

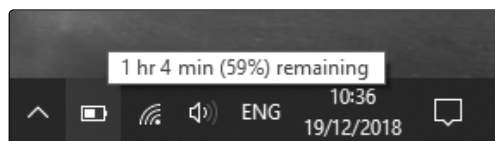
Battery Matters: Get More from Your Notebook B 085/1

Squeeze the Maximum Life from Your Portable PC's Battery Between Charges

This article shows you how to:

- ✓ The best charging routine for your PC's battery
- ✓ Tips to keep your PC running longer on battery power
- ✓ How to keep your battery in tip-top condition

On your way out of the door, you grab your notebook or tablet PC. But when you're settled on the train and switch it on, you discover its battery has only an hour's life left. Why so little? And more urgently, is there anything you can do about it?



There certainly is, and in this article I'll explain all you need to know about using your portable PC on battery power, helping you get a few extra hours of use when you really need them – and extra years of use to avoid expensive replacements!

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- **To Recharge or Not to Recharge?** B 085/2
 - **Top Tips: Use Your PC on Battery Power for Longer** B 085/3
 - **Battery Care: Avoid the Need for Costly Replacements** B 085/13
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To Recharge or Not to Recharge?

Fully discharge
before
recharging?

The good news is that modern batteries in notebooks and tablets are a lot less fussy than they used to be. In times gone by, you may have read that a battery should be fully discharged before you charge it again.

Similarly, you may have heard of the 'memory effect' whereby, if you frequently recharged your battery as soon as it dropped to, say, 60% power remaining, it would gradually 'remember' that figure and behave as if it were empty whenever it dropped to 60% in future.

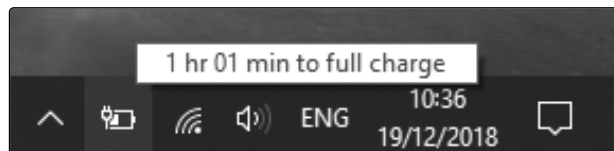
No, just recharge
whenever you
like!

Well, you can forget all that now. Modern devices all use lithium batteries, and they're far more forgiving. Essentially, if your notebook or tablet PC (or your phone for that matter) needs charging, you can go ahead and charge it, whether its battery is almost flat or nearly fully-charged.

How to check
the charge level

On any Windows PC with a battery, you can check the current charge level by finding the little battery icon near the clock on the taskbar and holding the mouse pointer over it:

- If the PC is currently running on battery power, the little tooltip message that appears will show the current charge as a percentage, along with an estimate of how much more time you have before the battery is empty, as pictured on the previous page.
- If the PC is plugged into the mains and charging, the tooltip will tell you roughly how much longer it will take to charge fully:





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If you want to charge the device a little more quickly, turn it off: shut down Windows, or put it into 'sleep' or 'hibernation' mode. On most devices, a little lamp near the on/off switch should light up when the battery is being charged and go out when the job is done.



To discharge or not to discharge?

We'll look at ways to protect your PC's battery and keep it healthy later in this article, but – after telling you how forgiving modern batteries are – there's one little point worth mentioning now.

Not only is it fine to recharge the battery when it's only partially discharged, modern batteries prefer it if you do that. If you're in the habit of letting the battery discharge almost to zero before recharging, it's better for the battery's long-term health not to. Ideally, when the charge level drops to around the 30% mark, that's the time to plug it into the mains and charge it up.

Ideally, recharge well before it's flat

But, roughly once a month, let it fully discharge. When you've finished using it one day, just put it to one side rather than turning it off and leave it to run down and switch itself off. Then, before you're going to need it again, plug it into the mains and let it fully recharge (or, of course, use it on mains power while it's charging). Doing this gives the battery some 'exercise', with the dual benefits that you should prolong its life and get the most use out of it between charges.

Occasionally run the battery right down

Top Tips: Use Your PC on Battery Power for Longer

So, you're out and about with your trusty notebook or tablet computer. Perhaps you want to use it for entertainment to while away a long flight or train journey, or perhaps you need to get some work done.

Need to squeeze more time from your battery?



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Use (and combine) these tips

The screen uses most of your battery power

Tap the Brightness button in Windows 10



Whatever the reason, you really want to squeeze as much time out of it as you possibly can. What can you do?

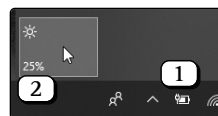
Well, there are all sorts of simple adjustments you can make, and I'll run through them over the following pages. You can combine these in any way you like: the more of them you can use, the more life you'll squeeze from your battery.

Turn down the screen's brightness

By far the greatest drain on your battery is the screen, often accounting for over 40% of the power you use, so it obviously follows that any reduction you can make to that figure will give you more time between recharges. Therefore, this first little handful of tips concentrates on the screen, and between them they could easily give you an extra hour or more from a fully-charged battery.

The first tip is to turn down the brightness of the screen, ideally to 50% or less. Here's how:

- **Windows 10:** click the battery icon **1** on the taskbar and in the bottom-left corner of the panel that opens you'll see a brightness button **2** showing a little 'sunshine' symbol and the current brightness as a percentage. Each click or tap of this button changes your screen brightness, first to 0%, then 25%, 50%, 75% and back to 100% again. You should find that 50% is comfortable to use, and you might even be able to cope with 25%, depending on what you're doing.



Note that although the 0% setting doesn't (quite) turn off your screen, it comes very close, to the point that it's very hard to see anything! So, as you click this button, try to keep the mouse pointer (or your finger on



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a tablet) in the same place, so that when you hit 0% and want to increase it by one step to 25%, you can simply click or tap again.

- **Windows 8.1 or Windows 7:** click the battery icon on the taskbar, and in the panel that opens click on **Adjust screen brightness**. The Control Panel program will open at its **Power Options** page, and you'll see a **Screen brightness** slider at the bottom: drag that slider towards the left to reduce the brightness until it's as dim as you can stand.

Use the
Brightness slider
in **Windows**
8.1 or 7

Use a plain desktop background

Rather than using a picture as your desktop wallpaper, consider using a solid colour instead – preferably a dark one (because dark colours require less power to display) and ideally black. To do that, begin by right-clicking a blank space on your desktop and choosing **Personalise**, then follow the appropriate step below:

Don't use
a desktop
wallpaper

- **Windows 10:** in the window that appears, open the drop-down list below **Background** and choose **Solid colour**, then click one of the colour swatches below.
- **Windows 8.1 or Windows 7:** at the bottom of the window that opens, click the **Desktop Background** link. On the next page, open the drop-down list beside **Picture location** and choose **Solid Colours**. You can then click a colour swatch below and click the **Save changes** button at the bottom to put it into effect.

Turn off the screen when the PC is idle

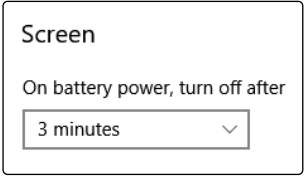
With the screen using so much of the battery's power, what better way to conserve it than to switch off the screen when you're not actively using the PC? If you're using it just to

Allow your
screen to switch
itself off



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listen to music, for instance, or to make occasional notes at a meeting or conference, you can let the screen go to sleep, then just press a key (or tap a tablet's screen) to bring it back to life when you need it.

- Windows 10:** open the Start menu and click the cog-shaped symbol near the bottom-left corner to open the Settings app. In the Settings window, click on **System** then, at the left, **Power & sleep**. At the top of the page, open the drop-down list labelled **On battery power, turn off after** and choose a shortish time period such as **3 minutes**.
 
- Windows 8.1 or Windows 7:** in Windows 8.1, right-click the Start button and choose **Power Options**. In Windows 7, open the Start menu and click **Control Panel**, then click on **System and Security** followed by **Power Options**. In either version, click the words **Choose when to turn off the display** at the left of the window. You'll now see a pair of drop-down lists labelled **Turn off the display**: open the one below the words **On battery** and choose a fairly short time period such as **3 minutes** and click the **Save changes** button.

Windows 10: two extra tips for an economical screen

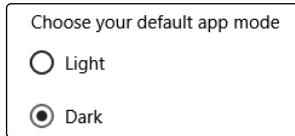
If you use Windows 10 on your notebook or tablet, these two tips will help you squeeze a little extra life out of your battery.

**Dark mode
helps to
conserve power**

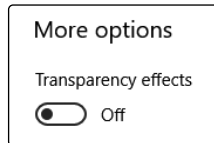
The first is to switch to 'Dark mode', turning many Windows apps (such as News and File Explorer) to mostly-black windows. Of course, this only helps if you're actually using apps that take notice of this setting, but if you are, this will help in the same way as using a black desktop background.

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To switch to Dark mode, right-click a blank space on the desktop and choose **Personalise**, then click **Colours** at the left of the window that opens. Scroll to the bottom on the right and you'll see simple options to switch between **Dark** and **Light** modes.



The second tip is to switch off Windows 10's transparency effects. These make your Start menu, taskbar and some windows semi-transparent – effectively using extra battery power to make things look prettier. In the same place you found the Dark mode option above, but a little further up the page, click the **Transparency effects** switch to turn it to **Off** and you'll gain another little boost to your battery.



Turn off the transparency effects

Don't let it get too hot or too cold!

Batteries are rather fond of room temperature, although they'll cheerfully put up with a chilly room or a warm room. What they really don't like is a very low temperature or, especially, a very high one.

Extreme temperatures will knock the battery's performance, giving you less time before a recharge is needed. And worse, if it happens repeatedly, it will shorten the battery's overall lifespan too.

Of course, there's a limit to what you can do about this: if you're somewhere very hot or very cold and you need to use your PC, so be it. But there are practical steps worth keeping in mind: don't leave it in your car on a blazing hot day or through a freezing cold night, for example. And if you find yourself in a hot and stuffy room, your PC will be happier out of your bag than in it.

Room temperature is best!

Avoid extreme heat or cold

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USB devices
use the battery's
power

Unplug any devices you don't need

Do you like to use a mouse with your notebook, or plug a keyboard into your tablet? Are you working with files on a flash drive? If so, your PC has to provide the power to these devices, and that power obviously comes from the battery when you're on the move.

Therefore, another way to eke out a little more time with your PC is to unplug any USB devices you're not actively using. Try to soldier on with the touchpad rather than a mouse, or use the on-screen keyboard on a tablet. Copy the files you need from the flash drive to your PC and then disconnect it.

Flight mode: turn off Wi-Fi and Bluetooth

Besides having to power any devices you connect to your PC, the battery is also powering devices built into it and the work those devices are trying to do – sometimes quite unnecessarily.

Wi-Fi and
Bluetooth draw
constant power

Prime examples are your PC's Wi-Fi and Bluetooth networks. If Bluetooth is enabled, it's constantly keeping watch for nearby devices to connect to, whether you ever intend to connect something or not.

Likewise, the Wi-Fi system is watching out for available wireless networks, and – if you're connected to a network – there might be all sorts of work going on in the background that could easily wait until later. Whenever you're connected to the Internet, there's data being sent and received even if you're not actively using it yourself.

Use Flight
mode to switch
everything off
at once

The simplest way to switch off everything you possibly can is to switch to 'Flight mode' in Windows 10 or 8.1 (Windows 7 unfortunately doesn't have such a thing). That saves you scrabbling around for individual settings and gives you a hefty boost to your time between recharges.

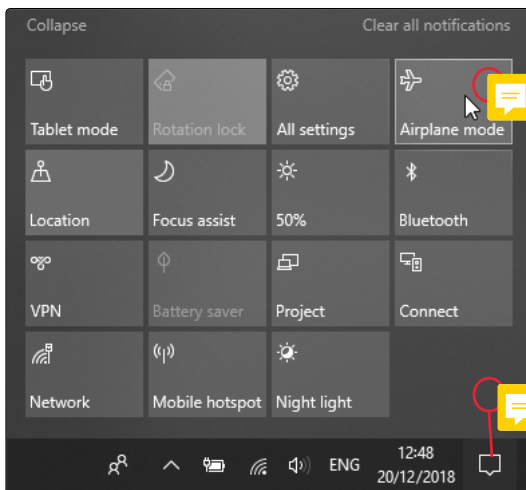
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- **Windows 10:** click or tap the Action Centre icon at the far-right of the taskbar (1) and you should see a button marked **Flight mode** or **Airplane mode** (2). (If you don't, but you do see the word **Expand** above these buttons, click that first to display all the available buttons.) Click that **Flight mode** or **Airplane mode** button and you're done.

A simple button in Action Centre

When you want to turn off flight mode, just click the same button again. In the meantime, if you want to use Wi-Fi or Bluetooth, you can return to this panel and click the **Network** or **Bluetooth** buttons respectively, switching on just the feature you need while keeping everything else switched off.

Enable Wi-Fi or Bluetooth if you need them



- **Windows 8.1:** open the Charms bar by pressing **Windows** + **C** or, on a tablet, swiping into the screen from the right. Click on **Settings** followed by **Change PC settings**, then click **Network** at the left of the Settings app followed by **Flight mode** or **Airplane mode**. At the


Flight mode in Windows 8.1

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Keep this page handy in case you need it



top of the page you'll see a simple On/Off switch for flight mode: switch it to **Off** and you're done.

You might like to minimise the  ings app rather than closing it. Then, when you want to turn off flight mode, you can restore this window and click the same switch again. On this page too, you'll see switches to turn on Wi-Fi and Bluetooth individually, if you need them, while keeping everything else switched off.

A tip worth keeping in mind is to download whatever you can before you have to unplug your PC from the mains, thus avoiding the need to use Wi-Fi on battery power. It's far more economic to play movies or music from the PC's own disk than to stream them over the Internet, for instance. Likewise, in Windows 10, you can save interesting web pages and articles to Microsoft Edge's reading list to read them offline later.

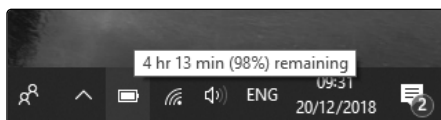
Windows 10: gain more time using Battery Saver

Battery Saver starts automatically at 25%

In Windows 10 there's a neat, automatic way of squeezing extra time from your battery. When its charge drops to 25% (leaving perhaps an hour of use), a feature named Battery Saver switches on. This does a variety of helpful things such as dimming your screen and stopping any unnecessary background activities to preserve the battery life. The result might gain you an extra half-an-hour of use.

But look what it can do!

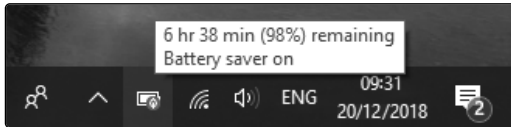
But why wait until you're down to a mere 25%? In the screenshot



below, you'll see that my battery is almost fully charged (98%) and Windows 10 estimates I'll get 4 hours 13 minutes from it:

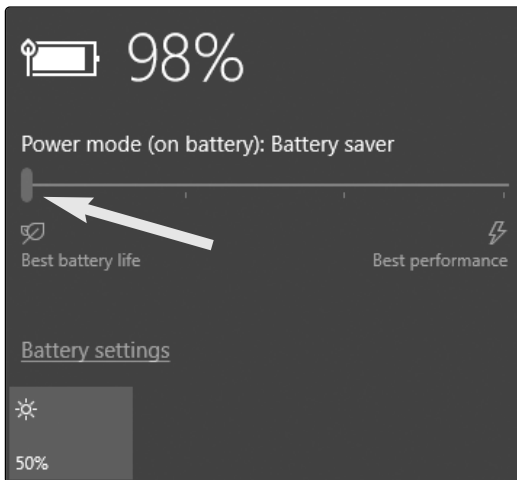
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A few seconds later, and I've gained almost 2½ hours:



How? I switched on Battery Saver myself. To do that, just click or tap the battery icon on the taskbar, and in the panel that appears you'll see a 4-step slider. Drag the slider all the way to the left, marked 'Best battery life', and Battery Saver is on (indicated by a little green leaf superimposed on the taskbar's battery icon).

Switch it on yourself from the start



I can't guarantee you'll achieve the same sort of gain yourself, but it will unquestionably make a significant difference, and the more battery life you have left when you turn it on, the better the results should be. (Keep in mind, too, that you can still gain yet more time by using other tips I've covered above such as turning down the screen brightness a little more and switching to flight mode.)

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Incidentally, remember that the quoted time remaining is just an estimate. Indeed, you'll see that it can change quite dramatically from minute to minute! Much depends on how you use the PC: if you have a lot of programs open, or you're watching videos or playing action games, you'll burn through the battery quicker than if you're simply reading a document or writing one.

Carry a portable USB battery pack

If you're regularly stuck on battery power for long periods, the tips above may not do the trick by themselves. In that case, consider buying a portable battery pack.

Plug in a battery pack when you need to keep working

Effectively, this is a second battery, but one that plugs into a USB socket in your notebook or tablet. You charge it up via the mains before you leave home and take it with you, and when your PC's battery is down to its last gasp, you connect the battery pack and keep working, perhaps for another few hours.

There are vast numbers of battery packs available, at prices ranging from £15 to over £100, so my suggestion is to visit Amazon (www.amazon.co.uk), search for **usb laptop battery pack** and look around.



Some battery packs are lower-powered items chiefly intended to recharge phones, and you'll need something more powerful for a tablet or, particularly, a notebook.

Ensure you'll have enough power

The battery capacity is measured in mAh (milliamp hours), and I'd suggest looking for a capacity of at least 10,000 mAh for use with a tablet, or at least 15,000 mAh for a notebook.

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The more powerful the better, of course, but the price (and the time it takes to charge the battery pack) tends to increase with the power. (Remember, too, that you'll need to carry a suitable USB cable to connect the battery pack to your notebook or tablet when you need it!)

Battery Care: Avoid the Need for Costly Replacements

A replacement battery for your notebook PC is likely to cost something over £30, and perhaps up to £80. On the bright side, you should be able to pop the old one out and the new one in fairly easily, and that can't usually be said for tablets and the tablet-like convertible PCs, for which you'll probably need a fitting service.

Replacing a battery is costly and troublesome

So, given the expense and trouble involved, it pays to keep your portable PC's battery as healthy as you can for as long as you can! Let's finish with some quick tips to help you do that.

Use it or lose it!

The battery wants to be used and exercised. There's no quicker way to kill off a battery than to constantly use the PC on mains power, causing the battery to remain fully charged all the time.

Give your battery some exercise

In an ideal world, you'd aim always to use your notebook or tablet on battery power, only plugging it into the mains when you'd finished using it or when its charge level had dropped below about 30%.

Once in a while, as I explained on page 3, you'd let it run right down and then fully recharge it, which exercises the battery to keep it in tip-top condition and also 'recalibrates' it, making Windows' estimates of your remaining power and time more accurate.

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A better option: use it or remove it

If you use a notebook PC, perhaps you always do so at home, near a mains socket, and you really can't be bothered to muck around with exercising a battery you rarely need to use?

Remove a notebook battery if you don't use it

In that case, odd as it may sound, why not consider removing its battery? That effectively gives you a mains-only computer (like a desktop PC), but it also helps to keep your battery in good condition – or at least prevents its condition from getting much worse – so that when you do need it, it should still be useable.

As a bonus, removing a notebook's battery removes quite a lot of its weight, giving you a much lighter device to carry around or rest on your lap!

Removed your battery? Keep it healthy

If you do decide to remove your notebook's battery, or if you have a spare battery you keep for emergencies and long trips, it needs a little looking-after: don't just put it on a shelf to gather dust!

The best way to store an unused battery

Instead, follow this routine. First, run it down to about 50% capacity (or charge it up to that level if it's currently lower). Then after removing it from the PC, wrap it in a clean paper bag to protect its contacts from dust and grime, and put it somewhere cool and dry. (You might have seen advice to keep it in the fridge – in a plastic rather than paper bag – to reduce the speed at which it loses charge, but that's taking quite a risk with it, so I don't recommend it.)

If you haven't used the battery six months later, pop it in the PC, charge it back up to about 50% and store it in the same way again.