

Cisco Edge Intelligence

Cisco Edge Intelligence is an edge-to-multi-cloud data orchestration software that processes the data from connected edge assets. This software operates on Cisco industrial routers, switches and compute gateways for simple out-of-the-box deployment.

Cisco Edge Intelligence is available as an independent IOx application, without dependency on IoT Operations Dashboard cloud platform. This guide covers the standalone solution, while the documentation for Cisco Edge Intelligence deployed using cloud infrastructure (IoT Operations Dashboard) is available here.

Supported devices

The Cisco Edge Intelligence agent runs on Cisco network devices as a Cisco IOx app on these devices:

- Cisco 829 Industrial Integrated Services Routers (Cisco IR829)
- Cisco Catalyst IR1101 Rugged Series Routers
- Cisco Catalyst IR1800 Rugged Series Routers
- Cisco Catalyst IE3400 Rugged Series Switches
- Cisco Catalyst IE3500 Rugged Series Switches
- Cisco IC3000 Industrial Compute Gateway

Cisco Edge Intelligence also provides the flexibility to integrate with multiple applications in multiple clouds. Cisco Edge Intelligence offers native integrations for Microsoft Azure IoT Hub, AWS server, Splunk server, and MQTT applications.

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Edge to multi-cloud data flows

Cisco Edge Intelligence helps you take control of your data throughout key aspects of its lifecycle and helps you to simplify the processes from start to finish.

Figure 1: Data lifecycle



You configure the Cisco Edge Intelligence agent to address the following processes:

- Extract: You can automatically ingest data from any edge sensor using Cisco Edge Intelligence hosted on Cisco network equipment. Cisco Edge Intelligence has built-in industry-standard connectors such as OPC Unified Architecture (OPC-UA), Modbus (TCP/IP and Serial), and MQ Telemetry Transport (MQTT) that allow data to be extracted from various dissimilar sources. The data is then converted to industry-standard formats to enable its full use.
- Transform: Once the data is extracted, Cisco Edge Intelligence enables real-time processing to filter, compress, or analyze data in a uniquely simple way. You can then create code to define how the extracted data is processed. Using an in-app editor, developers can create, test, and deploy code without having to leave the Cisco Edge Intelligence portal.
- Govern: Cisco Edge Intelligence provides a central point for the creation and deployment of policies that govern how edge data is processed and delivered.
- Deliver: The extraction, transformation, and governance processes provide you with data from multiple aggregated sources to gain actionable insights for the best decision making. You can then choose what data is sent to which destination, and send the data to multiple destinations or applications.

Creating Cisco Edge Intelligence pipelines

Creating an edge-to-multicloud data policy is a multistage process that can be completed in the Cisco Edge Intelligence Local Manager.

Summary

In the Cisco Edge Intelligence Local Manager, you create pipelines to define the progression of data. Data management begins with an extraction of the data from different sources. The gathered data is transformed using data policy configurations and the data policies are then deployed to a wide range of destinations.

Creating a Cisco Edge Intelligence pipeline comprises the following steps:

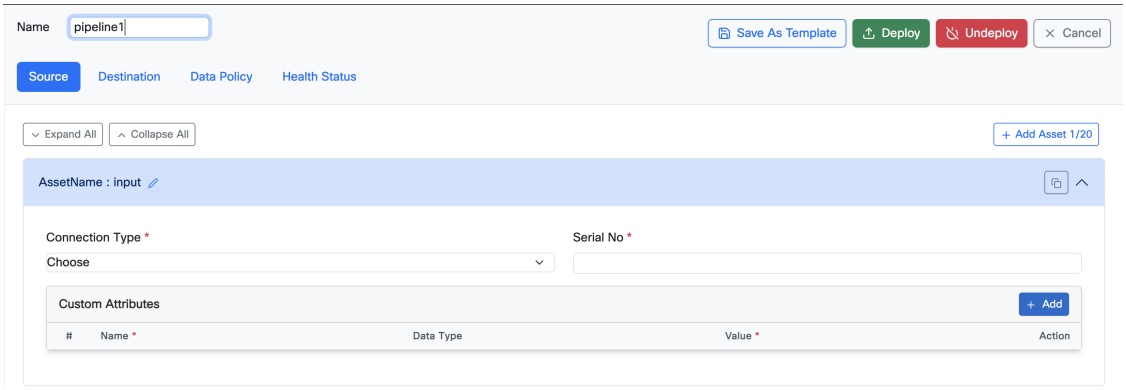
- Data sources: Define assets or data source types based on the communication protocols they use. Each protocol then allows further configurations to define the data sources.

  You can add up to 20 data sources in a pipeline.
- Add data destinations: Add data destinations such as MQTT servers, Microsoft Azure IoT Hub, Splunk, or AWS IoT Core.
- Create a data policy: Define a data policy to define how data is sent from data sources to destinations. A data policy can comprise one of the following methods:

- Data logic: Data logic involves using JavaScript, developed using an in-app code editor, to transform data before it is sent to a destination (if local processing of data is required).
- Data rule: Data rule allows data flow from defined sources to defined destinations, without any data transformation.

Workflow

Figure 2: Pipeline creation page in Cisco Edge Intelligence Local Manager



Manage pipelines at scale

To manage the deployment of Cisco Edge Intelligence pipelines at a scale across devices and agents, you have these options:

- Use the Cisco Edge Intelligence Release 2.0 API.
- Use the Cisco Edge Intelligence Release 2.2 API.
- Using CLI: See Cisco Edge Intelligence CLI Utility Tool for an example of pipeline management using CLI.