TECHNICAL RESOURCES

Battery Life: How does the Android ‘Battery’ tool work, and why should developers care?

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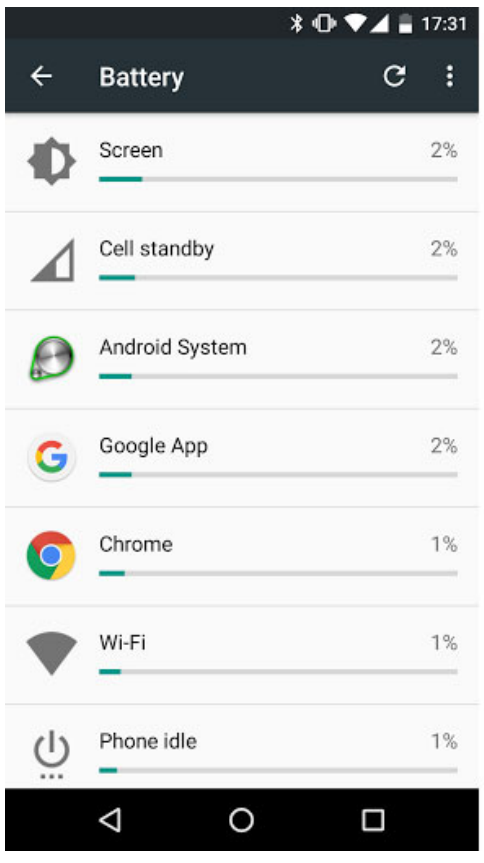
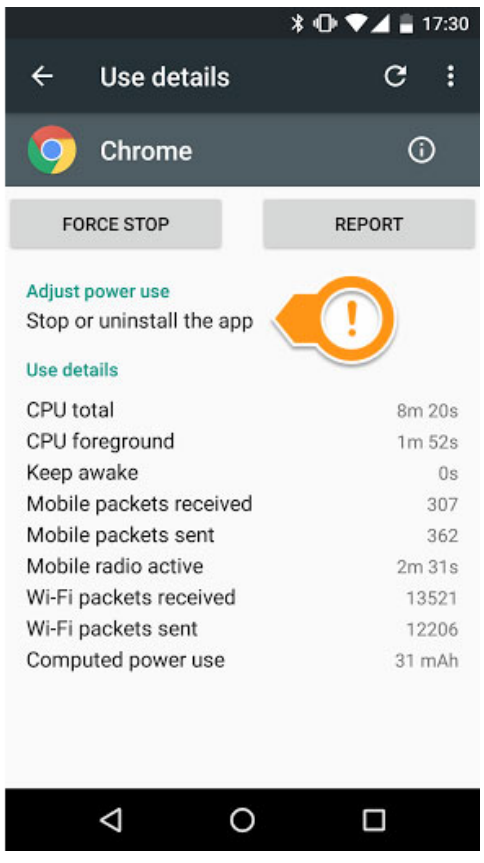
Android has a tool called 'Battery' in the Settings app which shows an estimate of the battery usage of the most power-consuming apps on the device. This allows an end user to look at this page to quickly identify which applications are having the largest impact on their phone's battery life. Since many phones barely last a day on a full charge, consumers have become very conscious of apps that impact the longevity of their battery.

In fact, there is even a button to *uninstall the app* directly from the details page, which is a scary feature for developers and PMs. You never want your users to consider deleting your app to improve their battery life. You need to do what you can to keep your app off this screen. How does Android calculate this number?





Source: My Phone

Delving into the Android code

Thanks to the open-source Android project, we can take a peek at the public-facing tool to see what goes into the application battery consumption calculation.

An app's consumption depends on the hardware resources it uses, how long it uses them for, how often they're used, and how hard they're pushed. Most hardware components in a smartphone don't just sit there consuming power – modern chipsets have very advanced power management technologies that put hardware resources into low power states when not in use.

Much of the calculation boils down to **<How long did you use it for> * <Hardware power consumption per unit of time>** to approximate a specific app's battery usage (measured in mAh). We can look at the Android source code to get the exact formulas for all of the hardware resources that go into the formula.

> Total_Power_Consumed (mAh) = Bluetooth_mAh + WiFi_mAh + GPS_mAh + CPU_mAh + Sensors_mAh + Modem_mAh+ Wakelock_mAh + Camera_mAh + Flashlight_mAh