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# Micro Focus Security

# ArcSight Kafka FlexConnector

## FlexConnector

## Configuration Guide

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### Revision History

Date	Description
11/23/2020	Added support to Azure Monitor Event Hub.
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# Overview

The Arcsight Kafka FlexConnector helps you subscribe and collect events from a topic of a Kafka server or Azure Event Hubs. Topics only contain a specific event types.

This version supports 5 event types:

- JSON
- CEF
- REGEX
- SYSLOG
- KEY-VALUE.

This is a FlexConnector so you need create your personal parsers before setup connector.

## Understanding Kafka

Apache Kafka is a distributed publish-subscribe messaging system and a robust queue that handles a high volume of data and enables you to pass messages from one end-point to another.

Kafka is suitable for both offline and online message consumption.

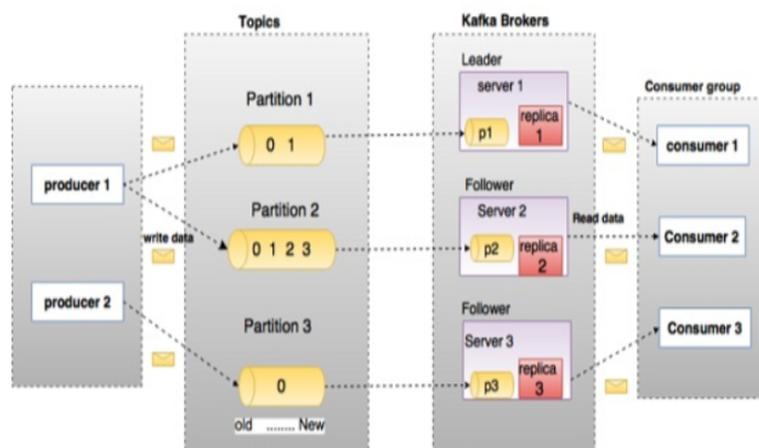
Kafka messages are persisted on the disk and replicated within the cluster to prevent data loss. it is built on top of the ZooKeeper synchronization service and it integrates very well with Apache \Storm and Spark for real-time streaming data analysis.

The following diagram illustrates the main terminologies and the table describes the diagram components in detail. A topic is configured into three partitions.

- Partition 1 has two offset factors 0 and 1.
- Partition 2 has four offset factors 0, 1, 2, and 3.
- Partition 3 has one offset factor 0.

The Id of the replica is same as the Id of the server that hosts it.

Assume, you want to install 3 Kafka Flex Connectors to parse data of a topic, you need to increase the partitions of your Kafka server.



For more information about Apache Kafka, see [Configuring Apache Kafka in Windows or Linux Platforms](#)

## SSL encryption and authentication

### About

The Arcsight Kafka FlexConnector provides secure connection to Kafka servers.

### Procedure

### To enable SSL encryption and authentication:

1. Configure the truststore, keystore, and password in the server.properties file of every broker.
2. Passwords are directly stored in the broker configuration file, so restrict the access to these files via file system permissions

```
ssl.truststore.location=/var/private/ssl/kafka.server.truststore.jks
```

```
ssl.truststore.password=test1234
```

```
ssl.keystore.location=/var/private/ssl/kafka.server.keystore.jks
```

```
ssl.keystore.password=test1234
```

```
ssl.key.password=test1234
```



**Note:** `ssl.truststore.password` is optional but highly recommended. If a password is not set, access to the truststore is still available, but integrity checking is disabled.

## To SSL for inter-broker communication:

1. Add the following property to the broker properties file ( it is PLAINTEXT by default).  
`security.inter.broker.protocol=SSL`
2. Configure the Apache Kafka® broker ports which listen to client and inter-broker SSL connections. Configure the `listeners` and the `advertised.listeners`, in case the value is different.

```
listeners=SSL://kafka1:9093
```

```
advertised.listeners=SSL://0.0.0.0:9093
```

3. Configure the PLAINTEXT ports if:
  - SSL is not enabled for inter-broker communication.
  - Some clients connecting to the cluster do not use SSL.

```
listeners=PLAINTEXT://kafka1:9092,SSL://kafka1:9093
```

```
advertised.listeners=PLAINTEXT://0.0.0.0:9092,SSL://0.0.0.0:9093
```



**Note:** `advertised.host.name` and `advertised.port` configure a single PLAINTEXT port are incompatible with secure protocols. Use `advertised.listeners` instead.

4. To enable the broker to authenticate clients (2-way authentication), you need to configure all the brokers for client authentication. We recommend setting this value to `required`.

```
ssl.client.auth=required
```



**Note:** Do not use `requested` as it creates a false sense of security.



**Important:** If any of the SASL authentication mechanisms are enabled on a given listener, the SSL client authentication is disabled, even if `ssl.client.auth=required` is previously configured. The broker will only authenticate clients via SASL on that listener.

## Understanding Event Hubs for Kafka

Event Hubs provide a Kafka endpoint that can be used by your Kafka based applications as an alternative to run Kafka clusters. Event Hubs support Apache Kafka protocol 1.0 and later, and work with other Kafka applications like MirrorMaker.

The Event Hubs for Kafka feature provides a protocol head on top of Azure Event Hubs which is binary compatible with Kafka versions 1.0 and later for both reading from and writing to Kafka topics.

The Kafka endpoint can be used from applications with just a minimal configuration change:

- Update the connection string in the configurations to point to the Kafka endpoint exposed by your event hub instead of pointing to a Kafka cluster and start streaming events from the applications that use the Kafka protocol into Event Hubs.

This integration also supports frameworks like Kafka Connect, which is currently in preview.

Every time events are published or consumed from Event Hubs for Kafka, your clients are trying to access the Event Hubs resources. Ensure that the resources are accessed with an authorized entity. When using Apache Kafka protocol with your clients, set the configuration for authentication and encryption using the SASL mechanisms. Event Hubs for Kafka require the TLS-encryption (as all data in transit with Event Hubs is TLS encrypted). This can be done by specifying the SASL\_SSL option in the configuration file.

The Arcsight Kafka FlexConnector uses Shared Access Signature (SAS) to authorize access to secure resources.

For more information, see the [Azure Documentation](#).

## Shared Access Signature (SAS)

Event Hubs also provide the Shared Access Signatures (SAS) for delegated access to Event Hubs for Kafka resources. Authorizing access with an OAuth 2.0 token-based mechanism provides superior security and ease of use over SAS. The built-in roles can also eliminate the need for ACL-based authorization, which has to be maintained and managed by the user.

This feature can be used with your Kafka clients by specifying the SASL\_SSL for the protocol and PLAIN for the mechanism, like in the example below:

```
bootstrap.servers=NAMESPACE.servicebus.windows.net:9093
```

```
security.protocol=SASL_SSL
sasl.mechanism=PLAIN
sasl.jaas.config=org.apache.kafka.common.security.plain.PlainLoginModule
required username="$ConnectionString" password="
{YOUR.EVENTHUBS.CONNECTION.STRING}";
```



Note: When using SAS authentication with Kafka clients, established connections are not disconnected after the SAS key is regenerated.

## Creating Flex Parsers

To create a flex Parser, see the [ArcSight FlexConnector Developer's Guide](#)

## Overriding Parser Files

To override parser files:

1. Stop the connector and navigate to the path  
`<connector_home>/current/users/agent/fcp/connectorname_log>`,  
 for example  
`<connector_home>/current/users/agent/fcp/cisco_syslog>`  
 The following files should be found under the location:  
`cisco_syslog.subagent.sdkrfilereader.properties`  
`cisco_sdsyslog.subagent.sdkrfilereader.properties`  
 As well as an "extra processor" parser required for main-level REGEX type agents:  
`cisco_sdsyslog.sdkkeyvaluefilereader.properties`
2. In order to override these files, create the sub-folder structure and the required file(s)  
 under  
`<connector_home>/current/users/agent/fcp/cisco_syslog`
3. Make sure the override only includes the changes or additions to the base /shipped parser.
4. Start the connector.
5. To confirm the override was successful, go to the `agent.out.wrapper.log` file look for the **"An over-ride file was found and loaded"** note.



**Note:** The Override file should be created with the same file name and under the same folder location and replaced without affecting or making changes in the `agent.properties` file.

## Preparing to Install the FlexConnector

Before installing the FlexConnector, be sure the following are available:

- Local access to the machine where the FlexConnector is to be installed
- Vendor login credentials (user name and password). During the configuration, you are redirected to the vendor's login page, where you will log into the vendor's application using your vendor credentials. After you log into the vendor application, the connector can access and collect vendor log data.

Unless specified otherwise at the beginning of this guide, this connector can be installed on all ArcSight supported platforms; for the complete list, see the [SmartConnector Platform Support](#) document, available from the Micro Focus SSO and Protect 724 sites.



**Note:** On the Linux platform, if you are logged in as root and use Firefox, some versions of the browser can cause the browser launched by the connector during configuration not to open. If you see this issue, try configuring the connector as a non-root user. If you configure the connector as a non-root user, however, you cannot run the connector as a service.

## Add JSON Parser

1. Before configuring the connector, you must exit the wizard to make your JSON parser available to the connector. Click **Cancel** to exit the wizard.
2. Copy your JSON parser file into the `$ARCSIGHT_HOME\current\user\agent\flexagent` directory. See "[Create a JSON Parser File](#)" for details on creating the JSON parser file.
3. Execute `runagentsetup` from `$ARCSIGHT_HOME\current\bin` to return to the wizard.

## Set Global Parameters (Optional)

If you choose to perform any of the operations shown in the following table, do so before adding your connector. After installing core software, you can set the following parameters:

Global Parameter	Setting
FIPS mode	Set to <b>Enabled</b> to enable FIPS compliant mode. To enable FIPS Suite B Mode, see the <i>SmartConnector User Guide</i> under "Modifying Connector Parameters" for instructions. Initially, this value is set to <b>Disabled</b> .
Remote Management	Set to <b>Enabled</b> to enable remote management from Management Center. When queried by the remote management device, the values you specify here for enabling remote management and the port number will be used. Initially, this value is set to <b>Disabled</b> .
Remote Management Listener Port	The remote management device will listen to the port specified in this field. The default port number is 9001.
Preferred IP Version	When both <b>IPv4</b> and <b>IPv6</b> IP addresses are available for the local host (the machine on which the connector is installed), you can choose which version is preferred. Otherwise, you will see only one selection. The initial setting is <b>IPv4</b> .

The following parameters should be configured only if you are using Micro Focus SecureData solutions to provide encryption. See the *Micro Focus SecureData Architecture Guide* for more information.

Global Parameter	Setting
Format Preserving Encryption	Data leaving the connector machine to a specified destination can be encrypted by selecting 'Enabled' to encrypt the fields identified in 'Event Fields to Encrypt' before forwarding events. If encryption is enabled, it cannot be disabled. Changing any of the encryption parameters again will require a fresh installation of the connector.
Format Preserving Host URL	Enter the URL where the Micro Focus SecureData server is installed.
Proxy Server (https)	Enter the proxy host for https connection if any proxy is enabled for this machine.
Proxy Port	Enter the proxy port for https connection if any proxy is enabled for this machine.
Format Preserving Identity	The Micro Focus SecureData client software allows client applications to protect and access data based on key names. This key name is referred to as the identity. Enter the user identity configured for Micro Focus SecureData.
Format Preserving Secret	Enter the secret configured for Micro Focus SecureData to use for authentication.
Event Fields to Encrypt	Recommended fields for encryption are listed; delete any fields you do not want encrypted from the list, and add any string or numeric fields you wish to be encrypted. Encrypting more fields can affect performance, with 20 fields being the maximum recommended. Also, because encryption changes the value, rules or categorization could also be affected. Once encryption is enabled, the list of event fields cannot be edited.

After making your selections, click **Next**. A summary screen is displayed. Review the summary of your selections and click **Next**. Click **Continue** to return to the "Add a Connector" window. Continue the installation procedure with "Configure Connector Parameters".

## Connector Setup

### Configure Connector Parameters

1. Select **Add a Connector** and click **Next**.
2. Select **ArcSight FlexConnector Kafka** and click **Next**.
3. Enter the parameter details and click **Next**.

Parameter	Setting
Log Unparsed Events	Log unparsed events on the log folder and only use it for regex and syslog content types.
Source Type	Select <b>Kafka</b> to read data from a Kafka topic. Select <b>Azure Event Hub</b> to read data from an Azure Event hub.
Host:Port(s)	Host and port of the Kafka server.
Azure Event Hub Connection String	Connection String in the Azure Event Hub.
Topics	Topic name of the Kafka server.
Content Type	Add 5 supported event types: <b>JSON</b> , <b>CEF</b> , <b>SYSLOG</b> , <b>REGEX</b> , and <b>KEY-VALUE</b> .
Configuration File Name Prefix	Enter the name of the parser file once you have ensured the parser file has been copied into the \$ARCSIGHT_HOME\current\user\agent\flexagent\syslog directory for SYSLOG parser or \$ARCSIGHT_HOME\current\user\agent\flexagent directory for the remaining event types.  For example: for \$ARCSIGHT_HOME\current\user\agent\flexagent\google.jsonparser.properties. You can enter the prefix google, and the connector assumes the file name is google.jsonparser.properties and resides in \$ARCSIGHT_HOME\current\user\agent\flexagent.  For more information, see <a href="https://community.microfocus.com/t5/ArcSight-Connectors/ArcSight-FlexConnector-Developer-s-Guide/ta-p/1584874">https://community.microfocus.com/t5/ArcSight-Connectors/ArcSight-FlexConnector-Developer-s-Guide/ta-p/1584874</a>
Use SSL/TLS	Set the value to <b>True</b> if the Kafka server requires it for encrypted data.
SSL/TLS Trust Store file	Add file path of the SSL/TLS Trust Store file.
SSL/TLS Trust Store password	Add the <b>SSL/TLS Trust Store</b> password of the store file above.
Use SSL/TLS Authentication	Set the value to <b>True</b> if the Kafka server requires it for authentication. You also need to enable the <b>Use SSL/TLS</b> parameter.

Parameter	Setting
SSL/TLS Key Store file	Add the file path of the SSL/TLS Key Store file.
SSL/TLS Key Store pass	Add the SSL/TLS Key Store password.
SSL/TLS Key password	Add the SSL/TLS Key password.

## Select a Destination and Complete Installation

1. Make sure **ArcSight Manager (encrypted)** is selected and click **Next**. For information about this and other destinations listed, see the *ArcSight SmartConnector User Guide* and the Administrator's Guide for your ArcSight product.
2. Enter the **Manager Host Name**, **Manager Port**, and a valid **ArcSight User Name** and **Password**. This is the same user name and password you created during the ArcSight Manager installation. Click **Next**.
3. Enter a name for the connector and provide other information identifying the connector's use in your environment. Click **Next**; the connector starts the registration process.
4. The certificate import window for the ESM Manager is displayed. Select **Import the certificate to the connector from destination** and click **Next**. The certificate is imported and the **Add Connector Summary** window is displayed. If you select **Do not import the certificate to connector from destination**, then the connector installation will end.
5. Review the Add Connector Summary and click **Next**. If the summary is incorrect, click **Previous** to make changes.
6. The wizard now prompts you to choose whether you want to run the connector as a stand-alone process or as a service. If you choose to run the connector as a stand-alone process, skip step 7. If you choose to run the connector as a service, the wizard prompts you to define service parameters.
7. Enter values for **Service Internal Name** and **Service Display Name** and select **Yes** or **No** for **Start the service automatically**. The **Install Service Summary** window is displayed when you click **Next**.
8. Click **Next**.

To complete the installation, choose **Exit** and click **Next**.



**Note:** Save any work on your computer or desktop and shut down any other running applications (including the ArcSight Console, if it is running), then shut down the system.

Complete any tasks needed in "[Parameter Modifications to Optimize Connector Performance](#)", then continue with the "[Run the SmartConnector](#)".

For connector upgrade or uninstall instructions, see the *SmartConnector User Guide*.

## Advanced Parameters

If you choose to perform any of the operations shown in the following table, do so before adding your connector. After installing core software, you can set the following parameters:

Parameter	Setting
<code>bootstrap.servers</code>	Host-IP
<code>group.id</code>	Use for multiple connectors in a Kafka topic.
<code>max.poll.records</code>	The maximum number of records returned in a single call to a <code>poll()</code> . Default value is 500 (maximum).
<code>auto.commit.interval.ms</code>	The frequency in milliseconds in which the consumer offsets are auto-committed to Kafka if the <code>enable.auto.commit</code> value is set to <code>True</code> : 5000 milliseconds.
<code>reconnect.backoff.ms</code>	The base waiting time, before attempting to reconnect to a given host. It avoids repeatedly connecting to a host in a tight loop. This backoff applies to all client connection attempts to a broker: 50 times
<code>retry.backoff.ms</code>	The amount of waiting time before attempting to retry a failed request to a given topic partition. It avoids repeatedly sending requests in a tight loop under some failure scenarios: 100 times.
<code>request.timeout.ms</code>	It controls the maximum amount of waiting time for a request response. If the response is not received before the timeout elapses, the client resends or fails the request (if the connection attempts have reached the limit: 30000 milliseconds).
<code>client.id</code>	An id string to pass to the server when making requests. It tracks the request source beyond just ip/port, by allowing a logical application name to be included on the server-side login request. For tracking: <code>arcsight</code>
<code>heartbeat.interval.ms</code>	The expected time between heartbeats to the consumer coordinator when using Kafka's group management facilities. Heartbeats are used to ensure that the consumer's session stays active and facilitates rebalancing when new consumers join or leave the group. The value must be set lower than <code>session.timeout.ms</code> and higher than 1/3 of that value. It can be adjusted even lower to control the expected time for normal rebalances.

Parameter	Setting
<code>connections.max.idle.ms</code> (Idle connections timeout)	The server socket processor threads close the connections that appear idle for more than 600000 ms.
<code>auto.offset.reset</code>	It can be executed when there is not an initial offset in Kafka or if the current offset does not exist in the server anymore.
<code>disable.activemq</code>	The values can be:  True: Disable ActiveMQ  False: Enable ActiveMQ

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