
Micro Focus Security ArcSight SmartConnectors

SmartConnector for Amazon Web Services S3 Configuration Guide

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Micro Focus
The Lawn
22-30 Old Bath Road
Newbury, Berkshire RG14 1QN
UK

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SmartConnector for Amazon Web Services S3

This guide provides information for installing the SmartConnector for Amazon Web Services S3 and configuring the device for event collection from an AWS S3 bucket.

Product Overview

The SmartConnector for Amazon Web Services S3 currently supports, Cisco Umbrella DNS, Proxy, and IP Logs and CloudFront Access Logs.

However, the connector can support other log sources available in an AWS S3 bucket. One connector instance can support one log source. To support multiple log sources, install multiple instances of the AWS S3 connector, and provide specific configurations. With parser updates, the connector can support extended events of the log sources or a completely new log source.

The supported log formats are: CSV, Json, Regex, Key- value pair, XML, XQuery, CEF.

Amazon Web Services (AWS) is a collection of remote computing services (also called web services) that make up a cloud computing platform offered by Amazon which provides online services for other websites or client-side applications.

Amazon Simple Storage Service (Amazon S3) is an object storage service that offers industry-leading scalability, data availability, security, and performance. You must create a bucket in one of the AWS regions to upload your data. You can then upload any number of objects to the bucket.

Amazon Simple Queue Service (SQS) is a fully managed service that works with serverless systems, micro-services, and distributed architectures. It has the capability of sending, storing and receiving messages at scale without dropping message data.

Understanding Data Collection

The following diagram provides a high-level overview on the data collection flow. With the SmartConnector for AWS S3, you can choose one of the two approaches below to collect events from an S3 bucket. To configure log retrieval, see [Configuring Log Retrieval](#).

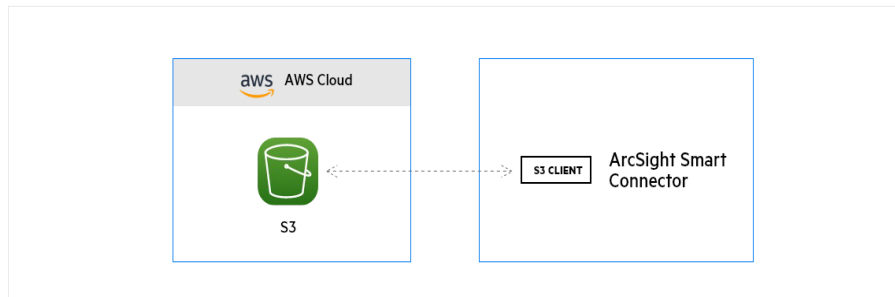
S3 Approach - Poll Approach

This approach is recommended for Vendor Managed S3 Buckets.

In this approach, the connector directly enumerates an S3 bucket for the new files. This approach is recommended when logs are stored in the vendor's AWS S3 bucket with limited access.

Process Flow

1. A file is enumerated from a specified folder in S3.
2. The log files are collected from S3.
3. The log files are processed.
4. The connector will continue to collect only new and unprocessed files.



SQS Approach - Notification Approach

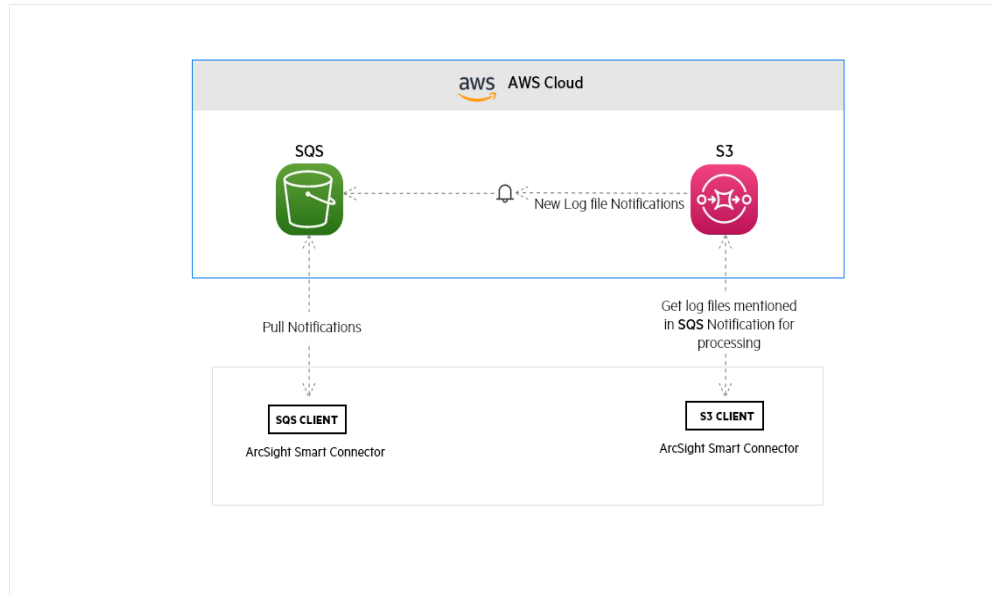
This approach is recommended for Customer Managed S3 Buckets.

In this approach, the connector polls SQS for S3 notifications and collects log files from an S3 bucket. This approach is recommended when users have control over the AWS account with permissions to create SQS and configure S3 notifications to SQS.

Process Flow

1. AWS S3 is configured to send notifications from a new file to SQS.
2. The connector reads the SQS notifications.
3. Based on the SQS notifications, the log files are collected from the S3 bucket.
4. The log files are processed.

5. The SQS messages are deleted.



Setting up an AWS Account

If you are using an EC2 role-based credentials, then use an IAM role with AmazonS3ReadOnlyAccess and AmazonSQSFullAccess policies.

If you are using an access key/secret key as credentials, complete the following procedure

1. Create an Amazon Web Services account.
2. In the Welcome to Amazon Web Services window, click **Launch Management Console**.
3. Click **Amazon Web Services > Administration & Security > Identity & AccessManagement**.
4. On the left side of the console, go to **Dashboard** and select Groups.
5. Create a new group with permissions to access the logs stored in S3 through the API.
6. Click **Create New Group** and enter a **Group Name**, for example, arcsightgroup.
7. Click **Next** to attach two policies to the group.
8. Select the **AmazonS3ReadOnlyAccess** and **AmazonSQSFullAccess** check boxes policies of the arcsightgroup, and then click **Next**.
The connector can now download logs.
9. Click **Create Group**.

Creating and Adding a User to a Group

To create and add a user who can access the logs stored in S3 through the API to a group:

1. Go to the Amazon Web Services console.
2. On the left pane, go to **Dashboard**.
3. Select **Users** and click **Create New Users**.
4. Enter the user name, for example, arcsight2.
5. Select the **Generate an Access Key** check box for each user and click **Create**.
6. Click the **Download Credentials** and save the .csv file.

The downloaded Access Key ID and Secret Access Key will be used during installation of the connector.
7. Click **Close** and return to the **Dashboard**.
8. Under **Dashboard**, select **Groups** and click the arcsightgroup previously created.
9. Click **Add Users to Group**.
10. Select the check boxes next to the users previously created, and then click **Add Users**.

AWS Credentials

In the configuration window, you can enter the AWS access key and AWS secret key. These parameters are optional and will be used if provided. Otherwise, the Default Credential Provider Chain is used, instead. The Default Credential Provider Chain searches for credentials in the following order, as documented by [Class Default AWS Credentials Provider Chain](#).

1. In the environment variables: AWS_ACCESS_KEY_ID and AWS_SECRET_ACCESS_KEY (These are recommended since they are recognized by all the AWS SDKs and CLI except for .NET), or AWS_ACCESS_KEY and AWS_SECRET_KEY (only recognized by Java SDK).
2. In the Java system properties: aws.accessKeyId and aws.secretKey.
3. In the **Web Identity Token Credentials**, from the environment or container
4. In the default **Credential Profiles** file, the (~/.aws/credentials) is shared by all AWS SDKs and the AWS CLI.
5. Credentials delivered through the Amazon EC2 container service if AWS_CONTAINER_CREDENTIALS_RELATIVE_URI" environment variable is set and security manager has permission to access the variable.
6. In the instance **Profile Credentials**, through the Amazon EC2 metadata service.

Configuring Log Retrieval

S3 Approach - Poll Approach

This approach is highly recommended for users with vendor-managed S3 buckets, although users with customer-managed S3 buckets might also choose the S3 Approach.

You can also consider using this approach if the service provider (in this case, Cisco Umbrella), manages the AWS account and as a user you are not authorized to create AWS resources.

- **For vendor-managed S3 buckets:**
 - Note down the AWS credentials - access key and secret key, the S3 bucket name, the S3 folder name and the S3 region.
 - To enable logging of Cisco Umbrella logs to a Cisco-managed S3 Bucket, see, [Enable Logging to a Cisco-managed S3 Bucket](#).
- **If you manage the AWS account and the S3 bucket:**
 - Set up an AWS account and create an Identity and Access Management (IAM) user or role.
 - [Create an S3 bucket and configure it to receive logs](#).



Note: S3 buckets can either be encrypted or non-encrypted.

SQS Approach - Notification Approach

This is a recommended approach for Customer Managed S3 Buckets.

1. Set up an AWS account and create an Identity and Access Management (IAM) user or role.
2. [Create an S3 bucket and configure it to receive logs](#).
3. [Create an SQS queue and configure S3 to send events to SQS on new object creation](#).

Creating and Configuring an S3 Bucket to Receive Logs

To create a new S3 bucket:

1. Log in to the AWS Management Console and open the **Amazon S3** console.
2. Click **Create bucket**.
3. In the **Create bucket** dialog box, enter the **Bucket Name** of your S3 bucket, for example, arcsights3.
4. Accept or edit the default value settings in the other fields.

5. Click **Create**.

Your new S3 bucket is now listed under the S3 bucket names.

The configuration to receive DNS, IP or Proxy Logs might change based on the device.

For Cisco Umbrella, see [Enable Logging to Your Own S3 Bucket](#).

Configuring an S3 to Send Events to SQS on a New Object

Creating an SQS Queue for the Connector to Poll

To create a new SQS queue:

1. Log in to the **AWS Management** Console and open the **Amazon SQS** console.
2. Click **Create New Queue**.
3. In the **Create New Queue** dialog box, enter the **Bucket Name** of your S3 bucket, for example, arcsightQueue.
4. Accept or edit the default value settings of the other fields.
5. Click **Create Queue**.

Your new queue is now listed under the queue names.

6. Select the Queue created.
 - a. Click **Permissions**.
 - b. Click **Add permission**.
 - c. From **Select Effect**, click **Allow**.
 - d. Enter Principal.
 - e. Select Actions: Delete Message, Receive Message, and Send Message.
 - f. Click **Add Permission**.

Configuring S3 to Send Events to SQS

To configure S3 to send events to SQS on a new object, see [Amazon Documentation](#).

1. Log in to the **AWS Management** Console and open the **Amazon S3** console.
2. Select the S3 bucket created to receive logs.
3. Click **Properties** and select **Events**.
4. In the Events dialog, add a notification:
 - a. Enter the notification Name
 - b. Click **Events > All objects create events**.

This option is triggered when the events are sent to SQS, for example, all object create events on a specific prefix.

- c. Enter a **prefix** (the folder name to receive device logs).
- d. Select **Send to as SQS Queue**.
- e. Select the **SQS queue** created above.

Installing the SmartConnector

The following sections provide instructions for installing and configuring your selected SmartConnector.

Preparing to Install Connector

Before you install any SmartConnectors, make sure that the Micro Focus ArcSight products with which the connectors will communicate have already been installed correctly (such as ArcSight ESM or ArcSight Logger).

For complete product information, refer to the *Administrator's Guide to ArcSight Platform* guide, available on [ArcSight Documentation](#).

If you are adding a connector to the ArcSight Management Center, see the *ArcSight Management Center Administrator's Guide* for instructions, and start the installation procedure from [step 3](#).

Before installing the SmartConnector, ensure that you have the following:

- [Register an app in Azure Active Directory](#) with Microsoft threat protection - **Incident.Read.All** permission.
- Application (Client) ID, Directory (Tenant) ID, and Client Secret.

Installing and Configuring the SmartConnector by Using the Wizard

The installation steps described in this section are specific to the Microsoft 365 Defender Connector. For detailed installation steps or for manual installation steps, see the [SmartConnector Installation Guide](#).

To install and configure the Amazon Web Services S3 Connector:

1. Start the installation wizard.
2. Follow the instructions in the wizard to install the core software.
3. Specify the relevant [Global Parameters](#), when prompted.

4. From the **Type** drop-down list, select **Amazon Web Services S3** as the type of connector, then click **Next**.
5. Enter the following SmartConnector parameters , then click **Next**.

Parameter	Description
Log Type	Specify the Log Type. The default option is CiscoUmbrella-DnsLogs.
Proxy Host	If proxy is enabled for your machine, the IP address or host name of the proxy server for HTTPS connection. Specify this value only if proxy needs access to internet.
Proxy Port	If proxy is enabled for your machine, the port number of the proxy server for HTTPS connection. Specify this value only if proxy needs access to internet.
Proxy User Name	If proxy is enabled for your machine, the user name for the proxy server. This value is optional for additional proxy authentication. If you enter the proxy user name, you must provide the proxy password. Specify this value only if proxy needs access to internet.
Proxy Password	If proxy is enabled for your machine, the password for the proxy server user. Specify this value only if proxy needs access to internet.
AWS Access Key	Enter the AWS access key. This is optional and will be used if provided. If not, the Default Credential Provider Chain will be used. For more information, see AWS Credentials .
AWS Secret Key	Enter the AWS secret key. This is optional and will be used if provided. If not, the Default Credential Provider Chain will be used. For more information, see AWS Credentials .
Polling Approach	For S3: provide the S3 bucket name, S3 folder name and S3 region details. For SQS: provide SQS URL, SQS region and S3 region.
AWS S3 Bucket Name	Enter the name of the AWS S3 bucket that will be sending logs out.
AWS S3 Folder Name	Enter the folder name in which the logs appear. For example: AWS S3 > bucket-name > folder-name.
AWS S3 Region	Select the S3 region code.
AWS SQS Region	Select the SQS region code.
AWS SQS URL	The SQS URL from where the AWS S3 notifications are received.

6. Select a [destination and configure parameters](#).
7. Specify a name for the connector.
8. Select whether you want to [run the connector as a service or in the standalone mode](#).
9. Complete the installation.

10. [Run the SmartConnector.](#)

For instructions about upgrading the connector or modifying parameters, see [SmartConnector Installation and User Guide](#).

Performance Tuning

By default, the connector application maximum heap size is set to 256MB. If users with higher system configurations, expect higher EPS, update the changes below to improve the performance.

1. Stop the connector.
2. Increase heap size to perform more in memory operations.
 - a. To increase the memory size for stand-alone connectors from the command line, change the following line in


```
$ARCSIGHT_HOME\current\bin\scripts\connectors.bat (Windows)
```

```
$ARCSIGHT_HOME/current/bin/scripts/connectors.sh (Linux)
```

```
ARCSIGHT_MEMORY_OPTIONS=" -Xms256m -Xmx256m "
```

 to


```
ARCSIGHT_MEMORY_OPTIONS=" -Xms1024m -Xmx1024m "
```
 - b. To increase the memory size for connectors being run as a service, change the following lines in `user/agent/agent.wrapper.conf` from:


```
wrapper.java.initmemory=256 wrapper.java.maxmemory=256
```

 to


```
wrapper.java.initmemory=1024 wrapper.java.maxmemory=1024
```
 - c. To increase the memory size for connectors managed by the Connector Appliance/ArcSight Management Center, increase the heap size by using a container level command.
3. Increase the `awstthreadcount` in the `<Install path>\current\user\agent\agent.properties` file.


```
Existing: awstthreadcount=1
```

```
New: awstthreadcount=5
```
4. Start the connector.

Device Event Mapping to ArcSight Fields

The following section lists the mappings of ArcSight data fields to the device's specific event definitions. See the ArcSight Console User's Guide for more information about the ArcSight

data fields.

Additional DNS Logs Version 3 Mappings to ArcSight Fields

ArcSight Field	Vendor Field
File Type	Identity Types
Old File Type	Policy Identity Type

Additional DNS Logs Version 4 Mappings to ArcSight Fields

ArcSight Field	Vendor Field
Device Custom String 4	Blocked Categories
Device Custom String 4 Label	Blocked Categories
File Type	Identity Types
Old File Type	Policy Identity Type

Additional Proxy Logs Version 4 Mappings to ArcSight Fields

ArcSight Field	Vendor Field
Device Custom String 4	BlockedCategories
Device Custom String 4 Label	Blocked Categories

Cisco Umbrella DNS Logs Mappings to ArcSight Fields

ArcSight Field	Vendor Field
Device Action	Action
Device Custom String 1	QueryType
Device Custom String 2	Policy Identity
Device Custom String 3	Identities
Device Custom String 5	Categories
Device Custom String 6	ResponseCode
Destination Dns Domain	Domain
Device Event Class Id	ResponseCode: Action

ArcSight Field	Vendor Field
Device Product	Umbrella
Device Severity	ResponseCode
Device Vendor	Cisco
Name	ResponseCode: Action
Source Address	Internallp
Source Translated Address	Externallp
Start Time	DateTime

Cisco Umbrella Proxy Logs Mappings to ArcSight Fields

ArcSight Field	Vendor Field
Start Time	DateTime
Device Custom String 3	Identities
Device Custom String 3 Label	Identities
Source Address	Internallp
Source Translated Address	Externallp
Destination Address	DestinationIP
Device Custom String 1	IdentityType
Device Custom String 1 Label	Identity Type
Device Action	Verdict
Request Url	URL
Request Context	Referer
Request Client Application	UserAgent
Event Outcome	StatusCode
Bytes In	ResponseSize
Bytes Out	RequestSize
File Size	ResponseBodySize
File Hash	SHA-SHA256
Device Custom String 5	Categories
Device Custom String 5 Label	Categories

ArcSight Field	Vendor Field
Device Custom String 2	AVDetections
Device Custom String 2 Label	AV Detections
Device Custom String 6	PUA
Device Custom String 6 Label	PUA
Old File Type	AMP Disposition: AMPDisposition
File Name	AMP Malware Name: AMPMalwareName
Device Custom Number 1	AMPScore
Device Custom Number 1 Label	AMP Score
File Type	ContentType
Name	Proxy: Verdict
Device Event Category	Proxy Logs
Device Vendor	Cisco
Device Product	Umbrella
Device Event Class Id	Proxy: Verdict

Cisco Umbrella IP Logs Mappings to ArcSight Fields

ArcSight Field	Vendor Field
Start Time	DateTime
Device Receipt Time	DateTime
Device Custom String 3	Identity
Source Address	SourceIP
Source Port	SourcePort
Destination Address	DestinationIP
Destination Port	DestinationPort
Device Custom String 5	Categories
Device Event Category	"IP Logs"
Name	"IP Logs"
Device Event Class Id	"IP Logs"
Device Vendor	"Cisco"
Device Product	"Umbrella"

CloudFront Access Logs Mappings to ArcSight Fields

ArcSight Field	Vendor Field
Device Vendor	Amazon
Device Product	CloudFront
Name	CloudFront Access
Device Event Class Id	cs-method:sc-status
Start Time Concatenate	date,time
Device Facility	x-edge-location
Bytes In	sc-bytes
Request Method	cs-method
Destination Dns Domain	cs(Host)
File Path	cs-uri-stem
Event Outcome	sc-status
Request Context	cs(Referer)
Request Client Application	cs(User-Agent)
Request Url Query	cs-uri-query
Request Cookies	cs(Cookie)
Device Action	x-edge-result-type
External Id	x-edge-request-id
Device Dns Domain	x-host-header
Application Protocol	cs-protocol
Bytes Out	safeToInteger(cs-bytes)
End Time Ng	date,time,time-taken
Device Custom Floating Point 2	time-taken
Source Address	__oneOfAddress(c-ip,X-Forwarded-For)
Device Custom String 1	ssl-protocol
File Hash	ssl-cipher
Device Custom String 3	x-edge-response-result-type

ArcSight Field	Vendor Field
Device Custom String 4	cs-protocol-version
Device Custom String 5	fle-status
Device Custom Number 1	fle-encrypted-fields
Source Port	c-port
Device Custom Floating Point 1	time-to-first-byte
Reason	x-edge-detailed-result-type
File Type	sc-content-type
File Size	sc-content-len
Device Custom Number 2	sc-range-start
Device Custom Number 3	sc-range-end

Adding Parser Files

The connector can support other log sources available in an AWS S3 bucket. One connector instance can support one log source. Therefore, the default log source configurations will be overridden with the following changes.

With limited support, relying on Cisco Umbrella, and plenty of event source formats, you can build and integrate parsers.

To add new parser files:

1. Create a file in the following location:
`<installFolder>\current\user\agent\fcg\awss3`
2. Specify the file name as `awss3_parser_configuration.properties`.
3. Add the following properties to the file:

```
#Start
parser.type.count=1
parser.type[0].devicetype=CiscoUmbrella-DNSLogs
parser.type[0].parserfolder=awss3
parser.type[0].parserfile=ciscoumbrella.dnslogs
parser.type[0].parserclasstype=0
parser.type[0].description=Cisco Umbrella DNS Logs
parser.type[0].filetype=csv
#End
```

Properties and description:

Property Name	Description
<code>parser.type.count</code>	This is a mandatory field. Set this value to 1 .
<code>parser.type[0].devicetype</code>	This is a mandatory field. This property describes a log format. It appears as a new selection in the Connector Installation wizard drop-down list. For example, Cisco DNS Logs.

Property Name	Description																
parser.type [0].parserfolder	<p>This is a mandatory field.</p> <p>Specify the path in which the new parser files are available.</p> <p>Set this value to the relative path from the fcp folder: <installFolder>\current\user\agent\fcg\.</p> <p>For example: If you are copying the new parser file into: <installFolder>\current\user\agent\fcg\awss3, set the value as parser.type[1].parserfolder=awss3</p>																
parser.type [0].parserfile	<p>This is a mandatory field.</p> <p>Set the parser file name without the file name extension. For example: ciscoumbrella.dnslogs. If there are sub-parser files, refer only to a parent parser file name.</p> <p>Note: If the log format is CEF, then leave this field blank.</p>																
parser.type [0].parserclasstype	<p>This is a mandatory field.</p> <p>Select one of the following appropriate values for the desired input log format:</p> <table border="1"> <thead> <tr> <th>Values</th><th>Log Formats</th></tr> </thead> <tbody> <tr> <td>0</td><td>CSV or any common separator</td></tr> <tr> <td>1</td><td>Needs regular expression to process</td></tr> <tr> <td>2</td><td>Has syntax as key and value</td></tr> <tr> <td>3</td><td>XML</td></tr> <tr> <td>4</td><td>XQuery</td></tr> <tr> <td>6</td><td>CEF</td></tr> <tr> <td>7</td><td>JSON</td></tr> </tbody> </table>	Values	Log Formats	0	CSV or any common separator	1	Needs regular expression to process	2	Has syntax as key and value	3	XML	4	XQuery	6	CEF	7	JSON
Values	Log Formats																
0	CSV or any common separator																
1	Needs regular expression to process																
2	Has syntax as key and value																
3	XML																
4	XQuery																
6	CEF																
7	JSON																
parser.type [0].description	<p>This is an optional field.</p> <p>This property also describes a log format. However, it is not visible in the Connector Installation wizard or other user interfaces.</p>																
parser.type [0].filetype	<p>This is an optional field.</p> <p>Set the file extension without using a period (.) preceding the file name extension. For example: txt, csv, or json.</p> <p>This file is for future use.</p>																

Troubleshooting

1. Certificate Issue while Integrating Connector with Third-party Application.

Because of SNI, the following certificate exception might be displayed while configuring the connector with third-party application:

```
Error[1]: RemoteException: cause[javax.net.ssl.SSLHandshakeException: PKIX
path building failed:
sun.security.provider.certpath.SunCertPathBuilderException: unable to find
valid certification path to requested target
```

To fix this issue, see [Certificate Issue while Integrating Connector with Third-party Application](#).

2. Agent is configured but not generating event.

a. Check for errors in <Install path>\current\logs\agent.log.

b. If any errors related to AWS permissions are found, refer to "[Configuring Log Retrieval](#)" on page 9

3. When using the SQS approach, the configuration may be completed without any errors displayed on the configuration window, even if the IAM user does not have the required permissions. Post-configuration, the IAM user will not be able to process any events.

In this case, the installer does not control and/or validate the S3 bucket details. Check for errors in <Install path>\current\logs\agent.log.

If any errors related to AWS permissions are found, see "[Configuring Log Retrieval](#)" on page 9

4. When noticing frequent AWS API calls, checking for new S3 files or SQS Messages:

a. If a specific interval was defined to receive new files, set the time interval in connector configuration.

```
<Install path>\current\user\agent\agent.properties
```

b. Replace `pollingfrequencyinsec=10` for `pollingfrequencyinsec=<Defined new file arrival interval in seconds>`

5. When using the S3 approach, how to re-process the log files?

a. Stop running agent.

b. Clear the <Install path>\current\user\agent\ageantdata folder to discard the intermediate state.

c. Restart agent.

6. When a file is deleted or the connector is restarted, SQS notifications can get into flight mode.

- a. S3 must be configured to send events to SQS on new object creation.
The connector will delete SQS only if the message is successfully processed.
7. Agent setup displays the following message: "Enter valid AWS Credentials and parameters to retrieve AWS logs."
 - a. Ensure you are using valid AWS credentials with valid permissions. For more information, see ["Configuring Log Retrieval" on page 9](#).
 - b. If using the SQS approach, make sure these values are correct:
 - AWS SQS URL
 - AWS SQS Region
 - AWS S3 region
 - c. If using the S3 approach, make sure these values are correct:
 - AWS S3 bucket name
 - AWS S3 folder name
 - AWS S3 region

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Feedback on Configuration Guide (SmartConnectors 8.2.0)

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