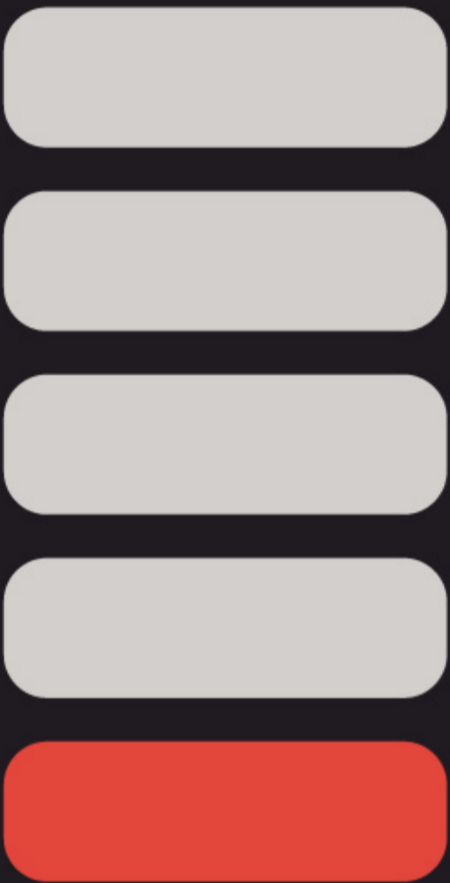
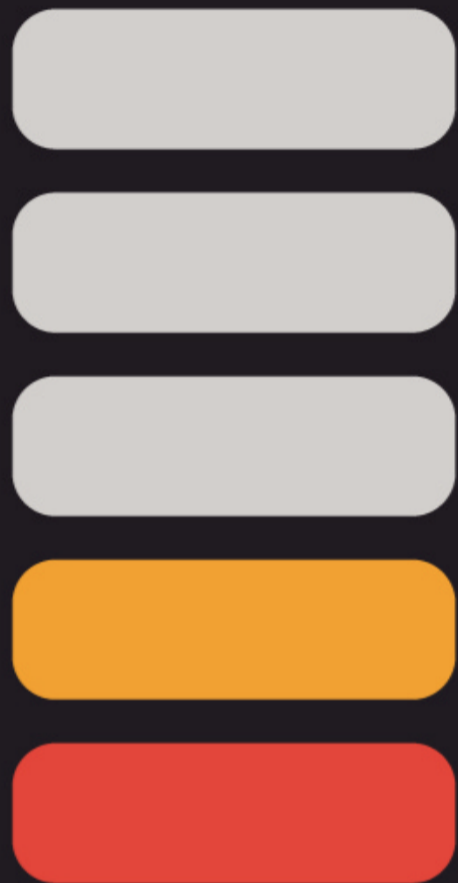




BOOST YOU



Fed up of your laptop and smartphone batteries running flat? **Barry Collins** discovers 26 ways you can boost battery life and take better care of your rechargables



BATTERY MYTHS

This article is dedicated to genuine ways you can improve the battery life of your phone and laptop. But first, we thought we would tackle the myths. A mixture of misinformation and common “sense” that doesn’t make sense means that many of the things people “know” kills your battery life are wrong – with several from previous eras of battery tech. Here are a few things you don’t really need to worry about anymore.

You must charge the battery to full and run it all the way down on first use

This is a throwback to the days of nickel-cadmium batteries, where if you didn’t fully charge the battery and deplete it all the way on first use, you might end up with restricted capacity or false charge level readings. This is no longer the case with lithium-ion

batteries. Most phones and laptops will come with the battery partly charged and you will do no harm if you start using the device right away.

Charging before empty harms the battery

The opposite is true with lithium-ion batteries. You’re better off sticking the battery on charge before it drops to 30% and taking it off charge as soon as it reports it’s full. As a piece on **batteryuniversity.com** explains: “It is better not to fully charge because a high voltage stresses the battery”. This is why your phone or laptop maker may tell you a white lie, reporting the battery is fully charged when it’s actually some way below capacity.

It doesn’t matter which charger you use

With most smartphones using micro-USB or, increasingly, USB-C,

YOUR BATTERY



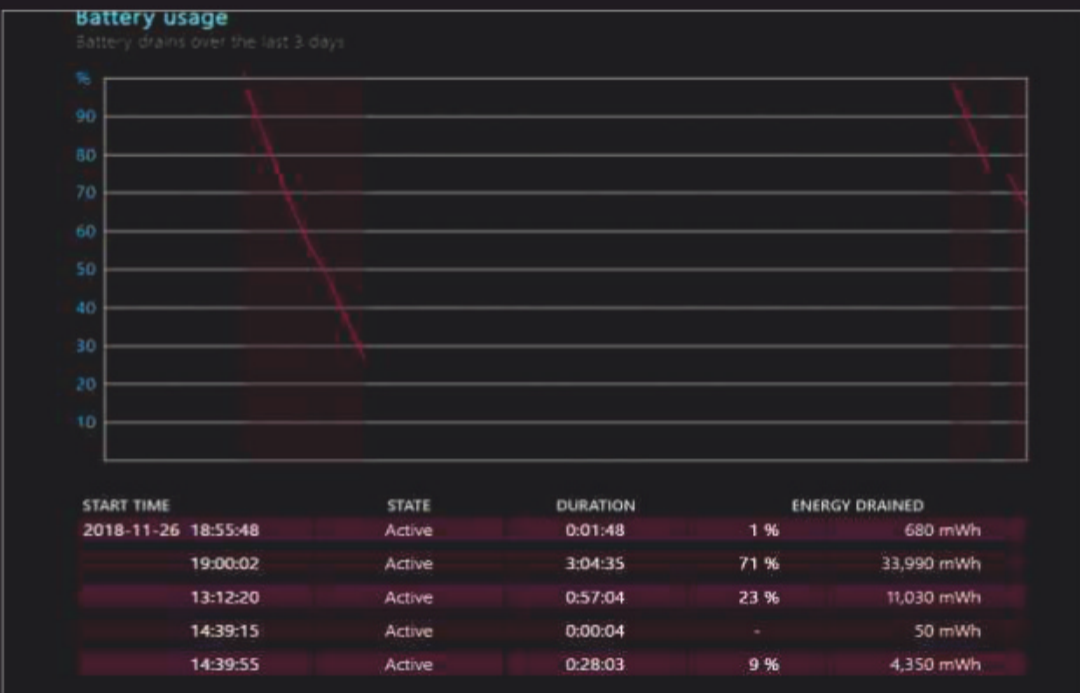
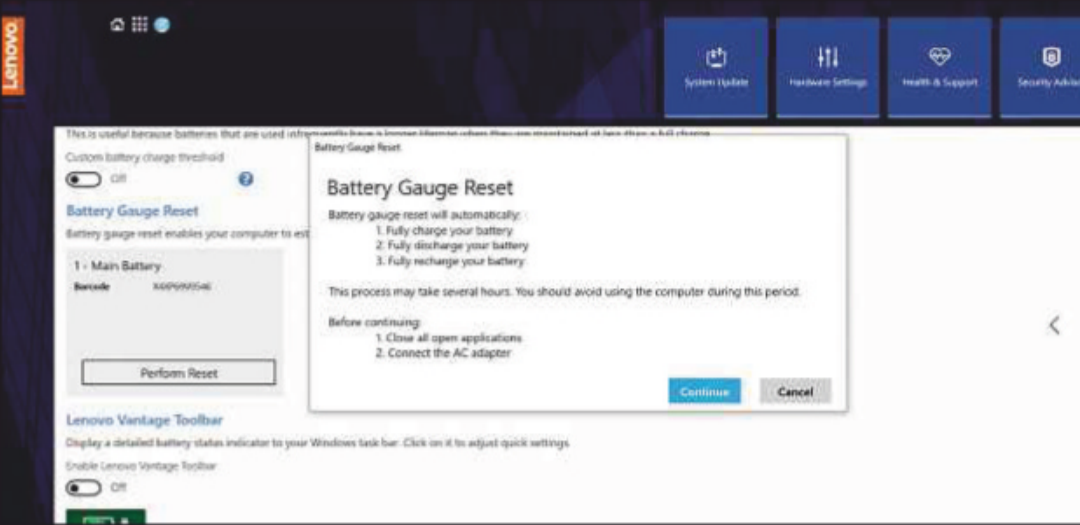
you might be tempted to charge your phone from the USB port on your PC, a dedicated USB plug socket or any charger you can lay your hands on. That's not always smart. Most dedicated phone chargers will have a cut-off that stops the phone charging once it reaches "full", preventing overheating caused by continuous charging, which is deadly for batteries. Dedicated chargers may also support fast charging, which tops up the device more quickly than regular chargers. Approved fast chargers will ensure the screen is switched off and the ambient temperature isn't too toasty to avoid damage to the battery.

Always-on display kills your battery

It sounds like common sense that an always-on display will smash your battery. There's no doubt it will clip



off a slice of battery life, but nowhere near as much as you might expect. **Techspot.com** did a thorough test with the Samsung Galaxy S7 Edge, putting the phone in Flight mode and seeing how fast the battery ran down with always-on display turned on and off. The site found that the always-on display consumed around 11% of the phone's battery over the course of 18 hours, relative to when the feature was disabled. That sounds like quite a chunk, but remember that was with the phone in Flight mode. If you apply those findings to a phone that's in use for 40% of the day (5.6 hours of screen time, which is perhaps excessive for most), then the always-on screen would consume only 2.75 percentage points of battery – or the difference between ending the day on 17% rather than 20% of battery. 



LEFT Lenovo's battery gauge reset is a useful tool that recalibrates the laptop's battery – but you won't be able to use your device at all during the process

RIGHT You can check which apps are hogging your battery over a set period of time

LEFT A battery report gives you a comprehensive overview of the health of your battery and whether it needs to be replaced or not



LAPTOPS

Check which apps are battery hogs

With the constant drip-feed of features into Windows 10, it's easy to let things slip by. In the past couple of updates, Windows has added features that make it easier to spot which apps are hammering your battery. Type "battery" into the Windows 10 search bar and you should be offered the Battery Saver settings, where you'll find a link to see which apps "are affecting your battery life". That page has options that allow you to see a breakdown of app battery usage over the past six hours, 24 hours or week. What it doesn't reveal is how much time you spent in those apps over that period, making the long-term information much less useful than it could be. Still, it might help you identify a rogue app that's smashing through your cells if you notice a sudden plummet in the battery bar.

The detailed view of the Windows Task Manager also now offers Power Usage and Power Usage Trend columns. The information on offer is less precise than it is in Settings, but it covers processes as well as apps, helping you see if something has got

stuck in Windows which is dragging down the battery.

And tame Mac battery hogs, too...

Apple has similar functionality for grassing up battery-sapping apps in macOS. In the Utilities section, open the Activity Monitor app. Click on the Energy Tab and Energy Impact to see which apps and processes are chomping through your cells.

Adjust the battery charge threshold

It's easy to dismiss and uninstall the utilities that come with laptops, but some can actually prove useful. The Lenovo Vantage suite that ships with ThinkPad laptops, for example, allows you to change the charge threshold of the battery, which can help preserve the condition of batteries that are only occasionally used on battery power and spend most of their lives tethered to the mains. By dropping the charge threshold to, say, 80%, you're likely to get a longer lifespan from your battery than by leaving it fully charged. Certain brands of Dell and Samsung laptops also come with such utilities.

Perform a battery gauge reset

This is another Lenovo Vantage utility but similar tools are offered by other manufacturers. It won't extend your battery's life, but it should help avoid those nasty surprises when the laptop suddenly shuts down, moments after reporting it had 30% of its battery still to chew through. This process basically recalibrates the battery's capacity, which diminishes with age. It will first ask you to fully charge the battery, then run it all the way down to flat, before fully recharging once more. However, the catch is that it asks you not to use the laptop at all during that process, which makes this a Sunday job rather than something you want to kickstart during your work lunch break.

Get a battery report

Again, this isn't actually a tip that will save you battery life directly, but a hugely comprehensive report that will help you better understand the health of your battery and whether or not it needs replacing. To begin, open up a command prompt and type the following:

IS YOUR BATTERY UNDER WARRANTY?

Most laptops will come with a one-year warranty, but what about the battery inside the laptop? Does that get the same degree of cover, even though it's arguably a consumable?

The short answer: it's complicated, differing from manufacturer to manufacturer. HP's standard warranty conditions, for example, lists the battery in the "Product Specific Exclusions", although if you plough through the legalese, it's not as bad as you might fear. The battery is covered for a year, but only for defects "in materials or workmanship". A decrease in the battery's maximum capacity is, understandably, not covered by the warranty, although it's hard to discern whether it would qualify as a fault if the battery lost 75% of its capacity in the first year, for example. "To determine whether your battery has had a warranted failure, you may be required to run an HP diagnostic test," HP's warranty stipulates.

Apple's standard hardware warranty is similar, stating that "this warranty does not apply... to consumable parts, such as batteries, unless failure has occurred due to a defect in materials or workmanship".

That said, Apple is more reasonable than most when it comes to smartphone battery replacements. At the end of 2017, and after fighting off allegations that it was deliberately hampering battery life on older devices to encourage users to upgrade their iPhones, Apple announced that it was reducing the price of an out-of-warranty iPhone battery replacement from £79 to £25 for anyone with an iPhone 6 or later. However, that offer was set to expire at the end of 2018, with no news of an extension at the time of writing.

Prices are much steeper for Apple's other devices. An out-of-warranty battery replacement for a 12.9in iPad Pro, for example, costs a scarcely believable £616.44. A MacBook Pro battery service is "only" £199.



`powercfg /batteryreport /output desktop\mybatteryreport.html`

This will save the report to your desktop, although you can change the output folder if you wish by replacing "desktop" with the folder of your choice in the command above. The report delivers astonishing detail: a breakdown of recent usage, graphs showing how quickly the battery depletes on battery power, average use times on battery power, a battery capacity history that will show you how far from peak power the battery has drifted, and a very detailed estimate of how long the laptop would last on battery power in its current and stated capacities. It will leave you with better knowledge of your battery's condition and whether it's time to consider a replacement – if that's even possible with today's trend for sealed units.

Dark Mode

Ostensibly designed to ease eye strain, Dark Mode – a now common feature on smartphones – is now coming to the desktop on Windows and Mac. In Windows 10, search for Colour Settings and you'll find a



Dark Mode switch in amongst the options. It turns the Windows menus, Explorer and other native Windows apps from white backgrounds to black. It's not going to make an enormous difference to battery life, but it will help, especially on OLED screens that don't need to power the black pixels. In macOS Mojave, open System Preferences and under General select the Dark mode.

The obvious stuff

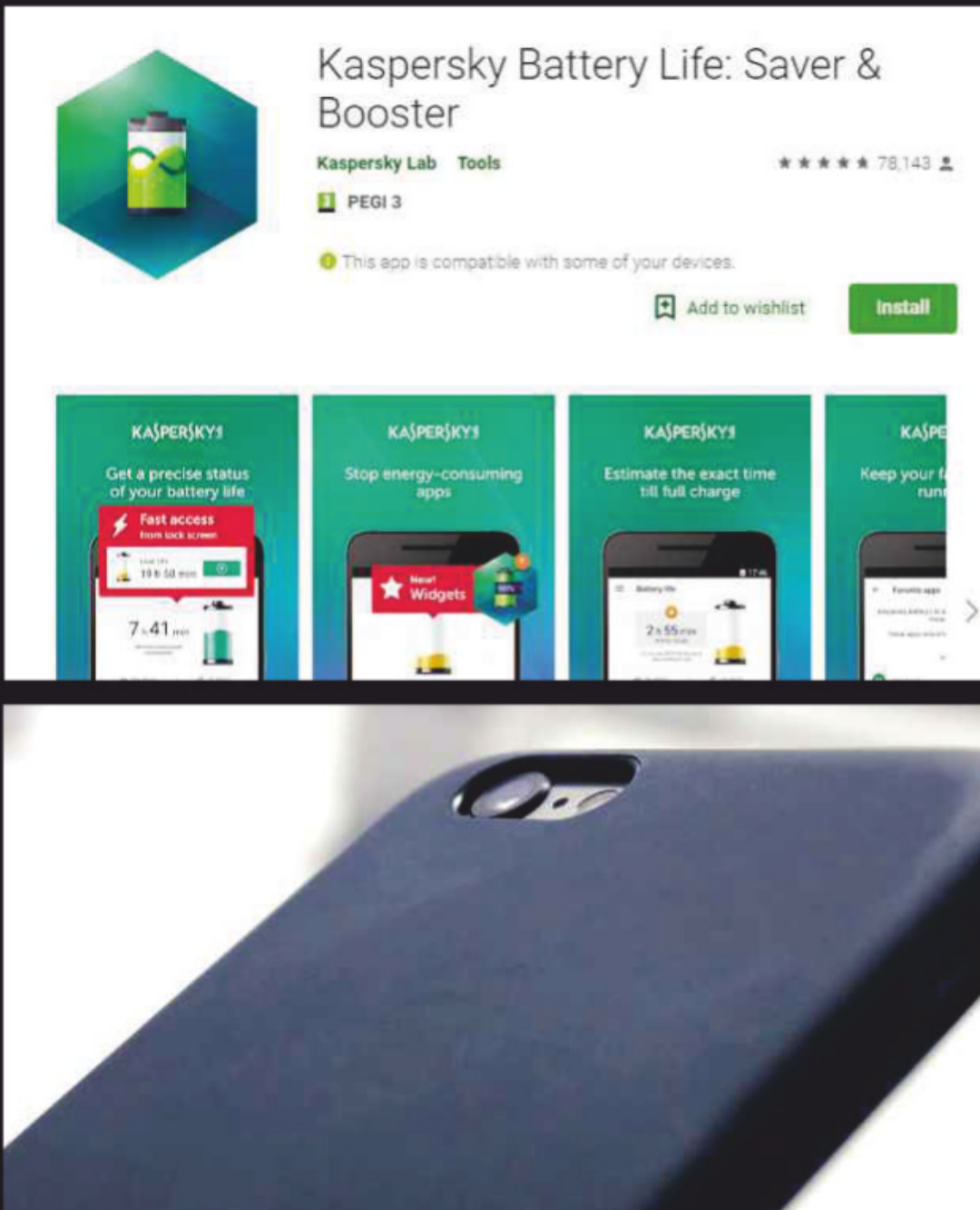
We don't want to insult anyone's intelligence, but just to make sure we've got the fundamentals covered,

ABOVE Battery warranty rules depend on the manufacturer and the price for an out-of-warranty replacement can be sky high

here's a checklist of things that can extend battery life when you're off the grid:

- Drag the power mode slider to "Best battery life" from the system tray, if your laptop isn't automatically set to use that mode when running on batteries
- Dim the screen brightness when you can – if you have a setting to automatically adjust the screen brightness, use it
- Switch off Wi-Fi and Bluetooth if they're not needed
- Turn off the keyboard backlight
- Avoid plugging in external peripherals
- Use headphones instead of speakers

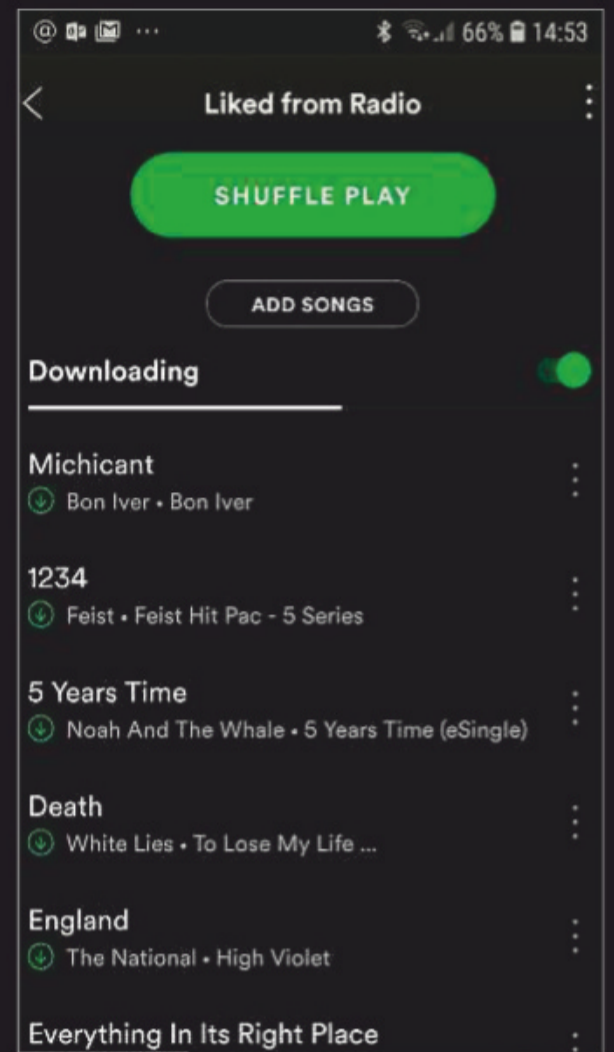




LEFT Big firms such as Kaspersky offer “battery saving” apps (see opposite), but we’re not really convinced that they’re better than the in-built tools on phones and laptops

RIGHT Instead of using up charge by streaming Spotify, Apple Music or YouTube Premium via 4G, you should try downloading the playlist or album you want to listen to in advance

LEFT Believe it or not, taking off your smartphone’s case when you plug it in will help you charge it more quickly – if you leave it on, your fast charge will dial down the power



SMARTPHONES

Wi-Fi calling

The Wi-Fi calling facility offered by many networks on most high-end handsets is a godsend for those of us who live in areas of iffy 3G/4G reception (the mobile network coverage maps are a work of fiction comparable to anything by Ian Rankin). However, Wi-Fi calling helps preserve battery life as well as call quality. If your phone detects it’s in a weak signal area, not only will it spend energy seeking a new cell tower, it will also boost the power of transmission to compensate for the weak signal. If you’re on Wi-Fi calling, the phone has no need to amplify transmission. Anecdotally, this has helped boost end-of-day battery life from around 10% remaining to 30% remaining in a household with poor 4G reception for one of the *PC Pro* team.

Download, don’t stream

If you’ve ever delved into your phone’s settings and checked out the apps that are doing most damage to your battery life, streaming services are normally high on the list. If you listen to Spotify, Apple Music or

YouTube Music on your commute, take advantage of their download facility to store a local copy of the album or playlist you’re planning to listen to before you leave the house. This has many advantages for both your listening pleasure and battery life. If the phone’s not constantly tanking the 4G connection, battery life improve. Plus, your stream won’t be interrupted when you enter tunnels or dead spots on the train line, which often results in you fishing your phone out of your pocket and turning on the battery-sapping screen to work out what’s going on.

Get a smartwatch

There is an element of eating a spider to catch a fly to this tip. However, having a smartwatch connected to your phone definitely helps improve its battery life. How? The smartwatch becomes the device on which you triage notifications. When your phone pings to alert you to a new email, tweet or other notification, you can view it on your watch rather than turning on the phone screen. All of those marketing emails, retweets or notifications can be dismissed without

waking the phone. Better still, you can turn off the phone’s vibration facility and just have your watch buzz for calls/texts/notifications, helping to save more battery. There’s a small battery overhead to connect watch and phone, but it’s nothing compared to the battery life you’ll save.

Back off on brightness

The auto brightness setting on most phones does a fairly decent job of adjusting to what’s necessary, but try switching the autopilot off and reducing the brightness to around 20 to 30%. For most day-to-day uses, you’ll struggle to notice the difference and you’ll be making a big difference to one of the biggest battery drains. It’s pretty easy to flick the brightness back up if you’re caught in bright sunlight or watching Netflix.

Darken your wallpaper and screensavers

AMOLED screens such as those found on the top-end Galaxy handsets and iPhones don’t need power to display black pixels. So, if your wallpaper and screensavers are black, you’re going to reduce the drain when you flick the

WHAT ABOUT BATTERY-SAVING APPS?

The app stores are cluttered with “battery-saver” apps, ranging from obscure developers you’ve never heard of to well-known names such as Avast and Kaspersky. But are these apps worth installing?

It’s hard to make blanket statements, but we’ve tested several battery-saving apps and most don’t appear to offer much – if anything – above and beyond what is preinstalled on most smartphones nowadays.

Many attempt to save battery life by aggressively closing apps, preventing them from background battery drain. It’s debatable whether the trade-off in performance is worth the battery savings. Most modern phones will

warn you if a background app is spanking the battery, and the drop-off in performance of having to cold-start apps such as Twitter and Instagram will irritate smartphone addicts.

Then there’s the overhead of installing a battery-saving app on top of the battery-saving utilities already built into the phone. If you find a dedicated app that does offer features above and beyond the built-in utilities, make sure to disable the phone’s own suite to prevent duplication or conflicts.

And if you have clear evidence that it works, we’d love to hear about it. Write in to us at letters@pcpro.co.uk and we’ll feature the best in our Readers Comments page.



phone on. This isn’t going to make a night-and-day difference to battery life, but it’s a no-cost way to claw back another couple of percent.

Don’t let Google Assistant listen

Like an Amazon Echo, the default behaviour of Google Assistant on Android is to always have its mics open, listening for an “OK Google”. The battery drain isn’t enormous, but if you don’t make use of this service, it’s a waste. To switch it off, go to your main phone settings, select Google, then Search, Assistant & Voice. Under Google Assistant, select Settings and then select the Assistant tab. Click on your phone under Assistant devices and switch off Access with Voice Match and Unlock with Voice Match. You can still access the voice assistant by clicking the mic icon in the Google search bar, though.

Turn on Wi-Fi Assist

Just as clinging onto a weak 4G signal can stretch your phone’s battery, so

too can grappling onto a poor Wi-Fi connection. Apple has this scenario covered with Wi-Fi Assist. Introduced with iOS 9, Wi-Fi Assist will drop a weak Wi-Fi connection in favour of 4G. This is primarily designed to smooth data flows as you move out of hotspot range, preventing your phone from clinging to the office Wi-Fi when you’re a hundred yards down the road. But it has the added benefit of boosting battery by preventing your Wi-Fi radios from working overtime.

Delete redundant apps

We’ve all got apps on our phones that we barely use. These apps might be pinging notifications out or running processes in the background. They will also be routinely updating, potentially wasting battery life in the process. Just get shot of them.

Remove the phone from the case while charging

If you have a case on your phone, you might want to remove it when the

ABOVE If you have a modern handset and live in an area with patchy 3G/4G signal, Wi-Fi calling can help lengthen your battery life

phone is being charged. Fast charging can only work when the phone is below a certain temperature – cases act as an insulator that the phone wasn’t designed to cope with. Your fast charger will simply dial down the power if it detects the phone is too warm, meaning the phone will take longer to charge. And the hotter the phone is, the greater the chance of damage to the battery. Slip it out of the case, especially if you’re in a hurry.

The obvious stuff

Just as with laptops, here’s a short bullet-pointed list of things that will help save battery life that we didn’t want to insult your intelligence with by making any longer:

- Turn on the phone’s battery saver mode, especially when nearing empty
- Close, don’t just dismiss, battery-hogging apps
- Stop streaming audio/video if battery is running low
- Don’t leave the phone in a warm place, such as on top of a computer or close to radiator
- Use Wi-Fi instead of mobile data whenever possible