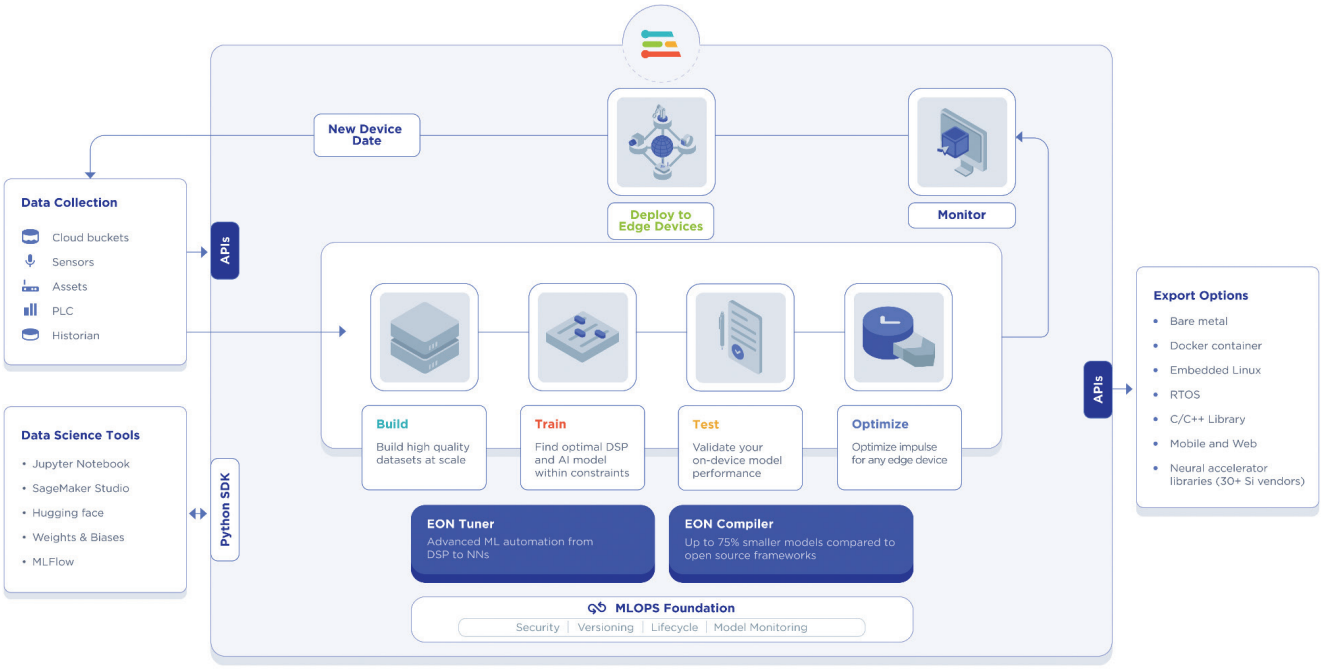
# Edge Impulse

## Edge AI MLOps Platform




## Features

- Data Acquisition and Dataset Management
- Feature Engineering / Digital Signal Processing (DSP)
- EON™ Tuner (model and DSP optimization search)
- EON™ Compiler (optimized C++ model export)
- Anomaly Detection
- Object Detection for Microcontrollers (FOMO)
- On-Device Performance Profiling
- Python & Node.js SDK / API Integrations
- Enterprise Admin APIs & Role-Based Access Control
- SOC 2 Type II Compliant Security
- OEM White-Label & Platform Integration

## Introduction

Edge Impulse is a leading edge AI development platform that brings intelligence to edge devices. The platform enables teams to build datasets, train machine learning models, optimize libraries and deploy models directly to edge hardware, from small microcontrollers to gateways with neural accelerators.

### Edge AI Development Made Easy

Edge Impulse empowers ML teams to run AI at peak performance on any edge hardware, from CPU to NPU and GPU, with unmatched ease and speed.

**BUILD HIGH-QUALITY DATASETS** Collect and visualize sensor, audio, or image data from devices, files, or cloud integrations, and set up reusable, parallelized data pipelines to prepare data at scale.

**OPTIMIZE FOR ON-DEVICE PERFORMANCE** Use the EON™ Tuner to balance feature extraction and model architecture against memory and latency constraints, and the EON™ Compiler to reduce a model's memory footprint by up to 70% versus other frameworks.

**DEPLOY TO ANY EDGE DEVICE** Export trained models to an optimized C++ library built for interoperability with any edge device, then continuously monitor and improve performance after deployment.

### Build, Optimize, and Deploy Your Edge AI Models

Track a model from first sensor sample to production deployment with Edge Impulse. As an end-to-end edge AI MLOps platform, Edge Impulse frees engineering teams to bring intelligence to devices without needing a dedicated data science team.


All product specifications are subject to change without notice.

### BUILD

- Collect and visualize sensor data to build high-quality datasets and monitor how dataset changes affect model performance and accuracy from a single dashboard.
- Ingest sensor, audio, or image data directly from devices, files, or cloud integrations.
- Analyze dataset quality with built-in data science tools to identify areas for improvement, and explore feature importance to understand which signals matter most.
- Use state-of-the-art DSP algorithms to extract features from raw data and optimize on-device inference performance.

### OPTIMIZE

- Use the EON™ Tuner to find the best combination of DSP and model architecture for a target device's memory and latency budget.
- Convert trained models into an optimized C++ library with the EON™ Compiler, which supports a wide range of neural network kernels while cutting memory footprint.
- Test and fine-tune on-device performance by analyzing a model's False Activation Rate (FAR) and False Rejection Rate (FRR) against real-world or synthetic data streams.
- Detect anomalies across sensor modalities using models trained solely on normal data, including support for visual anomaly detection on image and video data.
- Bring real-time object detection, tracking, and counting to microcontrollers with FOMO (Faster Objects, More Objects), reported to run up to 30x faster than MobileNet SSD in under 200 KB of RAM.

### DEPLOY

- Export trained models to an optimized C++ library built for interoperability with any edge device.
- Integrate natively with existing workflows through the Python SDK and Node.js API bindings, or profile and deploy models directly from a Python script.
- Deploy models with the ability to continuously monitor and improve their performance in the field.
- For OEMs, Edge Impulse can be fully integrated within a partner's own platform, offering a branded, customized experience along with a private analytics dashboard for user engagement, entitlements, and project metrics.

### Security & Compliance

Edge Impulse is SOC 2 Type II compliant, backed by an annual independent audit of its controls against the AICPA SOC 2 framework. Enterprise Plan users can further configure access with role-based user management tools.

## Deployment Options

Edge Impulse models offer highly optimized deployment options across Advantech hardware:

- Linux Executables: Compiled binaries with hardware acceleration for high-performance processors, ideal for edge systems like the Advantech AOM2721, the all-in-one ICAM-540, and many more.
- Docker Containers: Pre-packaged, containerized environments for scalable deployment on industrial gateways and servers with full AI acceleration.
- C++ Libraries: Open-source, dependency-free code tailored for resource-constrained systems, allowing custom software integration via the EON compiler.

## Minimum System Requirements

Edge Impulse Studio is accessed through a supported web browser; visit docs.edgeimpulse.com for current browser and account requirements. Requirements for target hardware vary by supported device and are listed per board in the documentation.

## Technical Capabilities

| | Enterprise |
|---|---|
| **Deployment** | Cloud-hosted (browser-based Studio) |
| **Primary Use** | Production-scale development, internal deployment and external distribution |
| **Private Projects** | Unlimited |
| **Collaborators** | Enterprise-wide collaboration |
| **Compute Resources** | Unlimited compute time per job |
| **EON Tuner (DSP + model architecture search)** | Full customized search space |
| **EON Compiler** | Includes RAM-optimized mode; available for models trained inside or outside Edge Impulse |
| **API Access** | Full, including organization-level API endpoints |
| **Developer Integration** | Use Python SDK, Python API bindings, CLIs and libraries to integrate Edge Impulse into existing development and MLOps workflows. |
| **Role-Based Access Control / SSO** | Included |
| **Support Channel** | Email support |

## Order Information

### Subscription bundles

- **31OTEIMP0001A1** Edge Impulse Subscription, 1 user 03-months
- **31OTEIMP0002A1** Edge Impulse Subscription, 1 user 12-months

** Visit Edge Impulse page and start building your AI solutions quickly and efficiently.