

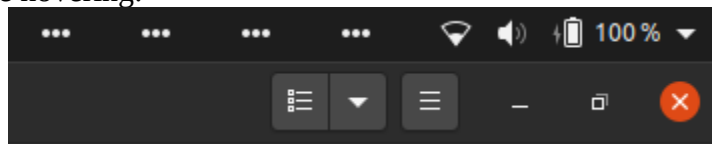
# Ubuntu 20.04 laptop battery documentation

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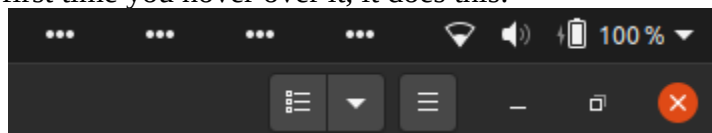
*This document goes over general documentation of my experience with battery performance and activity while using Ubuntu 20.04 on 2 different XPS 13 laptops (from 2020 July 9<sup>th</sup> to the present (Tuesday, 2021, October 26<sup>th</sup>) Please note that this range will not be updated unless the document is updated. I will still be using Ubuntu past 2021 October 26<sup>th</sup>*

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- 1) Slowly charges 1-2 percent at a time up to 90%, slowly charges onward
- 2) 99% takes over 20 minutes to go to 100%, if the ETA says 3 minutes, it just recently reached 99%. If the ETA says 4 minutes, it is about halfway done. If the ETA says 5 minutes, it is going to reach 100% battery within the next 8 minutes.
- 3) Battery can drop 2% at a time with high CPU usage. It also sometimes does this at normal CPU usage.
- 4) Battery charges 2% at a time commonly, this is normal.
- 5) The system does NOT shut down at 10% battery as stated in the Ubuntu desktop guide, although it gives you a warning once it reaches 10% I only did this once though.
- 6) The battery can last months without charging if the system isn't in use and is shut down. It drops about 12% battery per 4 months in this state.
- 7) During times of battery percentage problems, the system may get stuck at 92% battery. It will throw a ridiculously large battery percentage, and will eventually skip to 100% battery. Immediately upon unplug, it will drop to 92% battery. The issue will take 1-9 power cycles to correct. I am not sure what causes this, it may be a different outlet, it may be a general battery error/decay.
- 8) Unconfirmed observation: sometimes, laptop instability can be caused by the battery dropping to a certain percentage range, the most common one being below 19%, the less common one being 20% to 29%, and the rarest one being 30% to 34%
- 9) I have been meaning to document this for some time, I have tried really hard to in the past 3 days, and I finally got a screenshot of it. It is an extremely minuscule graphical bug. If you hover over the battery once it reaches 100% the percent sign shrinks a little. Here is what it looks like before hovering:



... and then the first time you hover over it, it does this:



It isn't that important, but it has always stood out to me. I finally have it documented. I have noted that this problem doesn't occur when you hover over the battery, but any part of the title bar.

# Other important battery advice

## For Lithium Ion batteries

- 1) Lithium batteries degrade over time. Do not buy a replacement battery while your current battery is in perfect health, as the backup battery will degrade/rot in storage, then by the time you need to use it, it will not work very well/at all.
- 2) Based on general advice, it is recommended to not let your battery drop below 20% and not charge above 80% this is best for the batteries health. If you can't follow the step of stopping every charge at 80%, you can at least plug your device in when it gets low (for example: lately, always plug mine in at 23-29% battery)
- 3) MacOS 11.0 (Big Sur) and subsequent versions (MacOS 12.0 Monterey) have a built-in feature to limit battery discharge at 20% and battery charge at 80%. I don't know of any other operating system that forces this rule.

*This document was last updated on 2021 Tuesday, October 26<sup>th</sup> at 10:11 pm*

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