RELEASE NOTES FOR THE CISCO IOTDC EDGE AND FOG FABRIC (EFF)

RELEASE 1.1.0

Revised: October 25, 2017

These release notes provide a high-level product overview for the Cisco IoT Data Connect (IoTDC) Edge and Fog Fabric (EFF).

Contents

Introduction

The Cisco Edge and Fog Fabric (EFF) creates a reliable data communications messaging system on top of your data networking infrastructure. Use this data delivery system to rapidly deploy applications where needed, including at the edge, in the fog, or in the datacenter.

The Edge and Fog Fabric is an open platform that allows micro services or applications to be added by anyone. This provides unlimited capability and growth by adding software components that optimize the results of the application, system, or outcome.

Cisco EFF addresses the complexity of building an enterprise ready scalable data messaging system for one or many applications to reside upon. The EFF includes tools to manage the system, the EFF system administrator, and the EFF system monitor.

Features and Functions

The system's key capabilities include:

- A high performance framework for edge and fog processing.
- Reusable micro services for collecting data from, and providing control over, devices and machines. Data is also processed before delivery to the destination.
- Options for reliable data transport through the system, including batch and real-time streaming options.
- Flexible mechanisms for integration with IT systems, reporting, and analytics.
- An architectural framework to extend fog processing to multiple tiers: east─west (fog to fog) and north─south (hierarchical processing leveraging network topology).
- Easy-to-use GUI tools to simplify development, deployment, and operation for all aspects of the system.
- A pervasive control paradigm and flow of information back to micro services, devices, and machines for management, control, optimization, and specific actions.
- A completely open and polyglot system, where third parties can provide devices, processing storage, software modules, analytics, applications, or any combination thereof.

This technology makes IoT approachable, and leads to much faster industry IoT adoption.

The Edge and Fog Fabric Components

Component	Description
EFF Message Broker	A small footprint component working with other brokers to form a message bus. The EFF Message Broker provides reliable and flexible data delivery between devices and micro services. The sources can be devices such as sensors or other micro services. Consumers can be micro services or user applications.
EFF Data Flow Editor	Defines message paths between devices and micro services.
EFF Data Flow Engine	Executes message paths between devices and micro services. We recommend installing this adjacent to the EFF Message Broker to perform data transformation and input sources that are not in the canonical data format of the system.
EFF System Administrator	Configures and manages the message broker and micro services.
EFF System Monitor	A standalone tool for operators to obtain real-time functional status of a deployed solution.
Cisco ParStream (Historian database)	Purpose-built database to handle the massive volumes and high velocity of IoT data, as well as analytics at the Edge.
EFF Tools Runtime Engine	A standalone runtime tool for visualizing dashboards and driving EFF System Administrator, EFF Data Flow Engine, and EFF System Monitor.
Links	• DQL • System • Dataflow • ParStream
Smart License Agent Tool for Nodes	A client that allows system users to manage license registration for Node Product IDs.
Smart License Agent Tool for Devices	The Smart License Agent client that allows system users to manage license registration for Device Product IDs.

Hardware Requirements

Component	Requirement
EFF Message Broker EFF Data Flow Engine DQL Link System Link ParStream Link	• RedHat Linux 7.2, CentOS 7 or Ubuntu 16.04, Windows 2016 server • 1GB RAM, 10 GB HD* (recommended on the same system or VM)
EFF Data Flow Editor	Automatically installs with EFF Message Broker and EFF Tools Runtime Engine. Access via a web browser.
EFF System Administrator	Installs on the same system as the EFF Message Broker and EFF Tools Runtime Engine. Accessed via a web browser.
EFF System Monitor	Installs on the same system as the EFF Message Broker and EFF Tools Runtime Engine. Accessed via a web browser
Cisco ParStream (Historian database) 5.0.0	• RedHat Linux 7.2, CentOS 7 or Ubuntu 16.04 • 6 cores with 2GB RAM per core • 500 GB HD
EFF Tools Runtime Engine	Installs with EFF Message Broker
Smart License Agent Tool for Nodes and Smart License Agent Tool for Devices	• RedHat Linux 7.2, CentOS 7 or Ubuntu 16.04 • 1GB RAM • 10 GB HD

Supported Browsers for use with the EFF Data Flow Editor, EFF System Administrator and EFF System Monitor

Currently the supported browser is Chrome.

Cisco IOx supported versions

The current support version supported for the IR809/IR829 is IOx version 1.4. For the IE4000 is IOx version 1.3.

Open Caveats

Caveat	Workarounds
EFF C Broker and LifeCycle Management (on IOx) for IOx does not support updates from GitHub.	Downloading the component from the Internet repository and uploading from local directory
System Administrator shows the default value for ParStream Link action to "set default partitioning" – the currently active value is not visible	To ensure the value is set as expected have a look at the table definition

Best Practices

- When using Java DSLinks one should tune the Java Virtual Machine (JVM) to correspond to the memory and performance needs of the respective application. This includes (among others) tuning of “Garbage Collection”. An in-depth description about tuning the JVM can be found here: http://docs.oracle.com/javase/8/docs/technotes/guides/vm/gctuning/index.html
- If upgrading a system of more than one EFF node, it is highly recommended that all the components be upgraded on all the platforms for consistent functionality. See the installation guide for installing or upgrading on each platform.

Changes since Release 1.0

- EFF System Administrator, for the Broker/Life Cycle Management “Update Server” has been fixed
- EFF System Administrator, System Administrator buttons “update all components” result in unsupported dart broker version update. The following actions have been removed:
  - Tab “Life Cycle”, Button “Update All Components” – removed
  - Tab “Job”, Action “Update All Components” – removed
  - Tab “Job”, Action “Update Server”, Dropdown List Entry “from Repository” – removed
- EFF ParStream Link 2.4 now uses an adapted ETL statement to decrease the amount of partitions, the corresponding modulo value can be configured in the System Administrator
- EFF Dataflow Editor - Fixes autosave feature.
- EFF Dataflow Editor - Fixes changing a block name when double-clicking in Chrome
- EFF C Message Broker (on IOx), Fixed memory leaks and memory access errors at startup
- EFF C Message Broker (on IOx), Fixed broker crashing when connecting with a link
- EFF C Message Broker (on IOx), installing an invalid Link no longer blocks installing or removing links
- EFF C Message Broker (on IOx), Fixed that C-Broker did not handle errno and return codes in the right fashion for upstream connections
- EFF C Message Broker (on IOx), Fixed that C-Broker tried to send message to closed link stream
- EFF C Message Broker (on IOx), removed IOx eff package for IR809/829 without Java
- EFF C Message Broker (on IOx), updated IOx eff package now properly supports serial port resources

Open Source Links:

- EFF C Message Broker (on IOx), Java Links did not start due to shell incompatibility. Update to a newer gradle version fixed this.

Changes since Release 1.0.1

New Features

- EFF DART Message Broker, DSLink support for IPV6
- EFF C Message Broker (on IOx), C-broker & Life cycle management support for IPV6
- EFF ParStream, ParStream support for IPv4 or IPv4 and IPv6 environments
- EFF ParStream, added new functionality for partition deletion
- EFF ParStream Link, added deletion mechanisms for historian tables

Incompatible Changes

- QoS levels changes to the following new definitions:

QoS Level	Definition
0	Default. Broker only sends the last value available from the publisher, no messages are stored except that one.
1	Non-durable queue. Broker maintains a queue with messages and sends as many as possible when there is enough bandwidth and processing power. Will drop messages when there is not or when client is disconnected.
2	Durable queue. Broker maintains a queue and stores messages even when client is disconnected. There should be no message loss when queue size is large enough.
3	Durable, Persistent queue. Broker queues and persists message on behalf of slow or disconnected requester.

When upgrading an existing EFF (1.0 .0 or 1.0.1) installation to EFF 1.1, please make sure that you compile your existing links with the latest version of the respective SDK. This assures, that Brokers and Links use the same QoS semantics due to changes.

Bug Fixes and Improvements

- EFF DART Message Broker, DSLink support for IPV6 is enabled via server.json configuration option enableIPv6 set to true. When enabled, the server is listening on IPv6 interface only. To support a mixed IPv4 and IPv6 environment, two copies of a message broker need to be installed and configured.
- EFF System Administrator, fixed to “add new group” under Permissions tab. The new group currently requires a broker restart for use.
- EFF System Administrator, fixed browser issue on "add new group" action if language is not EN-US
- EFF System Administrator, partially fixed update link from zip. Pending fix to link version update without broker restart
- EFF System Administrator, fixed authorizing quarantined connections in the Permissions tab
- EFF System Administrator, all lifecycle management actions for IOx C Brokers appear in the Management tab
- EFF System Administrator, fixed parsing of IPv6 addressing connection URL that caused a crash when restarting broker
- EFF System Monitor, fixed improper graphing of Broker Details/Live Trend initial graph state
- EFF Dataflow Editor, fixed recreating Dataflow Folder with identical name that was deleted
- EFF C Message Broker (on IOx), Links are now installed in the data partition instead of the root partition of the container

- EFF C Message Broker (on IOx), IOx default filesystem sizes have been expanded to the following values: 256 MB data partition size and 64 MB extra space in rootfs size (required for tmp files system operations including link upload)
- EFF C Message Broker (on IOx), Lifecycle management no longer functions as a separate dslink and the functionality placed inside the message broker is placed under the /sys node, providing consistency with DART message broker. Actions will require a new reference to the node location. Quarantine functionality is non-functional in C-broker.
- EFF C Message Broker (on IOx), Update from DART VM version 1.17.1 to 1.21.1 to increase stability of dslinks
- EFF C Message Broker (on IOx), fixed QoS level 2 to adhere to new definition
- EFF C Message Broker (on IOx), fixed C-Broker to catch up with messages
- EFF C Message Broker (on IOx), Logging level expanded from a single level to support the configurable values none, fatal, error, warn, info, debug (available only in debug builds)
- EFF C Message Broker (on IOx), Logging level is configurable at runtime
- EFF C Message Broker (on IOx), fixed error that C-Broker sometimes did not reconnect to upstream connection
- EFF C Message Broker (on IOx), all Java links properly start
- EFF ParStream Link, ParStream password no longer visible in metrics pane
- EFF Installer, fixed installer failure if installation path contains spaces

Related Documentation

Use this document in conjunction with the following.

- IoT Data Connect - Edge Fog and Fabric 1.0.1 System Administrator User Guide
- IoT Data Connect - Edge Fog and Fabric 1.0.1 System Monitor User Guide
- IoT Data Connect - Edge Fog and Fabric 1.0.1 Dataflow Editor User Guide
- IoT Data Connect - Edge Fog and Fabric 1.0.1 Smart License Agent User Guide
- IoT Data Connect - Cisco Edge and Fog Fabric 1.1.0 Linux Installation Guide
- IoT Data Connect - Cisco Edge and Fog Fabric 1.1.0 Windows Installation Guide
- IoT Data Connect - Cisco Edge and Fog Fabric 1.1.0 IOx Components Installation Guide
- Cisco ParStream Release Notes 5.0.0
- Cisco ParStream DSA Link Manual 3.2.0

Obtaining documentation and submitting a service request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

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