

BatteryTest

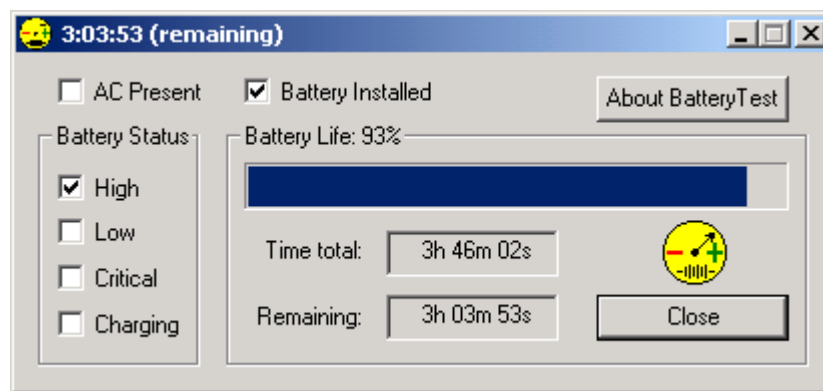
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BatteryTest is a simple utility created to monitor your laptop computer's battery usage. The `BatteryTest.exe` program – together with `BatteryTest.pdf` – is provided as freeware and may be distributed so long as this distribution is made without charge except for nominal fees when distributed in a media format. Any distribution of **BatteryTest** must include this document. If necessary, the complete **BatteryTest** program and documentation can be downloaded in .zip format from <http://www.ezzell.org/>.

BatteryTest Features

The **BatteryTest** program is most useful with modern laptops which incorporate 'smart' batteries – i.e., batteries which are capable of fully reporting their state of charge.

Depending on the type of battery in your laptop, the features provided may vary and, on older models, may be limited solely to displaying a percentage of charge and/or discharge. In such cases, the display may be limited to the Battery Status report (left) while the Battery Life display may be limited only to the percentage bar.



Modern laptop batteries – depending on the model – may also report an estimated remaining time (see “Remaining:” above) and, in some cases, may report a total battery life (see “Time total:” above). Because this last feature is less than common, however, a provision has been included here – when the battery proper does not report a total capacity – to estimate the battery life for a fully charged battery and to report this figure.

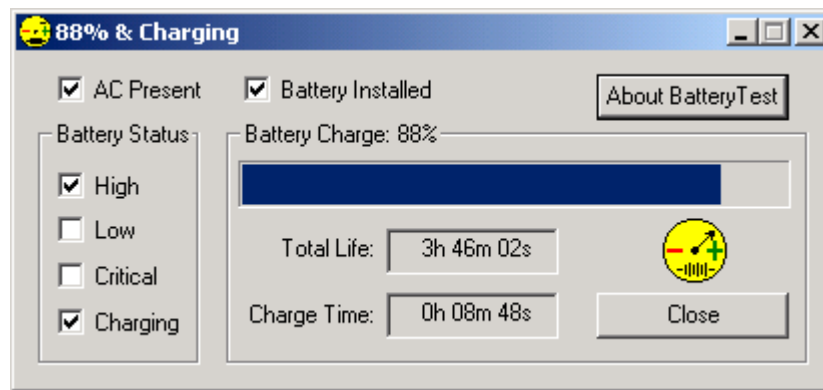
When a laptop is initially disconnected from the charger (AC power is removed), the time remaining reported by a smart battery may be rather fantastically erroneous (initial values may range to hundreds of hours). After five minutes or so of battery operation, however, the reported values will normally stabilize and will report relatively authentic expectations.

Note: actual battery life depends on usage demands and extensive hard drive access or CD/DVD-ROM usage can decrease the overall battery life. Because of this, the value shown for time remaining may fluctuate during periods of high demand.

Because of these initial grossly invalid reports of capacity, when a smart battery is not able to report a time total, the time remaining at 95% charge is used to estimate the 100% capacity level and this value is recorded in your system registry. If, for any reason, this value appears to be reported incorrectly, the value used is recorded in the key [HKEY_LOCAL_MACHINE\SOFTWARE\Battery Watch] using the “Full Battery Time” value. This key can be deleted or the value can be reset to 0 if necessary. If this is done, the battery life for a fully charged battery will be recreated at a later time after the battery has been fully charged and after it discharges to the 95% level.

New Features (Version 1.0.5)

BatteryTest version 1.0.5 adds a new feature which displays an estimated time required for recharge when the laptop is connected to AC power (or other charging source). This feature is not provided by the battery (even the ‘smart’ batteries) but is estimated by the **BatteryTest** program based on the charge percentage (level) and the elapsed interval between reported changes in the charge level.



Because batteries do not accept recharge in a linear fashion, the reported times are estimates only. For example, if a battery is fully discharged, the total charge time estimated may be relatively fast simply because the time to charge the battery from 10% to 20% is much less than the time required to change from 90% to 100% of capacity. This non-linear effect may be particular noticeable when the battery reaches the 97% to 100% range.

BatteryTest uses an entry in the [HKEY_LOCAL_MACHINE\SOFTWARE\Battery Watch] key as “Battery Charge Interval” to average reported intervals using a weighting formula. Thus, while the charge time estimates are a highly empirical process; overall, you should find that **BatteryTest** does provide a reasonable guide to the time needed to recharge your laptop battery.

You should also be aware that – in most cases – your laptop battery will recharge faster when the laptop is not in use.

Version 1.0.6

Repaired minor bug in time-to-charge reporting algorithm.

Version 1.0.8

Improved time-to-charge reporting algorithms, other minor performance issues.

Known Bugs

When the ‘smart battery’ does not support reporting a total battery life, if the laptop uses a ‘speedstep’ CPU and is in standby when **BatteryTest** records the total battery life, the recorded value (Total Life) will reflect standby battery lifetime rather than the battery’s working lifetime. I.e., for a battery with a nominal charge life of 3 hours, 45 minutes during normal operations, the standby lifetime might appear as 20 to 30 hours (or higher). This aberration should correct itself during subsequent operations but the incorrect value can be manually cleared by resetting the “**Full Battery Time**” value in the `[HKEY_LOCAL_MACHINE\SOFTWARE\Battery Watch]` key.

– Ben Ezzell –