

Cisco Edge Intelligence

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Cisco® Edge Intelligence is a software offering, designed for Cisco IoT edge devices, that simplifies the secure delivery of IoT data to the right applications at the right time, either at the edge or in the cloud.

Product overview

Internet of Things (IoT) discussions have moved from counting the number of connected devices to describing use cases and value for each industry. Organizations in every industry are looking to translate IoT edge data into meaningful information and derive business value. Cisco Edge Intelligence radically simplifies the IoT edge, with multicloud data delivery and control for connected assets.

Cisco Edge Intelligence is a software offering that extracts, transforms, governs, and delivers connected asset data from the IoT edge to multicloud destinations with granular data control. It is a software service deployed on Cisco's Industrial IoT (IIoT) networking portfolio for easy, out-of-the box deployment.

The benefits of Cisco Edge Intelligence include the ability to leverage edge data for insights immediately. Instead of pushing data all the way to your cloud before analyzing it, you can now take action immediately based on the values of attributes right at the edge. Additionally, with the continued growth of sensors and connected assets, you can use Edge Intelligence to easily reduce the amount of data sent to your cloud back end: send data only when the value changes, send data only when a threshold is reached, or specify your sampling frequency at will. Cisco Edge Intelligence provides a robust toolkit of capabilities to increase your efficiency and improve your edge-to-edge data visibility from day one.

Current approaches require custom software and integration of multiple vendor technologies that are complex to deploy and manage. In addition, current offerings are further challenged with no easy way to control what data is delivered to specific applications running in multicloud environments. Cisco Edge Intelligence enables organizations to regain ownership of and control over IoT edge data by providing:

- Out-of-the-box service on Cisco's IIoT networking portfolio
- A simplified user experience and scaled centralized deployment
- Seamless data extraction from a variety of data sources
- Developer-friendly tools to create intelligent data logic for IoT edge execution
- The ability to govern the flow of IoT data at granular levels before data leaves the operational environments
- Preintegration with leading IoT platforms and applications to easily share data from the IoT edge to multicloud destinations

Features and benefits

Feature	Benefit
Integrated industrial device connectivity	Edge Intelligence provides various industry-standard connectors such as Open Platform Communications Unified Architecture (OPC UA), MQTT, Modbus TCP, and NTCIP 1202-1204, and integrates seamlessly with your environment.
Asset data model editor	Customize data models that describe exactly what data will be extracted from your assets. Create centralized configurations that can be scaled for your entire deployment. Custom attributes can be implemented to allow per-asset customization if needed, and our Data Logic engine has full access to asset attributes. Learn more
Data Logic engine	Deploy custom logic using JavaScript to transform data at the edge. Use data logic to sample high-frequency data streams, apply transformation logic, perform rule-based range validation, or normalize data, depending on specific needs. Learn more
Microsoft Visual Studio (VS) Code plug-in	Simplify development of data logic by leveraging standard development tools. Learn more
Intuitive data rules creation	Achieve fine-grained control to help ensure that the right data is delivered to the right applications. Data from any source can be filtered at the attribute level and delivered to multiple selected applications. Implement simple data rules within our cloud-based UI if no data logic rules are needed. Learn more
Multicloud application data integration	Deliver your data to any application, either cloud hosted or at the edge, using built-in connectivity to services such as Microsoft Azure IoT Hub or industry-standard protocols such as MQTT. Multicloud delivery allows you to connect multiple data pipelines to one asset for advanced use cases.
Role-based access control	Use segmented configuration and operation to control who has access to what elements of the configuration and operation of your Edge Intelligence solution.
Audit trail	Log all operations in Edge Intelligence to help ensure accountability for the integrity of your solution configuration and deployment.
Security	Deploy industry-leading built-in security that protects your data and your business. Edge applications are protected through a comprehensive security architecture anchored to a hardware root of trust and built-in Transport Layer Security (TLS).
Centralized administration	Use the cloud-based management software to create all aspects of your edge stack configuration in a centralized place, including data models, data logic, destinations, and policies, to greatly simplify the deployment of these pieces at massive scale.
Scalability	Manage the lifecycle of an edge stack and associated workflows on thousands of Cisco network devices.
Operational health monitoring	Gain real-time visibility into the operational state of the Edge Intelligence agents and the execution state of deployed policies.

Prominent features

Cisco Edge Intelligence is unique in that it is the only IoT solution that unlocks business value by simplifying the entire data flow from the edge of the network to multiple cloud environments. It is an integrated IoT edge stack managed through an intuitive user interface that helps ensure security and governance of IIoT data, either locally at the edge or in a multicloud environment. These major features and benefits are presented through four distinct steps: extract (the data from disparate sources), transform (the data by applying policies), govern (the data as to where and who gets access to it), and deliver (the data securely to its destination).

- **Extract data from diverse, distributed devices:** Edge Intelligence includes industry-standard connectors such as OPC UA, Modbus, and MQTT that allow the solution to ingest data from disparate sources. No coding is needed – data sources are configured via simple web-based UIs. Ingested data is converted to industry-standard formats such as JSON.
- **Transform data at the edge:** Perform microprocessing on data close to the source. Create scripts using JavaScript that filter, compress, or analyze data. You can aggregate multiple data points from various sources to gain actionable insights into trends and patterns through real-time intelligent processing. Edge Intelligence developer tools are fully integrated with an industry-leading Integrated Development Environment (IDE) (Microsoft VS Code) for ease of development. [Learn more](#)
- **Define streamlined data rules:** Create data rules for the edge from our cloud UI. Choose which data points (right down to the data attribute level) are sent to which destinations. For example, you can have all production data from assets go to an internal database for compliance reasons, and send environmental data to a real-time predictive maintenance application.
- **Deliver data anywhere:** Data can be delivered to applications either on at the edge or in the cloud. Use built-in connectors to share data with industry-leading cloud vendors, or choose industry-agnostic protocols such as MQTT.
- **Monitor the ongoing operation of your IoT solution:** Ongoing monitoring of the key components of Edge Intelligence helps ensure that any outages can be quickly diagnosed and fixed. Health status events and alerts are accessible from the cloud UI, and are generated for critical components of your IoT deployment.

Platform support

Product family	Platforms supported	Cisco IOx versions supported
Cisco Catalyst® IR1800 Rugged Series Routers	IR1835, IR1833, IR1831, IR1821	2.7.0.0
Cisco 800-level Industrial ISRs	809, 829	1.13.0.6
Cisco Catalyst IR1101 Rugged Series Router	IR1101	2.3.0.5
Cisco IC3000 Industrial Compute Gateway	IC3000	2.3.0.10
Cisco Catalyst IE3400 Rugged Series Switch	IE3400	2.8.0.0

Licensing

Cisco Edge Intelligence is licensed as a subscription. Licenses are divided into two groups: base functionality and industry-specific device adapters. A base license defines the general set of agent capabilities available for the agent and is required for each Cisco network device that will run an Edge Intelligence agent. An additional industry-specific device adapter license may be purchased for each agent when industry-specific device connectivity is needed.

One base license must be purchased for each hardware device that will run the Cisco Edge Intelligence agent. Additional device adapter licenses may be purchased for specific industry use cases.

Product specifications

Feature	Essentials (EI-ESS)	Advantage (EI-ADV)	Roadways (EI-DA-R)	Industrial (EI-DA-I)
Southbound connectivity				
Modbus TCP/Serial	Yes	Yes		
MQTT Broker	Yes	Yes		
Serial	Yes	Yes		
NTCIP 1202-1204			Yes	
RSU			Yes	
EIP/CIP				Yes
OPC UA				Yes
Northbound connectivity				
MQTT	Yes	Yes		
Azure IoT Hub		Yes		
AWS IoT Core		Yes		
IBM Watson		Yes		
Software AG Cumulocity		Yes		
Feature				
Edge Agent software	Yes	Yes		
Centralized cloud-based management	Yes	Yes		
Data ingestion	Yes	Yes		
Asset data model editor	Yes	Yes		

Feature	Essentials (EI-ESS)	Advantage (EI-ADV)	Roadways (EI-DA-R)	Industrial (EI-DA-I)
Asset inventory	Yes	Yes		
Northbound data destinations	Yes	Yes		
Cloud-to-device commands	Yes	Yes		
Data rules for northbound data	Yes	Yes		
Role-based access control	Yes	Yes		
Audit trail	Yes	Yes		
Health monitoring	Yes	Yes		
Scripting engine		Yes		
Dev tools/Microsoft VS Code plug-in		Yes		
Google Protobuf Support		Yes		
Hardware platforms				
IR1800 Rugged Series Router	Yes	Yes		
809 Industrial ISR	Yes	Yes		
829 Industrial ISR	Yes	Yes		
IR1101 Rugged Series Router	Yes	Yes		
IC3000 Industrial Compute Gateway	Yes	Yes		
IE3400 Rugged Series Switch	Yes	Yes		

Ordering information

Cisco Edge Intelligence requires one Edge Intelligence tier license for each Cisco hardware device that will run an Edge Intelligence agent. Our ordering guide is available for internal Cisco Sales colleagues and partners.

Each Cisco device that will run the Edge Intelligence agent must have a license for either Edge Intelligence Essentials or Advantage, depending on the base functionality required in the solution.

Part number	Product description (tiers) NOTE: Search for EI-Subscriptions when ordering
EI-ESS	Edge Intelligence Essentials. Includes base access to Edge Intelligence Agent software and cloud UI. Includes access to MQTT northbound connector and NO scripting engine access.
EI-ADV	Edge Intelligence Advantage. Includes full access to Edge Intelligence Agent software and cloud UI. Includes all available northbound connectors and full scripting engine access.

Additional industry-specific capabilities for southbound data extraction can be added, based on solution needs. One license must be ordered for each agent using the extended capabilities provided.

Part #	Product description (device adapters) NOTE: Search for EI-Subscriptions when ordering
EI-DA-I	Edge Intelligence industrial adapters. Includes access to EIP/CIP southbound connectors.
EI-DA-R	Edge Intelligence roadways adapters. Includes access to NTCIP 1202-1204 and RSU southbound connectors.

Cisco environmental sustainability

Information about Cisco’s environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the “Environment Sustainability” section of Cisco’s [Corporate Social Responsibility](#) (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the “Environment Sustainability” section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

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Document history

New or revised topic	Described in	Date
Added IE3400 support	Page 5, Under Platform Support	May 2023

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