, with his brother John, has created the hit iOS game Magnetic Billiards. "We're a small team with limited development capacity so we wanted to focus our resources on the actual game not on handling multiple screen sizes or hardware configurations."

While larger companies have worked out ways around it, many developers struggle to get the UI right when they are working with so many different screen sizes.

But the problem is nothing new. Andrew Oliver, CEO of Blitz Games Studios, pointed us to his own internal

"PCs used to be the same with multiple configurations"

research which he conducted ahead of the release of Shrek Alarm on Android. He said PCs used to be the same with multiple configurations. Those who didn't like that back then bought Apple and that is what is happening with phones and tablets today.

"Fragmentation is on every level but if a game is fully 3D you can render to any size or aspect ratio without any fuss," he says. "It's 2D elements that become the challenge because developers shouldn't just scale 2D elements by small percentages as they end up looking nasty and smudged."

Another problem, however, is the lack of Google Play in every country, leading to store fragmentation, something OpenSignal didn't pick up on, but it did say devs needed to consider different countries. Draining a battery may not be a major issue in the developed world but a real pain in developing markets. Most pointedly, however, it concluded that Apple is looking to produce a "lite" version of the iPhone, thereby fragmenting the iOS market further. Maybe Android has it right after all.

@lrobot

What is the one feature you'd like to see all Android smartphones include? #android

@SteveyAsp

a decent battery and screens that can be seen easily in daylight

@AllenRayz

Full CLI access, and maybe some low-level kernel tweaking options

@iganapolsky

More NFC software

@jurinpo12

battery life that doesn't run out in a day or two

@wordsmagic2me

Bluetooth and DLNA/UPnP capability as standard. There speaks a media streaming freak. Love that feature of the Samsung Galaxy tab.

@a\_newbold

an Android Version of Facetime #android

@\_mbfisher

@a\_newbold you mean Google+ hangouts?

@lrobot

Anyone definitely going to purchase a Note III when it's available? If so, why? #android

@marcwillmore

been using the Note since it's release, due an upgrade so i'll wait for the Note III as everything now seems too small in comparison

@nickel\_25

comes down to price. it won't be cheap, but if it's worth the upgrade and not priced out of reach, i'll be investing in one asap

@ladywalker

I have the Note II now. If Note III is better than this one as they say, I'll purchase, but if not, I will stay with what I have.

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## The messenger

Early Android prototypes were based on the BlackBerry form factor before the switch was made to the more cutting-edge iPhone-style slate.



## The square

The Motorola Flipout was a bizarre and short-lived experiment with a square slider. Needless to say, it was a bad idea.



## The flip

Flip phones are still popular in the Far East and Samsung's Galaxy W789 is the latest device to take advantage of this trend. It's got screens both inside and out!





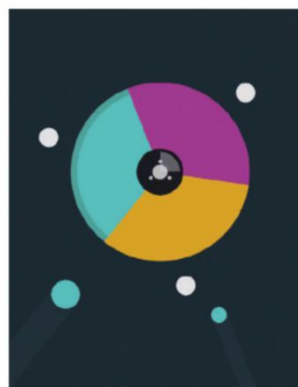
## 1 Learn the language

Predominantly, Android apps are written in Java. There are multiple versions of Java available for Android developers, with most using the x86 version over the sometime problematic 64-bit version.



## 2 Using XML

At the backbone of what makes certain Android apps look great is XML. Using XML is a relatively easy way to take complete control of each and every design aspect of the app, without losing hours and hours stuck in messy code.



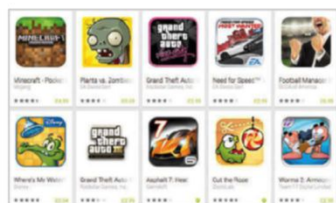
## 3 DIY apps

By scouring the web, you'll now find several online app creators, enabling everyone to produce their own app. The MIT App Inventor is fairly straightforward for everyday users to get to grips with.



## 10 The cost of publishing

Google charge a one-off fee of \$25 to distribute apps. When uploading an app, the APK can't be bigger than 50MB. You can include up to 4GB of additional file downloads if needed.



## 9 Master the Android Asset Studio

Everything from the Roboto font to the inner workings of the Holo theme can be found in the Android Asset Studio. It's the best way to keep your app in line with pure Android.



## 8 Tablet apps made easy

Use Android Studio to ensure your app is also tailored for tablets and other devices. Within this suite you can implement flexible layouts which can then be optimised to fit a wide range of screen sizes.



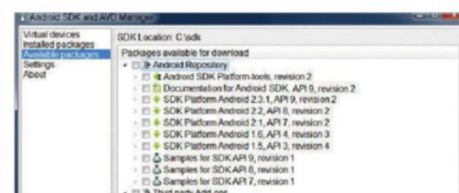
## 7 Learn SQL

Android uses SQLite to help keep a database of the inner workings of your app. The version that Android users have access to is a more stripped back offering than the full SQL database.

|                 |                                                                                                                                           |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| abstract void   | <code>cursorClosed()</code><br>Called by a SQLiteCursor when it is closed to destroy this object                                          |
| abstract void   | <code>cursorDeactivated()</code><br>Called by a SQLiteCursor when it is released.                                                         |
| abstract void   | <code>cursorRequired(Cursor cursor)</code><br>Called by a SQLiteCursor when it is required.                                               |
| abstract Cursor | <code>query(SQLiteDatabase.CursorFactory factory, String[] bindArgs)</code><br>Executes the query returning a Cursor over the result set. |

## 6 Testing apps

The Android SDK file includes 'monkeyrunner', an API that can be used to scrutinise each aspect of the app before publishing. For seasoned developers, there's also the much more advanced JUnit.



## 4 Do I need Android Studio?

Yes! Android Studio is a complete package for developers, helping them create, debug and test any new application. For new developers, it includes a template wizard which takes you through the entire development process.



## 5 Tools of the trade

The key thing any developer will need is to download the Android SDK file. Game developers will want to also download the Unreal Development Kit which powers many AAA mobile gaming titles.



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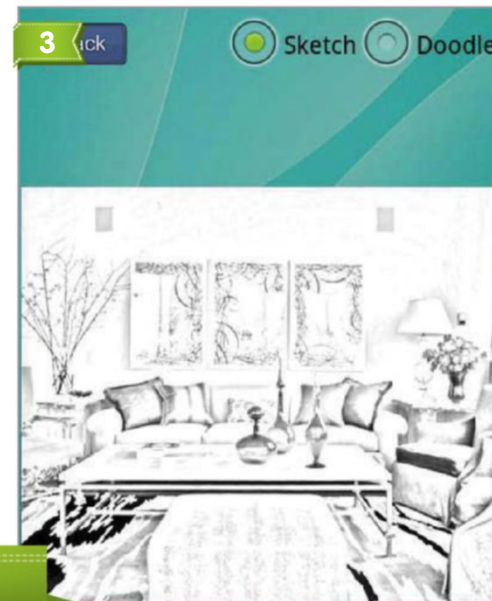
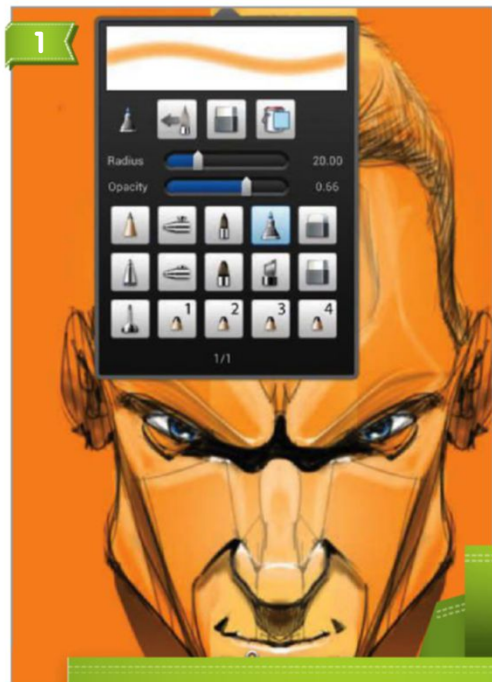
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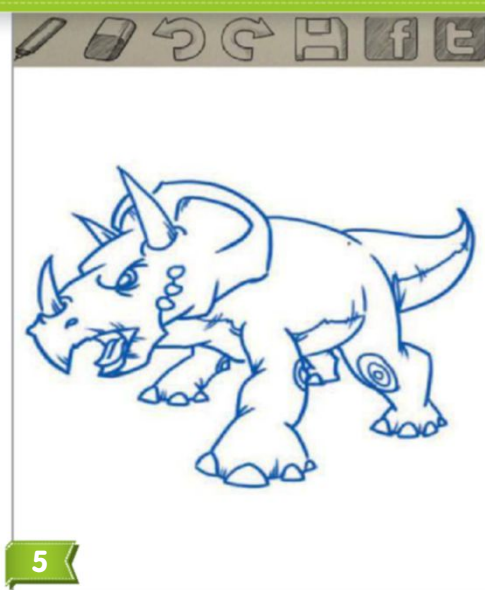
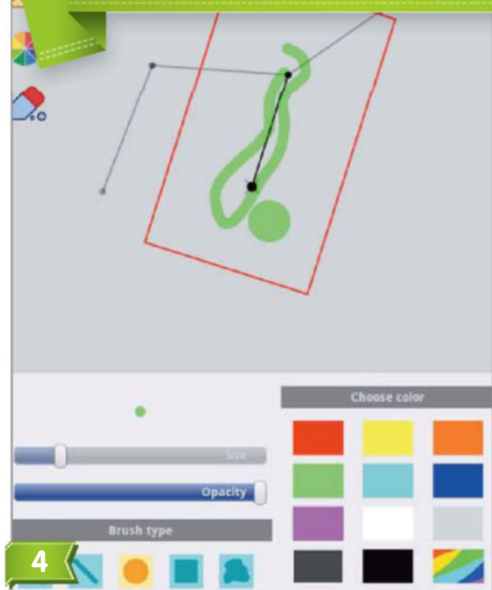
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## GALLERY OF...

# AMAZING DRAWING APPS



### 1 SketchBook Pro for Tablets

SketchBook Pro has long been the undisputed king of art apps. The app includes so many different design tools, you're bound to discover something new every time you use it. There's also some great social features to discover.  
» Price: £3.35/\$4.99

### 2 Sketch Guru

There's a lot of depth to Sketch Guru, but that shouldn't put people off. The selection of tools is vast, but there are some helpful tips and tricks along the way which can help you get to grips with everything. Sharing options are limited, but there's a lot to love.  
» Price: Free

### 3 Pencil Sketch

What makes Pencil Sketch a winner is how it combines a plethora of tools for advanced users, without being too difficult for novices to get to grips with. The detail you can go into is incredible. You'll be surprised with what you can get out of it.  
» Price: Free

### 4 Drawing Cartoons

Drawing Cartoons is arguably the best cartoon app on the Play Store. The app can help bring your sketches to life, with which you can draw out different backgrounds and settings and apply them directly on to your cartoon creation.  
» Price: Free

### 5 Sketch 'Em

Sketch 'Em is definitely aimed at kids who want to learn to draw, without complicated tutorials. The app gradually makes the subject matter more difficult, but the tutorials are well designed. If you're an adult and struggle with drawing, take a look.  
» Price: Free

### 6 XnSketch

XnSketch not only lets you create brilliant drawings with a range of tools, you can also add drawing and sketches on top of any photo on your device. Customisation is fantastic and you might be surprised with the quality of the drawings you can produce.  
» Price: Free





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# Messages

Inside Android Magazine's virtual mailbag

GEN E-SALOM

The writer of our Letter of the Month wins an Andru USB charger courtesy of [www.salom.co.uk](http://www.salom.co.uk)



## Letter of the month

### Switching from the iPhone

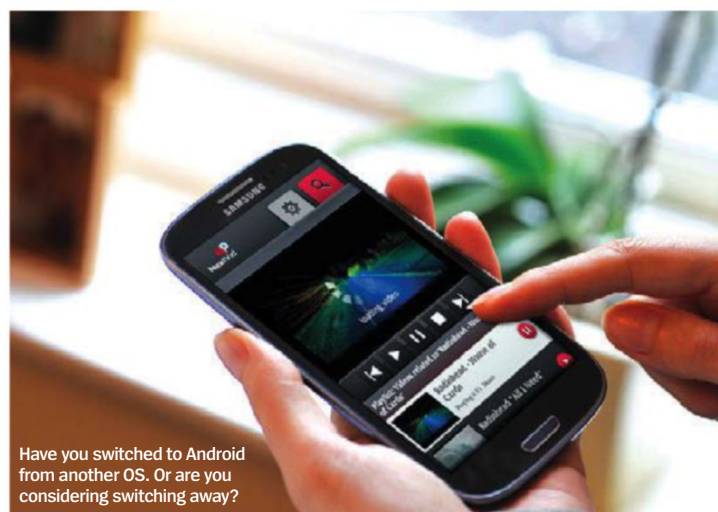
**O**n the 26th July I went into the O2 shop and I was looking to buy a new phone to replace my iPhone 3GS which had turned slow, rubbish and the battery life was woeful. I decided that I wasn't going to get an iPhone and that because of my experience with my Android tablet I decided to get an Android phone. As soon as I went in I had two options, the S III and the S4 Mini as the S4 was too expensive. After half an hour of chopping and changing, at one point I was going to get the Note 2, I finally settled with the S III. And it's a decision I will never regret. Loads of people have complained about the plastic back, thinking it does not give it the "premium feel", however people need to realise it's so you can change the battery and it doesn't feel that bad in the hand. The 4.8" AMOLED screen makes

me laugh at my brother's puny iPhone 4S. It got even better when I saw the price difference. My S III £350, my brother's 4S £479 for only 16GB. My S III has 16GB and a micro SD card slot. When using my new phone I also think about how people think the screen is too big. I'm 13 years old and I have tiny hands but it fits in my hand without stretching my fingers.

I also love the TouchWiz UI. Some people don't like it and prefer the stock Android experience. However I love it. To me it looks clean and tidy. The customisation is amazing compared to what you can do on an iPhone. So I would just like to say how happy I am with my S III and how much I love Android.

*Ewan Lee*

PS. I persuaded my dad for the first time ever to not get an iPhone in a different trip to the O2 shop but to get an Android phone. He walked



Have you switched to Android from another OS. Or are you considering switching away?

out with a Sony Xperia Z instead of the iPhone 5 and ever since he's not regretted it.

**We say:** Welcome to team Android, Ewan, and we hope that you like

your Letter of the Month prize. We're always interested to hear why people have switched from other platforms – whether it's iPhone, Windows, or even BlackBerry do let us know.

### De-bloating a phone

I'm enjoying the magazine and the content is very interesting and informative. I have a couple of issues that I would like some help with.

I have a Samsung Galaxy S2 on Orange contract and I would love to get rid of some of the Orange bloatware plus updating from Gingerbread that the phone was shipped with. I have tried to use the dreaded Kies program but after a while this suddenly fails to recognise the phone and the update is cancelled. I am reluctant to root the phone as I have never tried this and knowing my luck I would end up bricking the thing. Can you offer any advice please?

*Andy Jameson*

**We say:** The Galaxy S II on Orange should be on Jelly Bean by now, so it would be well worth contacting Orange for support if you can't get your phone to update. Unfortunately there's not a whole lot you can do about the bloatware without rooting, and it's best to avoid doing that until after you've got your OS updates working properly.

### My next Android phone

I am something of an HTC devotee, being on my third device now, namely the HTC One S, a super handset I've had for a year or so. I previously had Wildfire and Desire S editions. The joy

### "I really wish designers would have a dedicated camera button"

of these phones has for me been the Sense overlay, regardless of which iteration of Android has been installed.

Personally, I am somewhat baffled by the endless impatience for software updates. I did manually update the Desire S to 4.0 when (eventually) available, but found the upgrade to be a bit of a let down. Since then, hardware, design, and specs have been uppermost in my decision making. I chose the One S ultimately because it was a feature-rich handset in a pocket-friendly size. I suspect the S4 Mini might be my first choice were I upgrading today. My girlfriend has recently stepped up from Galaxy S II to

S III and is very happy there – she is almost certainly a Samsung lifetime customer. For me though, I find the TouchWiz interface a bit gnarly.

Where I have been consistently disappointed with Android phones is in the camera department. I still prefer my Fujifilm compact point'n'shoot over any cameraphone for two key reasons. First, there is a real button to push. I really wish phone designers would see the light here and have a dedicated camera button as standard. I find the on-screen shutter button results in far too many shaky shots and therefore too many photo opportunities spoilt. Second, flash. Mobile phone LED flash



## Get in touch!

Send us your thoughts on all things Android



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Got questions or comments? Drop us an email and let us know



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just sucks. Period. Let me tell you which is the best cameraphone I ever had. It was the LG Renoir. This was my first touchscreen phone and despite a truly awful OS, took beautiful photos. It had eight megapixels (ample in my opinion), the requisite camera button, and even better a Xenon flash. I think that as consumers we are being

somewhat led by the nose when it comes to phone manufacturers and design. Apparently, we all want bigger screens, more pixels, homescreen widgets to tell us what the Royal baby's first words might be, and more raw processing power than the Space Shuttle! Perhaps I should send HTC my old LG Renoir and tell them exactly what I want: a quad-core device with a pocket-friendly 4.3" screen with minimal bezel, Android 5.0 with a lean Sense overlay, a 13-megapixel camera with a dedicated camera button and Xenon flash, a removable, long-lasting battery, a micro SD slot and HDMI output. Oh, and it doesn't have to be slimmer than a credit card!

Not too much to ask for, surely?

*Gavin Barnes*

**We say:** Your ideal phone pretty much matches ours, but there are technical reasons why these aren't common.

For instance, a more powerful CPU requires a bigger battery, and between them generate more heat. In a smaller, thicker, denser device it is

## "I purchased a Sandisk Class 10 SDHC 32GB and it works perfectly"

harder for the heat to dissipate, and that's already a big enough problem in some larger phones.

### SD card tip

While I was enjoying reading the latest edition of your mag I came across a section on SD cards and the "access denied" issue. I too had the same issue with a 32GB SD card I purchased. It simply wouldn't work even though it worked in my Galaxy Tab 2 10.1.

So I purchased a Sandisk Class 10 SDHC 32GB and it works perfectly. It even has a file on there to assist Android devices. Not bad for £15.

I believe the issue is cheap imitation cards and not the devices.

*Micky Richards*

**We say:** Good tip, Micky. It is worth remembering that there can be

significant performance and reliability differences between branded and unbranded cards.

### My history

I feel proud to have personally owned 13 different Android devices. I owned an Archos 5 before the first Droid phone was even released, the OG Droid, the Xoom, two Acer tabs for my kids, Bionic, Razr Maxx, Nexus 7, Transformer Prime, Galaxy S III and S4. I'm committed.

*Kelly Millard*

PS. Forgot my three Google TV boxes... I guess that brings the total to 14.

**We say:** Committed? You should be! Okay, everyone, that's the new record. Who can beat it?

## TRENDING

Let us know your thoughts on these hot topics

- Do specs matter to you?
- Would you like to be able to customise the design of your phone?
- Thin, fast or long battery: which do you want most?
- What's your favourite app or game?

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- Moveable arms



# NEW NEXUS NEW ANDROID





Is the new Nexus 7 a worthy successor to the game-changing original? Plus eight reasons why you need Android 4.3



**INSIDE** 

**22. Nexus 7 review**

**24. Nexus 7 vs the rest**

**28. 8 reasons why you need Android 4.3**



# Google Nexus 7 (2013)

Last year's Nexus 7 was a game-changing tablet. This year's has the same name and some upgraded specs. Is it a worthy successor, and is it worth upgrading?

## FRONT-FACING CAMERA

The front-facing camera is a modest 1.2-MP so will be used for video calls rather than selfies. We're not convinced by its off-centre location either



## TWIN SPEAKERS

The speakers are a major upgrade. Located on the back at either end they are loud and of decent quality. They are more than adequate for all your gaming and video needs

## STUNNING SCREEN

The high definition display, with pixel density well over 300ppi, is arguably the best you will find on any tablet, and certainly in a different league to anything you'll get elsewhere at this price point

## NOTIFICATION LIGHT

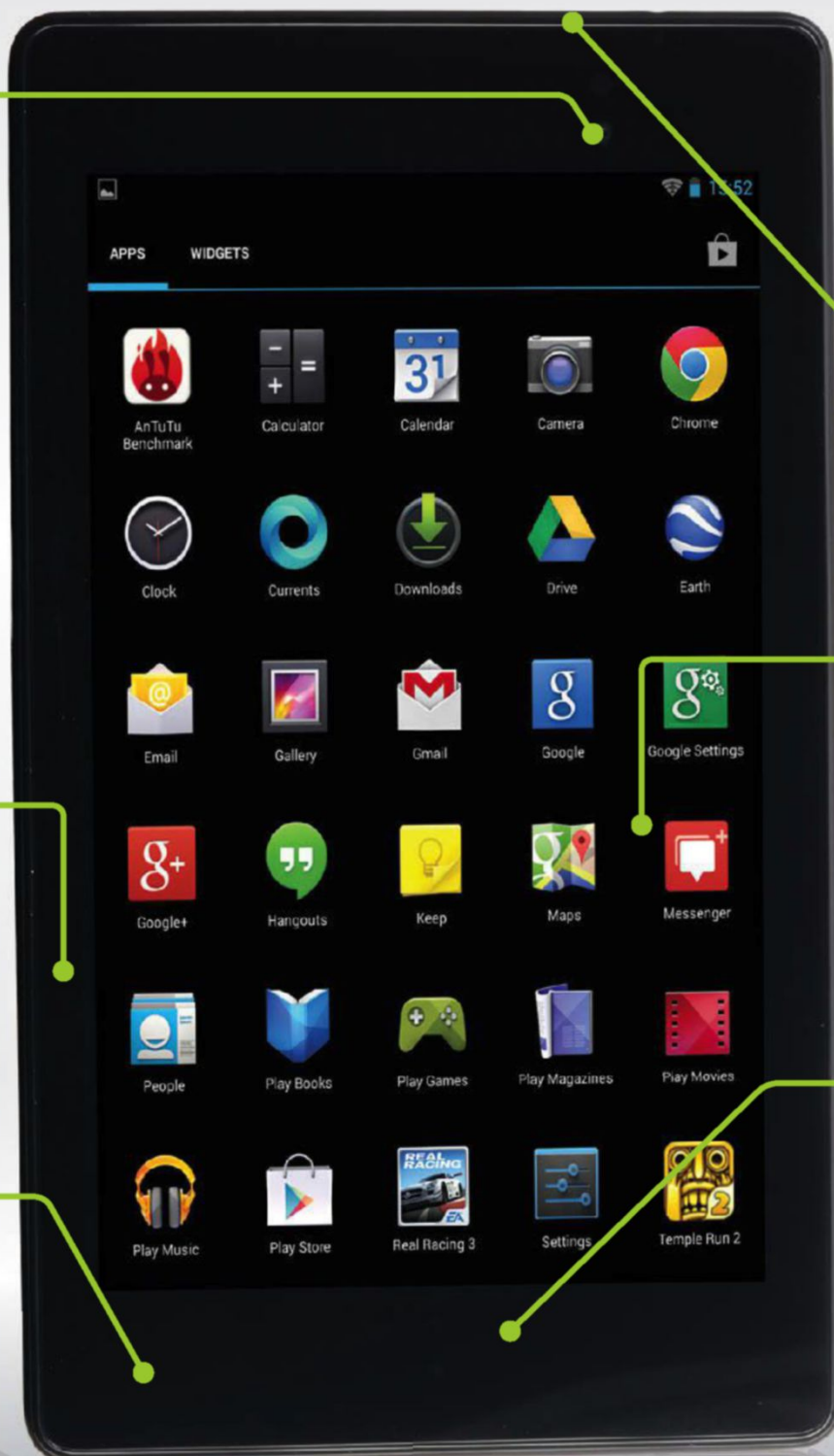
Below the screen is a tiny LED light that pulses gently to inform you of your incoming emails. It's a subtle touch and really rather effective

## SLIM AND STYLISH

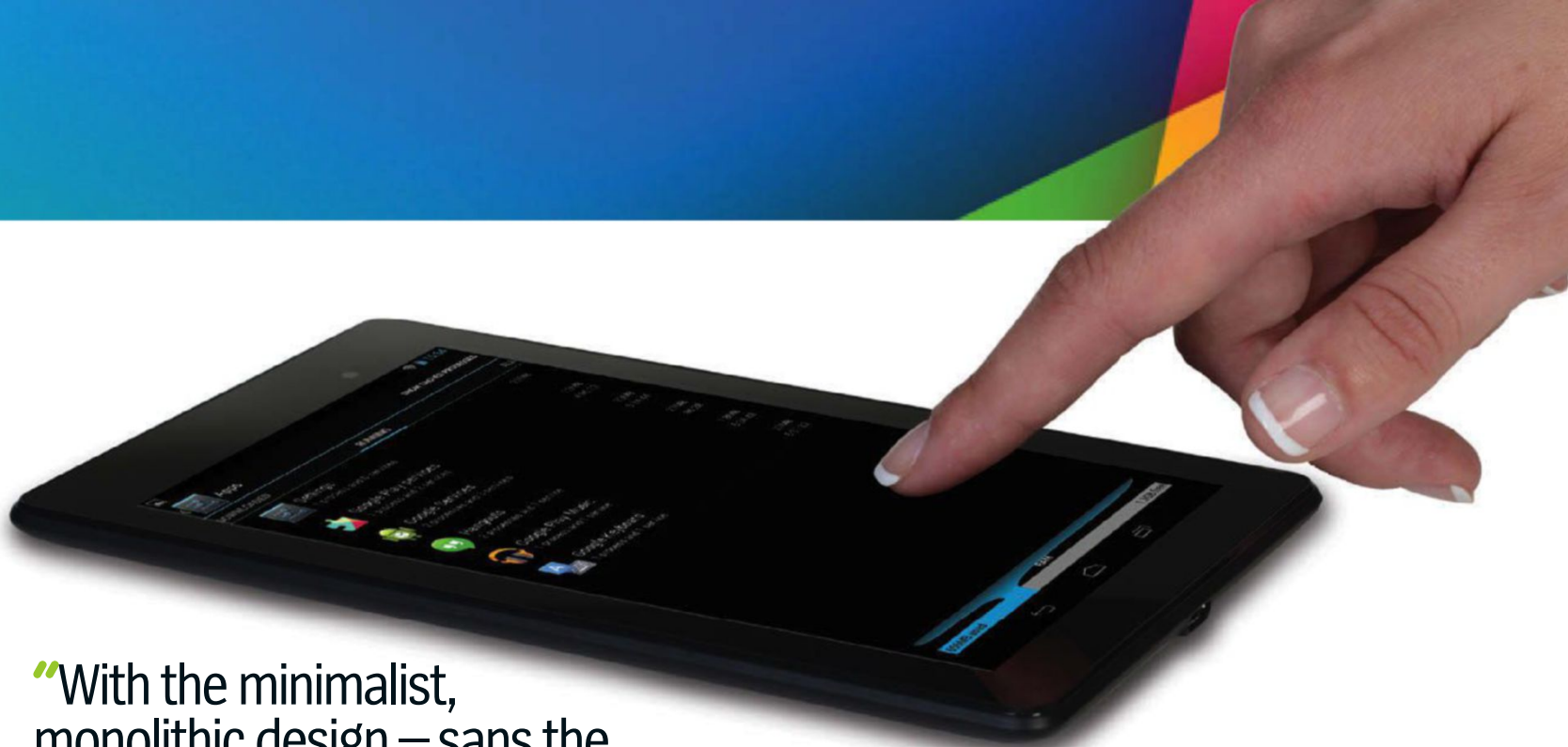
The new Nexus feels great in the hand. It's slim, and the tapered edges make it feel even slimmer. The narrower design also means it can be held comfortably one handed in a way that was barely possible with the old model

## LARGE BEZELS

The top and bottom bezels are large – more so than on the previous Nexus tablet – but they actually work pretty well in use, and appear not so oversized in the flesh as they do in the photos







“With the minimalist, monolithic design – sans the silver trim of last year – it has an altogether classier look”

The design in the 2013 Nexus 7 has changed – for the better. It's lighter, thinner and easier to hold. A design triumph and a sign of real progression

Last year's Nexus 7 changed the game for Android tablets. Google's first attempt at building a slate was the first genuine mainstream success for Android in a sector where it had previously struggled (not counting the decidedly un-Androidy Kindle Fire from Amazon). It helped establish the seven-inch form factor as a viable alternative to the much larger devices that were dominating the market, and it was cheap – in a good way. A year on, Google is looking to repeat the trick. Again built by Asus, and with the same name, the 2013 Nexus 7 has taken everything about the original and improved on it. It's a more competitive market this time around, so will that be enough?

## Design

The design and build quality of the 2013 Nexus 7 immediately stands out as being a notch above the 2012 edition. The device impressed for easily surpassing the expectations that come with a low price point, but aged quite quickly over the intervening 12 months, especially after Apple's iPad mini came along and set a much higher standard in design for a compact tablet.

The shock of the low price has worn off with the new Nexus 7 – and it's not quite as low as last year's – but it still looks and feels better than anything you can get at a comparable price, especially Samsung's plasticky Tab series.

The device is still built by Asus and has been fully refined, sometimes in surprising ways. For instance the new tablet is narrower but taller than the old one. The bezel has been halved in size down the long edges, but actually increased at either end. This goes against the trend – and demand – for shrinking bezels and they do look overly large in photos. In the hand it works perfectly. The narrower profile of the Nexus means it can be held one handed in portrait mode very comfortably, with all your fingers comfortably reaching around the edges.

In landscape mode, those enlarged bezels, measuring the best part of an inch either side, are just about the perfect size for your thumb to rest without encroaching onto the screen. This is a tablet built with ergonomics in mind.

The device is also slimmer and lighter than before, both signs of progression in a tech product. And with the more minimalist, monolithic design – sans the silver trim of last year – it has an altogether classier look. The front is virtually featureless. As with all Nexus products there are no physical buttons. Above the screen (in portrait orientation) is a 1.2-megapixel camera, strangely offset to the right. Below is an LED notification light that pulses gently when it has something to alert you to and is invisible when it doesn't.

On the top-right edge is the headphone jack, and centred on the bottom is the micro USB port. This is used for charging and connecting to a desktop computer, and can also take a SlimPort adapter for mirroring the screen to a TV over HDMI. On the upper-right edge are the usual power and volume controls, all conveniently placed. There's sadly no slot for a memory card, as usual, nor one on our unit for a SIM card. An LTE version of the tablet will, however, be available.

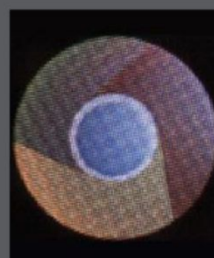
The dimpled, 'Steve McQueen's gloves' texture of the original Nexus 7 has been removed from the back, replaced instead with a matt, soft touch plastic that is reasonably impervious to fingerprints. We can't say we're massive fans of the large logos on the rear, especially as they are positioned at right angles to one another. The main Nexus branding is right in the centre but has been rotated 90 degrees and implies the tablet is intended to be used primarily in landscape mode. We disagree. At the bottom is an portrait oriented Asus logo that is altogether subtler.

The back also houses a five-megapixel camera tucked right into the corner, with no accompanying flash, and two speakers located at either end. The speaker in the 2012 Nexus was notoriously poor, and these are a massive upgrade. Having two of them, alone, enables you to have proper stereo output in your videos and games, and they are a whole lot louder and more vibrant too. There is a danger that on some lower quality YouTube videos the sound can start to distort at very high volumes, although in practice we rarely felt the need to push the volume much beyond 50 per cent.

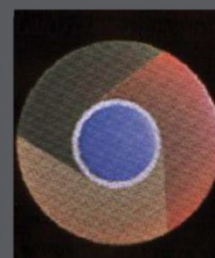
The positioning of the speakers is not perfect. The Nexus 10 found room for them on the front, and

## Screen test

The screen on the original Nexus 7 was pretty good, and its pixel density surpassed most rivals, including the iPad mini. The 2013 Nexus beats it hands down. The pixel density is over 300 ppi, making text perfectly smooth and images look fantastic. You won't find anything better.



Nexus 7 (2012)



Nexus 7 (2013)



Nexus 7 (2013) up close



# New Nexus 7 vs the rest

How does the new Nexus 7 compare to its biggest rivals?

## Nexus 7 (2012)



**OS:** 4.1 (upgradeable to Android 4.3)  
**Processor:** Tegra 3 1.2GHz quad-core  
**Memory:** 1GB RAM  
**Screen size:** 7.0-inch  
**Screen res:** 1,280x800  
**Camera:** 1.2-MP  
**Battery:** 4325mAh  
**Expansion:** N/A

## Nexus 7 (2013)



**OS:** Android 4.3  
**Processor:** Snapdragon S4 1.5GHz quad-core  
**Memory:** 2GB RAM  
**Screen size:** 7.0-inch  
**Screen res:** 1,920x1,200  
**Camera:** 5-MP rear, 1.2-MP front  
**Battery:** 3950mAh  
**Expansion:** N/A

## iPad mini



**OS:** iOS 6.0  
**Processor:** Apple A5 1GHz dual-core  
**Memory:** 512MB RAM  
**Screen size:** 7.9-inch  
**Screen res:** 1,024x768  
**Camera:** 5-MP rear, 1.2-MP front  
**Battery:** 4490mAh  
**Expansion:** N/A

### Design

Although the front has minimal design quality, the rubberised backplate makes holding the tablet a decent experience, but it isn't as light as the other two tablets.

There's minimal changes between the two Nexus tablets, with a same fascia and similar backplate. The Nexus 7 (2013) is both lighter and thinner than its predecessor, however.

As with most Apple products, design is at a premium, with the iPad mini far and away the best constructed here. Not only is it lightweight, it's pencil thin at just 7.2 millimetres.

**OUR PICK: iPad mini** Better build quality and more distinctive design make the mini a winner

### Performance

A quad-core processor and a decent amount of RAM make the Nexus 7 (2012) deal with anything you can throw at it. It's let down by a single, bang average speaker.

Compared to its rivals, the Nexus 7 (2013) is by far and away the most powerful. Not only does it have an impressive Snapdragon S4 processor, it also includes a mighty 2GB of RAM.

A shortfall for the iPad mini is in terms of its overall performance. Although the dual-core processor is decent enough, the 512MB of RAM struggles with some of the more advanced apps.

**OUR PICK: Nexus 7 (2013)** Blasts past the competition in terms of performance

### Software & features

The Nexus 7 (2012) can be upgraded to Android 4.3, but runs Android 4.1 on boot. Its stock Android experience means you'll be able to customise the tablet how you want.

With Android 4.3 out of the box, you're getting the very latest OS instalment. It includes the standard range of Google apps and now enables wireless charging.

iPad mini will have to make do with the older iOS 6.0 out of the box, but updating the OS will be easy. Features are in abundance, Apple's common trick to tie you into its ecosystem.

**OUR PICK: Nexus 7 (2013)** Cutting-edge features and Android 4.3 give the new Nexus 7 the nod here

### Pricing

Thanks to the release of the Nexus 7 (2013), the older version can be picked up close to the £100 mark if you shop around. For the price you're paying, you're getting a brilliant tablet.

Although the newer Nexus is priced higher compared to its predecessor, at £199, it's still a very good price. Even the 32GB variant is priced at £239, which is a great price.

With prices starting at £269, the iPad mini isn't as cheap as the two Nexus slabs. 32 and 64GB variants go for £349 and £429 respectively. You are getting a very solid tablet though.

**OUR PICK: Nexus 7 (2012)** Although it's starting to age, the original Nexus 7 is a fantastic investment for a next-to-nothing price

### VERDICT:

There's a whole host of reasons why the new Nexus 7 wins this tightly fought contest. For one, it has built on the success of the original, while making tweaks to the areas that needed improving on. It's exactly how a yearly

update should be approached. It packs even more power for Android users to take advantage of, and at £199, it's still priced well below many other high-end tablets out there on the market.





We were thoroughly impressed by the new speakers – loud, crisp and of great quality



“Simply put, you’ll struggle to find a display better than this and it really does belie the price”

that is always going to be the optimum spot. When holding the tablet in landscape your hands will unavoidably obscure them. It’s not possible to silence them like this, and they remain plenty loud enough, but it does dampen the sound a little.

## Screen

The display is the undoubted star of the new Nexus 7. It’s the same seven-inch, corner-to-corner design, with a 16:10 aspect ratio, but the resolution surpasses anything on the market. At 1,200 x 1,920 pixels (in use you will lose 96 pixels of the height due to the button bar), the pixel density is 323ppi. This puts it ahead of any tablet and alongside many of the best phones on the market. Given that you hold a tablet further away from your eyes than you do a phone the effect is magnified. Simply put, you’ll struggle to find a display better than this and it really does belie the price.

What this high pixel density means is that text becomes much more readable, with no jagged edges on the individual letters, and so much easier on the eyes for long sessions of eBook reading. The only negative to high-res displays like these is that you do occasionally encounter websites or apps whose images are optimised for lower resolutions.

As an LCD rather than AMOLED display the blacks are not quite fully black so the screen doesn’t totally disappear into the black surround, but it’s close enough. It is bright and sharp and on full brightness it looks nothing short of spectacular.

The auto-brightness settings seem to err on the side of caution, probably for the sake of the battery life, and we would have preferred it to choose a slightly brighter level, especially in outdoor conditions. A lower brightness level tends to mute

the colours a tad – only on full brightness do they really pop out at you.

Our unit showed no sign of the problems some early users have encountered, such as dead pixels or multi-touch issues. A slight flicker in the camera app was the only thing we detected, and we suspect that all these issues will be resolved with firmware updates sooner rather than later.

The seven-inch form factor is our favourite size for a tablet, with its small footprint making it a far more portable device than a larger, heavier ten-inch model. The 16:10 screen ratio seems like a good compromise between the 4:3 of the iPad mini – great for web browsing but less so movies – and 16:9 that you get on some Android tablets to the opposite effect.

As we’ve said, the tablet felt most natural to us while we were testing in portrait orientation for all but the activities that explicitly required the tablet to be rotated. On its side the display is too shallow for serious web browsing, as not enough content can fit on the screen.

## Performance and battery

The hardware specs of the new Nexus 7 have been upgraded in almost every way over the old model from last year, as should be the case with an annual refresh like this.

For the processor, the often maligned Tegra 3 has been switched out for Qualcomm’s fashionable Snapdragon S4 Pro CPU clocked at 1.5GHz. It’s the same processor used in the Nexus 4, and delivers comparable performance. The processor is not bleeding edge but this doesn’t matter too much as with a well-optimised stock Android installation it is still smooth and responsive.

It is increasingly becoming the case that only devices with heavy skins and masses of additional features require the more powerful processors. The Nexus range has never needed to be bleeding edge, and the Nexus 7 doesn’t change that.

Graphics performance is also excellent, handling HD video and 3D games smoothly. With the system backed up with 2GB of RAM, fast becoming the standard for the latest devices, task switching was quick and highly responsive. Inevitably we encountered the odd instance of momentary stutter. They were admittedly few and far between and didn’t diminish our experience of using the tablet. They’re simply a continued fact of life with the Android ecosystem. For the most part this is a seriously quick and smooth device. It even boots up in less than half the time of the original tablet.

The tablet comes with either 16 or 32GB of storage. Our version was the 16GB one and had around 12.2GB of that storage available to use. Like all Nexus devices there isn’t a memory card slot, but if you do need extra physical storage USB On-The-Go is partially supported. It doesn’t appear to be an official feature, but we tested the third-party app Nexus Media Importer with a flash drive and two different USB OTG cables and were able to get one of them to work. If you root the tablet then the app StickMount should yield better results.

Among a suite of connectivity features is wireless charging support, NFC, Wi-Fi Direct and Miracast. The latter can be used with a dongle attached to your TV to mirror the screen. It’s ideal for watching movies on the larger display if you don’t have the SlimPort adapter instead.

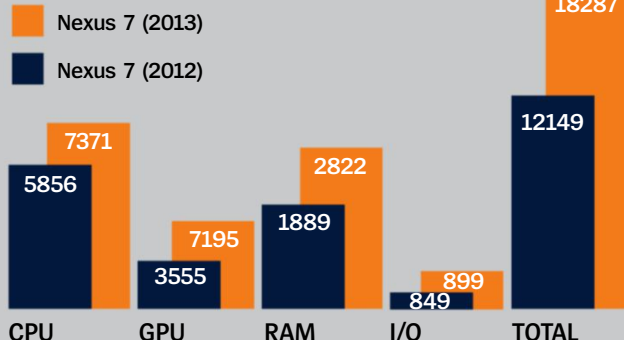
Battery life was satisfactory, if not mind-blowing. Google’s specs suggest nine hours of mixed use



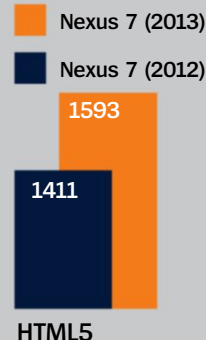
## Performance tests

Unsurprisingly, the new Nexus 7 trounces the old model in benchmark tests, something which was born out in our own real world tests. The improved graphics performance is notable, benefiting not just gaming but general swiping around the UI. This is a smooth and responsive tablet.

### AnTuTu



### Vellamo



and we achieved roughly that, with a combination of browsing, gaming, movie watching and other general use. 3D gaming does eat into the battery more than other tasks, so you'll need to revise that estimate down if gaming is your thing. Once your usage settles down you can expect to go two or three days between charges. We also noticed that this new model was easier to charge than the old one, which could be finicky about which chargers it would work with.

## Software

A fully stock Android experience is arguably the biggest draw of a Nexus device, and sure enough the Nexus 7 is entirely free of gimmicks. There's no crazy gestures or superfluous apps, just the usual array of Google apps, discretely pre-grouped into their own home screen folder, while everything else is pure stock Vanilla Android.

The Google apps do a pretty good job of covering all the essentials. The latest versions of the Movies and Books apps both support side-loaded content, as does Music, so some users might never even need to head off to the Play store if media and web are their primary uses.

The Maps app is, of course, fantastic, if hobbled by its very limited offline capability – you won't be using it for in-car navigation without a data connection. The latest version integrates fully with

**“A fully stock Android experience is arguably the biggest draw of a Nexus device, and sure enough the Nexus 7 is entirely free of gimmicks... everything else is pure stock”**

Google Earth whether you want it or not – Earth is as close as the Nexus gets to bloatware.

Chrome is the only browser installed, and is one of our benchmark apps for judging a device's performance. In most cases it is unbearably laggy, grinding to a halt whenever you attempt to scroll through any but the most basic webpages. Here it was surprisingly sprightly, almost good enough for us to not bother switching it out for a better third-party alternative. There aren't many devices we've been able to say that about.

The keyboard is also stock Android, with all the improvements of recent versions. We found the narrow width of the Nexus to be perfect for handheld typing while holding the tablet in portrait mode; rotating the tablet to get larger sized keys it became too large and required resting on a desk, wherein we were able to type with fingers rather than thumbs. Smaller tablets like this tend to be seen as consumption devices first and foremost,

but it can suffice for productivity so long as you aren't trying anything too ambitious.

The Play store is as always one of the biggest let downs for any Android tablet. The picture is slowly improving for tablet-optimised apps but there are still so many gaps, even among the big names (the official Twitter client, for example, is not optimised for a larger display). The effect is more tolerable on the Nexus than it is on ten-inch tablets since scaled-up phone apps don't look quite so offensive (in portrait mode, at least), but an improvement in this area cannot come soon enough.

## Camera

The original Nexus came without a camera and we cannot say we missed it. Never fans of cameras on tablets it was not even on our wishlist for the update. Yet the market dictates, and against all logic we do frequently see people stood in the street or at events holding full-sized iPads in front of them

## Nexus camera on test



Limited dynamic range means the highlights in bright skies get blown out very easily



Images have a slight blue tint to them, giving them a colder look than may be desirable



The Nexus is very comfortable to hold in one hand

shooting stills and video. We'd bet that in most cases the phone in these people's pockets would take better pictures than their iPad can. However, they've chosen to use their iPad's camera, and thus the Nexus 7 needs a camera too.

The results are predictable enough. The five-megapixel camera has no supporting flash, so low-light shots are a complete non-starter. In good light it's okay – shots look pretty manky viewed at 100% on screen and there's both noise and noise reduction everywhere, but if it really is the only camera you've got with you when you absolutely need to grab a shot then it will do the job.

The camera app has been updated for Android 4.3 and is a very bare bones offering. The few controls here are hidden away behind a cumbersome menu that only appears when you hold your finger on the screen. You can set the exposure compensation, adjust the white balance and choose from a limited number of scenes and little else. For once, we were hankering after a few more options to play with.

The camera shoots video up to 1080p resolution. Again it's for emergency use only, with low-quality mono sound and a twitchy auto-focus algorithm that doesn't do so well when there's a lot of movement in a scene.

## Hackability and updates

All Nexus devices are popular among the more hardcore Android enthusiasts due to the ease that they can be rooted, modded and otherwise

"The tablet is also guaranteed to get official OS updates"

hacked. This will not change with the Nexus 7. Unlocking the bootloader requires no more than a simple command, and rooting is equally straightforward. From there you have a tablet whose real potential will not be unlocked for months to come. The quality and performance of the stock OS build means there's little need to experiment with custom ROMs as you might with a skinned device, but the majority of the most popular ROMs will have a presence on this platform regardless. The tablet is also guaranteed to get official OS updates from Google for at least a couple of years, with the roll out to a new version beginning just hours after its announcement.

## Verdict

It almost goes without saying that the 2013 Nexus 7 is the best Android tablet, and the best small-sized tablet on any platform. It is streets ahead of the similar sized (and priced) tablets from Samsung, Asus' own Fonepad, or the current offerings from either Apple or Amazon (although autumn refreshes for those devices may once again close the gap). And, even though it is a little more expensive than last year's models, it is still incredible value for money.

If you're looking for your first tablet then we wouldn't think twice about pointing you in the direction of the new Nexus 7. And if you bought the original model, the vastly improved speakers, screen and performance, as well as the tidier design, make it an extremely compelling upgrade.

# Review

## Nexus 7 (2013)

# information

Price **£199**

» More information  
[www.google.co.uk/nexus](http://www.google.co.uk/nexus)

### Battery life



You should be able to get through two or three days of average use between charges



## technical specs

|                           |                                                    |
|---------------------------|----------------------------------------------------|
| » Operating system.....   | <b>Android 4.3</b>                                 |
| » Processor.....          | <b>Qualcomm Snapdragon S4 Pro 1.5GHz quad-core</b> |
| » Memory.....             | <b>2GB RAM, 16-32GB storage</b>                    |
| » Dimensions.....         | <b>200 x 114 x 8.7mm</b>                           |
| » Weight.....             | <b>290g</b>                                        |
| » Display size.....       | <b>7.0-inch</b>                                    |
| » Display resolution..... | <b>1,200 x 1,920 pixels</b>                        |
| » Expansion slot.....     | <b>None</b>                                        |



## Performance

Slick, fast, responsive and with good battery life. What more do you need?

## Design

A big improvement over the original, it's thinner, lighter and easier to hold

## Features

Nothing ground-breaking, but wireless charging and SlimPort are nice additions

## Value for money

Exceptional value for what is a smart, stylish and powerful device

## » Verdict

Unquestionably the best small tablet, the best Android tablet full stop, and a major upgrade over the original model



# 8 REASONS WHY YOU NEED ANDROID 4.3

Android 4.3 is only a small update, but it includes a number of features that make it a must-have version. We take a look at them

## 1. Performance improvements

How does the new update stack up against Android 4.2?



**A**ndroid 4.3 has brought about small but significant improvements in performance. This comes primarily from the addition of TRIM support in 4.3. TRIM is a system that frees up storage from deleted files quicker, enabling the system to read and write faster than it previously

could. This has already been seen to have had a major impact in the performance of some of the 2012 Nexus 7 devices. Some users had been reporting performance degradation over the year or so they had owned the device – not aided it must be said by the update to Android 4.2, which was not the fastest or smoothest performing version – but the rollout of the 4.3 upgrade seems to have solved that issue, restoring devices to a more useable level of performance. It should also be a major factor in future devices, with their performance staying consistent throughout their lifetime, something that cannot always be said about Android. As far as the overall benchmark performances go the differences between 4.2 and 4.3 are negligible and well within the margin of error. That improved I/O score, however, will have a major impact on the perceived speed of a device. For most, that is all that matters.

### Performance tests



## 2. Improved notifications

The new powered-up notifications are more interactive than ever

### MUSIC CONTROLS

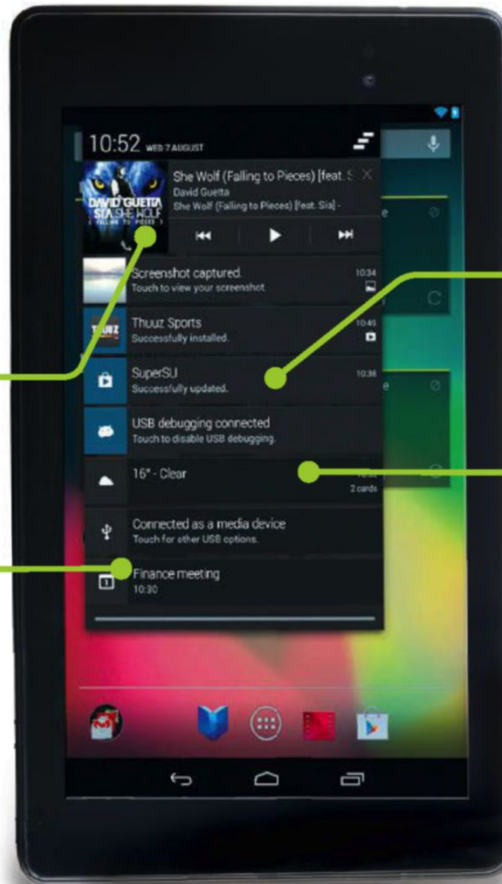
There's now more support for Play Music's All Access app, with you still being able to switch between songs and even playlists with the new 4.3 update

### APPOINTMENTS

Any appointments created in the Calendar app will automatically create a notification for you to interact with once the appointment is drawing closer

### MISSED CALLS

If you miss a call, or get an important email while you're away, you can instantly reply to them with the notification acting as a shortcut to the app



### MAPS

One of the best new notification features available is now being able to open up your calendar notifications with the Google Maps app if the notification is travel related

### APPS

If you've recently updated or installed an app, you can long press on the notification itself to bring up the App Info screen where you can find even more related information

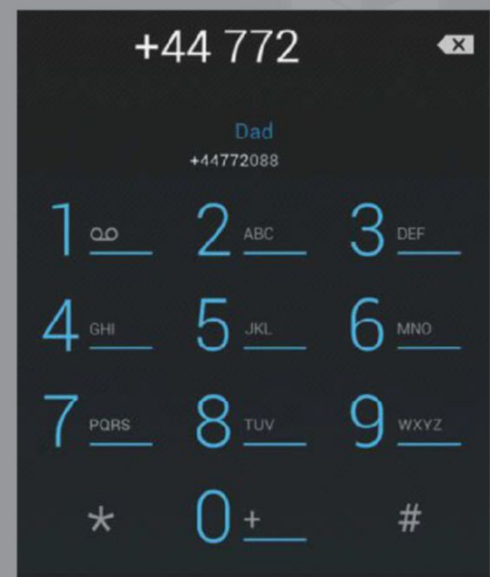
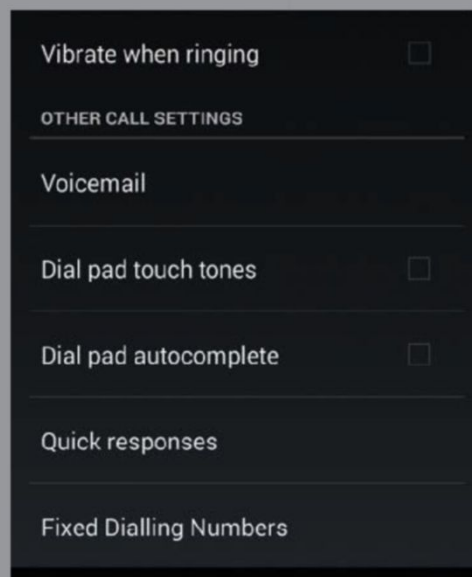
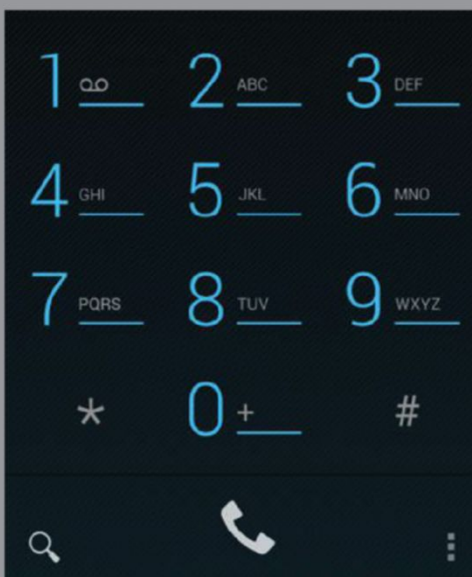
### GOOGLE NOW

Depending on which cards you have enabled, Google Now is much more visible through the notifications menu and you can now set the cards to appear more frequently

“Long press on the notification itself to bring up the App Info screen”

## 3. Auto-complete in the dialer

Make quick phone calls to stored contacts



### 1 Open dialer

Open up the dialer on your smartphone and navigate to the Settings menu which can be found by pressing the menu key in the bottom-right of the screen.

### 2 Dial pad autocomplete

Listed halfway down the various settings will be the 'Dial pad autocomplete' option, which is disabled by default. Press on it to activate it and then back out to the dialer.

### 3 Start dialing

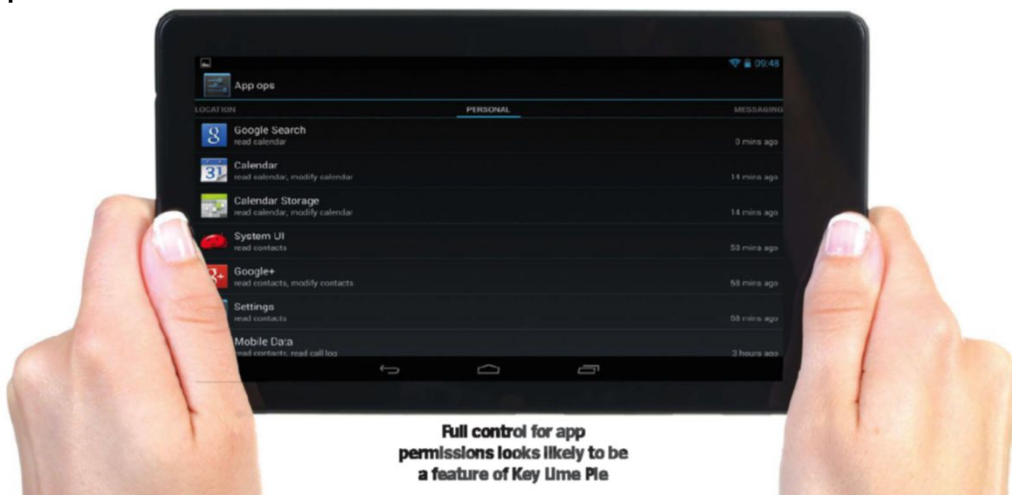
Enter the first few numbers of someone you want to call and you should find names and numbers appearing, from which you can select one to make a call.



## 4. Control app permissions

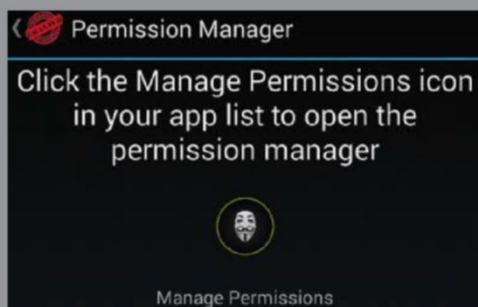
Take control of what your apps are allowed to do

**H**aving complete control of your app's permissions is a massive deal for many Android users and thanks to the new App Ops feature in Android 4.3, this is now possible. The new feature is in fact hidden, but there's a quick fix all Android 4.3 users can do to get their hands on it. By downloading the App Ops app from the Google Play store, you'll find a new shortcut appear on your device giving you full access to your apps and the permissions they hold. Users can then meticulously go through each app and deactivate the permissions they simply aren't happy with. Follow the steps below to learn about the new App Ops feature and begin changing what parts of your phone your apps have access to.



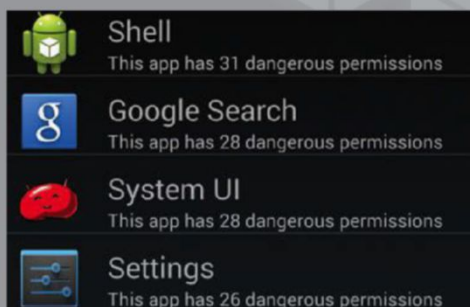
### How to control each app's permissions

Unlock this hidden feature in Android 4.3



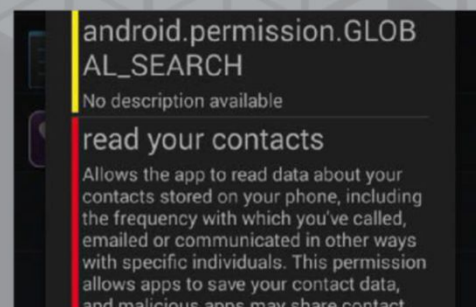
#### 1 Get App Ops

Venture onto the Google Play store and download the 'App Ops' app to any device running Android 4.3. After installing, follow the instructions within the app which will guide you through the process of setting up the app.



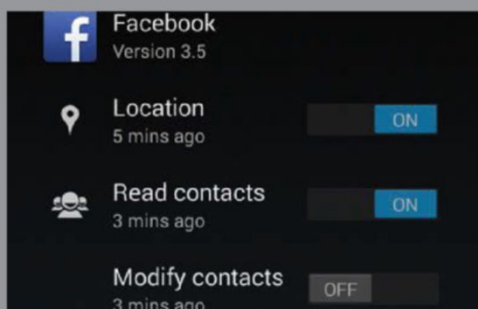
#### 2 Choose a section

You'll now be taken to a screen showing you different areas of your phone, and each holds apps and their own permissions for you to explore. Make your selection and wait a few seconds for it to gather together your various installed apps.



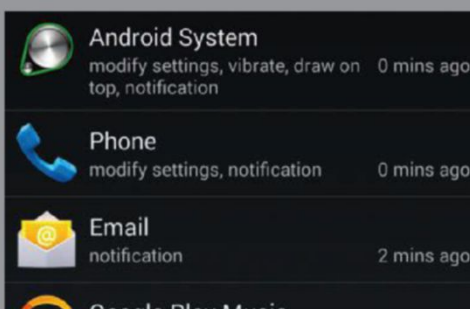
#### 3 Permissions explained

Depending on your selection, you'll now be shown a screen full of permissions. For anything system related, or stock apps, a menu will appear outlining each app permission and what that does for your phone. Press Manage to continue.



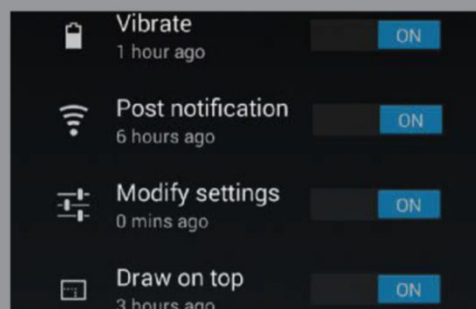
#### 4 Choosing an app

Select an app from the list and view the permissions you can toggle. Most are fairly basic, while some may not be activated. By using the on/off toggle you can select the permissions you want to enable and disable.



#### 5 Toggle your system

By scrolling to the right of the list of apps, you'll find a page dedicated to your device's primary functions. You might be surprised the permissions that are required by some apps, so make sure to check them out.



#### 6 Avoiding problems

The biggest problem about altering app permissions is that it can have an adverse effect on how the app performs. In some cases key features within an app will be disabled, so use and disable them with caution.

## 5. Restricted profiles

Stop your kids from accessing certain areas of your Nexus

### 1 Find Users page

Open up the Settings app on your Nexus and navigate through the various options until you reach the Users tab around half way down.

### 2 Add or restrict?

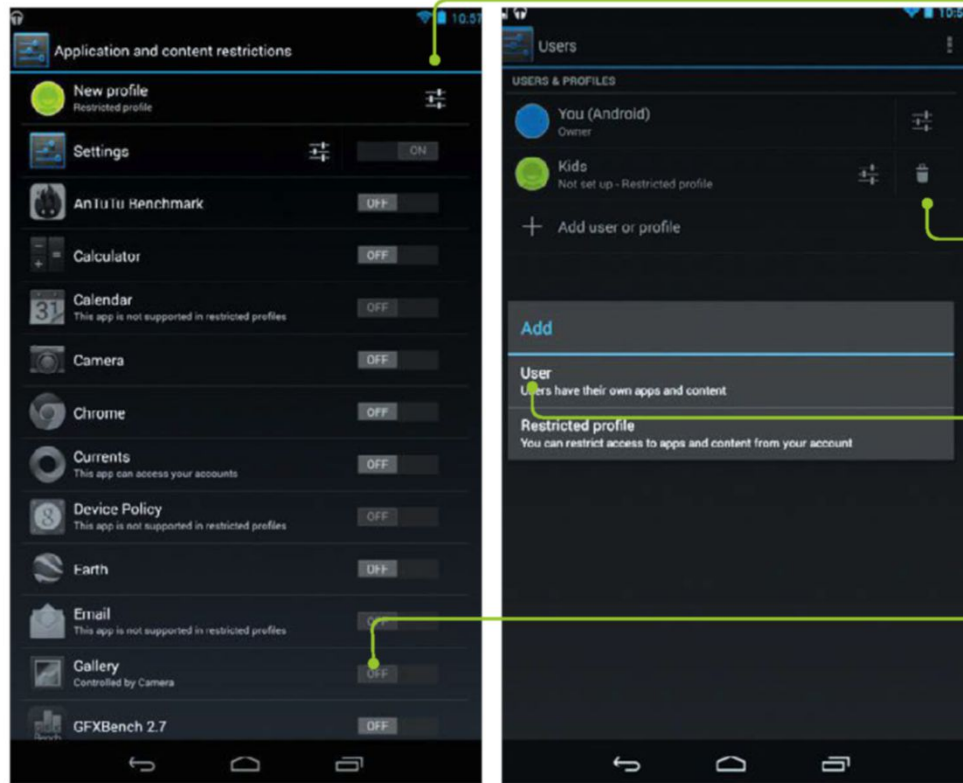
You'll now be able to see an overview of all the users set up on your tablet. Press the '+' icon and select Restricted profile from the drop-down menu.

### 3 Choose your apps

All your installed apps will now appear on your screen and you'll need to manually go through each one and toggle the ones you want to restrict access to.

### 4 In more detail

Certain apps will have extra details for you to look at. The Play Movies app, for example, lets you toggle certain options regarding transactions.



#### SETTINGS

If you want to alter the settings of the restricted profile, including adding a picture to your profile, press on the settings icon in the top-right

#### DELETE

If you no longer want the restricted profile on your tablet, go to the Users page and select the trash icon on the right side of the screen.

#### UNRESTRICTED

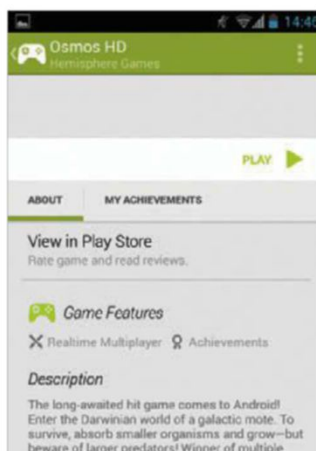
If you choose to create a normal user profile, you won't be able to modify it to a restricted profile without starting from scratch.

#### TAKE YOUR TIME

Make sure you have a decent amount of time free, because you may be surprised at just how many apps and settings you can restrict access to.

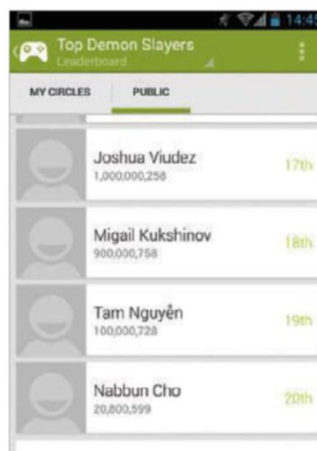
## 6. Google Play Games app

The best features of the new Play Games app



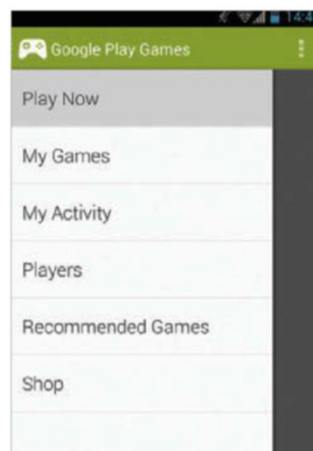
### Track achievements

Certain games come with a list of achievements for you to work through. Check your progress by opening up the game's dedicated page through the app store.



### Interactive leaderboards

As well as comparing your gaming stats with your Google+ Circles, you can also see a worldwide leaderboard for any of the games you own.



### Library management

Not all games use Google Play Games' new features, so by using the My Library feature, you can see which games are compatible with the app.

## More things you may have missed

### 7. Bluetooth Smart

Also known as Bluetooth Low Energy, Bluetooth Smart will enable phones to take advantage of the low power consumption for devices like the Pebble smartwatch.



### 8. OpenGL ES 3.0

As far as performance graphics go, OpenGL ES 3.0 is at the pinnacle for mobiles, enabling developers to create more complex 2D and 3D graphics. It gives an overall boost to the current graphical capabilities of your favourite mobile games.





# Increase your battery life

Squeeze even more juice out of your Android device's battery by following these helpful tips

It's happened to the best of us. You've missed the last train home and just as you're making the phone call to book a taxi your phone runs out of power, leaving you with a long, probably wet, walk home.

Well, this tutorial is going to try and help you make sure that things like that never happen again. There are a few simple tricks that let you elongate the battery life of any Android device, and a couple of apps you should get installed as soon as possible to make sure your smartphone has enough juice to last more than a day.

We'll walk you through a few simple tasks that will kill apps and services when you're not using them, we'll show you how to find which apps are sucking up the most power and we'll tell you how to make sure your apps aren't using up energy syncing when you don't need them to.

There's nothing challenging on show here, just some common sense tips to save your power. Of course, we're not going to work miracles, and some devices have markedly worse battery life than others, but these tips will make sure you're getting the best battery life from your device.

**faq**  
Ask your own question online at [littlegreenrobot.co.uk](http://littlegreenrobot.co.uk)  
What's the best way to keep a battery healthy?  
Don't let the battery become fully depleted, and try to keep it topped up regularly. Remember that the capacity of a battery will shorten over time, so consider buying a spare if you are a very heavy user.

## Top five battery-saving tips

### 1. Built-in help

Many phones and tablets have their own built-in power saving mode. Make sure you activate this.

### 2. Screen brightness

Your screen is the biggest drain on the battery. It's not really a surprise, considering how big some modern smartphones are. Knock down the brightness and you'll find that your battery lasts noticeably longer.

### 3. Charge when necessary

It's a good idea to run your battery to empty very occasionally to reset it. It's good to try and let the battery drop to around 40% before you charge it, there's no need to keep it at 100%.

### 4. Don't be afraid to change

If you find that one of your apps is using a lot of energy, why not look for an alternative. There are thousands of apps on the Play store and you should be able to find a replacement no matter what app you're using.

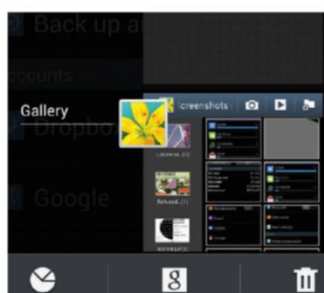
### 5. Bring a spare cable

If you're using your phone as a tether to connect your laptop to the internet on the go, take a connecting wire with you so you can charge your phone from your laptop.



"Make sure your smartphone has enough juice"

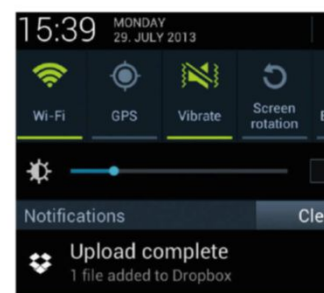
Save by being smart Get the most out of your phone's power



Close those apps  
» **App saver**  
Use your task manager to close apps that are running in the background. They might be quiet, but they're going to be using some of your precious power, so knock them out now and get yourself a few more minutes.



Don't use your screen  
» **Screen saver**  
If your battery is running out of juice, don't turn the screen on unless you really have to. No matter how low you've got the brightness settings set to, it takes a decent amount of power just to turn the screen on. Avoid the temptation.



Turn off your vibration  
» **Smooth using**  
If your phone vibrates every time it gets a message, turn it off when your battery is struggling to survive. You might miss a text, but your phone is going to last that bit longer as well, which is ultimately what we're after.

Works with » Android 2.2 and up

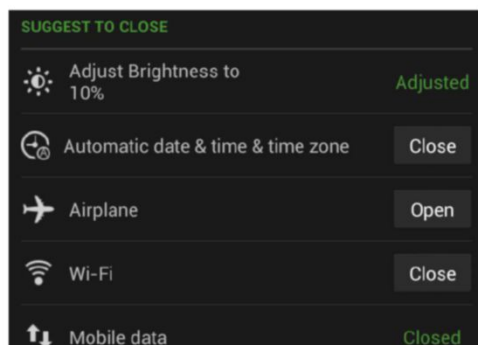
# Save power with GO Power Master

A handy app that lets you take control of your power usage quickly and easily

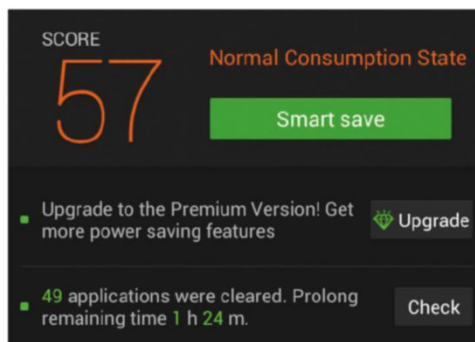
**G**O Power Master is a brilliant and simple-to-use battery optimisation app that gives you a score based on how well your phone is using its energy. You can tweak a lot of settings straight from the app, including the brightness of your screen and which connections you have running, as well as creating your own custom battery profiles to make your own specific battery saving routine. There's an awful lot of tweaks and changes you can make with GO Power Master, so in this tutorial we'll walk you through getting the app set up and running your first optimisation check.



- 1 Get the app set up**  
Once you've downloaded the app, run it. You'll notice a battery level indicator appears in your notifications bar and that the app gives you a score. If the score is green you're doing fine, if it's not, you'll need to do some work.



- 3 Go a little deeper**  
Underneath the new score you'll see a series of suggestions for making things smoother. Some you'll want to keep running, others are pretty smart, like turning off Wi-Fi when your screen is off. Tick boxes to see your score go up.



- 2 Run your first check**  
Tap on the button that says Optimize Now. This might take a few seconds, but it's running a check to see what apps and connections you have running, and to see the quality of your battery. Your score should go up a little afterwards.

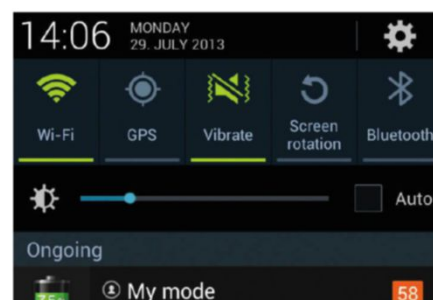


- 4 Still a problem?**  
If you're still having a problem you might find that there's something wrong with your battery itself. Head to the Tool tab and tap on Battery Info. This will give you a breakdown of your battery and tell you if it needs replacing.

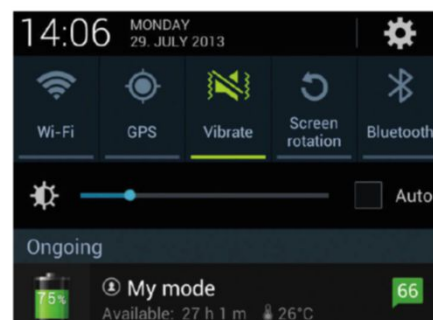


How to turn off the network connections on your phone to try and save as much battery as possible

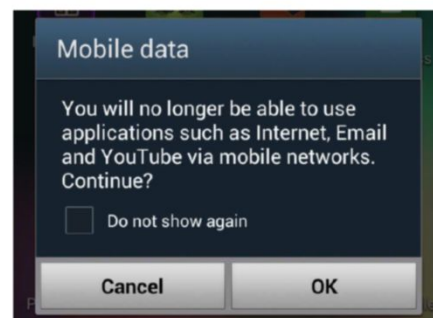
## Disable 3G or Wi-Fi quickly



- 1** This quick tip could mean the difference between a dead phone and one with enough juice to call someone in an emergency. Get to the quick settings; these are usually in your notifications bar.



- 2** To turn off Wi-Fi, just tap the Wi-Fi icon in the top-left. This will turn it off. You can turn it back on in the same way. Swipe across to the Mobile data button.



- 3** Tap the button and you'll see this pop-up box appear. Tap OK to agree and you'll have no internet connections using up your precious battery life until you turn them back on again.



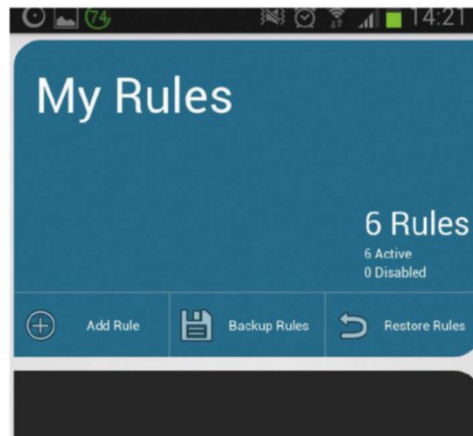
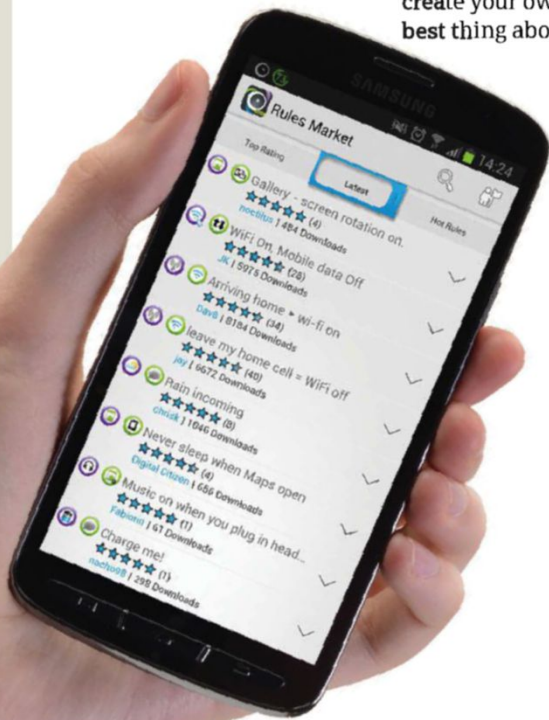
Works with » Android 2.2 and up

# Use AutomateIt to shut power draining features

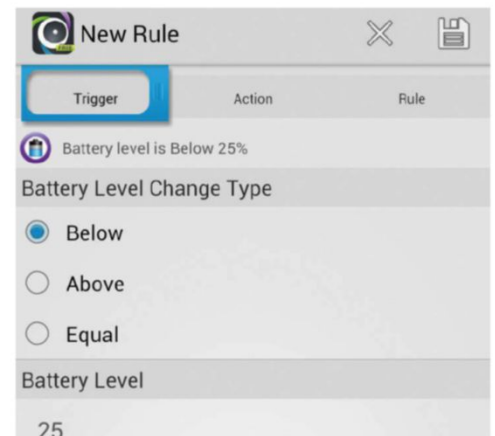
Turn off battery draining apps and features when you're not using them

**A**utomateIt is a hugely powerful app that lets you set a number of different rules that automatically kick in when their criteria are fulfilled. You can use this to your advantage in the quest for longer battery life. In this tutorial we'll walk you through setting up an easy battery-saving rule, and explain how you can apply the same lesson to create your own, far more powerful rules as well. The best thing about AutomateIt is once you've set up a

rule, you don't have to worry about it anymore. As long as the app is running then once the rule should come into play, it will. The simple UI means you're never going to be confused about what to do when you're setting rules, and there's even a market place that lets you download rules that other people have created. Your first step should be downloading the app from the Google Play store. Once that's done, it's time to lay down some rules for the first time.



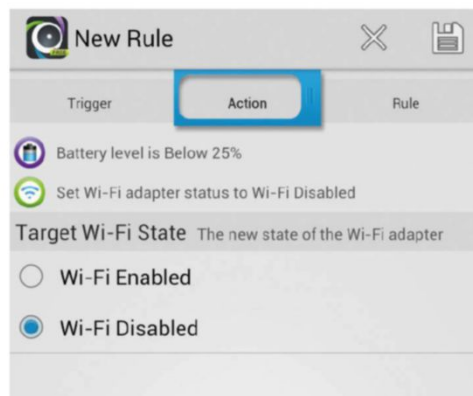
**1 Start setting rules**  
From the front page of the app you'll want to tap on the small Add Rule button. This will let you set up your own rule. First, though, check the ones that the app has set automatically and delete any you don't want.



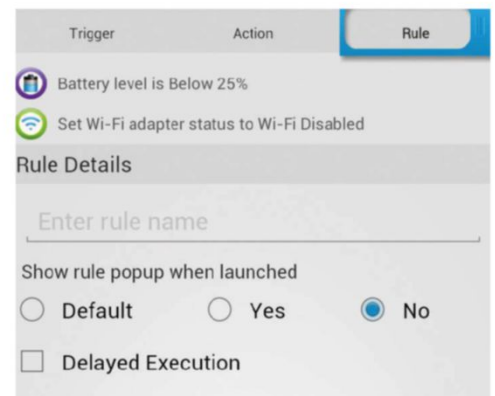
**2 Choose a trigger**  
For the purpose of this tutorial, pick a Battery Level Trigger. As you can see there are lots of other choices to pick from. You'll need the pro version to set composite and/or choices though. Next you'll have to set the level trigger.



**3 Set the charge level**  
Set the trigger for around 25%. This is when the battery is getting low enough to start to worry. When you're happy with your setting, click on the Next button on the bottom-right of the screen to move on.



**4 Set your action**  
Now you get to set the action that occurs when your phone battery dips below 25%. We've gone for switching off the Wi-Fi. Again, you'll need to buy the pro version of the app if you want to use really useful multiple actions.



**5 Save your rule**  
Once you're done, save your rule and choose whether you want a pop up to let you know when it activates. Creating new rules is as simple as that. Now it's up to you to play around and find clever ways to save energy.



Works with » All versions of Android

# Background syncing

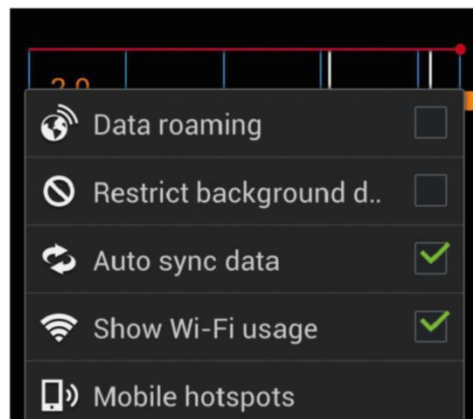
Stop your apps from downloading data and using up battery life in the background

Sometimes apps running in the background will try and download data. That's fine when you've got a healthy full battery, but if you're trying to save some energy it can be pretty annoying. If you don't want to be quite so drastic as turning off your connections entirely, you can instead stop apps from trying. This is a pretty simple operation, just

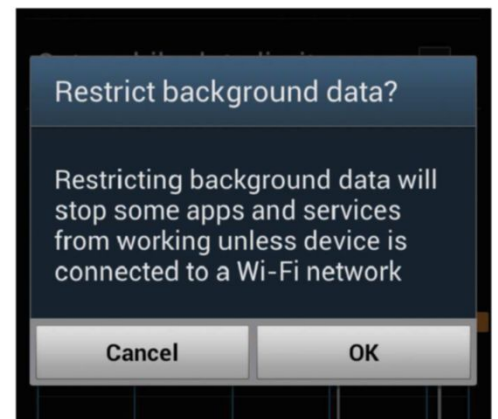
bear in mind that some apps don't really work correctly if you've turned off background data, so you won't be getting the same Android experience you'd normally be getting. However, it can save you a decent chunk of battery life, so it's definitely worth considering if you're trying to eke every second you can out of a single charge.



- 1 Open the menu**  
Head into the Settings menu and navigate to Data usage. This shows you how much data you've been using and which apps are using it. Once in there you'll want to bring up the menu.



- 2 Find the check box**  
Find the Background data checkbox. There's also one that says Auto sync data. You're going to want to turn both of these options off. Do that by tapping on them once.

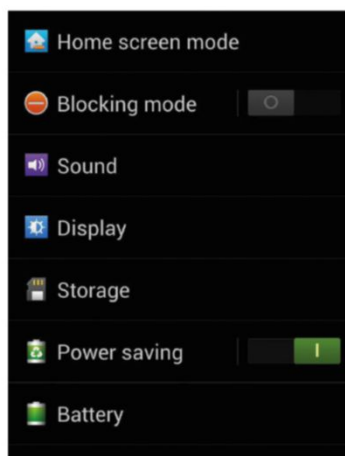


- 3 Double check**  
You'll be greeted by some pop-ups. Tap to agree and your phone will no longer use data in the background. It's not a perfect solution, but it will save you some battery life if you're running low.

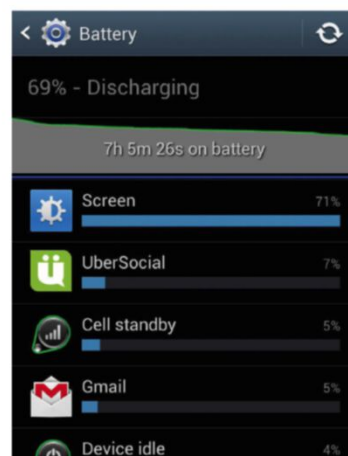


## Discover battery draining apps

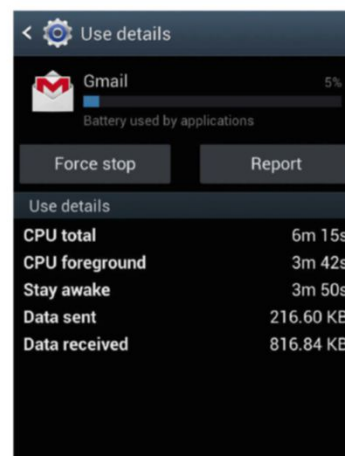
Find out which apps are using your battery even when you're not using them



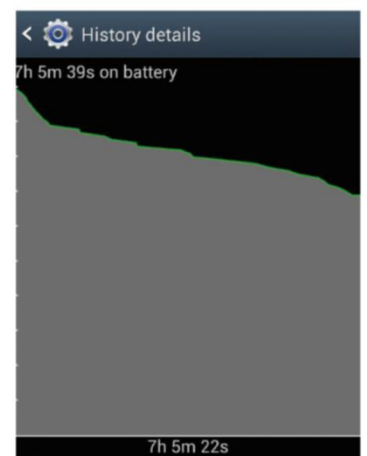
- 1** Once again you'll want to open the Settings menu. This time scroll down to the Battery option and tap on that. This will take you to a screen showing you a graph of your battery usage since the last time you charged your device.



- 2** The screen is going to be at the top of the list, because that uses most of your battery levels. Look below it and you'll find the apps that are using the most of your power though. Tap on one of them for a closer look.



- 3** This detailed breakdown shows how much power the app has been using and how. If you want you can now force close the app from here, meaning it won't be using any more power until the next time you open it up again.



- 4** Go back to the main page and tap on the graph itself. You'll see a more precise breakdown of the energy usage of your device. Thanks to our tips, it should look healthier than it did at the start of the masterclass.



Works with >> All versions of Android

# Master the new desktop version of the Play store

## Discover the new and revamped features

If you've used your phone to download an app within the past couple of weeks, chances are you've had the chance to update the Play store app. But it isn't just the app that has undergone a makeover, and by now venturing onto the desktop version of the Play store, you'll find a complete redesign and a selection of new features to discover.

The new update is firmly focused on making it even easier to find and discover the content that is right for you across the various storefronts, and although as you browse the new design you may think the changes are just purely cosmetic, dig a little deeper and you'll find a much more thorough, quicker and most importantly, user friendly Play store waiting to be explored.

In this tutorial we will guide you through the new layout of the Play store and highlight the numerous changes and additions you'll want to check out as soon as possible.

### Wishlist

At the top of the app's page is a wishlist button. Pressing this will add the app to your current wishlist, where you'll be able to go on to see all the apps, movies, music and books you want to download at a later date

### Compatibility

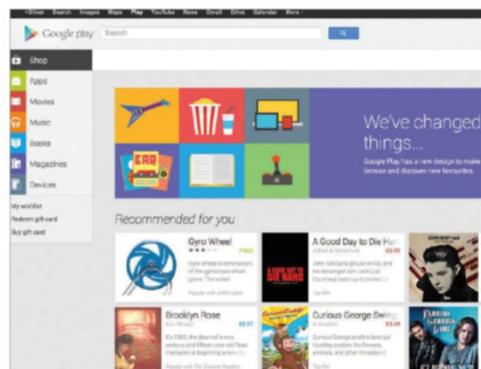
Underneath the main app details is a small tab letting you know the compatibility of the app on your registered devices. By pressing on the small information icon, you can then see a more detailed view of the app's compatibility

### Quick links

On the left-hand side of the page you'll find a range of quick links to some of the pages you might want to access. The My Apps tab will take you directly to all the apps you've previously downloaded and the Shop tab will take you back to the storefront

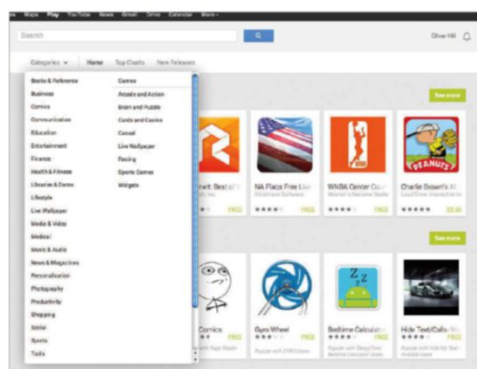
### Screenshots

Each screenshot displayed underneath the app's details will now show full size, instead of the smaller resolution found in the previous version of the Play store. Certain screenshots on older apps may not support this new feature, however



## 1 The new main menu

The homepage of the Play store now utilises a tiled look, with the various sections of the storefront located on the left-hand side. A great new feature is the Recommended section, which displays items that are relevant to you, based on your download history.



## 2 Discover new content

Searching for an app is a lot easier this time around, with all the categories available from a drop-down menu near the top of the page. Alongside that are the other various app search categories which again all hold drop-down menus for you to explore.



## 3 Revamped app pages

The layout for each app's dedicated page has undergone a bit of a design overhaul. Screenshots can now be previewed in full-screen mode and there's a bigger wishlist button where you can congregate all of the media you're interested in downloading.

### 1 Amazon Appstore

Amazon's own app store includes 60,000 best apps available for Android users.

### 2 GetJar

In terms of multiple platform support, GetJar is the best and most thorough app store out there.

### 3 SlideME

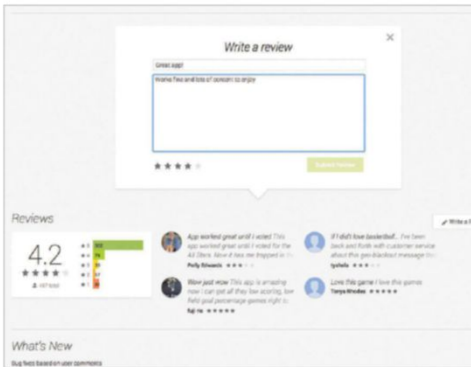
SlideME includes a great selection of apps that can't be found on the Google Play store.

### 4 Nexva

Each app listed on Nexva includes a QR code that you scan to start the download of the app.

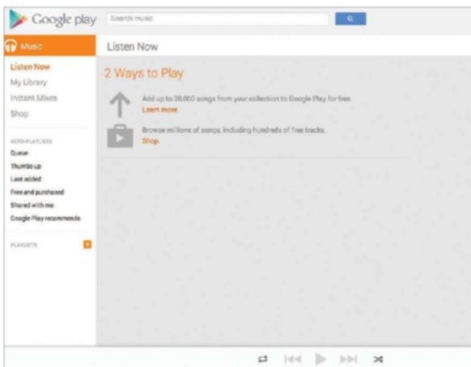
### 5 Handango

What makes Handango different is that you can search for apps suitable only for your device.



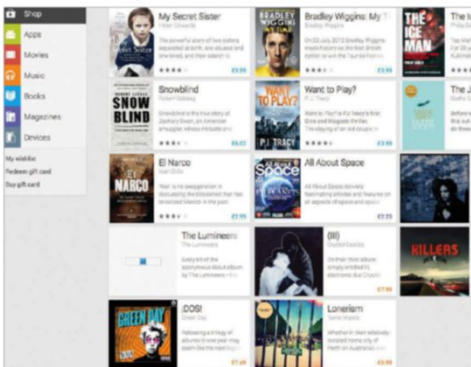
## 4 Reviews and ratings

Scrolling down on an app's page will show a more condensed review section, where you can see only the most recent reviews. Adding your own review and star rating is done in the same way as before, but you will be required to link the review to your G+ account if you haven't previously.



## 6 Manage your music

The biggest change in the update is the way you can manage the stored music linked to your account. Playlists are now easier to create and offer more flexibility on how you want to listen to them, and you can access your All Access account through the Play Music tab as well.



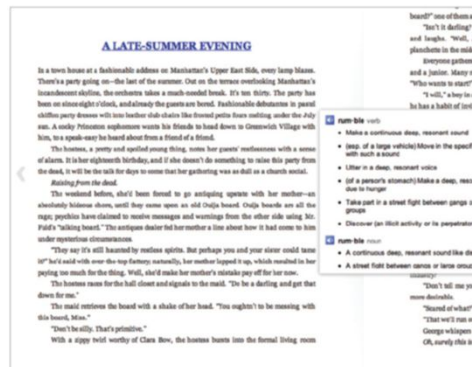
## 8 Put together a wishlist

Putting together a wishlist is a great way of storing the media files you're interested in downloading at a later date. The wishlist menu is available from the homepage and within it you'll find all the stored data of each file and a quick link to each download page.



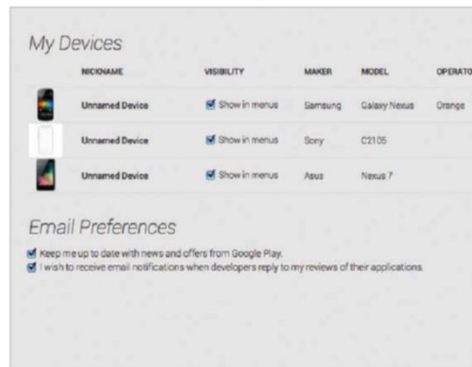
## 5 Purchasing media

Music files now include longer previews for you to enjoy before purchasing them and each album can be dissected to find individual songs of interest. The share function still remains so you can share details of a song with a friend via Gmail or in the cloud with Google Drive.



## 7 Get more from your books

For those who like to read on their desktops, the Play Books desktop reader includes a variety of customisations you can use to enhance your reading experience. One of the coolest additions is being able to hear the pronunciation of any word you don't understand.



## 9 Manage your devices

The new update also includes a more thorough device management screen. Available from the homepage, this menu lets you add and remove the devices linked with your Google account, or add nicknames to any stored devices so you can differentiate it from the rest.



Ask your own question online at [littlegreenrobot.co.uk](http://littlegreenrobot.co.uk)

## How do I redeem a Google Play gift card?

Located on the left-hand side of the homepage are all the options available to those looking to redeem a gift card, whatever its value. You'll also find a direct link to retailers from which you can purchase Google Play gift cards from.

## I keep receiving emails from Google about recommendations and offers. Is there a way I can disable this for now?

There are two ways to solve this issue. First and foremost venture on to the Google Play Settings page and make sure you untick both of the options available in the Email Preferences. If you still receive messages after doing this, you should find an unsubscribe link at the bottom of one of the emails you receive from them.

## Need help?

Got a problem with your Android phone or tablet? Get in touch with us...



**facebook**  
/littlegreenrobot  
Get help from our Facebook community



**twitter**  
@lgrbot  
Follow us to send your questions and thoughts



**email**  
[qa@littlegreenrobot.co.uk](mailto:qa@littlegreenrobot.co.uk)  
Send your questions for our team of experts to tackle



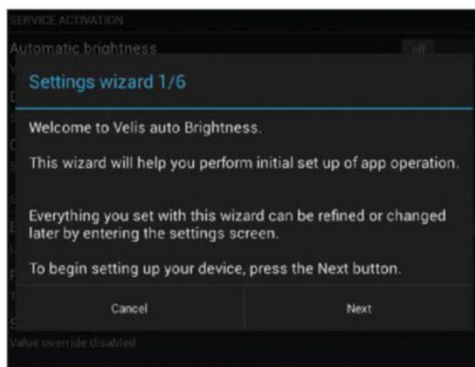
Works with » Android 2.1 and up

# Customise auto brightness settings

Employ the Velis Auto Brightness app to take precise control of your device's screen levels

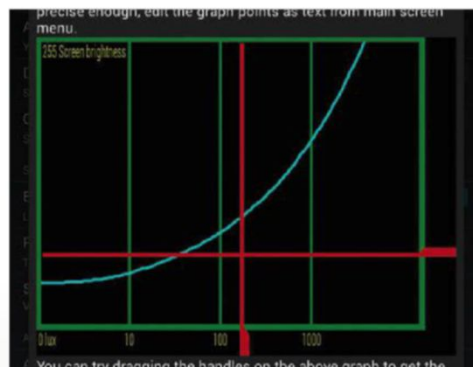
The brightness of a device's screen determines several factors including readability and battery life. Typically, devices come with a default auto-brightness option that goes some way to ensuring that the user is getting the screen experience they want. However, auto-brightness rarely possesses any great control. The Velis Auto Brightness app looks to add that control. The app boasts a collection of features to help achieve ideal brightness while striking a balance with battery life.

Velis includes a six-step configuration wizard for quick and easy setup. This acts as a base point for the app, but there are a host of options to help modify and improve. The main screen shows a light graph, which users can adjust to create a profile. Repeat for as many profiles as needed, all of which can be called into action with a single tap. Alternatively, scour the settings to fine-tune and add premium features.



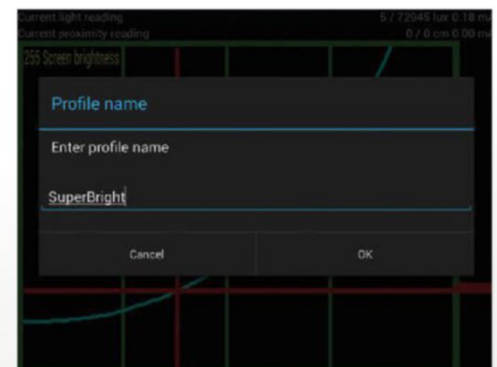
## 1 Settings wizard

On first use the Velis app will run the Settings wizard which is a straightforward six-step process. This can be cancelled and run at a later date if you wish. Tap the menu icon and select Settings>Run settings wizard to start the wizard. Tap Next to continue.



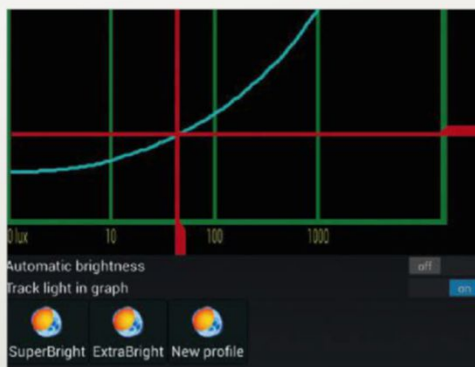
## 2 Set brightness

Step two in the wizard sets the brightness. Select an option to test and tap Next to continue. Follow the setup steps to set light sensitivity and additional brightness before reaching the final step which offers more instructions on how to use the app in the long run.



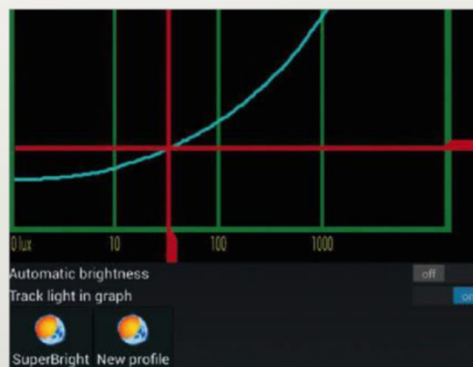
## 3 Adjust brightness

The Velis home screen presents a graph with a couple of red handles that can be adjusted to get a preferred brightness. Tap and hold a handle and drag to adjust the brightness. When you're happy tap New profile>Save profile, name and press OK.



## 4 Profiles

The previous step demonstrates how to create a new brightness profile. Repeat the process to create additional profiles, which appear under the main graph. Simply tap to switch to a new profile. To remove a profile, tap, hold and select Delete profile.



## 5 Automatic profiles

By default, Automatic brightness is switched off. Tap the slider to switch on. The graph will adjust itself to suit the current conditions. Save the profile for the current location. Repeat for different locations. Alternatively, leave on to automatically adjust brightness.



## 6 Settings

Tap the menu icon (top-right) and select Settings. From here users can select an application language, switch Auto Brightness off or on, adjust additional brightness when charging, modify the Brightness change sensitivity, select a Brightness preset and set the Superdim threshold.



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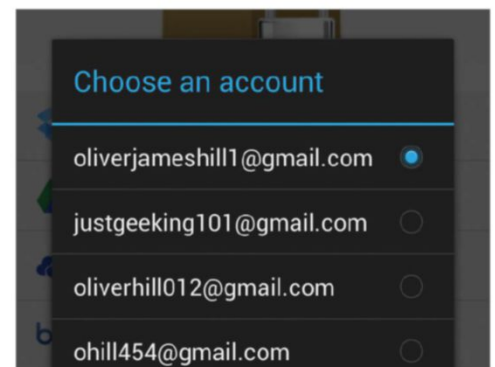
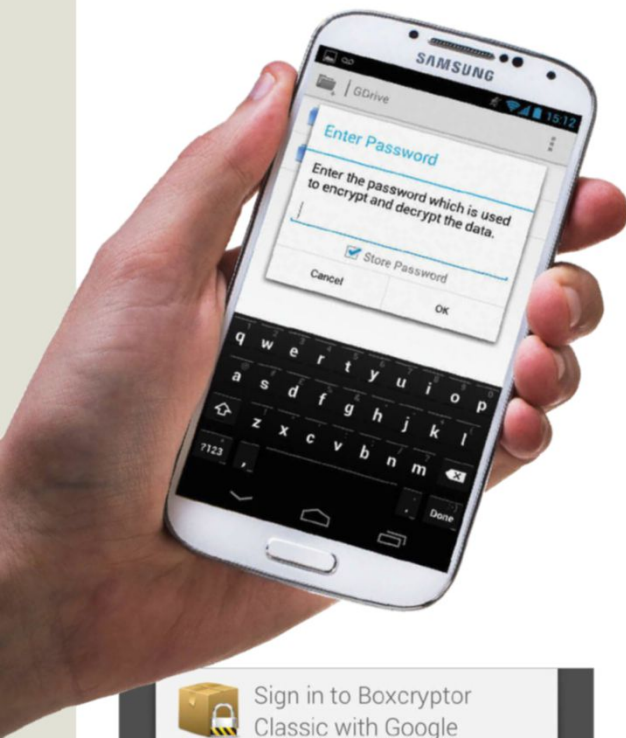
# Secure and protect your cloud storage files

Get added peace of mind by encrypting your precious cloud files using Boxcryptor

**A**ndroid is an operating system which frequently comes under fire for its range of security problems that often plague users.

Although these problems vary in severity, the rise of problems has helped create a new wave of apps for protecting each and every file stored on your smartphone or tablet. Uploading to the cloud is a generally safe solution for storing your files, but by encrypting them in the cloud, you can completely stop people from accessing them.

Although there are a range of cloud encryption apps on the market, many are difficult to set up and some can have a detrimental effect on battery performance. To best complete this tutorial, you'll want to download the Boxcryptor Classic app, which is available for free from the Google Play store. This app is compatible with a wide range of cloud storage services and adds a quick way of encrypting all the files stored on your device and more importantly, the ones stored in the cloud.

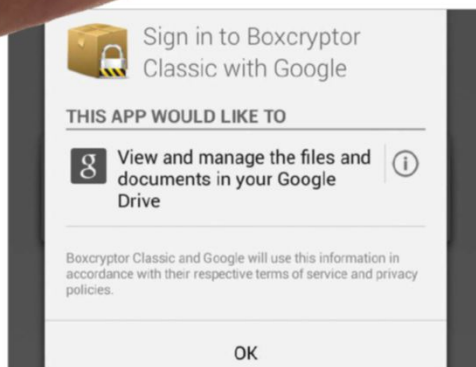


## 1 Boxcryptor

You'll first need to download the Boxcryptor Classic app from the Google Play store and install it on your Android device. Once installed, open up the app and wait for it to take you automatically to the app selection screen as seen in the corresponding picture above.

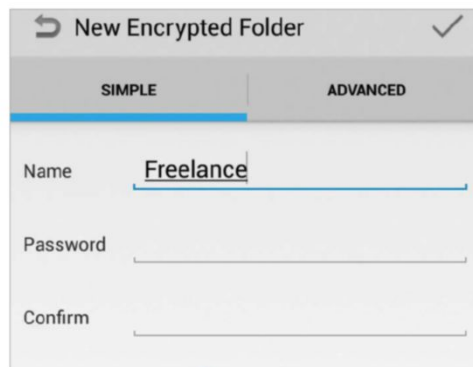
## 2 Connect an account

From the list provided, choose one of the cloud storage accounts you want to start encrypting. After selecting the storage location, you'll need to then select the Google account you use to log in to that specific cloud storage server. It's that simple.



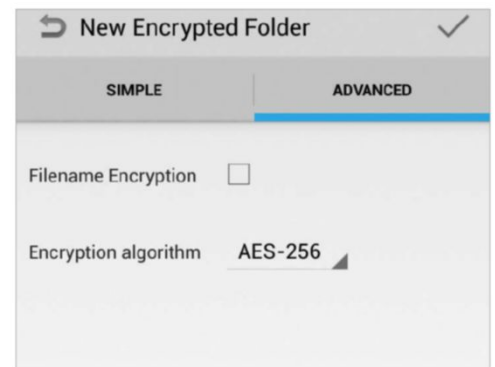
## 3 Sign in

Depending on which account you link with, and the amount of files stored within, Boxcryptor can take a while to establish a connection between the two. You'll be required to give Boxcryptor access to your files, so make sure you confirm the option when prompted.



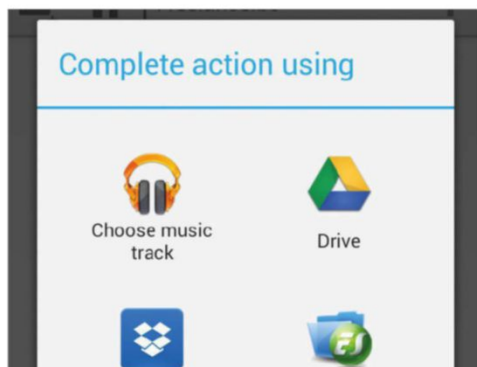
## 4 Encrypted folder

After the connection has been established, you'll be prompted to create a new encrypted folder. This will then be used as the hub for storing all your current and new files you wish to add to your account. Follow the instructions before confirming them using the tick.



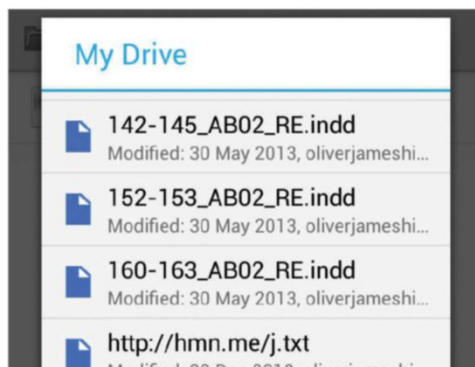
## 5 Advanced settings

When creating your encrypted folder, you may want to check out the Advanced section which contains a few extra options for you to test out. Through this menu you can encrypt certain file names, and apply a more complex password to the folder for added security.



## 6 Encrypt current files

After creating the folder, press on the Upload button. An Upload menu will appear and you'll want to select the cloud storage icon that you're currently logged in to. Although the likes of Dropbox and Drive appear at the top of the menu, you will find the likes of Egnyte and SugarSync too.



## 7 Choose the files

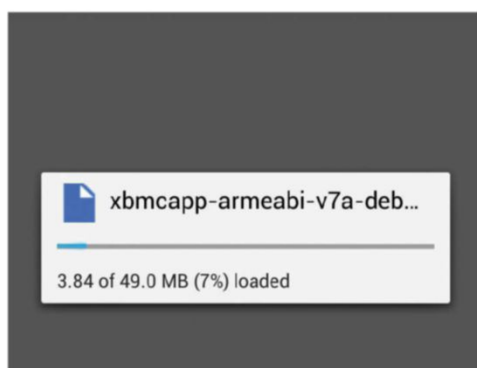
A new menu will now appear in front of you showing you all the compatible files you can transfer across to your new encrypted folder. You'll find that the files won't be in any specific order and instead you'll need to scroll through the list until you find the correct one.

## faq

Ask your own question online at [littlegreenrobot.co.uk](http://littlegreenrobot.co.uk)

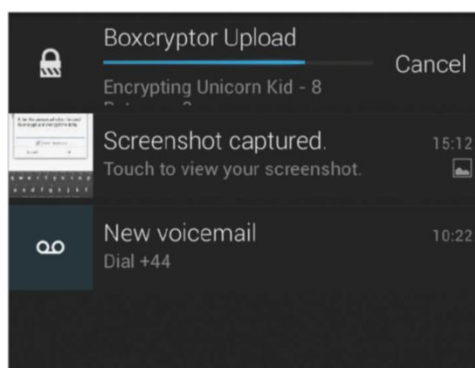
### Is it safe to store files in the cloud?

Absolutely. Most cloud storage accounts come with some great security features users can implement to their various accounts, but by securing individual files, you can make sure your files stay ultra safe while in the cloud. It's about that added peace of mind.



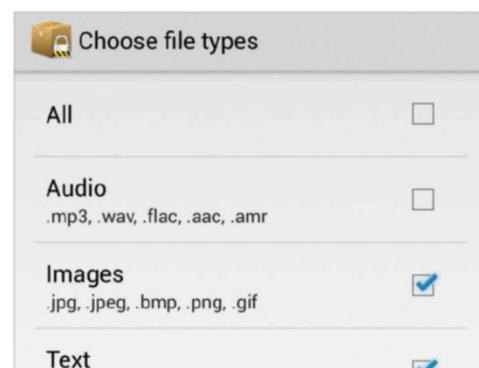
## 8 Transfer across

The file will now begin transferring over to your encrypted folder, but it shouldn't take too long. You'll see its progress charted, and after the transfer is complete, you can then select the file and add its own individual password if it's a file you really want to protect from prying eyes.



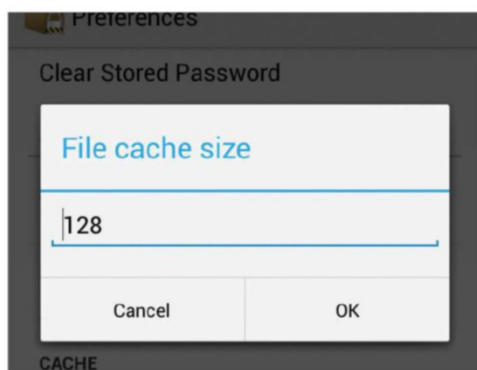
## 9 Uploading other files

Select the upload icon from Boxcryptor's main menu and choose a picture or document stored on your Android device. The file will be uploaded to the encrypted folder, and by checking out the notification menu, you can see the progress of the upload.



## 10 Limit file types

As you encrypt more and more files, you may notice some slowdown in your upload speeds. To combat this, you'll want to limit the file types that can be encrypted. Open up the Settings menu within the app and select the Choose file types option to continue.



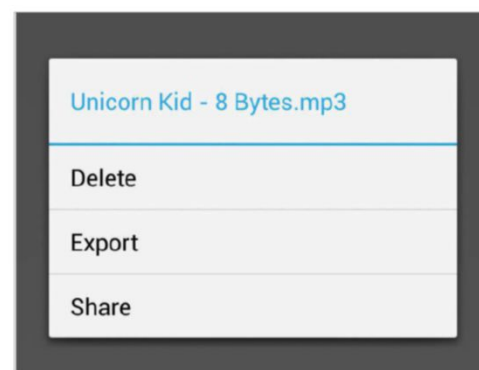
## 11 Select cache size

That's not all that can be done though. You can also limit the file and cache size to help speed up the transfer and upload rates when encrypting your files. Once again, open up the app's Settings menu and choose the File cache size option under the Preferences sub-menu.



## 12 Add individual passwords

After transferring all your files across to your encrypted folder, you do have the added option of applying individual passwords to each file to add a second level of encryption. You can also go to the Settings menu and add a universal password for all your files.



## 13 Sharing encrypted files

If you want to share your files with a contact, simply long-press on the file in question and choose the Share option. After sending it to the contact, they'll be required to enter the password you set for it from the previous step before they can gain access.



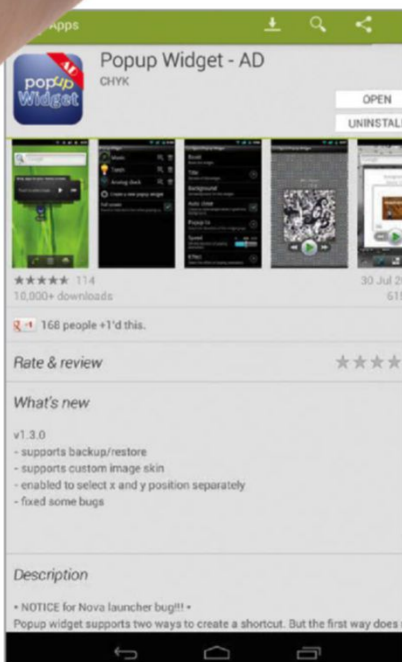
Works with >> Android 2.2 and up

# Create and add pop-up widgets

Save on home screen space with custom-sized pop-ups

**W**idgets are part and parcel of the whole Android experience. The OS itself provides an impressive collection that users can add to a home screen in a few simple steps. However, widgets typically take up much more space on the home screen than an app icon does. There is an alternative though.

Popup Widget is an app that goes a long way to saving some serious screen real estate. Users have the option to create a pop-up version of any installed widget. The step-by-step process enables users to select a widget, choose options, resize and add to the home screen as an icon ready to pop up when called into action.

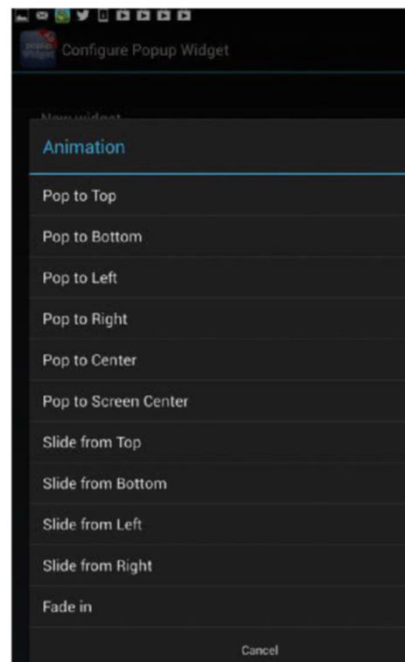


## 1. Pick a widget

Head to the Google Play store and search for Popup Widget. There are two versions available. There is the free version with ads, or the paid version without ads. We have used the free version for this tutorial. Once installed, tap the home screen icon to open the app. Now tap Create a new popup widget to view the available widgets on the device.

## 2. Name the widget

Now select a widget of choice to go to the Configure Popup Widget screen. The first step is to give the widget a name. Tap Title and add the desired name and tap OK to close. To edit the name, simply tap Title again and modify.



## 3. Animation options

By default, a new widget is assigned the Pop to Top animation effect. This means that when the new widget is selected it appears at the top of the screen. Select an alternative option to change the position of the pop-up. Select a slide to fade option to change the animation effect as well.

## 4. Speed and effect

The speed of the pop-up animation can be adjusted by using the associated slider. However, to get a more accurate timing, tap Speed and enter the desired option. The pop-up animation is set to Decelerate by default. Tap Effect and select an alternative to add interest.

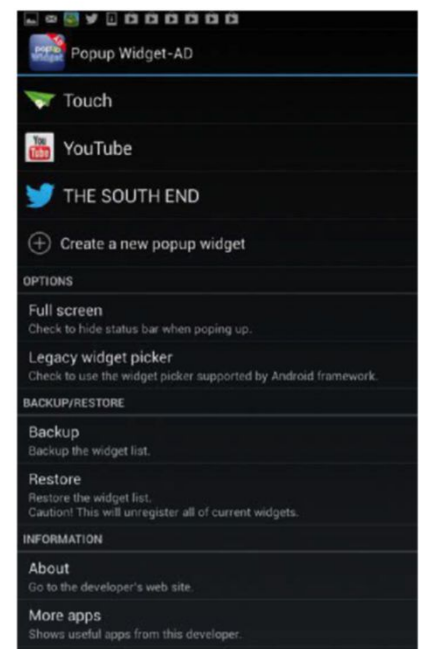
**[FIG 3]** The default pop-up animation places the pop-up at the top of the screen. To swap to an alternative option, simply reconfigure a pop-up with a new animation

“Tap, hold and drag to modify the width and height”

## 5. Finishing touches

The pop-up widget will make an appearance in the Configure window. Each side of the widget will have a resize handle. Tap, hold and drag to modify the width and height. When finished, there is the option to customise the pop-up position of the widget. Tap Customize position, followed by Input position and values. Tap the back arrow to go to the Configure screen. Now tap the new widget to create a shortcut.

**[FIG 5]** Once a pop-up widget has been created it will show up in the Configure window. To create a shortcut for the home screen, simply tap the widget of choice



**faq**  
Ask your own question online at [littlegreenrobot.co.uk](http://littlegreenrobot.co.uk)  
Can pop-up widgets be edited and/or deleted?  
Newly created widgets sit in a list in the initial screen with a spanner and trash icon next to it. Tap the bin icon to delete, or tap the spanner icon to edit.

Works with » Android 2.2 and up

# Add extra security to your apps

Use App Lock to apply a password and gain a new level of security

A smartphone or tablet is privy to a lot of personal information. Owners of a device will set it up exactly as they want and typically, or even inadvertently, store a lot of information. Leaving a device unprotected means that anyone can get access to, modify and delete intentionally or even unintentionally. The best way to protect a device is to add a simple level of security such as a password. App Lock follows this same principle but drills down to another level.

On a base level, App Lock enables users to select which app or service to lock down. Locking down a third-party app or a service means that users will need to enter the predetermined password before being able to use. Beyond the basics, users can add more advanced protection, update the previously defined security question and substitute the password for a pattern lock.

## Take control of app security

The App Lock app is all about taking control of access to apps. The Settings and Security Settings offer options and different levels of protection...



### 1 Create a password

On first use of the App Lock app the user is required to create a password. This is a numerical password. Add the password and progress to the next screen. Re-enter the password and finally add a security question and save.



### 2 Security Settings

The details of the security question created in the first step are stored in Security Settings. Tap the menu icon in the top-right and select Security Settings. Here the details can be changed and an email address added.



### 3 Take control

The Settings, accessed via the menu, has a number of options to fine-tune App Lock. Tap Allow short exit to go back to the app in a specified time limit. There is also the option to add advanced protection.

## Home screen

The App Lock home screen displays all your currently installed apps. These are split into two categories: Advanced and General. By default, all the listed apps and options are unlocked. Check the Advanced options for their specific purpose

## More options

Sliding the home screen to the right, or tapping the menu icon, reveals a selection of options. Tap an option to reveal further choices. Certain features, eg Time Lock, Random Keyboard and Hide App Lock are all premium features

## Slide to lock

To lock individual apps, slide the app's switch to the right. A message will appear on screen stating what app has been locked. To unlock an app, slide back. Again, a message will appear indicating that the app is now unlocked

## Lock all

There is an option to lock all apps. The padlock icon at the bottom of the screen switches between locking and unlocking all apps. The double arrow refresh icon refreshes the list. This moves all the locked apps to the top of the list

## Search for apps

A device will boast a host of apps, typically more than that will fit on a single screen. Browse by sliding up and down. The alternative option to find an app quickly is to use the search facility. Tap to open and add a keyword to find the app

"Beyond the basics, users can add more advanced protection"



Works with  Android 2.3.3 and up

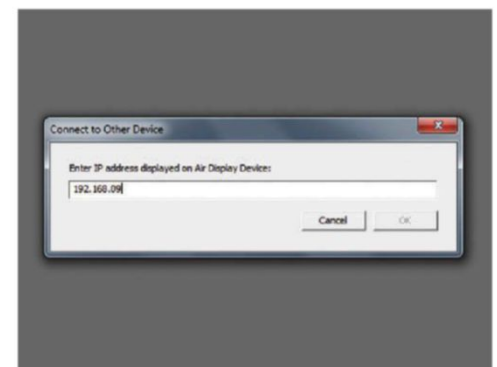
# Use Android as a second display for your PC

Extend your desktop onto your phone or tablet with AirDisplay

**W**e all dream about being able to work from home some days and with a combination of your Android smartphone, alongside an ingenious app, it's easier than ever to take your work with you, wherever you are. Through the Air Display app, users can extend their computer's display directly onto their smartphone, while not losing out on any of the functionality that your desktop computer usually has over a smartphone. It also acts as a good way to turn your phone into a

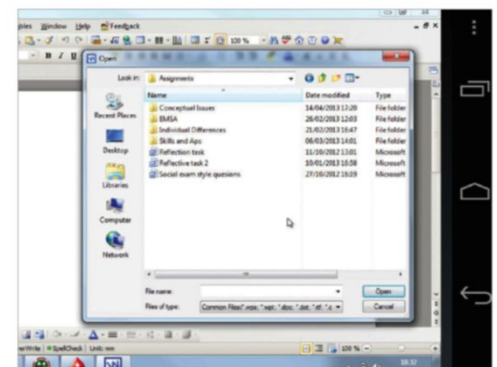
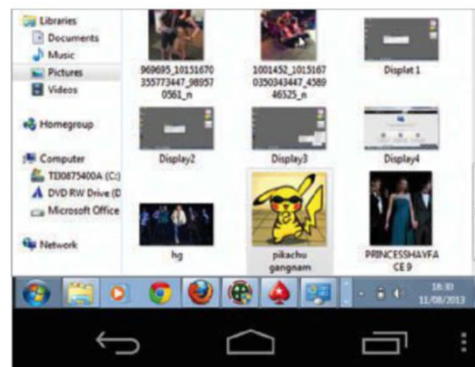
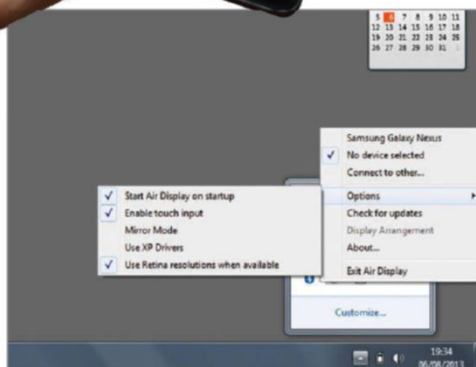
personal computer, and when paired with both a Bluetooth keyboard and mouse, users will soon be able to rely more on their smartphone for their everyday computer usage.

In this tutorial we'll guide you through the process of both downloading and connecting your smartphone to your desktop wirelessly through Air Display. We'll then look at some of the best uses for Air Display and the great ways it can improve the functionality of your smartphone while connected.



**1 Download the app**  
Download both the Air Display app from the Google Play store and also the necessary software from the Air Display website. The app supports both PC and Mac, so make sure you download the correct software or you'll soon run into compatibility issues.

**2 Connect devices**  
A new icon should now appear on your desktop toolbar which will act as the gateway for the Air Display software. Press on the icon to bring up a separate menu, while also opening the app on your phone, and you should see your phone listed under connected devices.



**3 Manage settings**  
The two devices will connect and your phone's screen will automatically transform into a replica of your computer's display. Once connected, make sure you go back to your desktop and edit the various settings in Air Display to make navigating on your phone easier.

**4 Start browsing**  
You'll want to first get used to the idea of having your desktop on your phone, so make sure to browse your device to get acquainted to the layout. Although most of your installed programs will work without issue, some may struggle with the altered resolution, so keep this in mind.

**5 Manage documents**  
One of the main reasons you'll want to extend your desktop to your phone is to manage and work on documents. You can easily load up documents, presentations and spreadsheets and edit them on your phone with all the changes you make saving on your desktop computer.

# 5 quick tips

## More apps to help you extend your desktop functionality

### 1 iDisplay

This extension includes zoom and pan features, which Air Display doesn't, to make text easier to read.

### 2 Splashtop Remote

As well as being a great way to stream media, Splashtop also works over any 3G/4G connection.

### 3 PocketCloud Remote

Connect to your desktop anywhere in the world by simply entering your IP address and basic details.

### 4 Remote Desktop Client

Although fairly basic, RDC does add a range of computer shortcuts to the bottom of your phone's display.

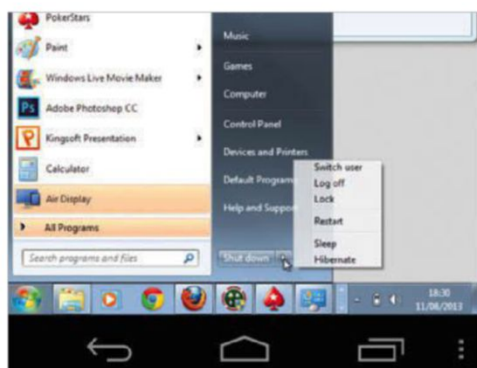
### 5 2X Client RDP

As well as not draining too much of your battery, 2X Client RDP is also compatible with Windows 8.



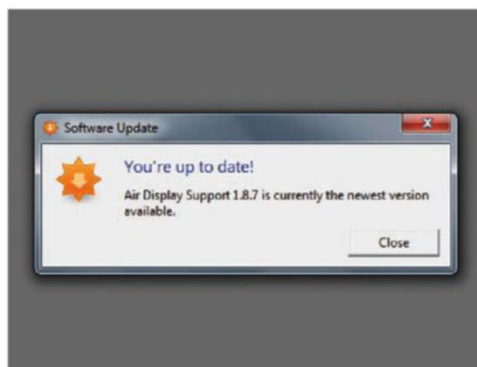
## 6 Start to stream

Another key reason to try out the Air Display software is that it enables you to watch content that can sometimes be restricted on your mobile, such as Flash content. It works with the likes of Play Music and plays Java and Flash-based games without any issues.



## 7 Control your desktop

Although it primarily works as an extension to your desktop, Air Display can also be used to remotely turn your laptop off, or put it to sleep. By doing this on your phone the laptop will power off and your phone will then revert back to its standard smartphone interface.



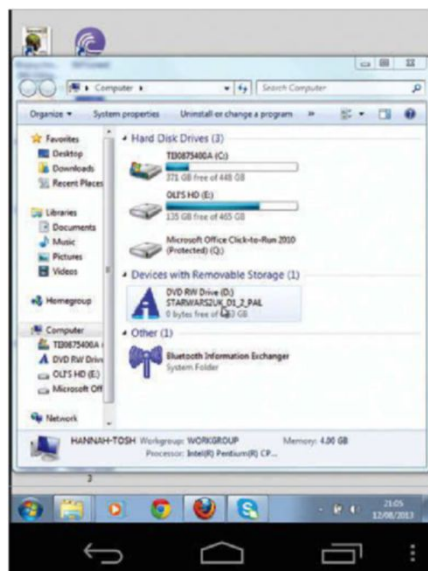
## 8 Staying up to date

One important thing to note is that some older versions of Android may be incompatible with certain firmware updates of the Air Display software. There are also compatibility issues with some handsets, so make sure to check out the Air Display website for details before purchasing.



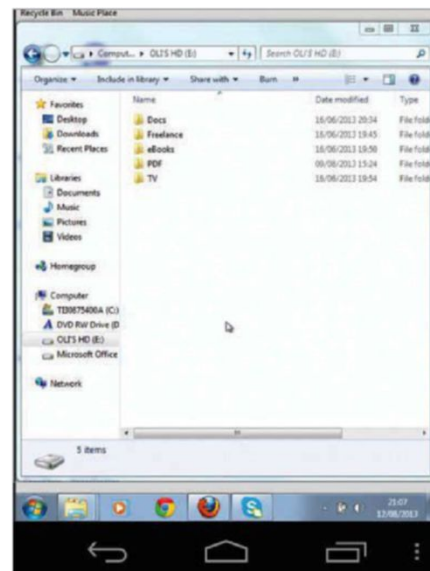
# Manage HDD drives with Air Display

Four ways to ensure you stay in control of your external HDD



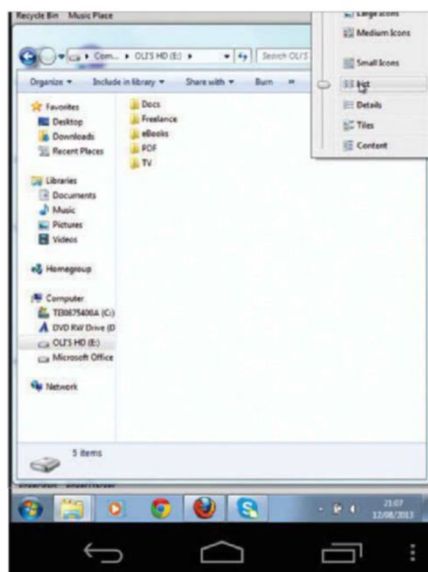
## 1 Find external HDD

Connect an external HDD to your computer via USB and you should soon find the E:// drive lists the HDD. It may take a little longer to appear on your phone's screen, but open it up once it has been loaded.



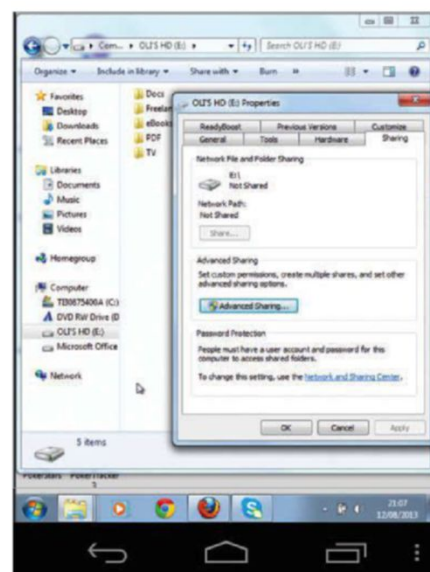
## 2 Manage files

Depending on the file types you store on your HDD, you shouldn't have any issues with opening, editing or simply moving them around. Use a Bluetooth mouse to make moving files a breeze.



## 3 Resizing

The lack of a zoom function with Air Display can be a bit of an issue if you have trouble reading the file names stored on the HDD. Use the sizing menu located at the top of the HDD window to resize.



## 4 Formatting

As well as managing files, Air Display also enables you to format any external HDDs currently connected. You'll need to head to the Properties section on your HDD and format it from there.



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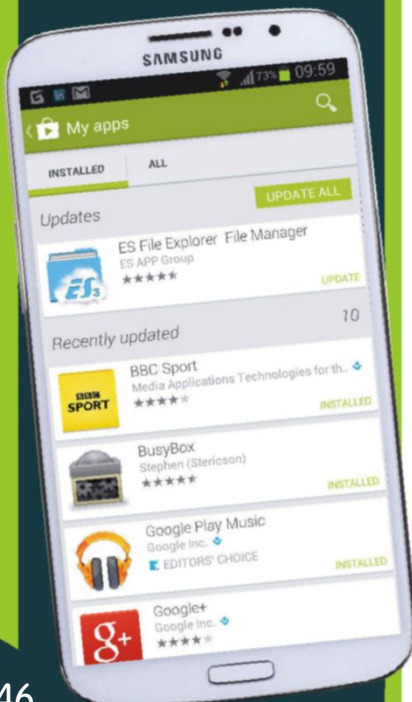
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@lgrobot  
Follow us on Twitter to send your thoughts and questions



## Did you know?

You can stop apps from automatically updating by going to Google Play>Settings and then unticking the Auto-update apps option. Even with updating only allowed on Wi-Fi, there have been tales of apps updating over cellular when roaming, which can become very expensive over time.



# Should I update my tablet?

"I am happy with my Archos 5 IT functionality, but would it be better if I upgrade the firmware? Also, I am due an upgrade on my phone and am undecided between the Note 2 and the S4. Any advice?" *Alan*

**A** The Archos is a competent tablet, if not the most refined, and so any updates that are available should be installed because they are likely to include performance improvements and extras that may help you. This advice is true for all mobile devices and we would always advise to install the latest software as soon as you can. In the case of the Archos, the process is not too difficult and can be found at [bit.ly/147sn4M](#). You will need to attach it to a PC to complete the upgrade. The second question is unfortunately almost impossible for us to answer because choosing a phone has to be a personal decision. We would suggest trying both out in a shop for a few minutes and considering how practical the size is for you. Think about your daily activities and especially if a device as large as the Note 2 will become inconvenient. Also, consider how important the stylus is to you. The S4 and Note 2 are equally impressive and each has its advantages. The S4 is smaller, has a brilliant camera and to many is more desirable, whereas the Note 2 is a powerhouse phone with an exceptional battery. Choose the one that works best for you.



It's always a good idea to keep older devices as up to date as possible



Updating to the latest firmware almost always offers benefits

## 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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Facebook community



email

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Send your questions for our team of  
experts to tackle

## I need to translate without a connection!

"I have a Samsung Galaxy Note 10. It's a brilliant device, but, there is one problem for me. I rely on dictionaries a lot as I do translations between a few languages and I live in a part of the world where there isn't a reliable connection to the internet. The Android-compatible Babylon app needs to be online to work and it doesn't accept dictionary files (the BGL files). I need a versatile dictionary app, and I need it to be able to work offline." *Ayman SD*

**A** We understand your frustration here, particularly when a service is required to help you get things done and it is not available. In this case, if you are struggling with getting a reliable internet connection you will need to look elsewhere and the good news is that there is a ready-made service that should work with the Note 10 just fine. Google recently updated its Google Translate app to work offline by letting you download

language packs which are stored on your device. You can download up to 50 languages and they will be available under the Offline Languages option when you hit the menu. Simply choose the languages you want to translate between and you are good to go. If this service is not enough for you take a look at QuickDic Offline Dictionary, available from Google Play, which is capable of working as a full dictionary and allowing translations all within the same



Google Translate is free, quick, very flexible and recently updated

package. Like Google Translate, it is free and is updated often enough to ensure that all of the definitions you need are available. There are other



QuickDic offers an effective offline alternative to Google Translate

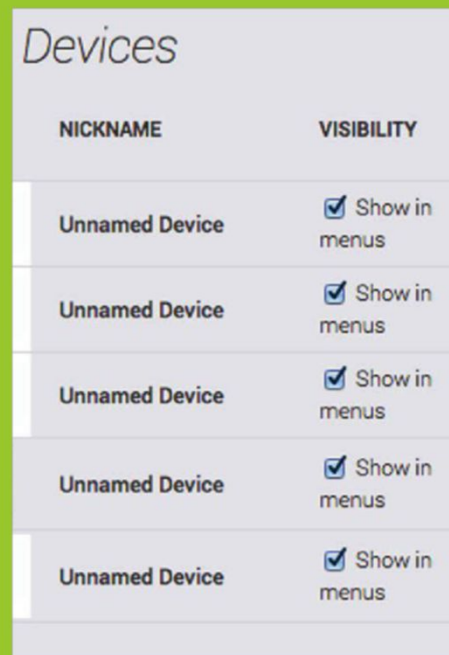
solutions available as well and a quick search should bring you a setup that works offline as well as Babylon does online for your specific needs.

## hints & tips

Get more from your Android phone with our handy hints

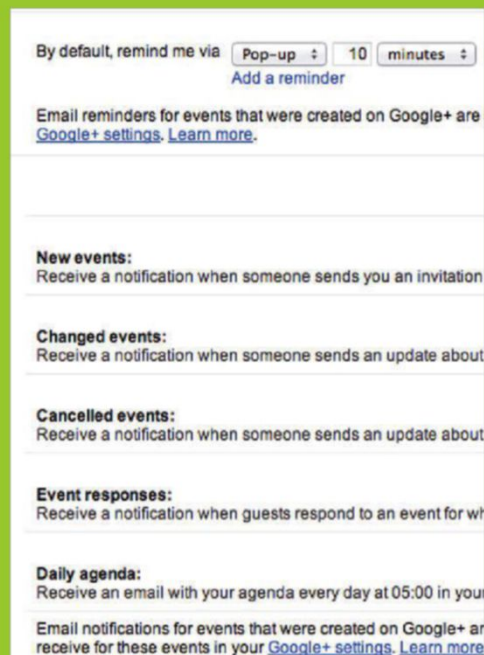
### 1 Hide your devices

If you upgrade your Android devices regularly, go to Google Play and select Settings. Here you can hide the visibility of devices you no longer use. This should lessen confusion and stop you accidentally installing an app where it should not go.



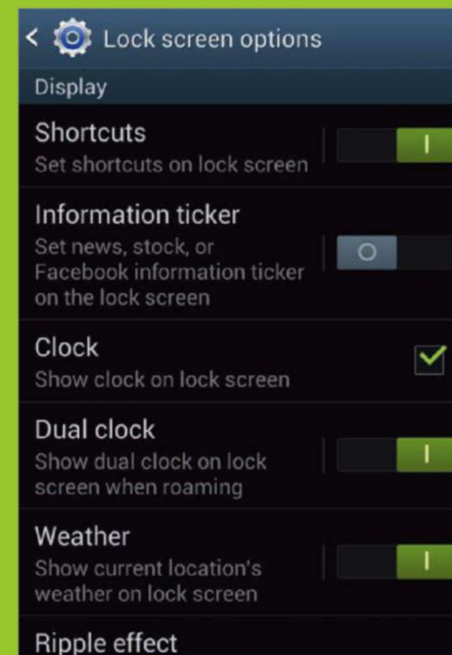
### 2 Manage Calendar alerts

When using a third-party calendar app for default alerts, make sure that you have not set up default reminders in the main Google Calendar settings. You can end up with multiple alerts if you set them up on the main service 'and' a third-party alternative.

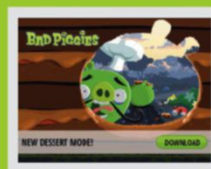


### 3 Improve your lockscreen

Many Android devices have some Lock screen options hidden in their Settings. You can add the weather, multiple clocks and even the latest news and happenings, which can be useful if you need information in a hurry, and you won't need to press anything.







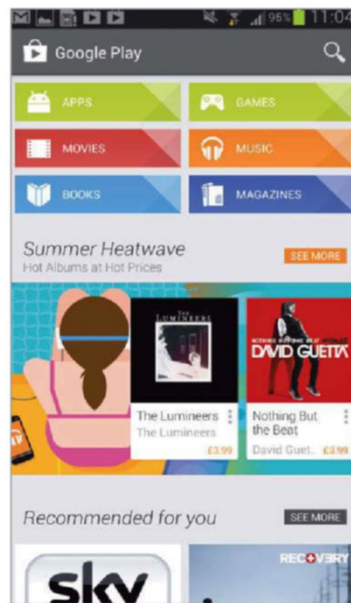
## Did you know?

On some games with adverts, you can stop the ads displaying by disconnecting from 3G or Wi-Fi while playing. The space may still be used up, but it can potentially make the game easier to play and stop some of the distractions which get in the way.

## Invalid URLs are difficult to fix

I have found a problem with my device – when I try to download a free app I get the message after I sign in of ‘invalid URL 3113’. I do not know how to get past or around this message.  
*Lucy Alderman*

**A** This is a tricky problem to answer because you don’t say which device you are using or where you are trying to download apps from. The ‘3113’ error usually represents a corruption of some sort which can be caused by an unfinished install or deletion of software, but even this is usually confined to the desktop Windows system. If you are trying to download apps from Google Play and your web browser is working fine then the problem becomes even more complicated and possibly suggests an issue with your user



The safest way to download apps is by using the Google Play store

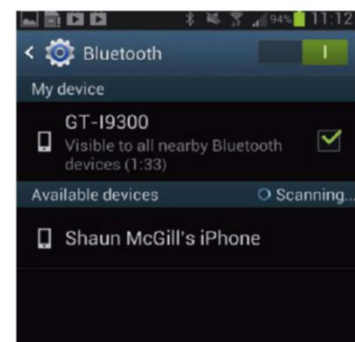
ID. Our advice would be to back up all of the information on your device and then do a factory restore if you are able to use your Google ID on a desktop machine and download apps. This would likely kill the notion of it being a user ID problem and should in

theory resolve the issue for you. Sadly, some problems are impossible to pin down without knowing all of the specific devices and account details.

## Troublesome Bluetooth on a Galaxy S4

I have just purchased a Galaxy S4 and although I am very pleased with it the Bluetooth will not sync with any of my Bluetooth devices. Any advice would be much appreciated.  
*Simon Goddard*

**A** We are going to presume that you are following the correct method to pair your devices and that you have managed to connect them. If not, we would suggest deleting any pairing you have set up and recreating them to make sure everything is clean. You haven’t said what types of device you are trying to pair with, but



Connecting devices using Bluetooth ‘should’ be straightforward

remember that the S4 is using Bluetooth 4.0 so it is possible that it will not connect properly with some devices, particularly car stereos, which seems to be an ongoing issue with the S4 in particular. One simple fix that seems to work is to turn the device off and remove the battery for 30 seconds. We tested this on an S4 and it then connected to a device that it struggled with previously, but make sure that you have paired with the device before you do this. Most devices should work well with your S4 over Bluetooth.

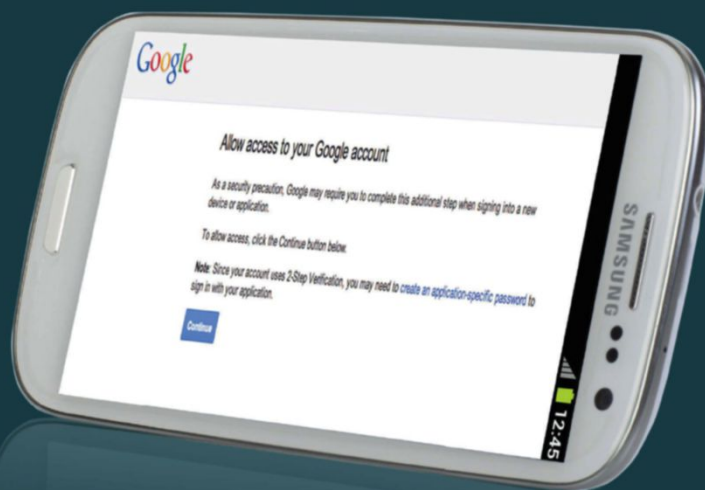
# When Google doesn’t work

“I dropped my phone and needed a new screen and things started to go wrong. I have two-stage verification set up with Google to my phone and that still works and so does everything else, but my phone doesn’t recognise my Google account details so won’t let me add my Google account to the Accounts & sync section of Settings.”

*Tony Lear*

**A** This must be perplexing because every other device you own is working fine, but it is possible that the solution is quite easy. The fact that you broke your device’s screen and had it fixed should not in theory change the way your phone is identified by Google, but it is possible that more changes were done or that the device was completely replaced. Even so, a new phone should still be able to connect to your Google account in the same way so we are left with presuming that there is a problem with Google. If, as you say, there is a problem with the phone recognising your settings

this would suggest that Google is struggling to identify the account on its servers on that particular device. Go to <https://accounts.google.com/DisplayUnlockCaptcha> and click Continue. This should open up your account a little and you should then try logging in on your phone within ten minutes. We tested this on an account where similar problems were happening and it worked perfectly for us. Sometimes there is no logical explanation for why these things happen, and Google is unlikely to explain why either, but at least there is a fix available. This webpage is worth keeping safely stored just in case further problems occur.



Google accounts can be problematic occasionally

## 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

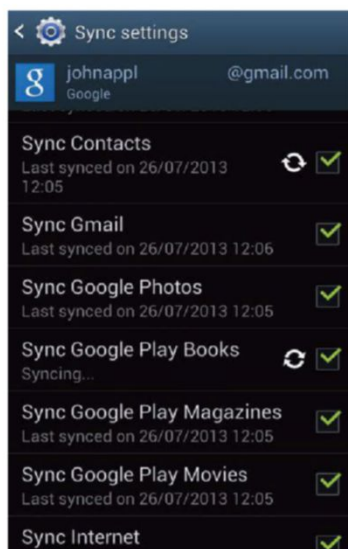


» email  
qa@littlegreenrobot.co.uk  
Discovered anything good about your Android phone? Let us know!

## Restrict multiple accounts

**I have multiple Google accounts.** One for my phone that I use when I purchase apps. One for regular email. And we now use Google at work. Is there any way to keep the accounts, but restrict Google Play to only one account and prevent my work account from mixing with my personal accounts? *Guy Johnson*

**A** In theory the way you have your Google accounts set up should work as you would like by default. If you go to Google Play on your phone and choose Accounts, you will see all of the Google accounts you have set up on your phone. You should now be able to choose which account you want to use for new purchases. If you are using your work Google account on another device then that will be seen as your main account while doing so and Google Play will be available, but you can choose to not have any payment details associated with it. Besides this, it is currently quite difficult to completely restrict a Google element from an account and you will have to rely on some self-management to ensure they do not cross over too much.



Google Play should only use one Google account at a time

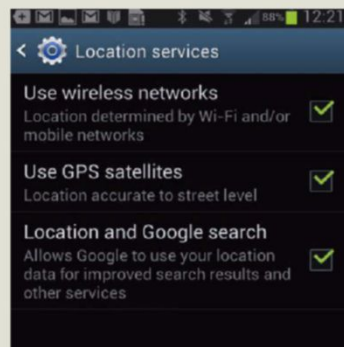
## When is GPS on or off?

“Hi, I have a problem with my Samsung Galaxy S3. When I turn it on, it starts to search for a GPS signal. I've checked my app settings, but could not resolve this. I don't want it to search for a GPS signal for no reason and most importantly I don't even know why it's searching for a GPS signal, and when I turn the GPS signal off it stops. However, I want it to stay on and it should only work when I use it.”

*Muhammed T Savas*

**A** First up, we need to look at why your Galaxy S3 is searching for a GPS signal because it should connect almost all of the time without any problems.

There have been reports of signal problems on the S3, particularly when using a thick case, and so we would advise to try using it without a case to see if that helps. With so many apps using GPS on a smartphone it



You can control GPS on an Android device

“There have been reports of signal problems on the S3”

doesn't make sense to try to control it completely and the potential security issues surrounding the feature are limited. There are some tips that will help you, which we have included, but our advice would be to concentrate on why it is searching for a signal from a technical point of view rather

than why it needs to. Google search, Google Now and Google Maps are just a small selection of apps that need GPS and many third-party apps do as well. If you try to limit GPS usage and only use it when necessary you will see the 'searching' message more because it needs to get a location fix.

### 1 Settings

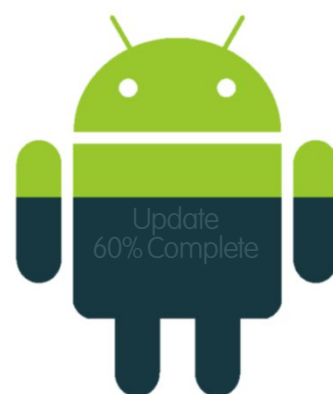
Go to Settings>Applications and then scroll down the screen after selecting an app to see the permissions it needs. GPS will be listed if it is required to let the app function. Many apps take advantage of GPS these days.

### 2 The GPS widget

There are third-party widgets available that will let you turn GPS on and off with one single tap. This is particularly useful if you want to limit how often GPS is used and makes the process much quicker in future use.

### 3 Watch the battery

GPS can consume battery life quite quickly, but you can monitor overall battery usage easily in the Settings screens. There are also third-party apps that will also offer much more battery information if you really need it.



update update

» We bring you the news and rumours on the latest Android updates, and the phones that can run them...

**Android 4.3 is out and if you've got a Nexus device then you should have it up and running by now.** As expected the Google Play Edition variants of the Samsung Galaxy S4 and HTC One also received the update in a very timely manner, while the manufacturer-skinned versions are still waiting. Both should get them in due course, while the latest word is that the planned 4.2 update for both the Galaxy S III and Note II will be shelved, with Samsung jumping straight to 4.3 instead. We wouldn't expect too many other handsets to be upgraded to 4.3 however, and given the relatively minor bump in features there is unlikely to be as great a clamour for it as there normally is whenever a new version is pushed out. Of course there are unofficial update options for users of rooted devices. CyanogenMod and Paranoid Android are two of the most popular ROMs and are both working 4.3 into their latest updates. Both of these ROMs are available for the majority of the most popular phones and tablets. The Jelly Bean update program is now drawing to an end, and attention will turn to the next major release, still expected to be Android 5, Key Lime Pie, and most likely to arrive in October.





## Can you master meditation with apps?

### We tested Android's meditation and relaxation apps to see if they could help us gain inner peace

**W**ith all the pressures of modern life constantly around us, we all need some time to relax and recuperate. One of the best ways to stay relaxed is by learning to meditate, and this is the main focus of this month's challenge. We've searched high and low to find the best meditation and hypnosis apps that the Google Play store has to offer, to see if they can help us find a peaceful and tranquil state, or leave us shaking with rage instead.

#### It's all in the breathing

We assumed meditation was all about sitting still and closing your eyes for a prolonged period of time, but how wrong we were. The first app we looked at was Qi Gong Meditation Relaxation, which helped us get to grips with the history of

meditation, as well as the basic postures we should adopt. There's a great visual element to Qi Gong to help novices discover what their meditation position should look like. Alongside that we checked out Buddhist Meditation Trainer, which highlighted key differences between Buddhist meditation and the other variations. For the most part it covered the facts we already knew. To explore other suitable postures and tips we downloaded the Yoga Nidra and Simply Being Guided apps, but neither were that helpful in what we were looking for.

#### Achieving Zen

After exploring the world of meditation, we decided to put what we had learnt into action. To start with we found a suitably quiet spot and

### Relax with Yoga Nidra Meditation

How long to be guided through yoga nidra?

7 Minutes

18 Minutes

25 Minutes



Background music on  
04 Synesthesia.mp3

Choose music



Finish with a bell

Yoga Nidra Meditation was one of the apps we headed for to learn about different postures and find extra tips



# Set us a challenge!

Test us out through  
Facebook and Twitter



facebook



/littlegreenrobot  
Like us on Facebook to  
share your thoughts



twitter



@lgrbot  
Follow us on Twitter and  
send your comments



Download these apps,  
including hypnosis app  
Lightning Bug, to achieve Zen

chose a relaxing melody to listen to through the Meditation Trainer Sounds app. We then used the iZen app to help talk us through our first proper meditation session, but found the voice more annoying than helpful! By far the best app we used before our meditation session was the ZenTime app which showed us a step-by-step of how to prepare properly beforehand and what to expect once we finished. It even included a meditation planner that can be used to plan your future sessions. We plumped for a ten-minute session to get us started, and apart from the melody we chose repeating itself a few times, which was a major annoyance, we did feel surprisingly relaxed afterwards.

## Explore hypnosis

One area that was frequently mentioned as we explored meditation apps was hypnosis and how that can also be used to help you relax more. Scepticism aside, there's a varied selection of



You can sync your meditation calendar created in ZenTime to your other calendar apps to help keep all your reminders in one place.

hypnosis apps on the Play store and by looking at the reviews, the chance of success varies greatly. We first downloaded the Lightning Bug app which included information around the benefits of self-hypnosis and the links it has to meditation. Afterwards we downloaded both the Hypnosis - Deep Meditation and Self-Hypnosis apps to give it a shot. In short, we couldn't get either of the two apps to suitably work and we soon lost the calm state we had gained from our meditation session. It would be great to check out some more of the highly regarded apps concerning hypnosis, but we weren't impressed with the ones we sampled here.

## App checklist



**Qi Gong Meditation Relaxation**

Price: Free  
Developer: Excel At Life



**Buddhist Meditation Trainer**

Price: Free  
Developer: Spacebug



**Simply Being Guided Meditation**

Price: £0.61/\$0.99  
Developer: Meditation Oasis



**iZen - Art of Zen Meditation**

Price: Free  
Developer: IMOBLIFE INC.



**Lightning Bug - Meditation Pack**

Price: £0.94/\$1.49  
Developer: lightningbug.me



**Hypnosis - Deep Meditation (M)**

Price: £0.93/\$1.50  
Developer: Nimue



**Yoga Nidra Meditation**

Price: £1.32/\$1.99  
Developer: Spreebytes



**Meditation Trainer Sounds HD**

Price: Free  
Developer: Relaxing Sleep Sound



**Meditation & Yoga: ZenTime**

Price: Free  
Developer: m-Surf Lab



**Self-Hypnosis for Meditation**

Price: Free  
Developer: IMOBLIFE INC

## Success rating

# 70%

## Verdict: Complete

Although we really liked ZenTime, most apps aren't detailed enough. But we did get some top tips on how to meditate and found a great selection of music to listen to while we strive for the perfect Zen state





Explore the limits of your Android device

# Hacker Zøne

## status update

Which devices are best for the hacking scene?

### Nexus 7 (2013)

**Rooted?** Yes

**Active Development:**

Medium

Easily rooted and with almost unlimited potential for hacks and mods once the worldwide launch gets fully under way.



### Samsung Galaxy S4

**Rooted?** Yes

**Active Development:**

Medium

You can expect this new device to be adopted by devs just as widely as its predecessor the Galaxy S III was.



### HTC One

**Rooted?** Yes

**Active Development:**

Medium

Most of the usual suspects are present and correct. Hopefully there will be more unique tweaks and mods still to come.



### Nexus 4

**Rooted?** Yes

**Active Development:**

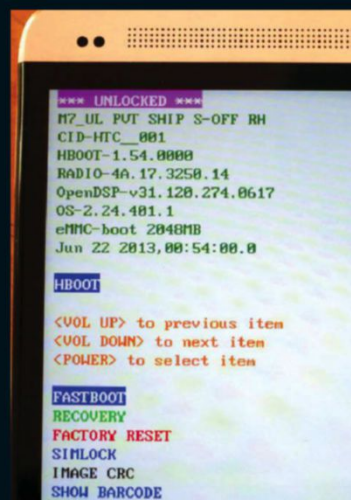
Yes

At such a low price the Nexus 4 is set to become one of the must-have devices for developers. Great news for the rest of us!



## Get S-OFF access to your HTC One device

If you own a HTC One and you're into hacking your device, you've probably unlocked your bootloader via HTC Dev. This enables you to install a custom recovery, install a custom ROM and much more, but there are still restrictions. You may have noticed that any changes you make to the system partition while the device is booted get lost on reboot – this is one of the annoying features



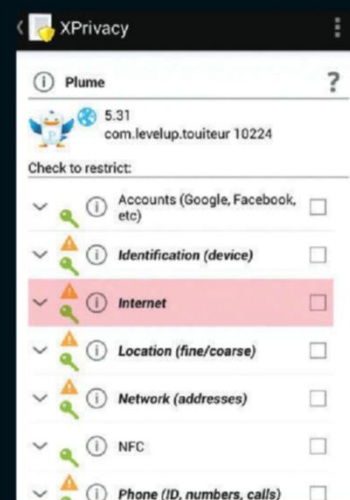
Check whether your device is S-ON or S-OFF in the bootloader screen

## Tips and tricks

of S-ON status. Your current status is displayed on screen when in bootloader mode. Fear not though, your device can be switched to S-OFF using the revone utility available (in developer preview form) at <http://mdc.gd/revonedp>. The utility itself is launched on your device via an ADB shell. The tool, which runs as root, but can auto obtain root access on your device if required, can also lock your device back to box fresh status, as well as removing the tamper flag. A very useful tool for the HTC One hacker's toolbox.

## Control application data access with the XPrivacy app

Back in issue 27 we told you about the Xposed Framework, a generic framework that enables hacks to integrate deep into a device's ROM while still remaining ROM independent, meaning they don't need to be rewritten for every device. XPrivacy is a tool (available from the Play store in both free and paid versions) that takes advantage of this deep level of ROM integration, enabling you to control privacy on



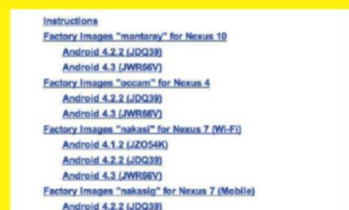
Just check or uncheck what you want the application to access

your Android device by limiting the access that applications have to sensitive data. The implementation of XPrivacy is particularly neat in that rather than just blocking an application's access to a requested permission, it actually grants access but returns an empty data set, meaning the application in question shouldn't crash. An example is an app that requests a contact list – if you have revoked this access via XPrivacy, the application in question will just see an empty contact list. The default access profile for freshly installed applications is also 'no access'. We think this is a great security feature to test out.

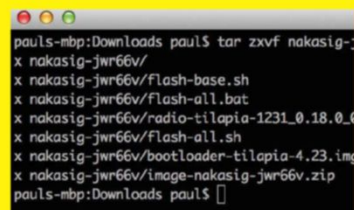
## quickhacks

### Manually update your Nexus to Android 4.3

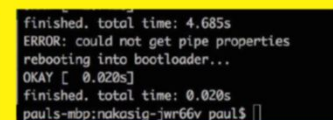
Android 4.3 has been officially announced and is now available to manually install if you own a Galaxy Nexus, Nexus 4, 7 or 10, rather than waiting for the update.



**1 Download and install**  
The new 4.3 image for your device is available to download from the Factory images for Nexus devices page at <https://developers.google.com/android/nexus/images>. Find your device and download.



**2 Extract the update**  
The update file is a tgz file, which you will need to decompress using a suitable tool for your operating system. If you plan to flash but you don't want to wipe your data, you'll need to extract the zip file too.



### 3 Flash the images

To flash with a wipe, use flash-all script. Otherwise first run the flash-base script. Then flash the images from the zip individually with 'fastboot flash boot boot.img', 'fastboot flash system system.img' etc., omitting userdata.img. Then type 'fastboot reboot' and you're done!

Share your tips  
Discovered a great hack or  
tweak? Let us know!



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/littlegreenrobot  
Like us on Facebook and  
send us your comments



» email  
ga@littlegreenrobot.co.uk  
Is there anything you'd like to see us  
cover in the mag? Drop us a line!

## Install MoDaCo. SWITCH on your HTC One

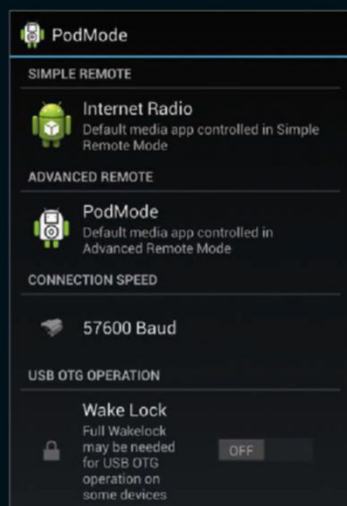
HTC recently announced a Google Play edition of the HTC One which runs a stock build of Android rather than the Sense ROM that runs on a regular device. This has good and bad points – it's nice to be able to use the stock Android experience which itself is more lightweight, but you then lose a lot of the Sense ROM specific enhancements including things such as the Zoe camera, TV remote and AptX Bluetooth audio. It is possible to flash between the two ROMs via recovery but the process of doing so is time consuming and most importantly involves wiping your data. Enter MoDaCo.SWITCH. Available in public Beta form at <http://switch.modaco.com>, the download includes both Google Play edition and Sense ROMs with a utility to quickly switch between the two. The real unique feature is the fact that when switching ROMs, your data is maintained so you can just carry on using your device as normal.



Switch between Sense and the new HTC One Google Play edition with ease

## Use your device with iPod docks

Do you look jealously on those iOS users with all those fancy docking speakers available for their device? Well, if you're a bit handy with a soldering iron (actually very handy, it's quite a formidable project) to make a suitable cable then PodMode, available to download at <http://mdc.gd/podmode>, has the software solution to turn your USB OTG-enabled Android device running



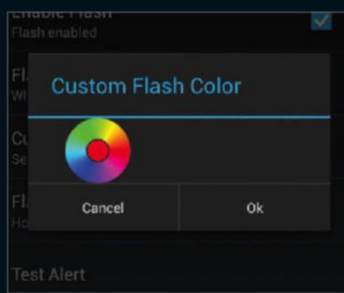
PodMode gives your Android device a split personality – but that's what we want here

Android 4.0.3 or above (no root required) into a virtual iPod! The free app supports both speakers and clock radios with media control (in simple mode) and car interfaces (in advanced mode) which displays playing song info on a car audio system's screen and can even display device notifications too, which is very cool indeed. Only connections using the 30-pin

connector for analogue audio with serial communication are supported.

## Improve your notification LED

Many devices include a notification LED and on some of them (for example, most Samsung devices, the Galaxy Nexus, Nexus 4, Nexus 10 and new Nexus 7), full RGB support is included, meaning they can display any colour. On the whole, however, this ability is wasted as the system apps (and apps from the Play store) notify in only a limited number of colours. Thanks to the Xposed Framework (again!) there is an application which will give you the flexibility to have the LED flash in any colour you choose. Downloadable from the Play store in both free and paid versions, Trackball Alert by lilHermit (so named because it was originally created to control the Nexus One trackball) lets you choose an application and specify both a colour and a blink rate. Because the application uses the Xposed Framework to integrate deeply into the ROM, there is no ill effect on your battery life. The pro version adds a useful night mode and the option to dim the LED when docked.



Choose your application, then find an LED colour that you like

# Jargon Buster

Get up to speed on all the terms you 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](http://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.

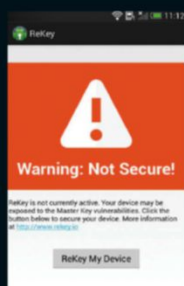
### Radio

'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.

## Hacking the easy way Get great new features without getting your hands (too) dirty



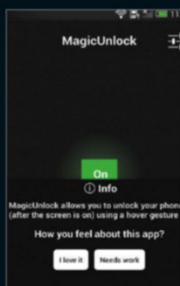
### ReKey

» Free  
From: Play store  
Need root? Yes  
ReKey is a patch for the recently disclosed Master Key vulnerabilities that affect nearly all Android devices and can allow attackers to take full control of a user's mobile device.



### Button Savior

» Free  
From: Play store  
Need root? Yes  
Button Savior lets you duplicate the functionality of your hardware buttons with an on screen overlay. This enables you to replace a broken or failing button or simply save wear and tear.



### Magic Unlock

» Free  
From: XDA Developers  
Need root? No  
Magic Unlock is a utility which enables you to unlock your device using magic. Okay, not actual magic, but by making a quick gesture in front of the proximity sensor.



Works with » Nexus 7 (2013) Difficulty » Intermediate

# Root your new Nexus 7

Rooting the 2013 Nexus 7 is easy, and will help you flash ROMs and other MODs to the tablet

Nexus devices have long been the choice of Android hackers due to the ease with which they can be rooted.

This quick guide will show you how to get started. You need to download the Android SDK to your computer first – get it from [developer.android.com/sdk](http://developer.android.com/sdk) – and if you're on Windows will need to have installed the necessary drivers from [developer.android.com/sdk/win-usb.html](http://developer.android.com/sdk/win-usb.html). Remember that rooting may invalidate your warranty, ensure your tablet is at least 50 per cent charged and follow the instructions carefully. Also, all the fastboot commands in the tutorial must be preceded by ./ on Mac or Linux (so the command would be ./fastboot [command]). Finally you must turn on USB debugging in Developer options before you start.



```
Terminal — bash — 108x42
Last login: Tue Jul 30 16:26:05 on ttys000
andy-betts:~ andybetts$ cd /Users/andybetts/Desktop/android-sdk-mac_x86/platform-tools
andy-betts:platform-tools andybetts$ ./fastboot oem unlock
```

## 1 The bootloader

Boot into fastboot by holding power and volume down. Open a terminal or command line window and then change the directory to the SDK's platform-tools folder by typing cd then the path to the folder. Type fastboot oem unlock and follow the instructions on the tablet.

### Download - Recovery Image Method:

Download the newest .img file from [here](http://bit.ly/11s812g)

Download the above file. Turn off your device. Turn on the device and keep holding volume down until a menu shows up. The device will now be in fastboot mode. Plug the device into your computer. If you have the right drivers installed, your screen should now say FASTBOOT USB. Run the following command via the command line:

```
fastboot flash recovery recoveryfilename.img
```

Note that you will need to change the last part to match the name of the file that you just downloaded. You will also need adb and fastboot for your computer.

The stock ROM will automatically replace TWRP with the stock recovery. To prevent the stock ROM from replacing TWRP, boot TWRP, go to the mount menu and mount system, press the home button, then press Advanced -> File Manager. Browse to /system and select the file named recovery-from-boot.p then choose to rename the file to recovery-from-boot.bak

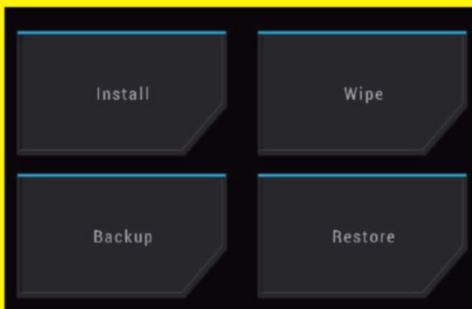
## 2 Get recovery and SU

On your desktop, download TWRP recovery image from <http://bit.ly/11s812g> and SuperSU from [chainfire.eu](http://chainfire.eu). Copy the SuperSU zip file onto your tablet and move the TWRP img file into the platform-tools folder of the SDK. Reboot your tablet into fastboot mode, and keep it connected via USB.

```
Terminal — bash — 108x42
Last login: Tue Jul 30 16:26:05 on ttys000
andy-betts:~ andybetts$ cd /Users/andybetts/Desktop/android-sdk-mac_x86/platform-tools
andy-betts:platform-tools andybetts$ ./fastboot oem unlock
+ waiting for device +
...
[bootloader] Bootloader is already unlocked
UNLOCKED
Finished. Total time: 0.020s
andy-betts:platform-tools andybetts$
andy-betts:platform-tools andybetts$ ./fastboot flash recovery openrecovery-twrp-2.6.0-0-flu.img
```

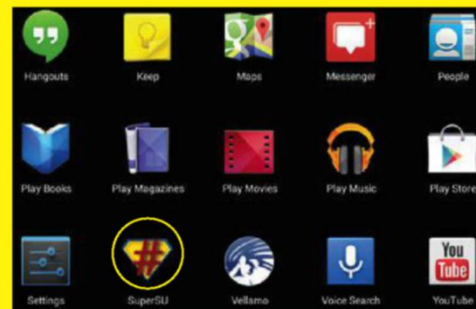
## 3 Flash recovery

Now you can flash the recovery image. Make sure the terminal or command line window has the platform-tools folder as its root directory. To flash the recovery image, type fastboot flash recovery [filename.img]. Wait while it completes.



## 4 Root

Now you can boot into Recovery. With the tablet turned on type into the terminal window adb reboot recovery. The tablet will now boot into recovery and you can flash the SuperSU zip file by hitting Install and locating the correct file.



## 5 And you're done

Restart the tablet. You should see the SuperSU app is now installed. You can also download a root app from the Play store to check whether it is working correctly. If you're prompted to grant root access you're done!



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Works with >> Check app for compatibility Difficulty >> Intermediate

# Flash ROMs the easy way with Flashify

Flashing custom ROMs is set to become more common with this great new app. Here's why

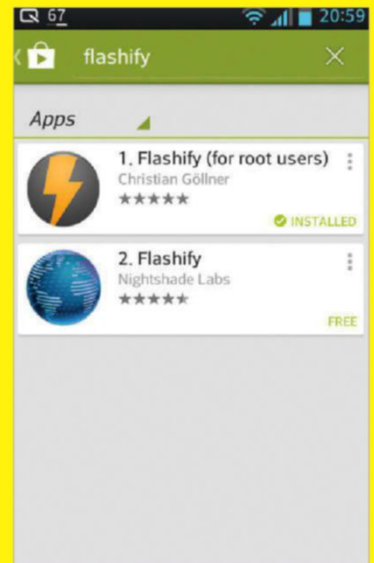
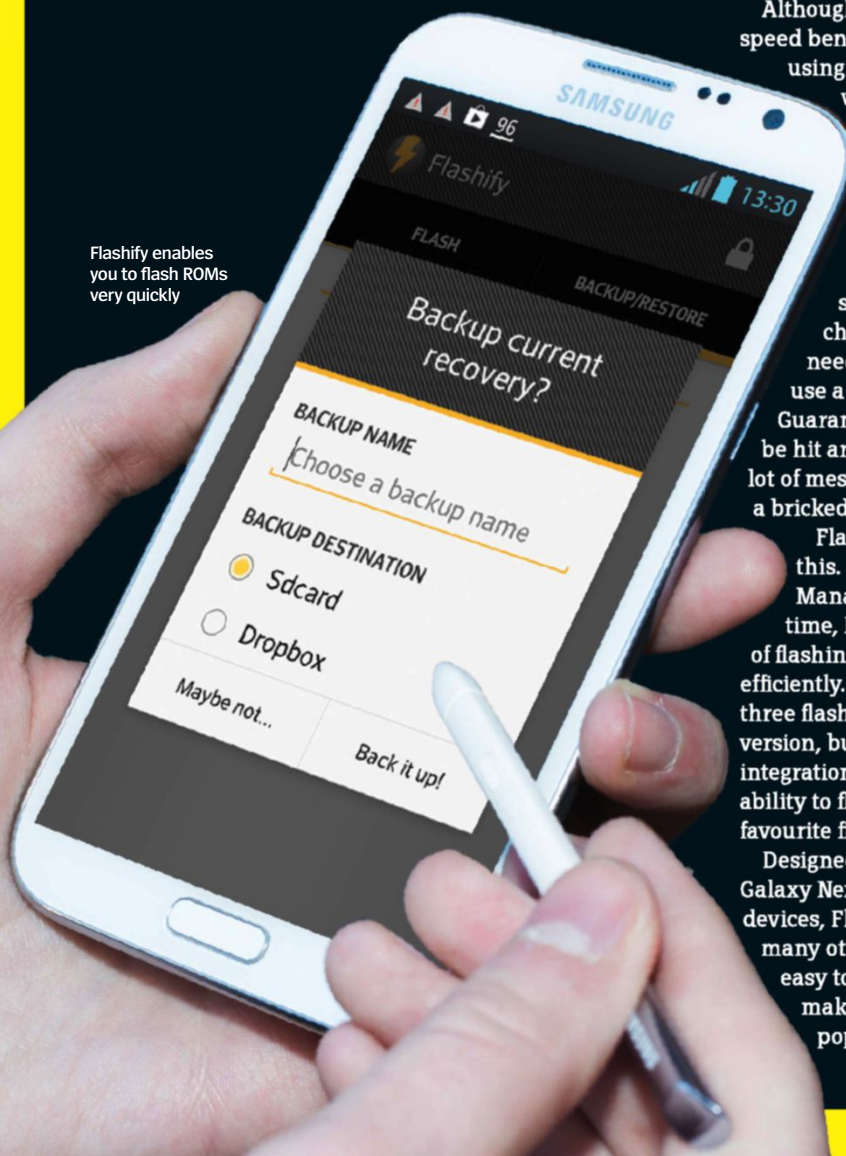
With Android fragmentation becoming increasingly worse and networks taking an age to roll out updates, more and more users are looking for a way to upgrade their phone and take advantage of improvements to the operating system.

Although it is possible to gain speed benefits and new features using apps and tweaks, the best way to push your Android phone or tablet to the max is to flash a new ROM. Traditionally this has been a potentially complex affair, requiring the user to find a ROM suitable for their phone, check that it meets their needs, download it, and then use a dedicated app to flash it. Guaranteed first time success can be hit and miss, leaving you with a lot of messing about and potentially a bricked phone.

Flashify might just change this. While tools such as ROM Manager have improved over time, Flashify offers a new way of flashing ROMs quickly and efficiently. It might be limited to three flashes a day in the free version, but Flashify includes integration with Dropbox and the ability to flash ROMs from your favourite file explorer app.

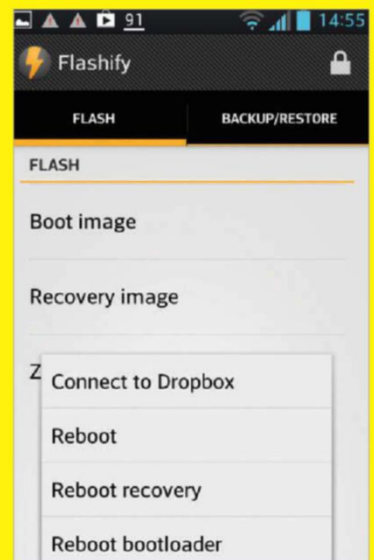
Designed specifically for the Galaxy Nexus, Nexus 4, 7 and 10 devices, Flashify also works with many others. This simple app is easy to use and looks likely to make flashing ROMs a more popular option.

Flashify enables you to flash ROMs very quickly



## 1 Download Flashify (for root users)

The first step is to make sure you install the right app. There are a couple of 'flashify' apps on the Play store, so make sure you choose the one called Flashify (for root users). Once selected and downloaded, it will ask for root permission, which you should grant.



## 6 Using the Reboot options

Thanks to Flashify you have three reboot options, enabling different flashing and recovery scenarios. Available via the menu, these are Reboot, Reboot recovery and Reboot bootloader. While the first will restart your phone, the others will come in useful for restarting your device.



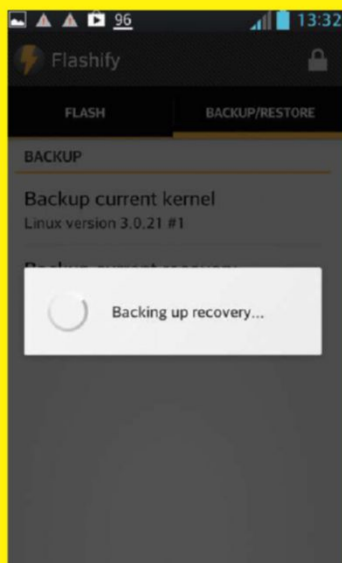
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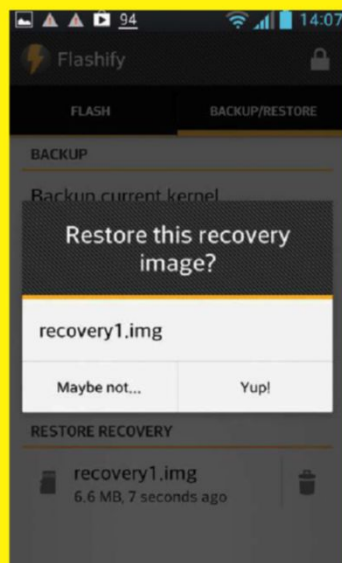


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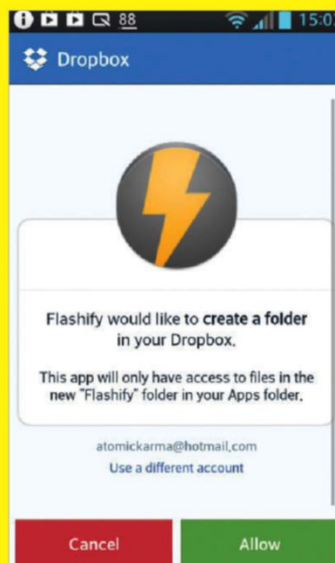
## 2 Back up before you start

Want to flash a new recovery or boot? You will need to back up first. With Flashify installed, loaded and root access assigned, switch to the Backup/Restore menu and select Backup current recovery. Set a backup name and destination and tap Back it up to begin the backup.



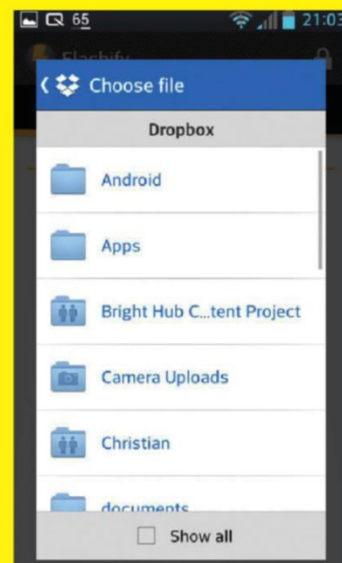
## 3 Restoring your backups

You can also back up the kernel using the same steps and choosing the Backup current kernel option. To restore a backed up kernel or recovery, select the appropriate .IMG file listed further down the Backup/Restore screen, tapping Yup! to confirm. It won't take long.



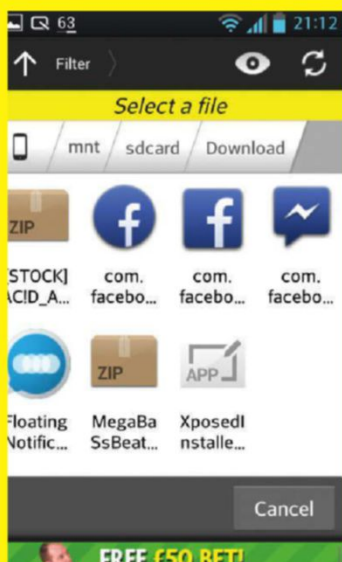
## 4 Connecting to Dropbox

A key advantage of Flashify is its Dropbox integration, activated by opening the menu and selecting Connect to Dropbox. Agree to the screen requesting permission, allowing you to flash recovery, boot and ZIP files from Dropbox. You must have Dropbox installed.



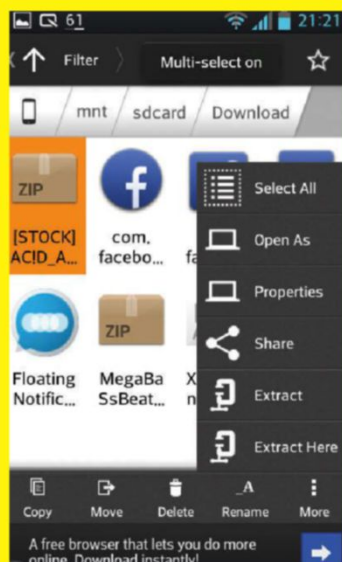
## 5 Dropbox syncing dangers

Although useful, syncing with your Dropbox account will impact on your phone's storage. For instance, a 500MB image saved to Dropbox will eat up the same amount of storage on your Android device. If you have limited storage space, remember to delete images after use.



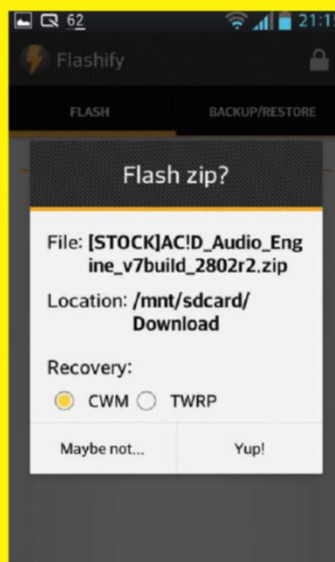
## 7 Preparing to flash your phone

You don't have to flash your phone or tablet with a ROM containing a new version of the Android OS – you might use Flashify to flash an enhancement that must be applied at root level. Either way, download the ROM first, saving it to your phone or Dropbox folder.



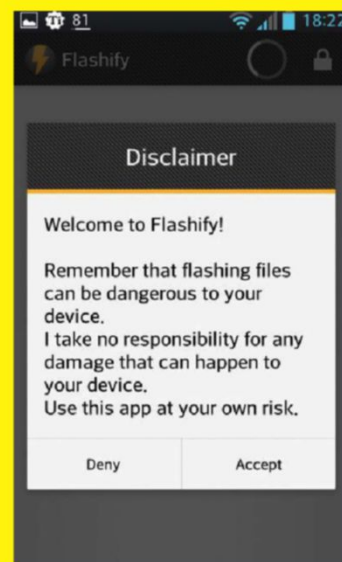
## 8 Flashing with Flashify

With your ROM file (containing a full image or just a single root-level utility) downloaded, you will be ready to begin flashing. Note that some ZIP files will need the boot or recovery image extracting before flashing. This can be done with a file explorer like ASTRO File Manager.



## 9 Flashing a ZIP file

It's easy to flash a ZIP file, just as long as the data is stored where you can browse to it, either on your phone or in your Dropbox account. Open Flashify, select Flash>Zip file, browse for the desired ZIP and select the recovery type. Tap Yup! to complete.



## 10 The power to flash

With Flashify you can easily upgrade your recovery, boot and ROM and generally customise your device with considerable ease. This gives Flashify a massive advantage over its rivals. Remember, however, that you use the app at your own risk – so back up before flashing!



Works with >> Android 2.3 and up Difficulty >> Intermediate

# Find ROMs, apps and OTA updates



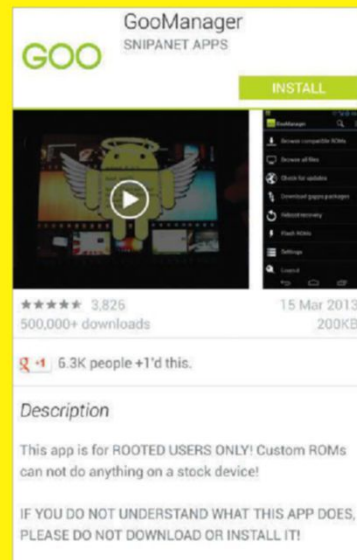
Update your ROMs with GooManager

Use GooManager to take control of all your ROM and Google app updates

**G**ooManager is a ROM managing app (not dissimilar to ROM Manager) which connects your device to the Goo.im server. This server hosts a variety of custom ROMs and Gapps (Google Apps) updates. The app works in collaboration with TWRP (TeamWin Recovery Project). TWRP is a recovery MOD which runs in a similar way to ClockworkMod.

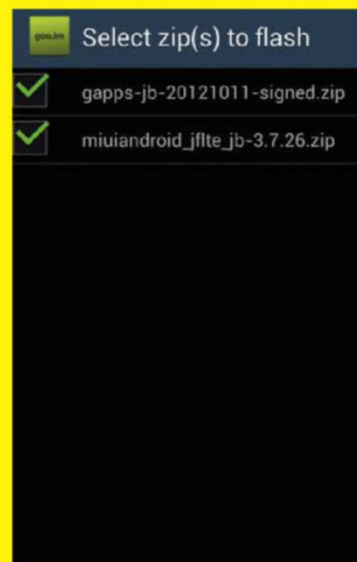
If you have already rooted your device you will have most likely done this by installing ClockworkMod onto your device. Simply put, GooManager helps you to download different ROMs as well as Gapps updates and ROM OTA (over the air) updates.

OTA updates help reduce the size of update files, making updating a ROM much faster. TWRP is then used to flash these ROMs onto your device, as well as offering backup and recovery services. To start exploring GooManager and accessing its variety of custom ROMs you will need to have rooted your device. Browsing for ROMs in GooManager is limited to the ROMs which have been uploaded to the GooManager server, but you can also download ROMs manually onto your device that aren't on their server, and locate them in your storage through GooManager, flashing them through the app. Follow these steps to get acquainted with your rooted device's new best friend when it comes to flashing.



## 1 Install the GooManager app

Depending on what ROM you are running you may have GooManager installed already. If this is the case you will find it in your apps. If not, visit the Play store and search for GooManager. Download and install it. Open the app and grant the request for SuperUser permissions.



## 6 Installing ROMs and Gapps

In the Flash ROMs menu, check the ROM you would like to install. Tap Order & Flash selected. In the next window check Create backup to back up your device's current firmware. You should also do a full backup of your device's data before continuing. Tap OK then Flash.



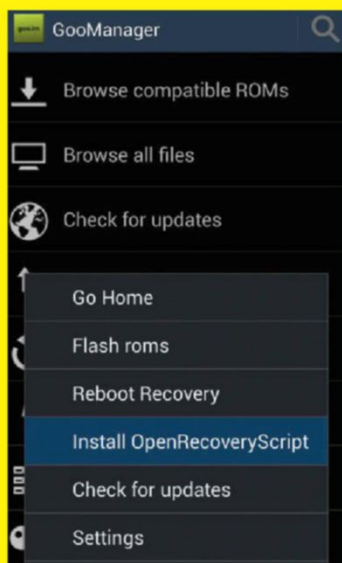
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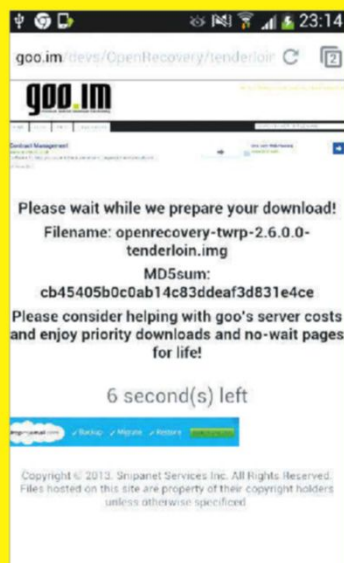


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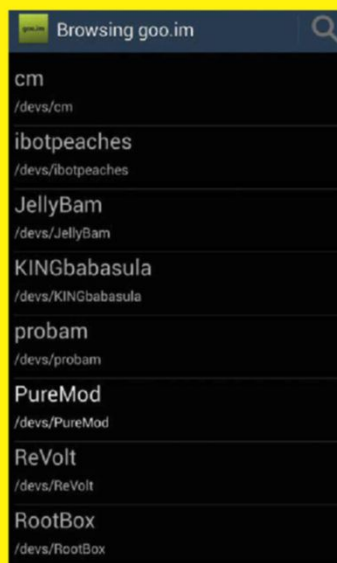
## 2 Install Open Recovery Script

Tap the menu button and hit Install OpenRecoveryScript. GooManager will take you to the appropriate TWRP file. Download it and it will install. To access TWRP recovery, tap Reboot into Recovery where you can back up, wipe, restore your system and install ROMs manually.



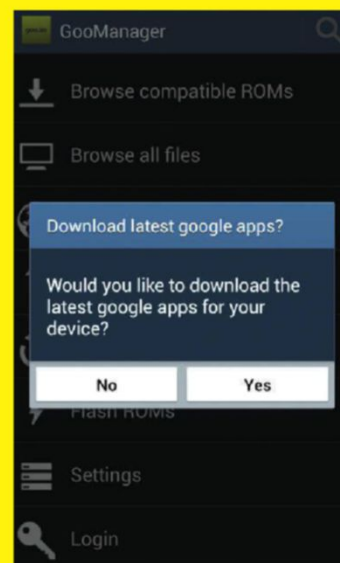
## 3 Manually find recovery script

If GooManager can't find an OpenRecoveryScript for your device, you will have to install TWRP manually. Visit [www.teamw.in](http://www.teamw.in) to locate the file you need and download it. Repeat the process for rooting your phone, but use the .tar file you just downloaded instead.



## 4 Browsing for ROMs

In GooManager tap Browse Compatible ROMs. Tap a ROM to look at its latest versions. Select a version to be taken to a download page. Tap Begin Download. After download, in the GooManager menu, tap Flash ROMs to access all downloaded ROMs.



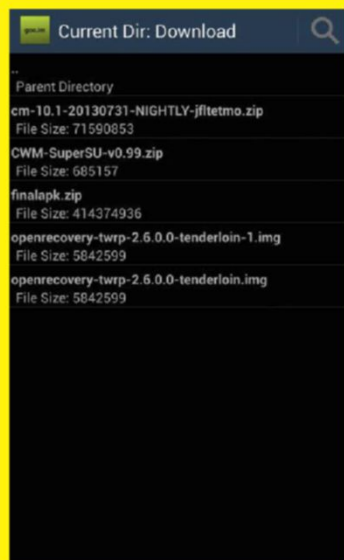
## 5 Download Gapps package

From the main menu tap Download Gapps Packages. Confirm that you want to download the latest Gapps. You will be taken to a page which will begin the download. Review the download in the status window. Once complete, in the GooManager main menu, hit Flash ROMs.



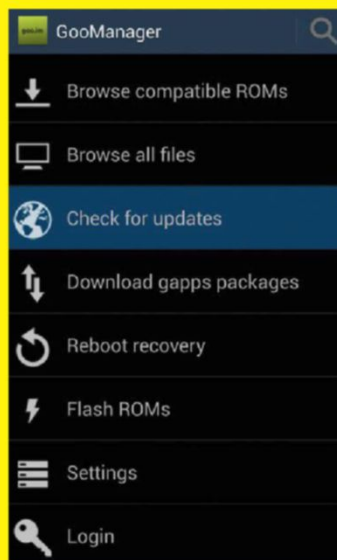
## 7 Running your new ROM

If the ROM sticks on the Boot screen, switch off your device, hold down the volume up, power and home button all at once, entering TWRP recovery. Restore the backup you made. After reboot, repeat step 5, checking Wipe cache/dalvik cache partition and Wipe data.



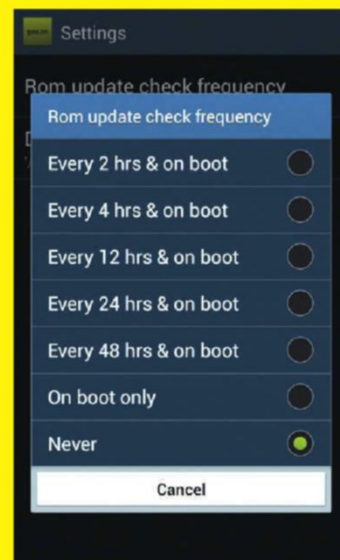
## 8 Installing a ROM from zip

To add a manually downloaded ROM from your internal storage or SD card, in the Flash ROM menu, tap Add zip from another location. Find the folder where a ROM has been downloaded. Simply tap the ROM to add it to your list of flashable ROMs in GooManager.



## 9 Updating Gapps and ROMs

Tap Check for updates. GooManager will present you with any available ROM or Gapps updates. Tap on one to download it. GooManager works with OTA updates, meaning you only have to download the updated parts of a ROM, not an entirely new version.



## 10 Set up update frequency

Tap Menu>Settings>Rom update check frequency. Select how often you want GooManager to check for updates. This can help avoid constant updates of the very latest versions of a ROM. Set update check frequency to Never if you prefer to check manually.



Works with » Most Android devices Difficulty » Expert

# Root and install Superuser on OUYA

A rooted OUYA can be used as a full set-top box complete with apps and services such as Netflix. We show you how to get started on hacking the tiny console.

“Running Android opens up the games console to an array of ingenious hacks”

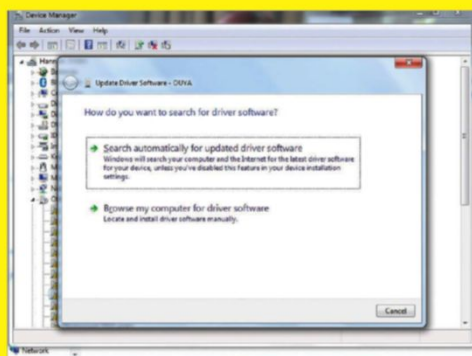
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Will a system update of the OUYA remove the root?

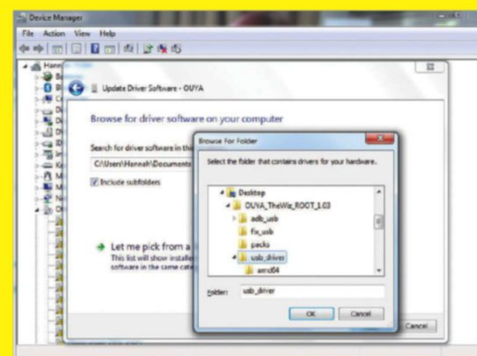
Unfortunately, that's the case. After every system update you'll be required to completely root the OUYA again, following the same procedure as listed here. Due to some of the changes that each update could provide, you may need to download updated versions of both OUYA One-Click and the OUYA ToolBox programs.

Why can't OUYA ToolBox detect my console when connected via USB?

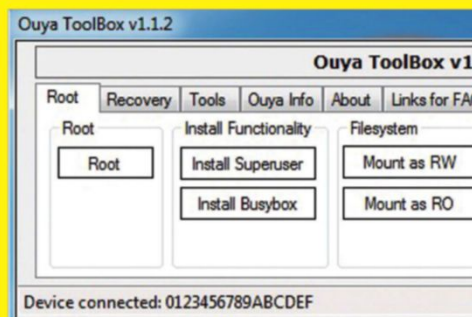
This is a simple problem to fix. After updating the drivers using the OUYA One-Click program, ToolBox may not initially recognise the update drivers, meaning it won't recognise how the console is connected to your laptop. By going to Device Manager and updating the drivers for the OUYA, it should help the ToolBox recognise your console.



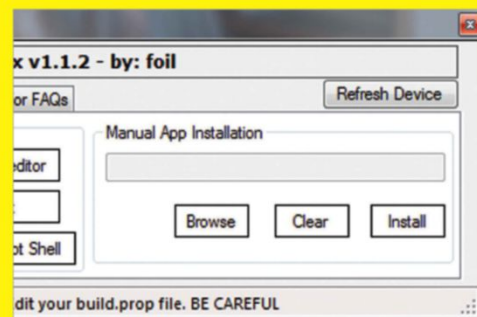
**1 Connect and update**  
Connect the OUYA console to your laptop or Mac via USB and download both the OUYA One-Click and OUYA ToolBox kits. On initial installation, you'll find the OUYA drivers will need to be updated for the console to be rooted without leaving the small chance of bricking it.



**2 Find updated drivers**  
The updated drivers you're looking for can be found in the OUYA One-Click pack you previously downloaded. Select the 'usb\_driver' folder and press OK for the drivers to be updated. The process can take a while to complete depending on how out of date the drivers are.



**6 Open OUYA ToolBox**  
Once the ADB has completed, you now have complete root access to your new OUYA console. To properly explore the console, you'll now want to open up the OUYA ToolBox to install Superuser and get to grips with the various root permissions OUYA offers.



**7 Install Superuser APK**  
With the OUYA still connected to your laptop or Mac, press on the Install Superuser icon to add the app directly onto your OUYA. The process should only take a few seconds to complete and you'll receive a notification to let you know when it has correctly installed.

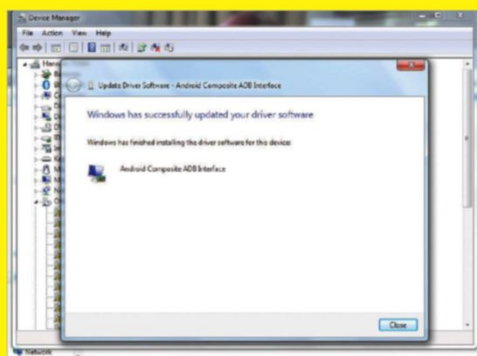


Since its release, OUYA has had decidedly mixed reviews. As a console, OUYA has issues regarding its game selection, reliability and ease of use, but that isn't to say the OUYA isn't worth you taking a closer look at. Running Android opens up the games console to an array of ingenious hacks that can open up the console to perform a variety of different functions.

The developers of OUYA have purposely left it up to the Android community to put OUYA under the spotlight and explore what the tiny console can really do. There's

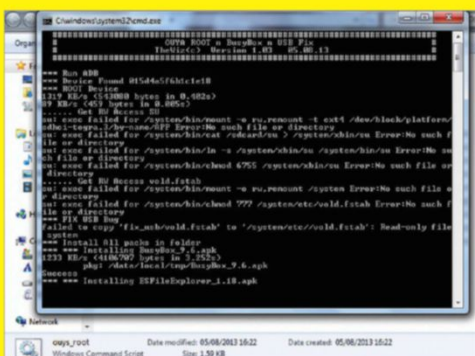
already a host of hacks available to OUYA owners and many of which we'll cover in later issues of Android Magazine, but to get you started we're going to talk you through the process of first rooting the OUYA and then installing Superuser to manage the various root permissions required on the console itself.

To complete the rooting and installing of Superuser you'll first need to download both the OUYA One-Click: Driver + Root kit ([bit.ly/1bohvi6](http://bit.ly/1bohvi6)) and also the OUYA ToolBox ([bit.ly/1cYRUhG](http://bit.ly/1cYRUhG)), both from the XDA Forums.



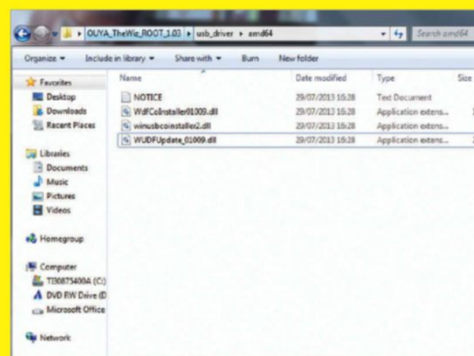
### 3 Confirm update

After the update has finished you'll be notified of the ADB driver being updated. This will be your gateway for rooting the OUYA. Navigate back to the OUYA One-Click pack and run the 'ouys\_root' file listed halfway down the page. After a few seconds the OUYA ADB window will appear.



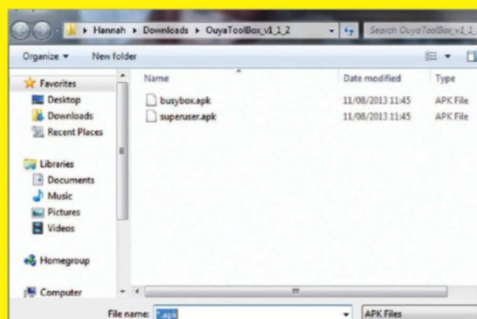
### 4 Run ADB

Not only will the ADB window root your OUYA console, it will also unlock the USB port enabling for an easier way to sideload APK files directly onto the console as well. The One-Click kit will also install ES File Explorer onto your OUYA while running ADB.



### 5 Check extensions

You may find a series of faults when running the OUYA ADB as it can be problematic. The most common problem is the OUYA disconnecting when running ADB, so make sure there are three app extension files contained in the 'amd64' folder within the 'usb\_driver' pack.



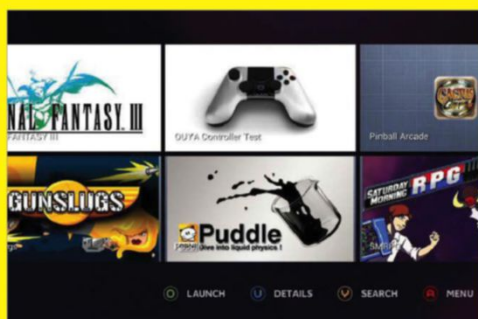
### 8 Manual app installation

By navigating to the Tools section of the OUYA ToolBox you'll find the Manual App Installation menu. Here you can add any APK files directly onto the console. Users have reported getting the likes of Netflix and Play Music working on OUYA, so try sideloading these APK files.



### 9 Go to Make page

Disconnect the OUYA from your laptop or Mac and connect it to your TV. Navigate to the Make page on the OUYA desktop and you should find the addition of any APKs you previously added listed here. Use the ES File Explorer app to find the likes of Superuser, if necessary.



### 10 Check added software

Not every APK file you sideload will be loaded under the Make section. On the odd occasion, you'll find certain APKs listed under the Play section on the OUYA desktop, and any sideloaded game APKs will automatically be listed here. Spend a bit of time flicking through menus.



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# NAVIGATION ROAD TEST

Three of the leading satnav apps go head-to-head with Android favourite, Google Maps.



## GOOGLE MAPS

**Price:** Free  
**Map coverage:** Worldwide  
**Maps stored:** Online by default (maps can also be downloaded)  
**Key features:** Included on most Android platforms, live traffic info, pedestrian mode



## NAVIGON

**Price:** from £29.95  
**Map coverage:** UK & Ireland/ Europe  
**Maps stored:** Offline – 1.2GB/2GB required  
**Key features:** Speed cams, subs-based map updates, live traffic (in-app purchase)



## TOMTOM

**Price:** from £24.99  
**Map coverage:** UK & Ireland/ Western Europe/Europe  
**Maps stored:** Offline – 367MB/2.7GB/3.4GB  
**Key features:** Free map updates, Speed cams (IAP), live traffic info (IAP)



## COPILOT LIVE

**Price:** from £19.95  
**Map coverage:** UK & Ireland/ Western Europe/Europe  
**Maps stored:** Offline – 203MB/1.5GB/2.2GB  
**Key features:** Speed cams, free map updates, traffic info (free for 12 months)

**D**edicated in-car sat navs have never been cheaper. Even so, you won't get much change out of £60 for an entry-level unit covering the UK and Ireland, and this will rise to at least £80 for full European coverage. In addition, commonly you get no free map upgrades so there's a hidden ongoing cost of ownership unless you're prepared to live with seriously out-of-date map data after the first year or so. The cheaper alternative is an Android app and there are several to choose from, in addition to Google Maps that comes pre-installed on most phones and tablets.

However, when many apps are free, and you might think you're pushing the boat out by buying an app costing a fiver, the prices of these apps could be quite an eye-opener. In addition, like the dedicated units, some charge you for updating the maps. With prices varying from around £20 for the UK and Ireland only to £50 for a top-end app

covering the whole of Europe, this is likely to be the most expensive app you'll ever buy. So which should you go for? Or should you stick with Google Maps? Here we put three top apps through their paces and compare them with Google Maps.

CoPilot installed without a hitch and Google Maps, of course, was already there but we had installation issues with the other two. Although Navigon installed okay, when we tried to download the mapping data for the UK, we experienced multiple crashes – it eventually downloaded correctly at about the twentieth attempt. TomTom, on the other hand, is very fussy about what devices it supports. We were unable to install it onto a Galaxy Ace, in fact it can only be used on devices with a resolution between 800 x 480 and 1,280 x 800. A slight annoyance, that was common to all, was the time it took to download the maps. You should do this via Wi-Fi but, even so, depending on

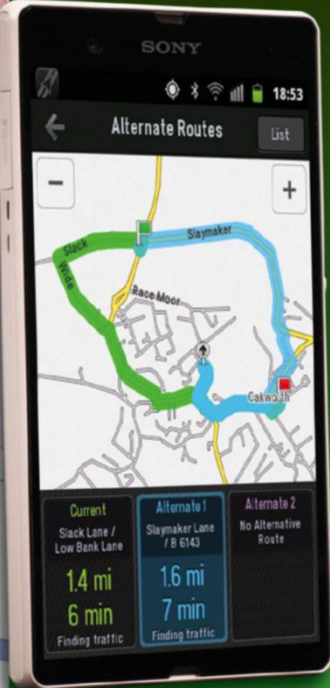
your broadband and Wi-Fi speed and the geographical area you're downloading, this could take several hours. Once installed, all the apps appeared very polished, we experienced no crashes or unexpected behaviour. Of the four, TomTom's interface was the least intuitive.

Our review is purely concerned with the software but bear in mind that there are some hardware issues to consider too. First, a phone's GPS circuitry is power hungry so you'll drain the battery very quickly. It's pretty much essential, therefore, that you get hold of a lead that will take power from your car's charging socket. Second, your phone must be firmly anchored to the dashboard. This is partly because the GPS signal might be poor if your phone is left on the passenger seat but, more importantly, because it isn't safe to look at the screen if the phone is located anywhere else. A proper cradle is, therefore, essential.



# Routing

## Which of the apps will pick the best route to your destination?



CoPilot Live had some nice touches, but couldn't compete with Maps

Our first task was to enter a destination and then come to a judgement on the recommended routes.

We acknowledge, though, that the choice of routes is subjective and that other people might have different views on the relative merits of different routes. Also, routes differ depending on the preferences you've selected but, since many people will use these apps with the default settings, we did likewise. However, you can probably get the routes to better match your personal preferences by adjusting the various options provided.

In terms of entering the destination, the apps all work in a similar way, offering you the choice of postcode, full town and street address, your recently used or favourite destinations or points of interest. Even if you enter a full postcode, though, TomTom and CoPilot both ask you to confirm or select the street name. This is unnecessary information, although we acknowledge that it gives you confidence that you've entered the correct postcode. For destinations in the middle of nowhere, all the apps allow you to enter coordinates as latitude and longitude, although, with Google, it's entered freeform into the same search box you'd use for a postcode or address. This means you have to get the format exactly right with no prompting. Each app also gives you some choice of routes either by a shortest, cheapest or greenest option. CoPilot is

particularly impressive in allowing you to drag a route on the map to select an alternative.

We tested the apps over routes that had a mixture of options, providing the possibility of being guided on unsuitable roads. Google passed well, choosing the routes we'd have chosen ourselves. Navigon's routes were mostly OK but on one occasion, after deliberately ignoring an instruction, it took us on a road that first became unsurfaced, then narrowed to a single track and finally became deeply rutted. TomTom's routes were also mostly sensible, although, again having deviated from the suggested route, it picked a dodgy alternative. CoPilot seemed to have a preference for fairly minor narrow streets.

### Verdict

Google Maps

Navigon

TomTom

CoPilot Live



The winner  
Google Maps

Google Maps edges it on routing, with a simple search and sensible routes

# On the road

## How do the apps fare while out driving?

Having entered the destination and, where appropriate, selected one of several routes, we took to the road to find out what the maps were like for guidance and how clear and accurate the directions were. All the apps provide the usual choice of 2D or 3D maps and differences are mostly a matter of aesthetics. Google allows the use of StreetView as an alternative to a map (Navigon supports StreetView but only to preview your destination) but we'd advise against this as it tends to attract your gaze with the obvious safety implications.

Turning to the spoken commands, by default, all the apps offer a voice that can pronounce street names so will say, for example, "Turn left onto Main Street". In most instances this voice sounds reasonably natural although it sounds rather robotic in CoPilot and American in Google. However, with the exception of Google, each app enables you to use one of several alternative voices which, while not being able to read street names, sound more authentic.

It's hard to know what the correct balance is between saying nothing and giving confidence-building instructions, even when strictly speaking, they're not

necessary. Google probably gets it about right, although both CoPilot and Navigon have an annoying habit of giving instructions such as, "Keep straight on at the junction" where a road goes off to the left or right. CoPilot sometimes went one better by saying, for example, "Turn Right" at junctions where the main road continued straight on and a minor road went off to the left. Conversely, and somewhat perversely, none told us to go straight on at crossroads where we had to stop, when such a comment would have given us confidence that it hadn't crashed.

### Verdict

Google Maps

Navigon

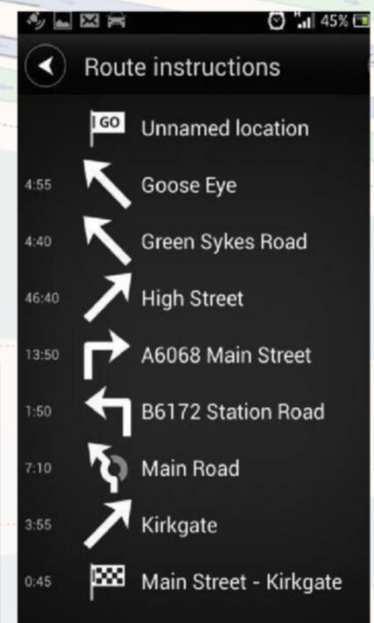
TomTom

CoPilot Live



The winner  
TomTom

Accurate and easy-to-follow directions put TomTom ahead of the competition



We were thoroughly impressed with TomTom's on-road instructions



# Traffic & re-routing

## Which app will help you dodge the jams?

Here we look at the features offered by each of the apps to deal with traffic conditions in the area, and at how well they cope with re-routing if you miss a turning or choose to ignore an instruction. It's difficult to make meaningful comparisons of the traffic information features because the traffic conditions were not identical when we tested each of the apps. Even so, we have taken a good look at the features offered by each.

All the apps offer some support for live traffic conditions but differ in whether or not this requires the payment of a subscription. In Google, this is fairly basic, comprising a colour coding of traffic severity along your route on the map, and taking account of traffic speed in calculating the time to your destination. Navigon is particularly good in showing traffic conditions (traffic volumes plus any specific issues) on your selected route, immediately before you enter navigation mode. For routing you can choose whether or not traffic conditions should be taken into account, and you're also warned of new conditions while driving, with the option of rerouting. TomTom shows any problems along your route, indicating the cause (eg road works or accident) and the length of each delay. CoPilot also warns of changing conditions as you drive, offering to reroute you to avoid heavy delays, and you can even select a bar graph on the screen indicating how well nearby traffic is flowing.

There's always the possibility of missing an instruction or, if you don't like where an app tells you

to go, you might choose to ignore a command in the hope of being offered a better alternative. To see what happened under these conditions, we deliberately ignored some instructions.

All the apps found a new route but none told you verbally that this recalculation was in progress. Depending on how quickly this happened, we sometimes ended up missing the first instruction of the alternative route. Google was particularly slow and, of course, if you miss the first instruction of the new route the whole cycle starts again. Navigon often started by telling you to do a U-turn, thereby hinting that it was recalculating, before quickly giving instructions that avoided having to turn round. TomTom was reliably quick at coming up with a new route and giving the first instruction of that route in plenty of time. CoPilot had a confusing habit of repeating the instruction that we'd ignored before giving instructions for a new route.

### Verdict

Google Maps



Navigon



TomTom

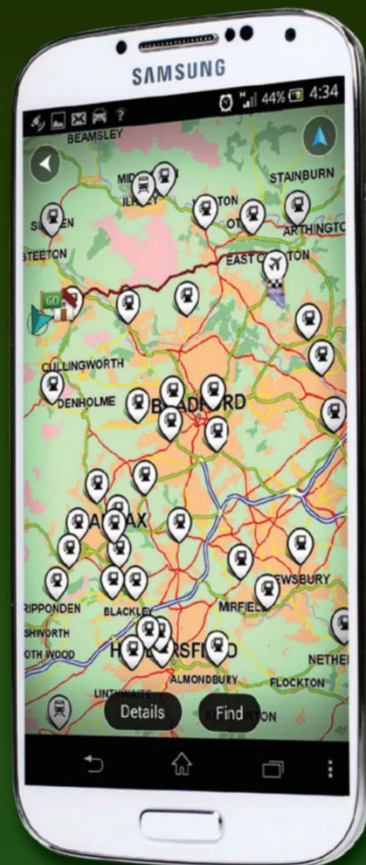


CoPilot Live

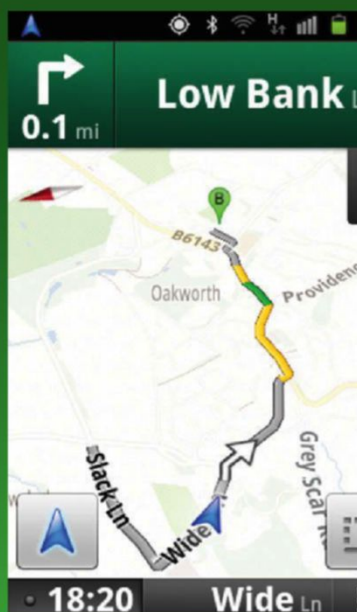


The winner...  
**TomTom**

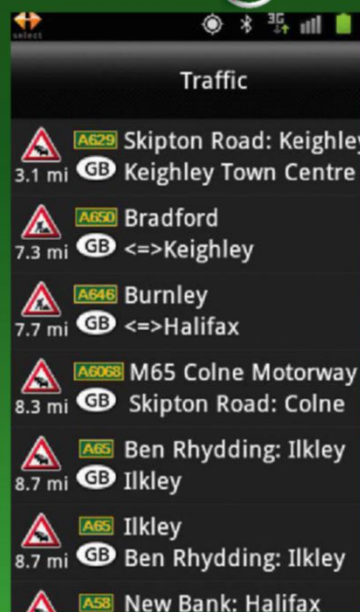
TomTom comes out ahead with its ability to guide you through the traffic



TomTom was a consistent performer when it came to avoiding traffic and re-routing



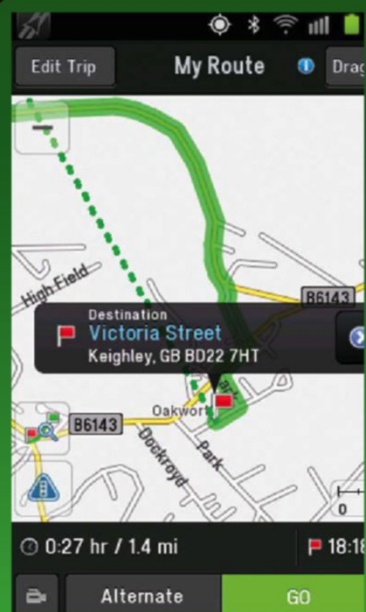
The Google Maps Navigation screens are easy to follow but the app suffers from needing a data connection for most of its features.



Navigon provides good traffic information support and helps you avoid potential incidents quite effectively, even before you start out.



TomTom has a refined user interface while out on the road. It's hard to miss your next turn with even the briefest of glances at your phone's screen.



CoPilot is excellent at plotting your route, and gives you a good choice of alternates to help you reach your destination as quickly as possible.



# Hands-free

Are any of the apps good for voice-only use?

In one way or another, each of the apps provides some means of entering a destination by speaking it rather than by typing it or selecting it from a menu. However, given that you first have to select the speech recognition option from a menu, and commonly, having spoken it, you're required to confirm it on-screen, this is better described as 'hands less' than 'hands free'. As such, and because you'll always have to park to safely enter a destination, it's arguably of limited value. Because of this, we're not giving any of the apps more than two points for this rather dubious feature.

"Having spoken it, you're required to confirm it on-screen – this is better described as 'hands less' than 'hands free'"

Having said that all the apps support speech input, that is normally via Android's built-in speech recognition (eg the microphone symbol on the on-screen keyboard), but only Google Maps offers true integrated support. Our attempt to navigate to Keighley in West Yorkshire (pronounced Keeth-ley) illustrates why this is an important distinction. With Google, because it had access to a directory of place names, the spoken place name was identified correctly. With all the others, Android heard it as Keithley, a destination that the apps didn't recognise.

## Verdict

|              |   |
|--------------|---|
| Google Maps  | 1 |
| Navigon      | 1 |
| TomTom       | 1 |
| CoPilot Live | 1 |



The winner...  
Google Maps

Maps has the best voice recognition, but it's not worth shouting about



Google Maps claimed another mini victory thanks to its narrowly better voice engine

# Other features

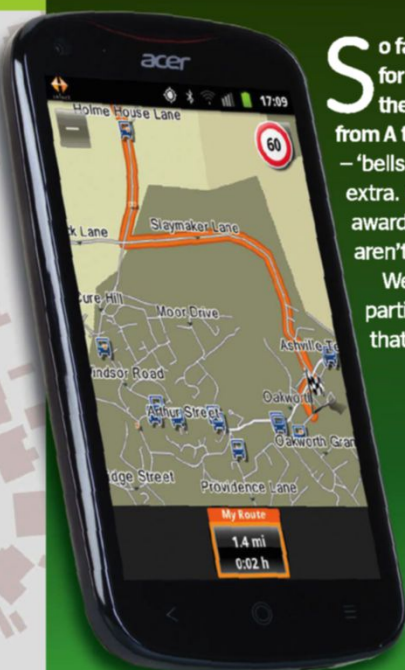
What other features do the apps have?

So far we've seen the basic features of each of the apps for use on the road but there's a lot more to some of the latest navigation apps than just helping you to get from A to B. Here we look at some of the additional features – 'bells and whistles' if you like – that provide that little bit extra. However good these extras are, though, we've awarded no more than two points because these features aren't nearly as important as the key functionality.

We didn't consider Google or TomTom to have any particularly innovative features, not already revealed, that warranted a mention here. Navigon offers

Foursquare POI search which lets you search for locations, trending venues and special deals and, once found, navigate directly there. It also links to the Glympse service which enables you to share information with selected contacts about your current position, speed and estimated time of arrival. CoPilot also lets you share information with your friends, as you approach your destination. This can be done via Facebook, Twitter, e-mail or text. This app also offers Wikipedia integration which lets you view a list of nearby Wikipedia places. Having selected one you're interested in and viewed the Wikipedia article, you're given the option of selecting it as your destination.

"We didn't consider Google or TomTom to have any particularly innovative features, not already revealed, that warranted a mention"



Navigon joins forces with Foursquare to bring POI searches as an extra

## Verdict

|              |   |
|--------------|---|
| Google Maps  | 1 |
| Navigon      | 1 |
| TomTom       | 1 |
| CoPilot Live | 1 |



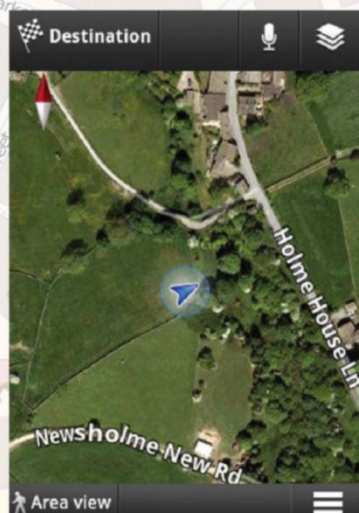
The winner...  
CoPilot Live

Social and other web interaction place  
CoPilot and Navigon ahead of its rivals



# Out of the car

We leave the car for walking and cycling



Google Maps can show your exact position



There's a handy Last Mile feature in Navigon

**A**lthough some of the dedicated in-car units now offer a walking mode, in reality most aren't really suited to use on foot, primarily because the form factor isn't ideal for carrying them around with you, although we are seeing improvements here. Similarly you probably wouldn't choose to walk down a city street with a tablet held out at arm's length but a phone is a different matter entirely, and most apps provide a degree of support for walking.

Bear in mind, though, that walking is really just for short journeys – perhaps the few hundred metres to your destination after you've parked the car, or from a tube station to a hotel – because the battery life, which always takes a nose dive when you're using GPS, won't be good enough for a day on the hills. However, there's a much more fundamental reason why you can't take these apps on a long hike. Although they'll route you via underpasses and the wrong way down one-way streets, even in walking mode you're still restricted to roads, pedestrian precincts and the like. If you try to walk up Ben Nevis, these apps won't have a clue, in fact they may even refuse to show your actual location.

All our apps offer a walking mode, and Navigon also offers a Last Mile feature which is intended for use on the last leg of a car journey, and it helps out here by providing information on public transport options if the Urban Guidance option has been purchased. Although none can guide you along a walking route defined as a series of grid references, as dedicated outdoor GPS receivers do, Google Maps gains the upper hand by being able to show your position on aerial imagery, in

**“Cycling mode tends to direct you along the less busy, more bicycle-friendly routes”**

places where the standard map will show no detail at all. Google Maps also has a cycling mode, as does TomTom and CoPilot, in fact the latter is particularly impressive in also offering modes specially suited for RVs and motorcycles. Cycling mode tends to direct you along the less busy, more bicycle-friendly routes, RV mode will avoid particularly narrow roads and will refrain from telling you to perform a U-turn, although CoPilot's documentation is somewhat vague on how its motorcycle routes differ from its car routes.

## Verdict

Google Maps



Navigon



TomTom



CoPilot Live



**The winner...  
CoPilot Live**

We like Navigon's Last Mile feature, but CoPilot has the best navigation here

## Verdict

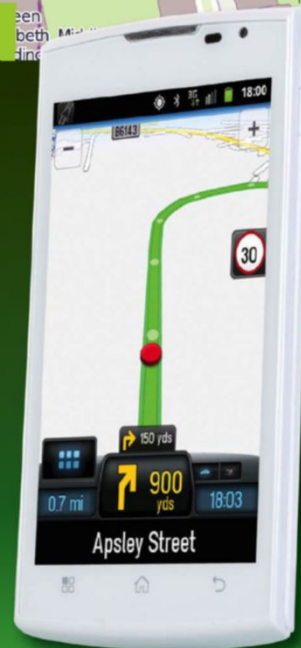
**I**n summary, we were reasonably impressed with all these apps and there's none we'd describe as poor overall. There has to be a winner, though, and when the scores are added up, CoPilot Live Premium takes the accolade. The scoring was remarkably close, though, with each of the apps scoring well in some areas and less well in others. What this means, of course, is that you shouldn't make a buying decision on the basis of the total score alone. Instead you should read our detailed comments, bearing in mind your particular requirements and preferences.

Our scores are based purely on the specifications and our experience of how well each app performed. In particular, they don't take price into account, yet if you are interested in value for money, CoPilot is further endorsed since, of the three commercial apps, it's the one with the cheapest price tag. However, when we bear in mind that Google Maps scored only slightly less than CoPilot, yet it doesn't cost a penny, it's clear that this is an option that deserves serious consideration. In short, it looks like you really don't have an excuse for ever getting lost again.



**And the winner is...  
CoPilot Live**

CoPilot is the best all-rounder, with a winning combination of excellent navigation and innovative features. It beats Google Maps into second place



CoPilot was our choice as the winner of this group test



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# Nike+ Running

A great way to stay in shape with special help from your Android



**A**lmost everyone wants to stay fit and healthy, but often it's easier said than done. Between working late at the office and picking up your children from day care, it can be challenging to find some spare time to exercise. Running is one of the best ways to keep in shape and get your heart rate up. One of the challenges of exercising is staying motivated. Nike+ Running not only does this, but keeps track of your progress towards a new fit you.

This unique app is so much more than a jogging app. Whether you're running indoors on a treadmill or

jogging along the trails in the great outdoors, the app works in tandem with your phone's GPS and accelerometer to keep track of your distance, pace and time. There's no need to fumble around and lose concentration to check your progress – in-run audio feedback lets you know your progress every step of the way. Unlike the Nike+ FuelBand (which sadly isn't coming to Android), there's no additional equipment required – just pick up your phone and start jogging.

For competitive runners looking to train for their next marathon, the heat map is a great tool. The app's map not only keeps track of your

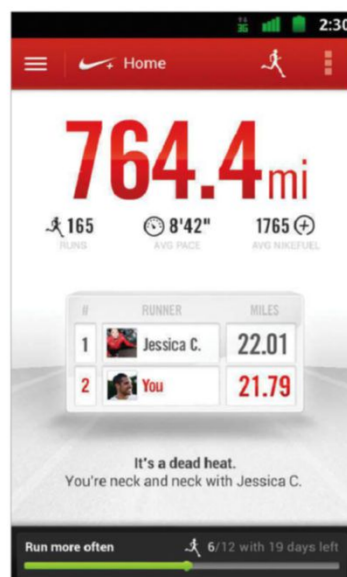
route, but it also lets you know your pace. The app draws your route along the map in a colour scale ranging from green to red. Your fastest miles are coloured in green, while your slowest miles are coloured in red. For runners looking to pace themselves, this is an invaluable tool. The last thing you want to do is start at a rapid pace only to run out of steam before the finish line. Whether you're jogging on

the beach or in the forest, you can also keep track of terrain during your run and enter your feelings after the race. The app even has a built-in weather feature for serious runners and the ability to take notes for future runs.

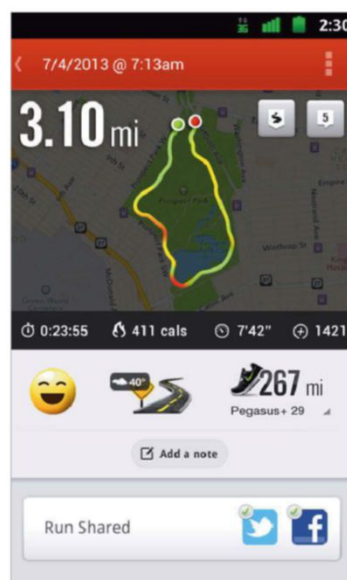
There's nothing like a little healthy competition to get the heart racing. Keep track of your status, as well as your mate's, by adding them to see how you stack up against the competition. The app is fully integrated to social media – receive instant cheers from your Facebook friends when you've announced you've started your latest session. Best of all, you can tag your mates that you've bumped into and share a map of your trek with your family.

What better way than some rocking tunes to keep you encouraged? If you have a favourite song to inspire you to keep going the extra mile, you can add it via PowerSongs. Whether it's the theme from the Rocky movies or Let It Be by the Beatles, with the simple tap of a button you'll be listening to a song guaranteed to get you the extra mile to the finish line.

Keep track of your progress while you're on the go



The app lets you know how you did after each run has ended



Compare your progress to see if you're making improvements

## 15min wonder

Want your money back? You've got 15 mins to decide!



### » 0-5 minutes

The app is easy and self-explanatory to set up



### » 5-10 minutes

We've already uploaded a playlist. Time to hit the road.



### » 10-15 minutes

Now we've burned 200 calories already

keep

refund

## » like this? try this!



### Runtastic Running & Exercise

Whether you're walking, running or cycling, track your workout in real-time.

## » specification

### Price Free

Designed for: Phone/tablet  
Requires Android: 2.3.3 and up

## » verdict

### Performance



### Design



### Value



Nike+ Running is the best free running app out there – we absolutely love it





Boomerang



Evernote

reClock: Text  
Clock  
WidgetNowThis  
News

# Boomerang

## Email made easy for your Android device



Although you may enjoy playing games and browsing social media apps, the main purpose of your Android device is to keep in contact in real-time. Whether you use your phone to email your family to let them know where you are or to reply to business emails while you're on the tube, it makes your life a lot easier and more productive. Boomerang takes everyone's favourite email service Gmail and makes it that much easier. Not only will you be more productive, you'll never forget to send an important email again. The app is called Boomerang for a good reason. Sometimes you receive important emails that you don't have time to reply to, but don't want to forget to reply later. Boomerang sends you a reminder at a scheduled time so you're always on the ball.

Getting started is as easy as using your existing Gmail account. Simply download and install the app, sign in with your Gmail credentials and you're ready to get started.

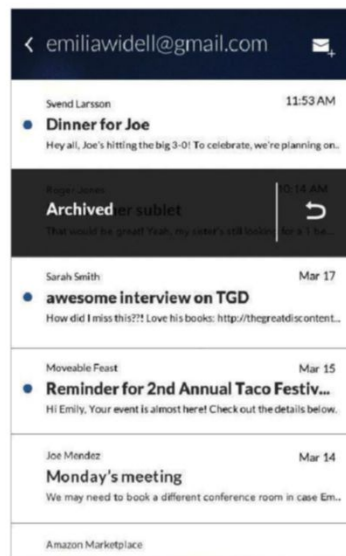
Boomerang is so much more than a basic email app. It adds features Gmail doesn't even have. At the core of Boomerang is the ability to snooze and schedule emails for later. Never bother sending yourself a reminder again; Boomerang sends the email at the scheduled time even if you're not signed in to the app.

Boomerang's intuitive design makes it easier than ever to use. Simply swipe your finger across the

**» like this? try this!****Any.do To-do List & Task List**

Whether it's a business meeting or a reminder, this fantastic app will help you remember.

screen to access the app's many features. Swipe to the left to snooze and swipe to the right to archive a



Archive your email in Boomerang with the simple swipe of a finger

message – it's that easy! The app also includes a follow-up feature, so you won't forget an important email and the ability to search through all your messages in your Gmail folders. If you have more than one Gmail account, no worries; the app includes a multi-account support feature to make switching between your personal and business Gmail accounts effortless.

**» specification****Price Free****Designed for:** Phone/tablet**Requires Android:** 2.2 and up**» verdict**

**Boomerang makes the world's best email service even better**



Boomerang offers a sizeable boost to your Gmail use

# Evernote

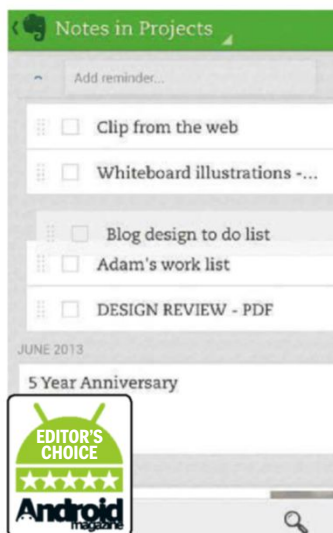
## A host of new features makes Evernote even better



Evernote, the virtual notepad app, has come out with a number of great updates lately. If you've never used Evernote, there has never been a better time to try it. Evernote lets you take notes, snap photos and add audio reminders so you'll never forget anything important again.

The latest iteration of Evernote lets you create your own to-do list. This new feature, familiar for iOS users, enables you to add deadlines to important notes and add them to the top of your list. You'll even receive a push notification with a reminder when they're due.

That's not all. You can now edit attachments in Evernote with OfficeSuite and add comments directly to PDFs. Not only is this convenient, it saves time. For anyone who uses Evernote as a way to keep up with business meetings, this is a must-have feature.

**» Price Free****» Designed for** Phone/tablet**» Requires Android** Varies with device**» Like this? Try this!**

**COLORNOTE** » This simple and easy-to-use app offers a quick way to document important notes in your day-to-day life.

# reClock: Text Clock Widget

## Always know the time



There seems to be an app for everything today.

reClock is a unique take on the countless clock apps available. Instead of viewing the time in numbers, you view it in text. For example, instead of seeing 4:11 PM, you'd see "eleven after four." reClock spells the time because it claims that when you glance at numbers you don't pay full attention and risk



missing something important. While reClock is a unique app, it does make you think, are app developers running out of ideas? We hope not.

**» Price Free****» Designed for** Phone/tablet**» Requires Android** 4.0 and up

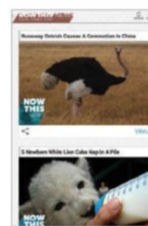
# NowThis News

## Watching the news has never been so fun



Why read the news in text when you can watch it?

Smartphones are all about enjoying media-rich content in all its glory. NowThis News is the world's first and only 24/7 video news app. This app looks to revolutionise the way users view news. Not only is the content clear and concise, you can view breaking news as it happens in



high quality. From celebrity gossip to technology, news is categorised for easy viewing. Get this app and never view news the same way again.

**» Price Free****» Designed for** Phone/tablet**» Requires Android** 2.2 and up





## Buffer

Sharing via social media made easy

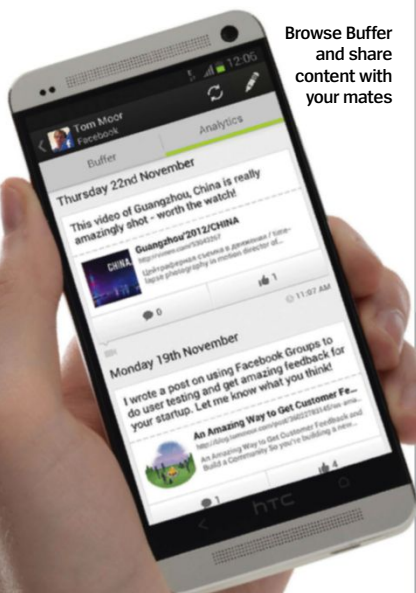


With an abundance of social networking apps available, it can be

challenging to share interesting content with your mates and business associates in a timely manner. Buffer aims to make sharing a lot easier. This great app lets you share with the most popular social networking apps, including Twitter, Facebook and LinkedIn. It also works great with popular news apps, including Flipboard and UberSocial.

With Buffer you'll be sharing in no time. Once you find something online you'd like to share, simply add it to your Buffer queue. The power of Buffer lies in its ability to time content sharing. You don't want to share news you like at once and risk annoying your mates; Buffer lets you schedule tweets and LinkedIn updates. Buffer includes all your favourite social networking features, such as retweets, likes and comments. It also works in tandem with the most popular Twitter apps, including Tweetcaster and TweetDeck. This is the perfect companion if you have multiple accounts; connect with more than one account and share as you wish.

- » **Price** Free
- » **Designed for** Phone and tablet
- » **Requires Android** 2.3 and up



Browse Buffer and share content with your mates

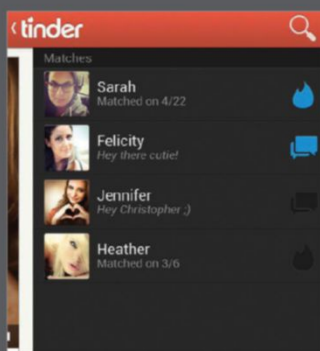
## Tinder

The new way to meet people



Whether you're looking for a new friendship or a relationship, breaking the ice with a total stranger is still intimidating, even in this age. You could walk straight up to them and start a conversation, but you'll face the chance of rejection. Tinder is the best way to meet new people online before you see them face to face. Android users can rejoice because the popular app was previously only available on the iPhone, but by popular demand it has been brought to the Android OS.

The app finds people close by based on matching criteria that it believes will make you two a good



You can view a list of nearby matches directly from the app

"If the other person isn't interested, no worries, the app will only introduce you two if the feeling is mutual"

match. You then have the option of selecting a heart if you want to get to know them further. If the feeling is mutual, your potential soon-to-be special friend will select the heart and before you know it you'll be chatting away. If the other person isn't interested, no worries, the app will only introduce you two if the feeling is mutual, eliminating that awkward rejection. The app enables you to interact and chat with your new friend. You can then make plans to meet up for coffee or a bite to eat and see where it goes from there, or just continue to chat online.



Once you've logged in you'll get to see those users nearby

Tinder works in tandem with uber popular social networking app Facebook. You'll need a Facebook account to log in, but after that the app is really easy to use. If you're shy and find it difficult to meet new friends at the local pub, this is the app for you. If you're not interested in dating, the app is also a great business networking app. Finding a future friend is easier than ever thanks to Tinder.

## Skype 4.0

A welcome face-lift keeps Skype ahead of its rivals



In celebration of its ten-year anniversary, Skype has released a brand-new mobile version. Skype 4.0 is a major improvement on previous versions. While it's nice to have added features, they can sometimes get in the way. The developer has listened and have stripped down Skype to just core

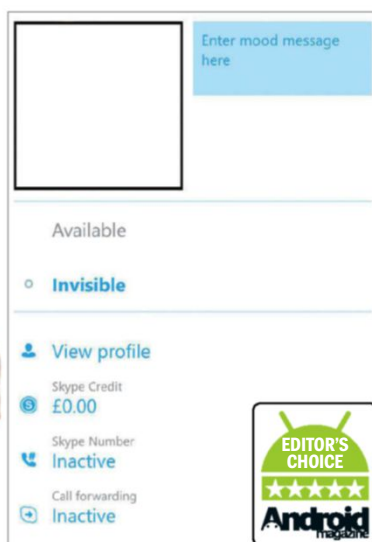
features that make it so brilliant. While there are countless communication apps out there, Skype is a colossal hit for its simple design. Similar to tabbed web browsers, Skype 4.0 uses three tabs to make its main features easy to access. You'll find everything you need there. The ability to attach files and video messages has also been added, which is a nice addition.

» like this? try this!



**Line**  
Tired of using up your minutes? Make unlimited calls from your Android device.

- » **Price** Free
- » **Designed for** Phone and tablet
- » **Requires Android** Varies with device



The focus is all about you in the new Skype update





Eyeprint



#### » like this? try this!

**m MATCH**  
Download the app for the biggest dating website and start meeting singles today.

#### » specification

**Price Free**

**Designed for:** Phone and tablet

**Requires Android:** 2.2 and up

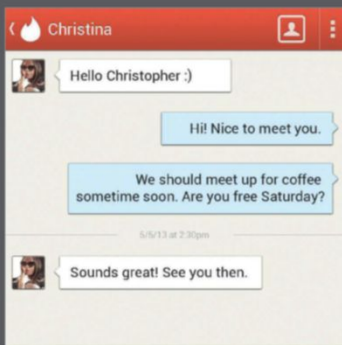
#### » verdict

**Performance**

**Design**

**Value**

Meeting new people without the fear of rejection just got a whole lot easier



Tinder lets you chat and make plans to meet up

#### 15min wonder

Want your money back?  
You've got 15 mins to decide!



» **0-5 minutes** We log in to Facebook to get started



» **5-10 minutes** There are plenty of Tinder users nearby



» **10-15 minutes** In less than ten minutes we've already got our first match!

**keep**

**refund**

Once you have your first match that's when the fun begins

## Eyeprint

A futuristic way to secure your phone



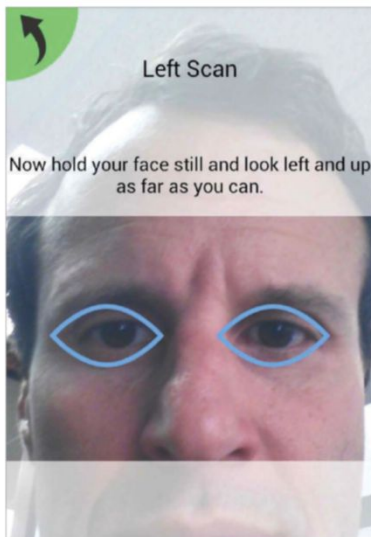
Are you looking to add a new level of security to your Android device? Your

smartphone is like a virtual wallet with all your personal information. Although you could use passwords to protect your phone, they can always be broken. Eyeprint is a futuristic security app that locks your apps using the veins in your eyes. Similar to fingerprints, each person has unique eye veins, so no two eye veins are the same.

Here's how Eyeprint works: the app snaps a photo of your face to capture the patterns of veins or

blood vessels in your eyes. Next time when you'd like to unlock an app, Eyeprint will take another photo and match it up against the first photo. If it's a match you'll be able to access your most sensitive apps, but if an intruder tries to access your apps they'll get denied. This is as close to a retina scanning app as you'll find. The app may still be in beta, but it's brilliant to try and works great.

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



Eyeprint captures the blood vessels in your eyes to identify you

## quickhits

top apps for...

**Being social**



#### HootSuite Free

HootSuite offers an easy way to manage Facebook, LinkedIn and Twitter from one brilliant app. You can schedule tweets for specific times, share photos and follow trending keywords.



#### UberSocial Free

UberSocial makes keeping in contact with your mates easy. With Inner Circle you'll never miss anything important. The app features Mute, a unique feature that lets you block unwanted tweets.



#### Twittercaster for Twitter Free

Are you looking for a simple, yet powerful, way to manage your Twitter account? TweetCaster is for you. The interface is clean and includes unique features, such as Search Party.



#### Scope Free

Manage all your favourite social media accounts, including Facebook, Twitter and Tumblr from one tight app. All the must-have features you expect are present and correct.



#### Tweetings for Twitter £1.99/\$2.99

Are you feeling overwhelmed with all your Twitter accounts? Managing your personal and business Twitter has never been so easy. The app even looks brilliant on big screen smartphones.



Check our website daily for even more app reviews

» [www.littlegreenrobot.co.uk](http://www.littlegreenrobot.co.uk)





# DigiCal Calendar

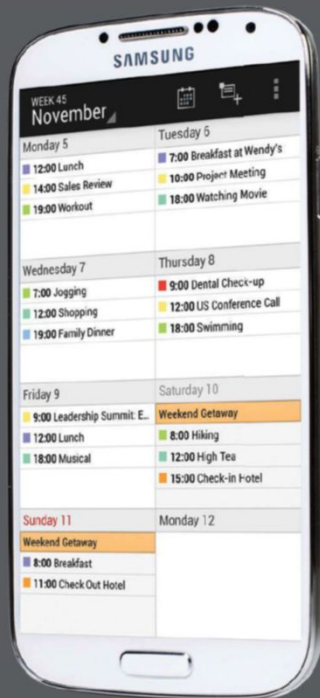
Now it's easier than ever to organise your busy life



There are already a host of calendar apps out there, so what sets

DigiCal apart from the rest? Not only is it one of the most aesthetically pleasing calendar apps available, it includes a plethora of features beyond the default Android calendar app. You can choose to view your calendar in daily, weekly, monthly or agenda view. There's no need to waste time going to a new page when you'd like to view an event; simply tap an event and you'll receive a pop-up with all the info you need. Switching days is as easy as swiping left or right.

The daily view is similar to the default calendar, but the monthly view is a major improvement. You can even copy the information to your clipboard and edit to your heart's desire. The agent view is similar, but again allows copy and edit, so you'll never miss an important appointment again.



Agenda lets you break down your busy week

» like this? try this!



**Business Calendar**

Business Calendar works in tandem with Google Calendar.

» specification

**Price Free**

Designed for: Phone/tablet

Requires Android: Varies with device

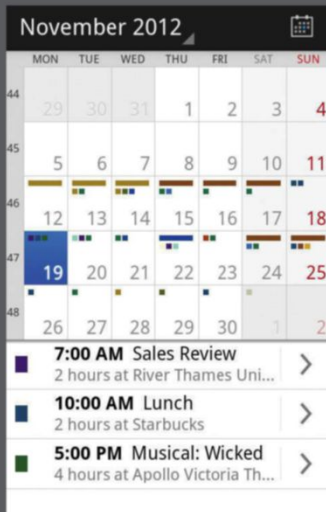
» verdict

**Performance**

**Design**

**Value**

If you're looking for a new calendar app, you can't go wrong with DigiCal



Monthly view displays your daily activities at the bottom of your screen

# Rockmelt

A new content-rich way to browse the web



The internet is a vast space full of brilliant websites to discover. With all the amazing websites out there, it can be challenging to keep up to date with the latest happenings. That's where Rockmelt comes in.

Thanks to Rockmelt, internet bookmarks are a thing of the past. This fantastic app brings your favourite websites, news and blogs to your screen for your

viewing pleasure. If you've ever used Pinterest you'll feel right at home here.

If you're looking for something new, Rockmelt is a great alternative to content sharing apps like Flipboard. Rockmelt is so much more than a web browser. Rather than compete with already great browsers like Google Chrome and Safari, Rockmelt is all about content sharing and social interaction. Your favourite content is automatically pushed to you, and you can even share the wonderful content with your mates via social networks.

» Price Free

» Designed for Phone/tablet

» Requires Android 4.0 and up



» Like this? Try this!

» **GOOGLE CURRENTS** » Read your favourite internet news from your tablet or smartphone just like a glossy magazine.

# Vignette

Add a host of brilliant effects to your photos



Once upon a time smartphone cameras were poor quality and only for amateur photographers. That was then and this is now. Today your

Android device might even have a better camera than your digital shooter at home. Vignette isn't a new app, but it's undergone a major update.

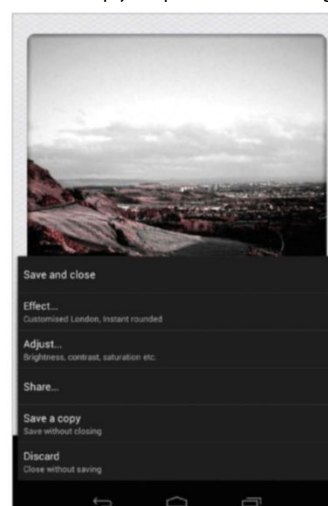
For those not familiar with Vignette, as the name alludes it's an app that dresses up your photos with a range of special effects. There are over 70

customisable filters and 50 frames to choose from so no photo will look exactly the same. The latest release has seen a number of improvements. Autosave is no longer automatically cancelled when a picture is edited. The front cameras for popular phones like the HTC One and the Samsung Galaxy S4 are now fully supported. There's even a new timestamp option, which is great for keeping track of a photo album.

» Price £1.60/\$2.60

» Designed for Phone/tablet

» Requires Android 1.5 and up



» Like this? Try this!

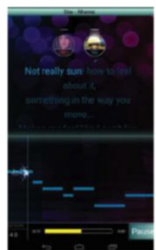
» **BEFUNKY PHOTO EDITOR** » Let your creativity run wild with this easy-to-use photo editing app.

## Sing! Karaoke

The ultimate karaoke experience



Whether you're an aspiring artist or you just enjoy singing in the shower, Sing! Karaoke has something for everyone. Choose from a vast catalogue of the world's top hits in the most popular genres. Songbook is constantly updated to include the latest hits, so you'll never run out of songs to enjoy.



There's even voice enhancement to make you sound like a star. Singing alone can get boring, so share the experience with friends and sing in duet mode.

» Price Free  
» Designed for Phone/tablet  
» Requires Android 4.0 and up



## Quick Social

A quick and easy way to share social content



Are you looking for an easy way to share content via social media? Quick Social is a quick and simple solution. This app lets you tweet, post status updates to Facebook and share on Google+. The app is easy to set up – after viewing the general settings you're ready to go. Although it would be nice to be able to log in with more than one account, Quick Social is a nice content sharing app.



» Price Free  
» Designed for Phone/tablet  
» Requires Android 3.2 and up

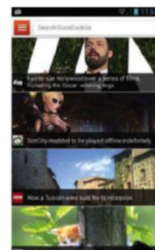


## Duck DuckGo

A better way to search for stories



Looking for an easier way to find the stories that matter to you most? DuckDuckGo offers a better way to search. Search the web anonymously without the fear of Big Brother watching over you. The app is also a great way to find content you're looking for. Similar to Google Chrome, the app goes a step



further by auto-completing answers instead of just searches. Best of all you only receive the most popular handpicked stories of the day.

» Price Free  
» Designed for Phone/tablet  
» Requires Android 2.2 and up



## Look of Disapproval

Get your emoticons copied to your clipboard



Are you looking for a new way to express yourself? Sometimes the best expressions are left to good old fashioned emoticons. Look of Disapproval is a simple, yet unique app that lets you easily express yourself through emoticons. Simply find the emoticon you'd like to use,



copy it, tap on it, and your emoticon is forever in your clipboard. Next time you'd like to send a smiley face or a wink; it will be right there ready to be used.

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



## Clean Master

Spring cleaning has never been so approachable



The web can be a wonderful place to discover content, but it can also lead to content that slows down the performance of your phone. Clean Master offers an easy way to speed up your phone so it's in tiptop shape. It will clean your cache and residual files and free up space. It also offers



an advanced task manager to close those apps that run in the background and use valuable RAM. Your phone will be running in perfect order in no time.

» Price Free  
» Designed for Phone/tablet  
» Requires Android Varies with device

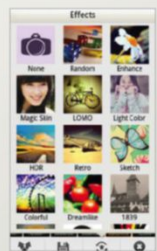


## Camera 360

Professional photo effects from a free app



For the serious photographer comes Camera360, a new way to dress up your photos. Camera360 provides an all-inclusive suite of professional, yet amusing mobile photography options for you to enjoy. Choose from seven unique shooting modes, including special effects,



self-portrait and quick-shoot mode. Photo montage lets you create a unique photo by piecing together your most cherished photos and memories.

» Price Free  
» Designed for Phone/tablet  
» Requires Android 2.2 and up

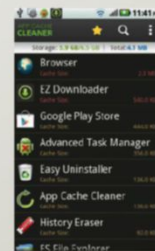


## App Cache Cleaner

Improve your phone's performance instantly



There's nothing more annoying than a phone that lags. You bought it to enjoy content, not wait while your phone freezes. App Cache Cleaner is your complete performance solution. It's a quick and easy tool to clean your cached files. One tap and all your cached files are instantly cleared,



freeing up valuable space and improving performance. If your phone constantly receives low memory warnings, get this app now.

» Price Free  
» Designed for Phone/tablet  
» Requires Android Varies with device



## Panorama Camera 360

Transform your camera into a panorama shooter



Are you looking to capture the beautiful night's sky of London in all its glory?

There's no better way to capture the world than with a panoramic shot. Panorama Camera 360 instantly transforms your phone's camera into a panoramic one. All you need is adequate light and you'll be snapping wonderful photos in no time.



» Price Free  
» Designed for Phone/tablet  
» Requires Android 2.2 and up







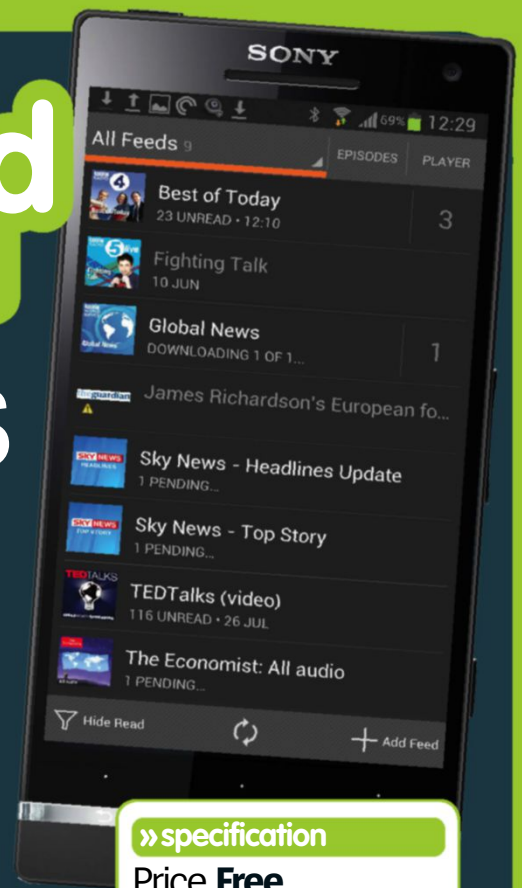
# head to head

We put Android's two best podcast apps in a head-to-head test

## POCKET CASTS VS BEYONDPD

Of the literally dozens of podcast tools available for Android, the two real standout options are the venerable BeyondPod and the new kid on the block, Pocket Casts. Where should your money go

when choosing the app to keep you up to date with your favourite shows?



» specification  
**Price £2.70/\$3.99**  
**Designed for:** Phone and tablet  
**Requires Android:** 2.3

» specification  
**Price Free**  
**Designed for:** Phone and tablet  
**Requires Android:** Varies with device



### Pocket Casts

### BeyondPod

#### INTERFACE



Pocket Casts uses the Holo Android design fully, and utilises the navigation drawer on the left side to nicely tie all the separate sections of the app together.



BeyondPod uses the Holo design mostly, but doesn't always side scroll when you expect it to. Only the basic features are up front, advanced ones are hidden.

#### DISCOVERING PODCASTS



The Discover section gives you Featured, Popular, Categories and more. Manual searching can also be done to find non-listed podcasts. Subscribing is also easy.



Add Feed takes you to lists sorted by collection, trending, genre and so on. You can also manually search. Subscribing takes just a single button tap.

#### PLAYBACK



Options include setting the playback speed, and also access to show notes. There is a widget as well as a controller on the lockscreen. Video is supported.



There's a full set of controls, but show notes can be truncated. The player is easily accessed, and a widget and lockscreen control are included.

#### PLAYLISTS



Playlists are easy to create, and support for smart playlists ensures you will never run out of content. You can include downloaded and streamed podcasts.



Playlist support is powerful but the cumbersome UI makes it difficult to manage them. Auto playlists do ensure a continuous stream of content, however.

#### MULTI-DEVICE SUPPORT



Device syncing is as simple as entering a password – it will use your Google account address by default. It works seamlessly no matter how many devices you use.



Multi-device syncing is supported, but it's a beta feature hidden at least five clicks away from the app's home screen. Future versions should fix this.

And the winner is...  
**POCKET CASTS**

Although the feature set is similar, Pocket Casts is by some margin better than BeyondPod. The clean and beautifully designed user interface is matched by powerful functionality, making it an easy-to-use and highly reliable app. A clear winner.



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# Great Battles Medieval

Go back in time and relive history in this epic educational strategy RPG



You don't see many educational games hit the Google Play store, but Great Battles Medieval is a surprise hit.

The game itself takes place during the Hundred Years War between England and France and you'll find all the historical references used throughout are highly accurate. Between fights you'll see recreations of famous scenarios put together by the History Channel, which are a great treat and break up the gameplay well.

At its core, Great Battles Medieval is a strategy RPG, putting you in the shoes of either England or France. There isn't a particular story line, per se, but instead you have an open map and can choose to skirmish with different armies you encounter. At your disposal are 20 different unit types and you can put together a decent army with them. After separating your army into different squads, you can then proceed into battle – a real game highlight.

Battles are an epic affair, and at any one time you can expect to see up to a thousand soldiers fighting it out. You need to carefully mastermind the best way to defeat the enemy, with certain units and



Each unit type has different strengths and weaknesses



weapons being effective against certain enemy types. Some units have specific movement traits and other variables which really make the strategy aspect of the game shine through. As you progress you can unlock skills to add to various units and pick up battle cards which can be used during a battle to give you the upper hand.

There's a great sense of momentum within a battle and if things aren't going your way, you may need to regroup your troops and figure out a new tactic. Similarly, if the enemy are dwindling, you'll need to make sure you come through the battle unscathed, as the loss of troops can cost you a lot of in-game currency to replenish.

Great Battles Medieval works as both a great educational tool, but also a fantastic strategy RPG every Android tablet user should check out. It won't cost you a penny either.

» Price Free  
 » Designed for Tablet  
 » Requires Android 3.0



## what we've been playing

### Need for Speed Most Wanted



**Wanted £2.99/\$5.94**

We've only just started playing this, but we are impressed. There are loads of cars and races to keep you occupied. By far its best quality, however, is the beautiful graphics used.



### Game Dev Story



**£1.60/\$2.50**

Due to getting hooked on Pocket League Story 2, we checked out some of Kairossoft's other titles. Game Dev Story has all the familiar Kairossoft elements.



Recommend a game...

» **twitter**  
 @lgrobot



## Pocket League Story 2

Back of the net, or a complete air shot?



There was lots to love about the original Pocket League Story, so we've got nothing but praise for Kairossoft for bringing a sequel to our screens. The second time around the same level of charm is there, but so are all the same fundamental elements that made the first a success. You still need to take a team of misfits and turn them into league champions, while also making sure you're correctly training them and working on bringing new players to the club.

There's no massive changes of note which is a real shame. There's new weather conditions to play in, a variety of new players and there are a



You can use tactics to change the momentum of a match

few tweaks to player training, but that's about it. Kairossoft has also adopted a freemium model, enabling players to get a good few hours into it before the need to part with some cash to purchase in-game currency.

» Price Free  
 » Designed for Phone and tablet  
 » Requires Android 2.2







Magic 2014



The Walking  
Dead:  
Assault



Mini Golf  
Game 3D

## Magic 2014

The popular card game makes its Android debut



Magic the Gathering has taken the world by storm over the past few years, but Magic 2014 is its first appearance on Android. The game itself is an exact replica of the

beloved card game, requiring you to create the ultimate deck and face off against a series of opponents in a lengthy campaign mode.

Playing a duel against someone requires you to diminish their life

points using a combination of spells and monsters. There's a whole lot of strategy to consider here, and players need to find the best way to diminish their opponent's life points, while looking to protect their own too. Due to the quality of cards available to you when you first play, with the idea of collecting cards as you beat other dualists, you'll initially lose a lot more than you win, which can get really frustrating. Whether you're new to MTG, or a seasoned pro, there's a lot to love with this card game's debut on Android.

- » Price Free
- » Designed for Tablet
- » Requires Android 2.3.3



Certain cards work better on specific terrain



## The Walking Dead: Assault

Blast your way through zombie hordes

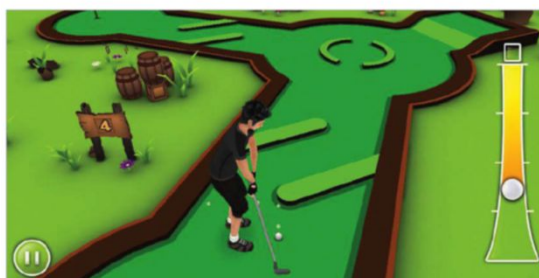


Unless you've not watched TV for a couple of years, chances are you'll have noticed the smash-hit show, The Walking Dead. The game

doesn't follow the TV show line for line, but many events occur in both. You can play as a number of characters from the show, and the player must put together a team of four characters to go on supply hunts for other survivors.

Each supply hunt is totally different and requires you to, most importantly, not get killed, but to also use tactics to avoid large groups of zombies and complete bonus objectives. As you progress, the difficulty is ramped up. By the end you'll be manically trying to stop your teammates from getting their bodies torn apart. This is only part one of five, too – there's a lot of zombie killing still to come.

- » Price £1.99/\$2.99
- » Designed for Phone and tablet
- » Requires Android Varies



## Mini Golf Game 3D

Enjoy crazy golf on the go



There's a number of mini golf games available for Android users, but the 3D graphics and zany hole design are what really makes this game

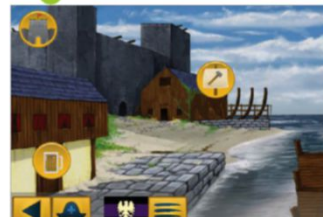
stand out from the competition. There are in total 45 holes to conquer over nine different courses, but if you're half decent at the game, this will only take you an hour or two to get through. Courses are from all over the world, from the country side, desert and even a spooky Halloween course. Each course has a difficulty rating, with it being increasingly hard to sink the ball within the allotted amount of shots available.

If you're on the lookout for a game you can play for hours on end, you won't find it in Mini Golf Game 3D. If, on the other hand, you want a simple pick-up-and-play title, this is definitely worth checking out.

- » Price £0.64/\$0.99
- » Designed for Phone and tablet
- » Requires Android 2.0.1



## quickhits



### Age of Pirates RPG Elite

£2.01/\$2.99

This intriguing turn-based strategy game sees you sail to the land of Laanbraker as you pillage and raid villages and towns around you to gain loot and infamy.



### Fantasy Breaker

£0.69/\$0.99

Fantasy Breaker is a medieval twist on the classic game, Breakout. Control your wrecking balls to dismantle opposing armies and collect different power-ups.



### Fast & Furious 6

The Game Free

Loosely based on the movie, the official Fast & Furious 6 game sees you collect cars and race competitors across the world.



### Block Block Block Free

The premise of Block Block Block is simple, just match up three blocks to the same colour to progress to the next level. When you then start to factor in variables, the game soon gets tricky.



### Diversion Free

Platform running games have taken off, but Diversion is arguably the best yet. Combining stunning 3D graphics across a series of zany levels makes Diversion a winner.



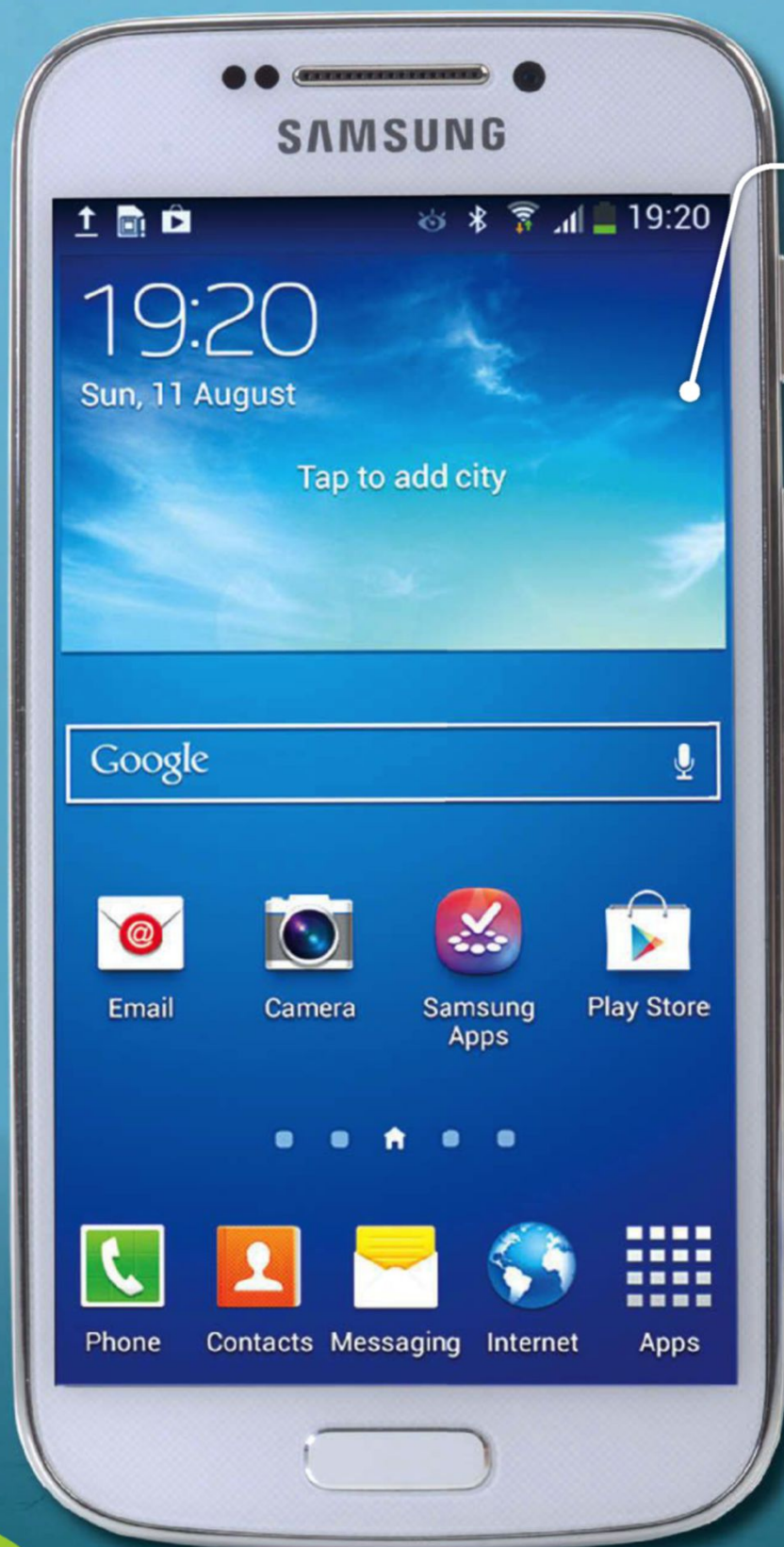
### Candy Bombs £0.57/\$0.99

Put together chains of similarly coloured pieces of candy to make them explode and clear space. Simple to understand and some nice elements that make it warrant a download.





# Samsung Galaxy



## Full phone features

The rear of the S4 Zoom is exactly like a phone, with home button, earpiece and the rest. It is literally two devices in one

## Grip

The grip is designed to help you hold the camera firmly when shooting. We found it a tad small to be really comfortable, and the device does tend to get quite warm around that area as well





# S4 Zoom

Is it a phone? Or is it a camera?  
We take a look at this strange  
new addition to the S4 brand...

**S**amsung is not afraid of creating new product categories. When it first introduced the Galaxy Note everyone mocked the ludicrous oversized 'phablet'; two years later it's one of the biggest selling ranges in the entire mobile landscape. Will the same be true of the S4 Zoom? Is it a parody of a cameraphone, to be quickly consigned to history, or is it the start of something big? We've put it to the test to give our initial view.

The Galaxy S4 Zoom is a classic 'two devices in one' product. Look at it from the back, it's a phone. Look at it from the front, it's unmistakably a camera. To be fair, it feels more cohesive in the hand than it looks in the images, but there's no denying that it is a very strange concept.

The phone part is technically an S4 Mini rather than S4. The specs include a 960x540 pixel, 4.3-inch display, with a 1.5GHz dual-core processor and 1.5GB of RAM. There's also the hefty range of connectivity options, along with the numerous sensors that Samsung equips its devices with these days. It's all one notch down from the full S4 experience, but still represents a decent specced handset that won't compromise your use.

## Design

Make no mistake, this is a camera rather than a phone. Yes you can make calls with it. You can check your emails and play Temple Run. But the form factor leaves you in no doubt that the S4 Zoom

is a camera with phone functionality built in, not the other way around.

It struggles with even the most basic things, like resting it on your desk. Curved edges mean it doesn't sit well on its side like most cameras. Placing it lens down is hardly the most elegant solution, and you're certainly not going to do it screen first. Similarly it's strange to hold when using it as a phone, as the lens means there's no comfortable place to rest your fingers. Our fingers had a natural tendency to land on the plastic cover in front of the lens, causing a build up of fingerprints to mar our shots. And we haven't even mentioned putting the device in your trouser pocket. Safe to say, you know it's there.

### 10x zoom

The 10x optical zoom is a unique feature for any smartphone-based device. It gives you a far wider range of options for framing your shots with none of the loss of quality associated with digital zoom



### Tripod mount

The Zoom is intended perhaps more for camera use than phone. On the bottom of the unit is a full-sized tripod mount



On the rear of the device you've got your screen, speaker and home button straddled by two capacitive buttons for the menu and back functions. If ever there was a time for Samsung to adopt virtual buttons instead of physical ones it is here. A large part of our usage involved having the device oriented in landscape mode and it would have been nice if those buttons had rotated.

The edges sport volume, power and shutter keys. It's a surprise to discover that the shutter button doesn't wake the device, let alone wake it straight into the camera app. It has a very narrow travel, so half pressing the button to set focus and exposure requires a very soft touch. We suspect this is a deliberate decision to accommodate the more casual user who prefers to mash the shutter button in a single motion instead. The bottom edge (or left-hand side in phone mode) has a tripod mount and micro SD card slot.

The front has the large 10x optical zoom lens encircled by a zoom ring, a Xenon flash, LED light and a grip. We found the grip too small to be of any real practical use, and the device tended to get warm around that area as well, making it less comfortable to hold. The build quality is classic Galaxy, glossy plastic shell and all.

## Screen, performance and battery

The display measures 4.3 inches, with a resolution of 540 x 960 and a pixel density of 256ppi. It's a clear notch below the full HD screen on the S4 or even the 720p panel on the HTC One Mini, yet it is also bigger and better than you'll find on pretty much any dedicated camera. As an AMOLED display, the blacks are deep and the colours very vibrant – it makes your shots look fantastic.

Performance was exactly as expected, being mostly fast and smooth with the occasional hiccup. The form factor is hardly ideal for high-end gaming or real productivity so you're unlikely to push the Zoom as hard as you would another device. The lens on the rear doubles up as an impromptu stand and that helps the phone become a decent video player, and it can handle HD video with no problems.

Battery life was disappointing compared to a phone but probably average compared to a camera. Lots of zooming, shooting, reviewing and

## 10x zoom in action



The optical zoom enables you to take wide angle and telephoto images



With the full length of the zoom you can get closer to the action than with any other phone

uploading eats into the battery. If you want to use the device to its maximum potential as both camera and phone you may want to invest in a spare battery to keep it running.

## Software

The software in the Zoom is Android 4.2 hidden almost entirely behind Samsung's own TouchWiz skin. It is essentially the same as that seen in the S4, the S4 Active and S4 Mini and by now we've said pretty much everything there is to be said about it: the annoying hand-holding messages, the silly beeps, the design inconsistencies, the fact that it uses more internal storage than any other skin and the way it slows down with heavy use.

A few tweaks have been made for the camera functionality, including the Photo Suggest app. This shows you photos that others have taken in your current location in attempt to help you get ideas for your own shots. The Scene Suggest feature in the camera app also recommends shooting modes based on the current conditions. Between them it is an admirable attempt to help your shots move beyond the average holiday snaps standard.

## Camera

Launching the camera on the S4 Zoom is unexpectedly hard. We've already mentioned how the shutter button has no effect when the phone is locked, so you have to hit the power button, slide

to unlock and then launch the camera. It's not ideal for getting a quick shot. A long press of the shutter on an unlocked device will open the camera, but rotating the zoom ring on the lens takes you to an intermediary screen requiring you to pick a camera setting via a screen tap.

The camera software is every bit as feature rich as TouchWiz itself, and just as complex unfortunately. Menus and options can be accessed from all sides of the screen, and with so many settings on offer finding the one you want can be tricky. You can shoot in full auto mode, scene mode or manual. We weren't keen on the manual interface, with its mix of intrusive help bubbles and obscurely labelled skeuomorphic controls. It's also only semi-manual. You can set the aperture, shutter speed and ISO, but there are only two aperture settings available, a maximum and minimum that vary depending on your zoom level. Zooming is stepped, so reduces the amount of precise control you have. At the long end it jumps from 7.9x to 10x, for example.

Eventually we settled for shooting in full auto mode almost exclusively, only switching to one of the scene modes when we wanted something different, like a panorama, which is excellent.

The picture quality is good. With a 1/2.33-inch sensor it is the same size as that in the S4, larger than most smartphone cameras but somewhat smaller than you'll find in some of the more innovative devices such as Nokia's recent Lumia 1020 Windows Phone. The 10x optical zoom gives the camera a real USP that you won't find anywhere else, and means you can get a wider range of shots than you would with the fixed – and usually wide – focal length in phones. Zooming is very easy thanks to the zoom ring around the lens, and with optical image stabilisation on board you can maintain a steady shot even at the long end of the lens in lower light conditions.

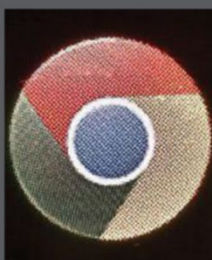
We found the lens to be better than we saw previously on Samsung's Galaxy Camera, although with a small aperture it is not ideal for shooting in poor light. Images look great on the device's vibrant

## Screen test

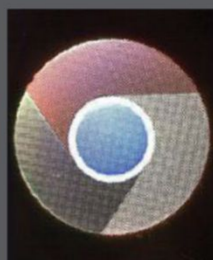
The display is one level below HD and shows when placed alongside a HD display such as that in the Galaxy S III. However it is worth remembering that the screen is considerably better than you'll find in any dedicated camera, and it does show off your photos brilliantly.



Galaxy S4 Zoom



Galaxy S III



Galaxy S4

# Review

## Samsung Galaxy S4 Zoom

### information

Price **£442.80**

» More information  
[www.samsung.com](http://www.samsung.com)

» Supplied by  
[www.clove.co.uk](http://www.clove.co.uk)



#### Battery life



Battery life is okay for either phone or camera, but using them both puts it under quite a bit of pressure

#### technical specs

- » Operating system.....**Android 4.2.2**
- » Processor.....**1.5GHz dual-core**
- » Memory.....**1.5GB RAM, 8GB storage**
- » Dimensions.....**125.5 x 63.5 x 15.4mm**
- » Weight.....**208g**
- » Display size.....**4.3-inch**
- » Display resolution.....**540 x 960 pixels**
- » Expansion slot.....**micro SD**

Samsung Galaxy S4 Zoom



#### Performance



A reasonable mid-range phone and a respectable camera

#### Design



Too bulky to be your main phone, and with a few quirks as a camera too

#### Features



The camera-centric features are generally quite good

#### Value for money



Mid-range phone plus mid-range camera equals high-end price

### » Verdict

A strange product. It works well enough but the camera-like form factor makes it too niche to recommend



#### Shutter button

A long press of the shutter button will launch the camera app but only when already powered and unlocked. Otherwise you need to swipe through the lock screen

#### Xenon flash

Optical image stabilisation is built in, enabling you to take shots in lower light. If you need to brighten up your shots further a very powerful Xenon flash is here

screen, but transferred over to a larger monitor show some signs of noise, blown highlights and loss of detail in low light. Essentially this is still a smartphone camera, only one with a much greater range, and a powerful flash that will at least ensure your night shots are crisp.

We also had a few issues shooting video. Although the quality was fine in 1080p the sound quality was less so, picking up the buzz of the lens as it zoomed. There is an option in the software to reduce this, but all it does is cut volume for the second while the lens zooms, before increasing back to its previous level. It was arguably worse.

The benefit to having support for both cellular data up to LTE and Wi-Fi is that you will not be short of sharing options on this device. Whether you choose to back up your photos automatically to the cloud, share them on Facebook or Instagram, or edit them in an app like Snapseed and post them on 500px, you can, all directly from the device. A typical jpeg from the 16MP sensor is around 6MB.

### Verdict

Considering some of the recent innovations we've seen in smartphone cameras from the likes of Nokia, Motorola and HTC, the Galaxy S4 Zoom feels like a rather old fashioned device. Rather than adopting a different approach, or developing a new technology to improve the lot of the camera phone photographer, Samsung has merely spliced two average products together to create something new.

As a result the S4 Zoom is a very niche device. If you don't need the zoom range then you would be better off with an original Galaxy S4 – it's a better phone, has a better screen, will fit in your pocket, and has an image quality not considerably different to what you get here. If you do need the zoom – but not such an extent that you'd prefer a dedicated camera (with larger sensor and upgraded image quality) – then it may be worth a look. It's hard to see many putting up with it as their main phone, though.

### Performance tests

We had no real issues with the all-round speed and responsiveness when using the Zoom as either a phone or camera, although as mentioned the bulky form factor meant we were less inclined to use the smartphone for certain tasks that we wouldn't think twice about normally. Benchmark tests put it below both the full S4 and the S III for overall speed, putting the phone part of the device firmly in the mid-range bracket.

#### Processor & graphics AnTuTu



#### Vellamo (HTML 5 speed)





## HTC One Mini

HTC shrinks the One into a smaller package. Can it repeat the original's success?

### Amazing sound

The so called BoomSound speakers were the standout feature of the HTC One. They're back again on the One Mini and are every bit as impressive. We hope every manufacturer learns a lesson from these

### Makes Sense

HTC Sense is installed on top of Android 4.2. It's mostly pretty light and easy to use, a far cry from the gimmick-laden skins you see from Samsung

### Beautiful screen

The display has dropped to 720p but is as stunning as that on the One. It is bright and vibrant, and you can reach your fingers across it with ease

### Metal chassis

The all metal build of the One Mini gives it a classy, expensive feel. This may be a mid-range device, but there's nothing cheap about it



The HTC One is one of the big Android hits of the year. Both a critical and commercial success it raised the game for Android phones, offering a higher level of design and build quality and a more thoughtful collection of software and features. With the One Mini, HTC is looking to move to an even bigger audience. The device has been reduced in size, but the phone is remarkably light on compromise.

## Design

The design of the phone is largely unchanged from the original HTC One. This means it is one of the best looking phones on the market, with a premium build quality and the kind of attention to detail that is simply not shown by so many other Android device manufacturers.

This means it still has the aluminium unibody casing that feels fantastic in the hand, making the phone solid and weighty but never heavy. There's a plastic trim around the edge, something that was not here before, and though it is not quite as appealing as the all over metal of the One it is scarcely noticeable in use.

The oddly named BoomSound speakers are present and correct, facing frontwards and pushing out sound at a volume and quality unmatched by any other smartphone. And the button placement below the screen is the same as before, with a

with a display like this. The phone itself is not considerably smaller than the One – just five millimetres shorter and narrower – but the effect of the small screen is very noticeable, making it so much easier to reach your thumb up to the notifications pane, and this is far more of a one-handed device than the bigger variations are.

## Performance and battery

There seems to be a demand for quality Android phones with 4.3-inch displays that don't compromise on the specs. At first glance the HTC One Mini appears to fail in this regard, as the key specs have been downgraded as compared to the full size One. The processor has been cut from the high-end quad-core Snapdragon 600 clocked at 1.7GHz to the more mid-range dual-core Snapdragon 400 at 1.4GHz. RAM has been halved from 2 to 1GB, as has the storage, from 32 to 16GB. A few of the more interesting features of the One have also gone, including NFC, the infrared port and optical image stabilisation in the camera.

Yet for much of the time these changes did not matter as much as we might have expected. Indeed the HTC One Mini is the kind of the device that takes specs out of the equation. It's not a phone for those that want the best of the best, or who demand the top ranking in the benchmark tests. Those who merely want a phone that works

“One of the best looking phones on the market, with a premium build quality and the kind of attention to detail that is simply not shown by so many other manufacturers”

back button and home button straddling the HTC logo. Some users have found this to be a contentious decision, but we've never had a problem with it.

The power button is located on the top-left corner of the handset. While this was a serious problem with the 4.7-inch One, since it was very hard to reach one handed, it isn't on the Mini. It's still the only way to wake the phone, but most users should be able to stretch a finger up to press it much more comfortably. A long press of the home button now functions as a menu key, and a double-tap opens the task switching screen.

## Screen

The display on the One Mini is not 1080p but 720p. Spread across 4.3 inches it has a pixel density of 342ppi and is every bit as sharp and crisp as you would hope to see. It is stunning. Bright and useable even outdoors, with vibrant colours and wide viewing angles. This is one of the areas where HTC so often shines, and the company can mark the Mini down as another success. There's no better way to make positive first impressions than

with the minimum of fuss, however, that is smooth and responsive and thoroughly enjoyable to use, will have few complaints.

This is in some ways the dream. That you can take performance for granted and don't need to pore over spec sheets to guarantee you're getting the phone that you want.

Yet in spite of that we do still have a few concerns, in particular the storage. That 16GB equates to only around 11GB that is actually available to the user. With no memory card slot you really are going to have to ration the kind of content you want to take with you, or at least start to embrace the cloud.

We're also a little disappointed that there's only 1GB of RAM here. That's still the average, but is starting to become the bare minimum. Samsung was able to fit 1.5GB into their equivalent product, the S4 Mini, and while it's not a big deal right now it could become one in this time next year.

And with a long-term outlook, storage and RAM limitations are frequently cited by manufacturers as reasons why OS updates cannot be produced for a handset. HTC's record is already patchy

## Performance tests

Inevitably the One Mini does not match the performance of higher-end devices in benchmark tests. However, in real world use the phone was smooth and very responsive. It's not a device that will give you performance issues unless you go looking for them.



enough in this regard, and these factors do seem like potential stumbling blocks if updates are important to you.

But for the time being the One Mini is fast and lag free, and though it doesn't compare to the One in benchmark performance, our real world experience of using the phone revealed no significant compromises.

Even the battery life is on a par with the original. The battery is smaller, but this appears to be offset by the smaller and lower res display. A solid day of use should be well within the phone's capabilities, long sessions of gaming or 4G use notwithstanding. Remember that the battery here is not removable.

## Software

The software is virtually identical to that in the HTC One. You get Android 4.2 with HTC Sense 5 on top. This is a full reskin of the OS, and one that is largely faithful to the general Android design. The effect is not as jarring as with Samsung's TouchWiz, which shares almost no design aesthetics with Android.

The main feature in Sense is BlinkFeed. This is a Flipboard-style homescreen panel that gives you the latest news as well as social network updates, presented in bitesized chunks. The idea is that it gives you something to look at when you've got a couple of minutes to waste. It's reasonably effective, but it feels more like an app than an integral part of an operating system so we would like the option to disable it, especially as you cannot add your own feeds or content.



You can set a standard Android home screen panel to be your default one, at least. Elsewhere the rest of the UI looks different but is generally familiar. You can choose the grid size for your apps – the default setting is too light on icons for our taste – and though the settings screens have been redesigned they still function as per the standard Android options. It's pretty tasteful stuff, generally, and has none of the gimmicks that Samsung chooses to load into its devices.

## Camera

The camera in the One Mini is HTC's new 'UltraPixel' offering. It's a four-megapixel sensor where the UltraPixel tag refers to the fact that each pixel is larger than those on higher megapixel sensors. This means that on a pixel-for-pixel basis they will receive more light and be sharper and clearer in low light conditions. It comes at the expense of detail, however.

There's no image stabilisation on the One Mini as there was on the One, so even though images are typically better in lower light than most smartphones they are not immune from motion blur if it gets too dark. Viewing a daylight image on the One Mini is no better than most good camera phones, and that lower resolution does cost both detail and room for cropping. The sensor shoots in 16:9 ratio, which is hardly ideal for shooting in portrait mode.

On the whole it is difficult to see the UltraPixel concept as anything more than marketing. It's nice that HTC is thinking about how it can produce better photos from its phones, but we're not seeing a big enough improvement to balance out the downsides. Video is good, although the loss of stabilisation is very noticeable there too.

What HTC does have going for it is the best camera software around, especially the Zoe feature which combines videos and photos shot at the same time or location into an auto-edited movie. It's now more flexible than before as you can add your own choice of music. It's amazing how little user interaction is required to make a good movie using Zoe, and is one of the best pieces of software we've seen for actually helping you make use of the videos that you shoot. On most other phones, video rarely gets seen, and certainly never edited.

## Verdict

The One Mini is the perfect companion to the One. Its strengths and weaknesses are basically the same – the design, build quality, screen and performance are excellent; the camera and lack of storage are disappointing. It is a rare example of a 4.3-inch phone that hasn't compromised on the performance of its big brother, and though we do have some reservations about its future proofing, as of right now there's lots to like.

### No removable parts

The back cannot be removed so there's no option to change the battery should you ever wish to. You also cannot add your own micro SD card, leaving you with just 11GB of storage

### Button arrangement

The buttons below the screen are non-standard in their arrangement but we had no problems



## HTC One Mini information

Price **£380**

» More information  
[www.htc.com](http://www.htc.com)

### Battery life



The battery should get you through a day of use on a single charge, but not with heavy use



### technical specs

|                           |                                |
|---------------------------|--------------------------------|
| » Operating system.....   | <b>Android 4.2</b>             |
| » Processor.....          | <b>Qualcomm Snapdragon 400</b> |
|                           | <b>1.4GHz dual-core</b>        |
| » Memory.....             | <b>1GB RAM, 16GB storage</b>   |
| » Dimensions.....         | <b>132 x 63.2 x 9.25mm</b>     |
| » Weight.....             | <b>122g</b>                    |
| » Display size.....       | <b>4.3-inch</b>                |
| » Display resolution..... | <b>720 x 1,280 pixels</b>      |
| » Expansion slot.....     | <b>None</b>                    |



### Performance

Fast and responsive. Camera is not the best and battery life only average

### Design

Second only to the full size One for Android phones. A beautiful device

### Features

The shortage of storage could be an issue with no card slot

### Value for money

Not cheap but you are getting quality for your money

## » Verdict

An excellent smartphone, among the very best you can currently get in the crowded mid-range sector



### Camera

The main camera shoots at eight megapixels and has a clever MultiView mode

### Notification light

Sitting above the screen on the right is a tiny charge and notification light

### Quad core

There's a quad-core processor hidden away inside the casing

### Clunky

The design is a bit on the clunky side and may not appeal to all

### Memory

Storage is in decidedly short supply so you will need a micro SD card

## Review

# Acer Liquid E2 information

Price **£185**

» More information  
[www.acer.co.uk](http://www.acer.co.uk)



### Battery life



Battery life is okay and should just about deliver a day's use

## technical specs

- » Operating system..... **Android 4.2**
- » Processor..... **1.2GHz quad-core**
- » Memory..... **1GB RAM, 4GB storage**
- » Dimensions..... **131 x 68 x 9.9mm**
- » Weight..... **150g**
- » Display size..... **4.5-inch**
- » Display resolution..... **960 x 540**
- » Expansion slot..... **micro SD**

# Acer Liquid E2

With a quad-core processor and a price under £200, the Acer Liquid E2 seems like an impossible anomaly

**F**irst impressions of the Acer Liquid E2 depend on whether you are looking at the build quality or the specifications. Take it out of the box and its £185 price tag seems about right because of the build. Look at the specifications and its quad-core processor jumps out as something that warrants a much higher price.

In fact, when you weigh up all the pros and cons, the Acer Liquid E2 represents great value for money if you like to get a lot of performance for your cash, not such good value if your priority is a phone that looks pretty.

The Acer Liquid E2 is quite a clunky handset. It is only 9.9mm thick on paper, so hardly over large, but it feels quite sizeable thanks to its somewhat chunky, solid frame. On the front there's a curved section at the top and beneath that an indented grille that looks like a light but which is in fact just coloured red. It's a dust trap. The charge light is a tiny dot on the upper-right of the front casing, the opposite side to the front two-megapixel camera.

On the back the design is pretty nasty. It is great that the phone has two speakers, but the round, indented, sliver grilles that sit on the back and shout this out against the black rubbery chassis are not a good look. And because the speakers are on the back and not the front they blast away from

you, and if the Liquid E2 is lying down on your desk they get muffled.

The screen is generously sized at 4.5 inches and though its pixel density is not that great at 960 x 540 it is certainly good enough for reading webpages and looking at video. There's 4GB of built-in storage and just 1.6GB is free, though you can augment it with a micro SD card.

The main camera is rated at eight megapixels which is high for a phone at this price. It has a neat mode called MultiView which takes photos as you move around something, and then lets you move through them using a slider. It's a neat idea but photos we took with it often came out blurred.

Acer doesn't do much skinning to Android 4.2, and that's not necessarily a bad thing; the quad-core processor here nips along quite nicely. You do get a couple of apps over and above the Android staples. Acer includes its cloud app – which gives you free cloud-based storage, and there's also a file manager and Polaris Office, a barcode scanner and to-do list app. And a utility for attaching external Bluetooth devices.

Overall the Acer Liquid E2 is pretty good value for money in terms of its processor and capability and if your budget is limited it is worth a look. Just be prepared to hide it in a case.



### Performance

Stunningly nippy thanks to a fast processor and sufficient RAM

### Design

Rather clunky and ugly, the rear in particular is quite offensive

### Features

Good processor and mostly stock Android, but little else on offer

### Value for money

A very attractive, low price for a quad-core Android device

## » Verdict

Delivers well on performance, less so on design. Take your pick as to which is more important to you



# Huawei Ascend

## P6

The Huawei Ascend P6 is the world's slimmest smartphone. It's a neat, powerful handset with a lot of plus points, as we found out for ourselves

**H**uawei is in the midst of a burst of really appealing handset launches with the Ascend Mate, Ascend P2 and now the Ascend P6 arriving almost on top of each other. The P6 model has its own special claim to fame – it is the world's thinnest smartphone, for now at least, at a mere 6.18mm.

There is more to like about the design than a thin profile though. The bottom edge curves neatly round towards the back while the other edges are flat. The edges themselves are metal which gives things a premium feel. The screen bezel along the long edges is thin, so the handset is a comfy hold despite having a large screen.

The P6 does feel like a quality product, and the thinness no doubt plays a part in that. Yet we can't help but question this never ending quest to make phones thinner. We doubt anyone would really notice if this handset were, say, 8mm thick instead. But if that extra 1.82mm had been used to fit a larger capacity battery then that would have been a certain plus for everyone.

The rounded bottom edge means the micro USB charge slot can't be accommodated on it, but instead this sits on the top edge, which is unusual but not a big problem.

The headset slot isn't where we'd like to see it – on the top edge. Instead it is all the way down the bottom of the left edge, and this is really inconvenient. Side mounted headset slots are really problematic for the pocket and we encountered annoying repeated pocket snags while testing the phone.

The headset slot is also home to what at first looks like a small cover but which turns out to be the pin you need to access the micro SD card and micro SIM caddies with. This seems like a neat idea on paper, but in reality the pin is likely to get lost very quickly. Ask yourself where you'd put it when you are using a headset. If you regularly switch between memory cards you'll need to keep a paper clip on hand just in case.

Those caddies sit on the right edge of the chassis. Their existence is a dead giveaway that the backplate is not removable and the battery is inaccessible. Battery life is just about acceptable, though, and a moderate user ought to get through

### Quad-core

The quad-core processor is made by Huawei. Its performance in benchmark tests put it a notch behind the latest big name CPUs, and closer to last year's high-end handsets

### Headset slot

The side mounted headset slot is awkwardly located and is guaranteed to make your headphone jack snag in your pocket

### Themes

There are plenty of themes that allow you to completely change the look and feel of the handset. Huawei's launcher is radically different to anything else you get on Android



**good  
for...**

### Media

Good quality speakers and a large screen are big plus points



### Impressive screen

The screen is large, bright and sharp, with a high pixel density – it's perfect for watching video or viewing the shots you take with the device's two high resolution cameras

### Thin

At the time of writing this is the thinnest smartphone available at just 6.18mm. That doesn't make it the easiest to hold, however

**“The clear and sharp display on the P6 will not leave users wanting”**

a day without charging. Don't expect that kind of longevity if you are heavy on GPS or like a few hours of music playback during the day, though.

The screen is large at 4.7 inches. Its 1,280 x 720 pixels are not up with what Samsung, HTC and Sony are delivering in their flagships, but it does provide enough size and clarity for watching video without discomfort. The step to full 1080p HD is appealing but barely discernible unless you place it alongside a 720p display. The clear and sharp display on the P6 will not leave users wanting.

There's a 1.5GHz quad-core processor that's manufactured by Huawei and is supported by 2GB of RAM. The combination seemed good enough for our needs for the most part, while never being quite as smooth as some of the year's other big phones. Built-in storage runs to 8GB and while only half of this is actually available you do have the ability to use micro SD cards to add more.

An eight-megapixel main camera and generously appointed five-megapixel front camera are both reasonably good shooters while never quite getting up to the level of the best on the market. There's no near field communication, so look away now if that is on your 'must-have' list.

Huawei has skinned Android 4.2 very heavily, and the look and feel will be familiar to anyone who has

read about or seen the Ascend Mate or the Ascend P2. Key features include the absence of an app area, instead newly downloaded apps are placed in the next available home screen slot. You have up to nine home screens on offer and can use folders to keep everything in order. There are oodles and oodles of themes and applying these does make a huge difference to the look and feel of the handset. You could ring the changes very regularly to keep things fresh. Or you could install a third-party launcher to bring the whole experience closer to the standard Android. That's our preference as the changes made here cannot be said to improve the user experience, they just present a different one.

We really like the rotating dial pad style profile chooser, and there are some neat pre-installed utilities such as a torch app. Yes you could download one easily enough, but it's nice to get a bit of help on the apps front sometimes.

The Ascend P6 can't possibly compete with leading light handsets such as the Samsung Galaxy S4. But if you look at its price, which is considerably below £20 a month on contract and around £300 SIM free, it is a really compelling choice for a pretty well specced smartphone. There's even a pink version to complement the white and black ones if that floats your boat.

# Review

## Huawei Ascend P6

# information

Price **£310**

» More information

[www.huaweidevice.co.uk](http://www.huaweidevice.co.uk)

### Battery life



You should get a day between charges with average use, but keep a charger on hand



### technical specs

|                           |                               |
|---------------------------|-------------------------------|
| » Operating system.....   | <b>Android 4.2</b>            |
| » Processor.....          | <b>1.5GHz quad-core</b>       |
| » Memory.....             | <b>2GB RAM, 8GB storage</b>   |
| » Dimensions.....         | <b>132.65 x 65.5 x 6.18mm</b> |
| » Weight.....             | <b>120g</b>                   |
| » Display size.....       | <b>4.7-inch</b>               |
| » Display resolution..... | <b>1,280 x 720 pixels</b>     |
| » Expansion slot.....     | <b>micro SD</b>               |



### Performance

Generally fast and smooth performance but not quite at cutting-edge levels

### Design

Super-thin and feels premium. A few questionable design choices though

### Features

A strong set of specs and a very heavy skin – you may or may not like it

### Value for money

An attractive price on what is a pretty highly specced phone

## » Verdict

**The P6 is a super-slim handset with an excellent screen and an affordable price tag**

### Photos

A five-megapixel front and eight-megapixel back camera are present

### Portability

This handset is super-thin and that gives it a premium feel

### Writing

The big screen means a big keyboard, and this works well for productivity





## Familiar design

The Star is unmistakably iPhone-esque. Build quality is not quite at that level but it's a pretty solidly built handset

## Good screen

A rare four-inch display for an Android device makes the 480x800 pixel resolution crisper than we've seen elsewhere

## Buttons

Capacitive buttons briefly light up below the screen whenever you might need them

## Average add-ons

The camera and speaker, both located around the back, are mediocre and show off some of the compromises needed in an entry-level device

## Hot hot hot!

The phone gets rather hot under heavy use and when charging, even to the point that we had to shut it down

# Alcatel One Touch Star

This iPhone-inspired handset brings a good screen and solid build to the entry-level sector

**T**he Alcatel One Touch Star is an entry-level handset that sits just above the true budget part of the market. Like an increasing number

of devices in the same price sector it surpasses your expectations comfortably, with a tidy fit and finish and modest yet adequate specs.

The handset shares a remarkable resemblance to the iPhone 4. Its profile is vastly similar, while the black front and silver edges only serve to add to the effect. The bezel below the screen even looks as though it's large enough to house the iPhone's home button. It doesn't, of course, the buttons are capacitive. Weirdly they're positioned three or four millimetres below where you'd expect them to be, so tapping them when they're not illuminated (the backlight goes off after a few seconds) is literally a hit and miss affair.

The phone is all solidly plastic, naturally, but packs a surprising heft and the build generally is more than acceptable at this price point.

The One Touch Star runs Android 4.1.1. It is only lightly skinned, but the theme Alcatel has chosen for it is hideous, with cartoony, rounded square-shaped icons. There's also a load of random junk pre-installed, which helps to cut the 4GB of available storage in half. It's an eclectic mix, going from Shazam to Shark Dash via anti-virus and

shopping list apps. It can all be uninstalled to free up a few extra MBs of space. If you want to add a micro SD card you need to peel off the back cover.

The four-inch display has a resolution of 480x800 pixels, a pixel density of a pretty crisp 233ppi, and the viewing angles are excellent. The five-megapixel camera fares less well, shooting mediocre, oversaturated snaps in good light, and soft, noisy ones in low light.

The 1GHz dual-core processor with 512MB of RAM handles light use well enough, but scrolling through heavy webpages can be something of a chore, and the device did tend to grind to a halt if we attempted to do too many things at once.

The phone can also get very warm under heavy use. On one occasion using the phone while charging caused an overheating warning to pop up on screen telling us to power the device down. This is potentially problematic since battery life is not so good. Getting through a day on a single charge requires some serious usage rationing.

As a result it's hard to recommend the One Touch Star for any but the least demanding users. If you're a first-time smartphone user then the phone's good looks and nice screen may be enough. Anyone just a little more demanding should probably look elsewhere.

# Alcatel One Touch Star information

Price **£180**

» More information  
[www.alcatelonetouchstar.com](http://www.alcatelonetouchstar.com)

## Battery life



You may struggle to get through the day on a charge



## technical specs

- » Operating system.....**Android 4.1.1**
- » Processor.....**1GHz dual-core**
- » Memory.....**512MB RAM, 4GB storage**
- » Dimensions.....**117.9 x 60.8 x 9.7mm**
- » Weight.....**119.5g**
- » Display size.....**Four-inch**
- » Display resolution.....**480x800 pixels**
- » Expansion slot.....**micro SD**



## Performance

Prone to clogging up when used heavily, and the battery life is not great

## Design

Unoriginal, but Alcatel has pulled off this iPhone clone well

## Features

The screen is especially good for an entry-level device

## Value for money

Good value, but it's becoming a competitive sector of the market

## » Verdict

A good option for feature phone upgraders, but less suited to those that want to push a device hard

### Reflective screen

The screen is highly reflective. Coupled with a feeble backlight it becomes difficult to use in anything other than dim conditions

### Ports galore

Almost every port you'll ever need is located down the right edge of the tablet

### Jelly Bean

Android 4.1 is running on this tablet. You won't get updates from the Big G, but it is unskinned at least

### USB charging

The tablet takes a proprietary charger. Fortunately you can also trickle charge the device using the micro USB port

## Review

# Versus Touchtab 8 information

Price **£129**

» More information  
[www.versusuk.com](http://www.versusuk.com)

### Battery life



You'll be looking at a daily charge with frequent use – not great



### technical specs

- » Operating system..... **Android 4.1**
- » Processor..... **1.6GHz dual-core**
- » Memory..... **1GB RAM, 16GB storage**
- » Dimensions..... **199 x 154 x 10mm**
- » Weight..... **400g**
- » Display size..... **Eight-inch**
- » Display resolution..... **1,024 x 768 pixels**
- » Expansion slot..... **micro SD, micro USB**

# Versus Touchtab 8

Can this compact tablet with a budget price and Android 4.1 punch above its weight?

The Versus 8 is the kind of Android tablet that you can find on the high street with an impulse buy price tag. Not sure if you want to splash out on an iPad mini? This looks pretty much the same, and it's less than half the price! Such thinking normally represents false economy, as a budget device's weaknesses quickly overpower the benefits of the savings.

We mention the iPad mini because, with an eight-inch screen and 4:3 aspect ratio – a rarity for the normally widescreen Android – that appears to be the device this tablet is referencing, rather than other Android tablets. It's harsh to make a comparison really, since the Versus' budget tag is noticeable in every respect. The back casing, for example, is of a thin plastic that doesn't feel great and also flexes when you press it. The edges of the device are rammed with buttons and ports, including a back button on the top-right edge that you will almost certainly never use, other than when you mistake it for the power button that is positioned down the side instead. Below that is a mass of ports: headphone, micro USB (which supports USB On-The-Go, with cable supplied, and trickle charging), HDMI, proprietary charger and micro SD. It's unsightly, but an impressive line up.

The screen is where the low cost hits hardest. The glass is very reflective, and the display not bright enough even at the highest setting, making it difficult to use in daylight. The low res also makes reading harder, and text is generally pixelated.

The Versus 8 runs Android 4.1.1 in its mostly untouched form. There's a load of apps that come pre-installed, mostly covering the angles that would appeal to the casual consumer, like Angry Birds and BBC iPlayer. The Dolphin Browser is also included. Also doubling up on things is the 1Mobile Market app. This delivers updates to the pre-installed apps, though we can't think why you wouldn't just use the Play store instead.

Performance flitted between mediocre and okay, depending on how many apps we were using, and what kind. A bit of light browsing, sending the odd email and checking Facebook and Twitter are fine. Storage was not an issue. There's 16GB of storage, plus any extra from micro SD and USB.

The Versus Touchtab 8 is an inexpensive tablet, but it struggles to hold up against the competition. Even similarly priced tablets like Amazon's Kindle Fire range sport better build quality and superior screens, and as a consequence are far more enjoyable to use, and will be used far more.



### Performance

Okay for light use, but not suited to anything more

### Design

Build quality is not great, screen hard to see in daylight

### Features

Excellent selection of ports for all your expansion needs

### Value for money

Cheap but there are far better options out there on the market

## » Verdict

A budget tablet in every respect, its disappointing screen especially letting things down



# Alcatel One Touch T'Pop

The Alcatel One Touch T'Pop is an ultra low-cost, robust handset for younger users

## Camera

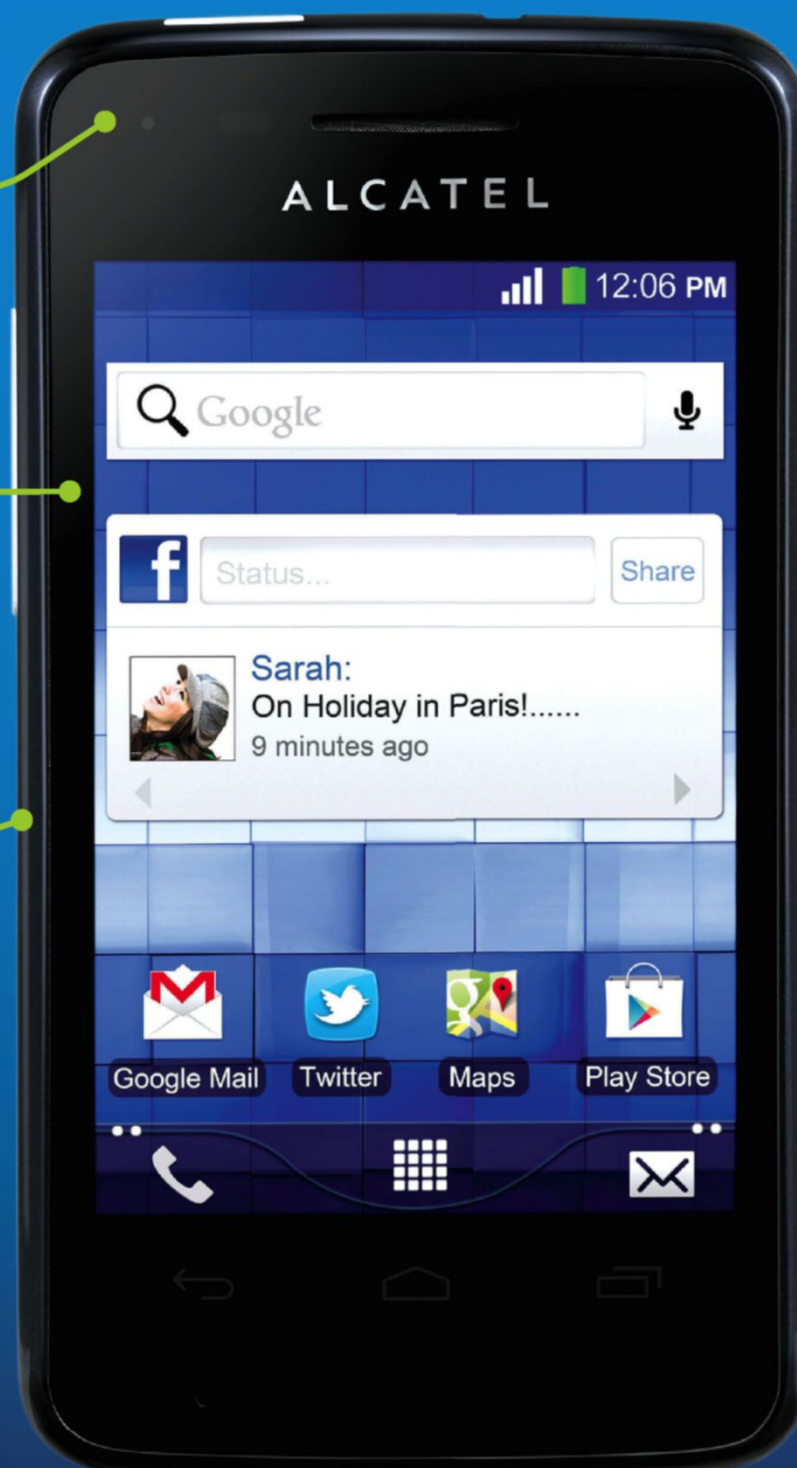
There's a burst mode feature on the two-megapixel camera, but no flash

## Old Android

If you thought Android 2.3 was dead and gone, think again – it's here once more

## Small

Younger users will find this a comfy phone to hold and use, and it should stand up to a bit of wear and tear hopefully too



French handset maker Alcatel does like to come up with odd names for its phones. One Touch makes sense, but somehow feels a bit weird. But it is as nothing when compared to Pop, the name that's been given to a series of four handsets of differing sizes. The T'Pop is the smallest – T stands for Tiny.

The Alcatel One Touch T'Pop comes in an array of different colours – white, lime green, turquoise blue, orange, pink, black and the colour of our review sample – bright red. The idea is that it is a great phone for younger users, and at £59 on Virgin Media it is certainly affordable. It's just about the cheapest we've ever seen Android, and shows how the platform has finally replaced the feature phone once and for all. This is the same territory where Nokia was dominant just a couple of years ago, and for first time pay as you go users it has something to offer. It's a shame that Virgin Media seems only to have the black version as we write, though.

In keeping with its younger users market, the T'Pop is pretty little being just 115mm tall, though it is thick at 12.2mm. It's light to carry at 118g but it feels quite solid. It looks to have been designed to cope with the rough and tumble of a school bag or a pocket filled with all kind of other odds and ends.

The Alcatel One Touch T'Pop has a 3.5-inch screen that looks pretty lost in its surroundings

**"The touchscreen feels strangely sticky under the fingers – which makes sweeping and swiping less comfortable"**

good  
for...

SMS

If your hands are small enough, tapping out SMS is easy

### Colour options

This handset is available in lots of bright, funky colours if you can find them

### Small screen

The screen is inevitably a bit squashed, so don't expect to be able to watch movies on it

### Chunky

The phone is a throwback to the past in many ways, and the chunky 12mm thickness is another



even though the phone itself is on the small side. With a resolution of just 320 x 240 pixels you can't do a great deal of really media rich stuff. Websites look pinched, videos aren't really displayed large enough for you to enjoy them. There is always a trade off between handset size and usability so this is not really a big surprise.

The touchscreen feels strangely sticky under the fingers – which makes sweeping and swiping a bit less smooth and comfortable than we are used to, but the touch responsiveness itself is not poor.

To hit such a low price Alcatel has had to work quite hard to get the specifications pretty low. Incredibly the phone is powered by Android 2.3 a version of the OS that is now so old we thought it had been retired completely for new devices. Still, noting that, and bearing in mind the young target market for this phone, it might not be too much of a problem. A number of apps won't be available for it, of course, but then there's probably not enough room to install them anyway.

There is just 256MB of storage in this handset, and out of the box only 107MB free for you to use. Alcatel provides a 2GB micro SD card which does give you a bit more storage space to play with. The card housing, like that for the SIM card, is under the battery.

The handset has both Wi-Fi and 3G. More technical readers will know that 3G support, or HSPA, comes in a range of standards, with different

handsets supporting different data speed. In this case the One Touch T'Pop supports a maximum of 7.2Mbps downloads – very much the slower end of the range. This is worth noting but is not really likely to be a big deal for most users considering the relatively high price of pay-as-you-go data. You won't be downloading movies on this handset.

There is just the one camera, and it lacks a flash. A detailed specifications sheet tells us the US gets a 3.2-megapixel lens, while in the EU we are sadly limited to just two megapixels. It is not the kind of camera you will be using with great frequency, but it does have a couple of features including burst mode and a selection of shooting modes such as sepia and negative.

The 1GHz single-core processor is very much old school and the performance frankly matches it. But it is hard to be too critical when we consider once again the target market and overall price of this phone, which is just about as low as an Android handset can go.

The T'Pop shows how Android's reach now covers the entire spectrum of the phone market. If you're looking for a handset for your kids we'd probably recommend handing down your old one when you upgrade – they'll get plenty more joy out of it. But if you simply want to ensure they've got a phone on them, and maybe with the ability to do a bit more than the absolute basics, then the price of this device, if nothing else, gives it a selling point.

# Review

## Alcatel One Touch T'Pop

# information

Price **£59**

» More information

[www.alcatelonetouchpop.com](http://www.alcatelonetouchpop.com)

» Supplied by

[www.virginmedia.com](http://www.virginmedia.com)

### Battery life



Good life in a small phone, and with light use should clear a day easily

### technical specs

- » Operating system.....**Android 2.3**
- » Processor.....**1.0GHz single-core**
- » Memory.....**256MB storage**
- » Dimensions.....**115 x 62.3 x 12.12mm**
- » Weight.....**118g**
- » Display size.....**3.5-inch**
- » Display resolution.....**480 x 320 pixels**
- » Expansion slot.....**micro SD**



### Performance

The light specs make this only good for the absolute basics

### Design

Chunky but solid and should hold up to some rough use

### Features

The main selling point for this handset is its price

### Value for money

Cheap and disposable, and likely to get even cheaper

## » Verdict

One for the kids, although they'd probably be happier with a better specced hand-me down

### Penny-pinching

The cost of the phone is low so has a disposable feel to it

### Pocketing

This is a small phone for the pocket; not so delicate that you need to protect it

### Calls

Of course, you can make voice calls, which is likely to be its main function



# Accessories

## HomeMonitor Indoor

Keep an eye on your belongings wherever you are

### Online storage

Each recording made can be sent to your accompanying online storage account which is free for seven days. After, you can choose to pay for additional storage space

### Multiple cameras

You can scatter several cameras both inside and outside to make sure your home is completely safe, although at \$149.99 it can get quite expensive first

### Smartphone control

After securing the camera and smartphone together, you can monitor the room in question as well as set a range of additional security features

### Night recording

One of the coolest features is the night recordings that use night-vision to monitor your room when it's dark



**S**ecurity is paramount for most homeowners and with the help of the HomeMonitor, you can keep track of your house and belongings on your smartphone or tablet. The HomeMonitor is a small unit that acts as a camera which can be mounted to any wall in your home. There's little to note about the design of it, apart from the mounting holes around the back and the antenna which is used to establish a secure connection to your smartphone. Although it can be a bit fiddly to set up, the corresponding HomeMonitor app gives you the tools to connect the HomeMonitor unit to

your Wi-Fi connection and then pairs your smartphone directly to it.

From then on in, you can log on to the HomeMonitor app and see a direct feed of your camera to see what it's recording. To be extra safe, you can implement motion controls which sends a notification to your phone when an intruder is in your house. There's also a wealth of other security features that users can discover by venturing into your app. For those who want even more coverage, you can purchase a whole suite of HomeMonitor cameras and connect them all through the app. Through the app you can then switch

between each camera and disable the ones you no longer want to see.

HomeMonitor comes with a personal online storage account, which acts as a backup for all the recordings taken with the camera. Out of the box you'll get seven days free, but will be required to pay for more storage if you need it after that. For the most part you won't need to keep a recording but on the off chance you do, the costs get steep.

There aren't many products like HomeMonitor currently on the market and for something that's so simple to use, it can offer an unprecedented amount of security.

### » specification

Price **£149.99/\$199.99**

More information  
[www.homemonitor.me](http://www.homemonitor.me)

### » verdict

Performance

Design

Value

Advanced security made easy on your smartphone



# Dynamode Android Mini PC

## Turn your TV to an Android PC

We see plenty of mini PC sticks, but none can match the remarkably low price point of the Mini PC from Dynamode. The Mini PC plugs straight into any HDMI port on your TV, and after a few seconds you'll see a fully working Android desktop. Out of the box, the Mini PC runs Android 4.2 and contains

full access to the Google Play store and as many apps as you like. Although there's only 4GB of internal storage, there's an expandable micro SD slot on the stick itself, as well as a micro USB port for transferring files between devices meaning streaming videos and watching movies is easy.

» Price £39.95/\$TBA

» More information [cpc.farnell.com](http://cpc.farnell.com)



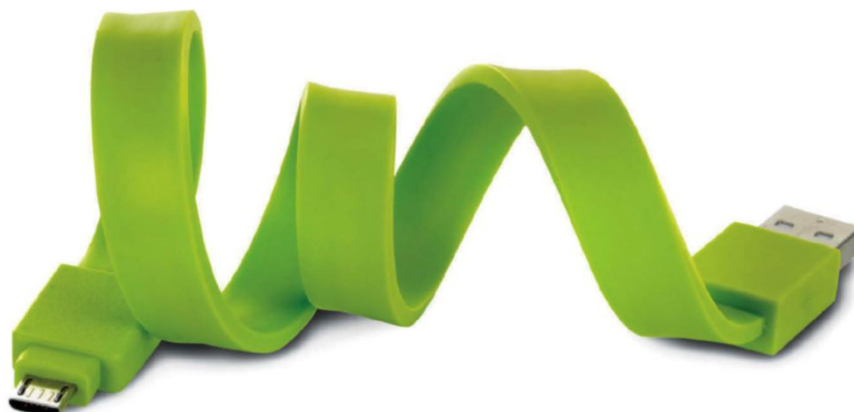
# Tylt Syncable

## Simple charging with this stylish cable

Although the Syncable is purely a micro USB charging cable, it has some nice additions that make it worth checking out. For one, the flat build of the cable stops any tangles and tears from happening, with the thin rubberised coating being tough and durable. Both the micro USB and USB ports are securely fastened to the rubber coating that surrounds them and won't separate after use. Syncables can also be purchased in a range of sizes, but we found the 1ft cable we tested was more than enough. Tylt's Syncable isn't a revolutionary accessory by any means, but as far as charging cables go, you can't go far wrong here.

» Price £12.99/\$14.99

» More information [www.amazon.co.uk](http://www.amazon.co.uk)



# Fenice Creatto

## A case and stand combo which struggles at times

This ultra-slim case is compatible with the Samsung Galaxy 4 and doubles up not only as a case, but also a stand. It isn't the thickest case we've seen but both the front and back panels are firm and will keep your device safe. Within the case is a piece of tape that is used to hold your device in place, but with prolonged use, the tape will eventually fade away. The front panel can be modified into a stand, which may look good, but can be a bit unstable. There's also concerns about the lack of cover on the sides of the device which leave them open to scuffs and scratches.

» Price £24.95/\$34.95

» More information [www.fenice.co.kr](http://www.fenice.co.kr)





## Bluetooth speakers

Which one of these units is worth investing in?

### Avantree Cara

» Price £TBA/\$51.99

» More information [www.avantree.com](http://www.avantree.com)

By connecting the Cara to your device through Bluetooth 4.0 you can enjoy your music wherever you go. It can be recharged in just a few hours and you can expect to get a good day of use from it before needing to charge it again. Best of all, it supports multiple devices which you don't really see in many similar products.



### Veho 360 M4

» Price £29.99/\$45.99

» More information [www.mobilefun.co.uk](http://www.mobilefun.co.uk)

Despite its small size, the Veho 360 M4 is a heavy piece of kit, with the metallic rim of the speaker adding a good amount of weight to it. Pairing with your phone is easy and sound quality is relatively good, if not overly impressive when you aren't directly next to the speaker. One of the best additions to the M4 is the inclusion of a micro SD slot which can be used to transfer songs across to the tiny unit without needing to manually select which song you want to play, although you can control the speaker via the buttons on its side.

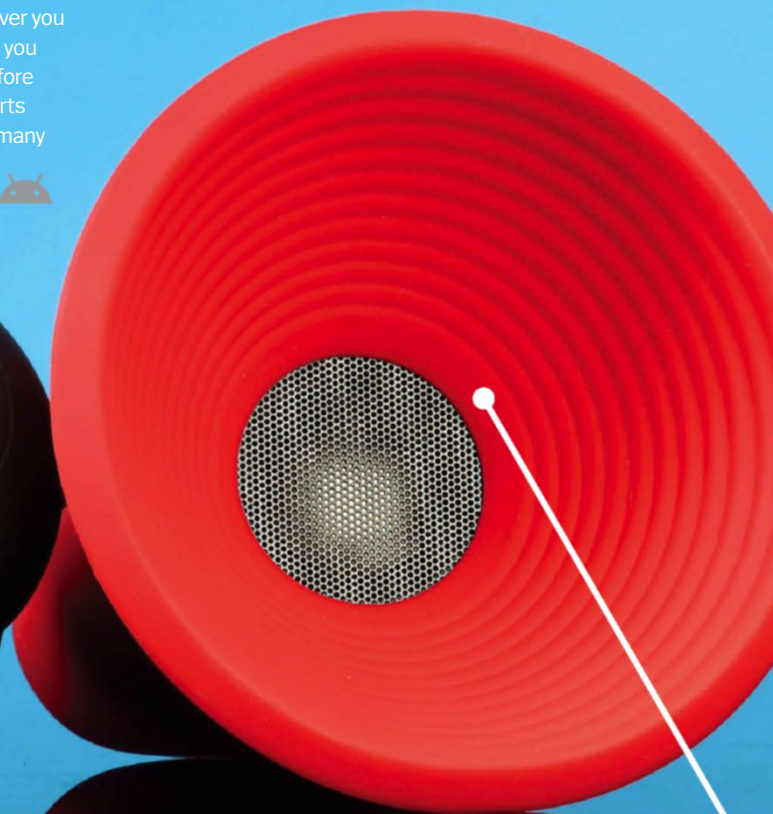


### XMI X-mini Kai

» Price £69.99/\$105.99

» More information [www.mobilefun.co.uk](http://www.mobilefun.co.uk)

There's been a variety of different versions of the X-mini, but the Kai is by far the best we've seen. The speaker is in the shape of a small capsule, which can then be opened up and help the Kai work as a sub-woofer. Due to its sheer power, sound quality is really impressive. Its only problem is pairing it to your phone, which can be really tricky due to the Kai's poor Bluetooth range.





## Philips SoundShooter

» Price £40.00/\$49.99

» More information [www.philips.co.uk](http://www.philips.co.uk)

The grenade-shaped SoundShooter may not be the most aesthetically pleasing speaker, but it's up there with the best in terms of sound quality. The entire shell of the SoundShooter is used as a speaker and the Neodymium driver is put to good use. It includes a built-in lithium battery which has a modest eight-hour life. Although pairing to your phone is easy, the lack of volume and song controls are glaring omissions.



## Phones4U Portable speaker

» Price £9.99/\$TBA

» More information [www.phones4u.co.uk](http://www.phones4u.co.uk)

In terms of portability, nothing comes close to Phones4U's offering here. Attached to the plastic exterior is a small key ring, enabling users to attach it to their keys and have a truly portable speaker. The speaker itself offers decent sound, but there are better ones in the group. It also has a strange buzz which happens when connected to certain Android devices. For the price you pay, the Phones4U Portable Speaker does a decent enough job, but falls short of the rest.



## Kakkoii WOW

» Price £55.00/\$TBA

» More information [www.kakkoii-me.com](http://www.kakkoii-me.com)

There's a lot to love about the Kakkoii WOW speaker and not just because of its zany design. It packs a powerful single speaker and the entire unit is encased in a tough and thick rubber coating. There's little in terms of ports, with the Kakkoii WOW featuring just a single micro USB port around the back, as well as a small button for the Bluetooth pairing process. Sound is clear, if not the loudest of the group, but the WOW speaker is let down by a poor battery life and you'll be looking to recharge the speaker after a few hours of use.



## Santok SMC950

» Price £17.95/\$19.95

» More information [www.amazon.co.uk](http://www.amazon.co.uk)

The plastic body of the Santok SMC950 does make the unit itself feel cheaply made, but for the price you're paying, that's understandable. There's a 2W speaker encased within the plastic shell and although you can get good volume levels out of it, the plastic sticks that cover the top of the speaker distort the sound to a certain degree. We were impressed with the echo cancellation feature which stops crackling in any of the songs, but there are still better alternatives out there.





From Nina Colson  
Used Samsung Galaxy S III

# NEXT MONTH

## SECURE YOUR PHONE

Everything you need to  
know about Android  
security

## NEXT-GEN PHABLETS

First look at the new Galaxy  
Note and other next-  
generation phablets

# Hot Shots

Your amazing Android snaps

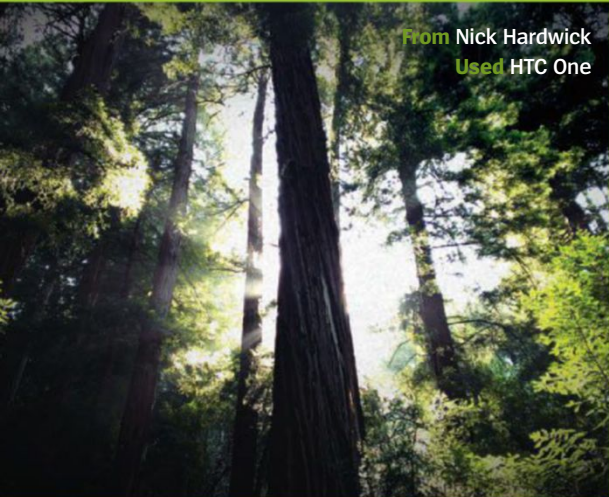
Taken a great shot with your Android  
phone or camera? Send it to us at:



>>email

qa@littlegreenrobot.co.uk

From Nick Hardwick  
Used HTC One



From David Morris  
Used Samsung Axiom



From Chris Everall  
Used Samsung  
Galaxy S III



## THE HOTTEST NEW ANDROID DEVICES TESTED



Issue 30  
goes on sale:  
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# SONY

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### XPERIA



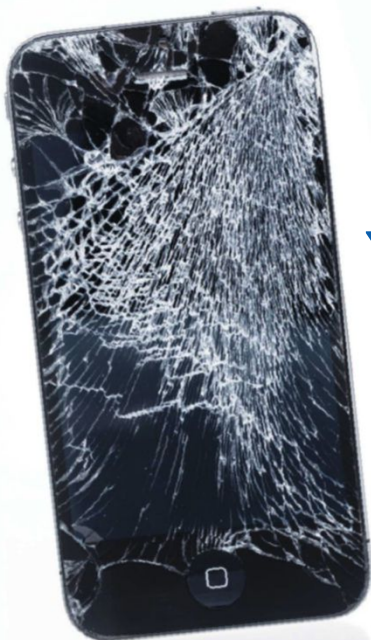
[sonymobile.com](http://sonymobile.com)

The new Xperia™ Z.  
Available in black or white.



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(Source: macgasm.net-2013)

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