The **Base of Aircraft Data** (BADA) is an **Aircraft Performance Model** (APM) developed and maintained by EUROCONTROL, with the active cooperation of aircraft manufacturers and operating airlines.

The BADA APM is designed for simulation and prediction of aircraft trajectories for purposes of ATM research and operations. Aircraft performance parameters and trajectories can be calculated using information and data contained in BADA.

To replicate reality in both operational and research modelling and simulation systems, each and every real aircraft needs a corresponding aircraft model.
BADA’s Aircraft Performance Model is based on the **Total Energy Model**, which equates the rate of work done by forces acting on the aircraft with the rate of increase in potential and kinetic energy. It can be considered as a reduced point-mass model.

BADA is not a software product. It has two components:

- **model specifications** providing the theoretical models used to calculate aircraft performance parameters;
- **datasets** containing the aircraft-specific coefficients needed to make calculations.

There are two families of BADA APM, based on the same modelling approach and with the same components:

- **BADA Family 3**: today’s standard for aircraft performance modelling, providing models for a number of aircraft types which ensure 95% coverage of the current air traffic operations in European Civil Aviation Conference (ECAC) members’ airspace. The primary objective of BADA 3 is to model aircraft behaviour in the normal operations part of the flight envelope and to meet today’s requirements for aircraft performance modelling and simulation;
- **BADA Family 4**: a newly developed model intended to meet the advanced functional and precision requirements of new ATM systems and R&D. It has 70% coverage of current aircraft types operating in ECAC airspace. BADA 4 provides accurate modelling of aircraft over the entire flight envelope and enables the modelling and simulation of future systems’ advanced concepts.

BADA is embedded in EUROCONTROL’s ESCAPE real-time simulation platform.

BADA’s **users** include:

- air navigation service providers;
- R&D entities;
- the ATM support industry;
- aircraft manufacturers.

BADA is used for:

- fast- and real-time modelling and simulation tools, such as ESCAPE, TAAM, AirTOp;
- calculating the **trajectory prediction** component of ground-based operational ATM systems;
- **environmental assessment** tools, such as IMPACT, AEM, AEDT.

To use BADA, you need a **licence agreement**. You can request a BADA licence through the BADA User Interface: [http://badaext.eurocontrol.fr/](http://badaext.eurocontrol.fr/)

For more **information**, contact the BADA Support Team:

Tel: +33 1 69 88 76 15
Email: eec.bada@eurocontrol.int