# The flight info page saved with each flight



Every time the Nano saves a flight, it writes a flight info page beside the log, named `flightinfo<tag>-<n>.html` to match `flightlog<tag>-<n>.aclz`. Open it straight off the Nano's drive in any browser for the flight at a glance.

It needs no internet connection, works on a phone, and follows your device's light or dark setting. It has two tabs: **Flight** for the result, and **Diagnostics** with everything the Nano recorded about the save.

GOOD TO KNOW

The page is signed like the log, so it can't be changed without it showing. It's the log you upload, though. If you need help with a flight, tap Copy as text on the Diagnostics tab and paste it into your email.

## The Flight tab

This opens first. At the top are the flight number and device tag, with the board revision, firmware and serial number.

### Apogee

The apogee above the pad, from the processed trace, and how long after launch it came. Two buttons sit below it: **Download log** downloads the log beside this page, so it works when you open the page from the Nano's drive or from a folder where you copied both files, and **Upload** opens the Altimeter Cloud upload page.

### Notices

Under the apogee, a notice with a coloured dot appears for anything worth knowing about the flight. Each only shows when it applies.

| Notice | What it means |
|---|---|
| Log save failed | The log couldn't be saved, with the reason. The flight is kept in the backup copy and the save is tried again at the next power-on; see log recovery. |
| Log recovered | The flight was rebuilt from the backup copy, for example after a power loss, rather than saved straight from flight memory. |
| Log saved | A normal save from flight memory. |
| Filter note | The apogee spotted live during the flight and the processed apogee differ by more than 1 m, usually because the processing removed a pressure spike near the peak. Both values are given. |
| Log trimmed | Some samples were dropped from the end of the log to fit the memory. |
| Altimeter moved | On Revision 4 and later, the Nano shifted in its mount during the burn, so the rail angle, tilt and spin figures are unreliable. Altitude, velocity and apogee are unaffected. See installing the altimeter. |
| Accelerometer or gyro hit its limit | Some readings reached the end of the sensor's range (±32 g, ±2,000 °/s), so they read low over that time. The accuracy page has a tip for flights beyond 32 g. |
| Accelerometer never calibrated | The angles and rail angle would be more accurate after calibrating the IMU. |

The page never says the log was verified, because it is written just before the Nano checks the log. The 20 white flashes at the end of the save confirm that.

### Flight figures

| Figure | What it means |
|---|---|
| Max velocity up / down | The fastest climb and the fastest descent |
| Burnout | When the motor stopped pushing, on Revision 4 and later |
| Landing | When it landed, and the height it came to rest at |
| Landing speed | How fast it was coming down, with a face to show how hard: ? up to 4 m/s, ? up to 8, ? up to 15, ? up to 25, and ? above |
| Flight time | Lift-off to landing |
| Rail angle | On Revision 4 and later, the rocket's angle from vertical on the pad just before lift-off |
| Launch confirmed by | Acceleration, or pressure alone |
| Powered on before launch | How long the Nano had been switched on when it launched |
| Samples / Average rate | How many rows are in the log, and the average rate across the flight. With hybrid mode on this is well below your logging rate, because the descent is logged at a lower rate |
| Log file | The log's name and size |
| Saved from | Flight memory, or the backup copy for a recovered flight |

### Charts

Three small charts: the altitude over the whole log from the pad to the stop, a close-up 2 seconds either side of apogee, and on Revision 4 and later the acceleration above 1 g from launch to just after burnout. The points are spread by sample rather than by time, so they are for a quick look; the Altimeter Cloud gives you the full interactive charts.

## The Diagnostics tab

Every value the save recorded, grouped in cards of label and value rows. Rows in red are faults and rows in amber are warnings. The tab's badge shows how many rows there are. Some rows only appear when they apply, for example the motion sensor rows on Revision 4 and later, or the ACLZ rows for an ACLZ log.

The **Copy as text** button copies the notices, the flight figures and every card as plain text, ready to paste into an email to support.

### Altitude processing

How the saved altitude was produced from the barometer.

| Row | What it shows |
|---|---|
| Waveform | A small chart of the 60 samples around the peak: the raw barometer altitude in grey and the processed altitude dashed, on the same scale, with a line at the raw peak. It shows exactly what the processing did at the top of the flight. |
| Order | The steps the altitude went through: the raw barometer, then TrueFuse, then TruePath removing spikes, then TruePath smoothing. |
| Saved altitude | What the Altitude column in the log holds: the processed trace. |

| | |
|---|---|
| Raw column | Where the untouched barometer altitude is kept in the log, so you can compare it. |
| Saved velocity | How the Velocity column was worked out from the processed altitude. |
| Raw apogee | The highest point of the raw barometer trace, and when it came. |
| Processed apogee | The highest point of the processed trace, which is the apogee reported everywhere, with the difference from the raw apogee. On a clean flight they are within a few centimetres; a bigger difference is the processing removing something that wasn't really height, such as an ejection spike. |

### TrueFuse 2 fusion

What TrueFuse did on this flight. Most people only need Status and Largest correction.

| Row | What it shows |
|---|---|
| Filter version | The version of TrueFuse that processed the flight. |
| Status | Whether it was applied; applied but with the launch correction left out because the rocket was tumbling, such as a hand throw or an unstable flight; or not run, and why. |
| Altitude source | Which trace the saved altitude came from. |
| Trend holds | How many times TrueFuse carried the altitude across a short pressure disturbance using the flight's own trend, and for how long. |
| Launch fuse windows | How many times it held the altitude against the accelerometer through the launch. |
| Pad holds | How many times it held the altitude steady on the pad. |
| 2F rows | Details of the newest refinements in this version, mainly useful to us. |
| Largest correction | The biggest amount TrueFuse moved the trace away from the barometer, in metres. |
| Burnout stamp used | The burnout time TrueFuse worked from, marked "repaired" if it had to be corrected. |
| Apogee stamps used | The apogee times TrueFuse worked from. |
| Method | A short description of how TrueFuse works. |

### TruePath

What TruePath did when it removed spikes and smoothed the trace.

| Row | What it shows |
|---|---|
| Filter version | The version of TruePath that processed the flight. |
| Input | What it was given, normally the TrueFuse output. |
| Detection floor | The smallest disturbance, in metres, that TruePath would treat as a spike on this flight. |
| Samples cleaned | How many samples it replaced, out of the total. |
| Window selection | How many short, medium and long smoothing windows it used across the flight. It uses tighter smoothing through apogee and wider under the parachute. |
| Descent change | How much the smoothing changed the descent, on average, in metres. |

### Motion sensor

On Revision 4 and later boards.

| Row | What it shows |
|---|---|
| Rail angle | The rocket's angle from vertical on the pad just before lift-off, with its uncertainty, and whether the mount held, moved or couldn't be judged. If it couldn't be measured, the row says why. |
| Altimeter moved | Shown in red if the Nano shifted in its mount during the burn, explaining that the rail angle, tilt and spin are unreliable but the altitude, velocity and apogee are not affected. |
| Rail angle detail | The measurements behind the rail angle, for anyone who wants to check it. |
| IMU saturation | Whether the accelerometer or gyro reached the end of its range during the flight. "None" is what you want; it shows red if either did. |
| Spin rate X, Y, Z | The fastest and average rotation rate about each axis. |
| Sensor sync | Whether the barometer and motion sensor data were lined up, and by how much. |
| Accel calibration | The accelerometer calibration offsets in use, in mG. |
| Calibration quality | How well the calibration went, with the worst position and a guide to reading the figures, or a note that the Nano has never been calibrated. See calibrating the IMU. |

### Sensor and device settings

The conditions the flight was recorded under.

| Row | What it shows |
|---|---|
| Forecast pressure | The sea level pressure used to work out height, fixed at 1013.25 hPa. |
| Static temperature | The temperature used to work out height, fixed at 15 °C. |
| Sensor temp | The board temperature at the start and end of the flight. |
| Battery | The battery voltage, and a rough percentage, at the start and end of the flight. A handy check that the battery was healthy for the flight. |
| Sample oversampling | How many readings the barometer averages for each value it gives. |
| IIR filter | The barometer's own filter setting. |
| Hybrid mode | The hybrid mode used for the flight. |
| Pad seed | The pad readings taken at the end of start-up to set the starting altitude: their trimmed average and median, how many there were, and their spread. |
| Barometer first and 20th conversion | The barometer's first reading after power-on and its reading once warmed up. |
| Pad floor at launch | The ground reference locked in at launch, which every height in the flight is measured from. |

### Save timings

| Row | What it shows |
|---|---|
| Post-flight filter | How long TrueFuse and TruePath took, in milliseconds. |
| IMU analysis | How long working out the motion figures took, on Revision 4 and later. |
| Save CSV | How long writing the log took. |

### Hardware health

Figures about how the Nano itself ran during the flight and the save. These are mainly for us, but they are a useful record if something ever looks wrong.

| Row | What it shows |
|---|---|
| Sensor initialisation | Whether the sensors started correctly. |
| Buffer overflows | Whether any sensor readings were lost because they arrived faster than they could be collected. 0 is what you want. |
| Loop compute | How long the Nano's main loop took to run, at its longest and on average. |
| Free heap, PSRAM and internal RAM | How much memory was left at the tightest point, and at each stage of the save. |
| Brownouts | Whether the power dipped low enough to restart the processor. |
| Body buffer and Log trimmed | How much memory the log used against what was reserved, and whether any samples had to be dropped to fit. |
| Compression | How well the log compressed, from its full size down to the ACLZ file. |
| Clock at save | The processor speed used for the save, and the battery at the time. The save runs slower on a low battery to protect the cell. |
| Filter stage split and ACLZ save phases | How long each part of the save took. |
| Launch confirm | How the launch was confirmed, and how long the thrust and height had been held when it was. |
| I2C bus | The speed of the connection to the sensors, and any errors on it. |
| Sensor FIFO | How the motion sensor's readings were collected, and whether any were missed. |
| High speed sensor | Whether the high speed sensor setting was on, and how many readings went into each logged row. |
| Raw altitude column | How many samples differ between the raw and processed altitude, and how much space the raw column takes in the log. |
| Log save FAILED | Shown in red if the log couldn't be saved, with the reason. |

TrueFuse in depth ↗ TruePath in depth ↗