SOFTWARE & COMPUTING INFRASTRUCTURE

The ATLAS software and computing system processes and stores the vast amounts of collision data collected by the detector. The data are then distributed to physicists at institutes around the world.

COLLECTING RAW DATA

ATLAS records over **10,000 TB of data per year** – that's equivalent to 320,000 hours of 4K streaming. The data are distributed to **over 130 computing centres worldwide** – located on every inhabited continent – and filtered according to the needs of individual physics analyses. As part of these analyses, ATLAS processes 25,000 TB of data every week.

RECONSTRUCTING COLLISIONS

The ATLAS computing system uses **custom software** that converts the raw signals from the detector into information that physicists can study. By piecing together individual detector signals, the software is able to reconstruct the paths of particles, identify their particle type (e.g. electrons or muons) and much more.

MAKING PREDICTIONS

A large part of ATLAS' computing resources – about two-thirds of its 450,000 CPUs – is dedicated to **modelling theoretical predictions**, which follow mathematical and statistical rules, and simulating collisions, which can be compared to real collision events in physics analyses. This is computationally expensive as it simulates both the creation of collisions as well as the detector's response.

OPEN SOFTWARE

ATLAS software is public under an APACHE 2.0 license and totals more than **5 million lines of code.** It is under constant development by members of the Collaboration, as they implement the latest technologies and analysis techniques.

https://atlas.cern

ATLAS EXPERIMENT