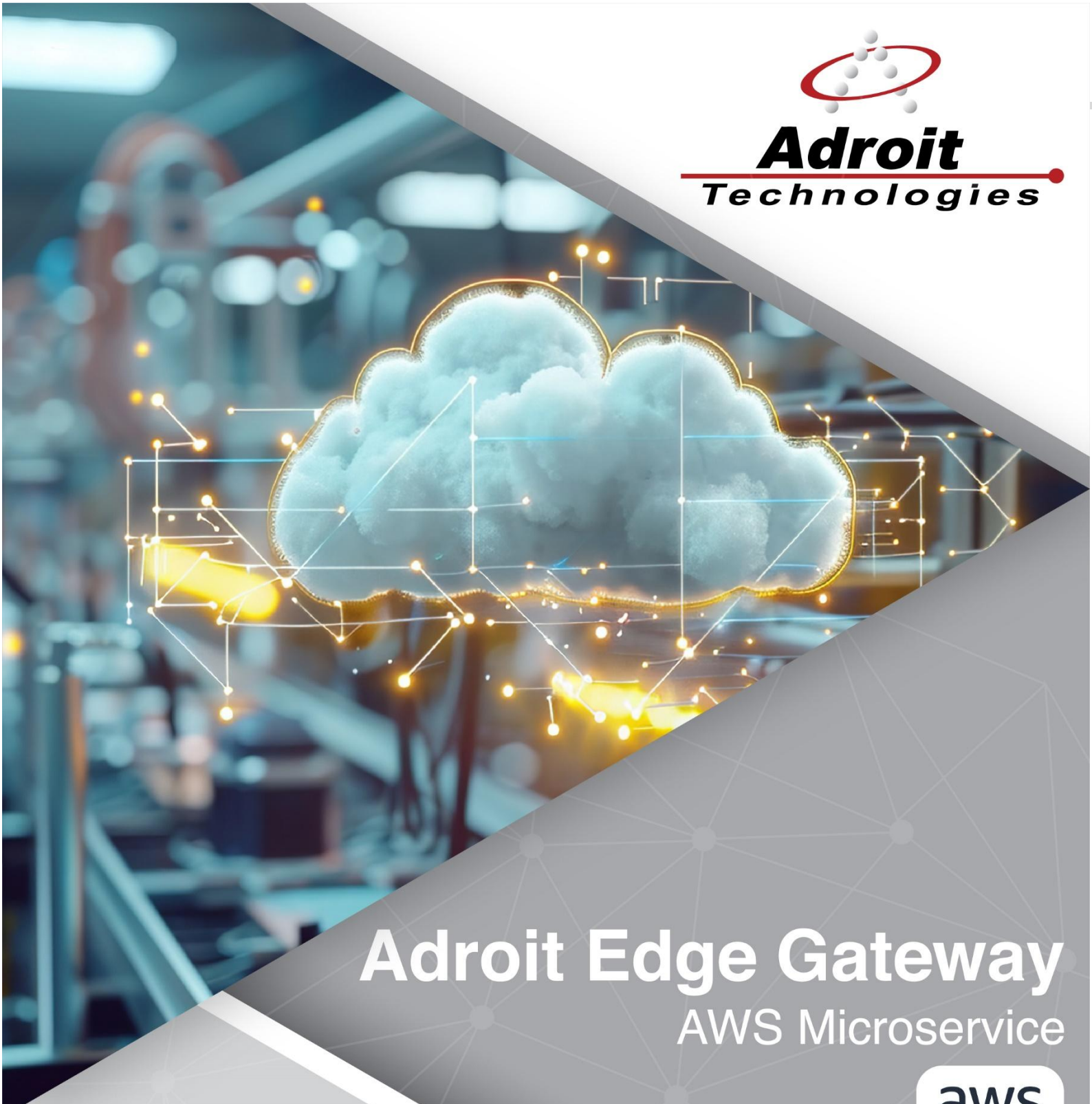

Adroit Technologies

Adroit Edge Gateway

AWS Microservice

aws

Adroit
Edge Gateway

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1.0	25.02.2025	D. Acuna	Initial Draft	10.0.5.5	
2.0	18.05.2025	D. Acuna	Final Draft	10.0.5.5	
3.0	19.08.2025	D. Wibberley	Final	10.0.5.5	

Contents

1. Introduction

The AWS S3 Publisher is a Microservice that enables the Adroit Edge Gateway to publish operational data to the AWS Cloud. This data can then be used in Dashboards, Reports and Analytics using the tools available in the AWS platform.

2. Configuration and Usage

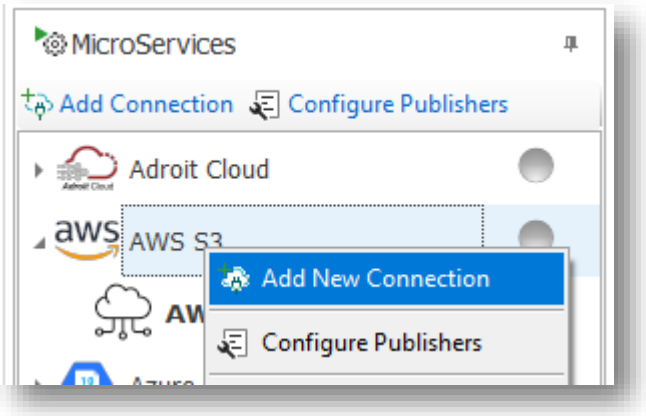
Configuration of all Adroit Edge Publishers is done within the **Config Editor**, under: **Configuration** → **Welcome** → **Edge Gateway Configuration**.

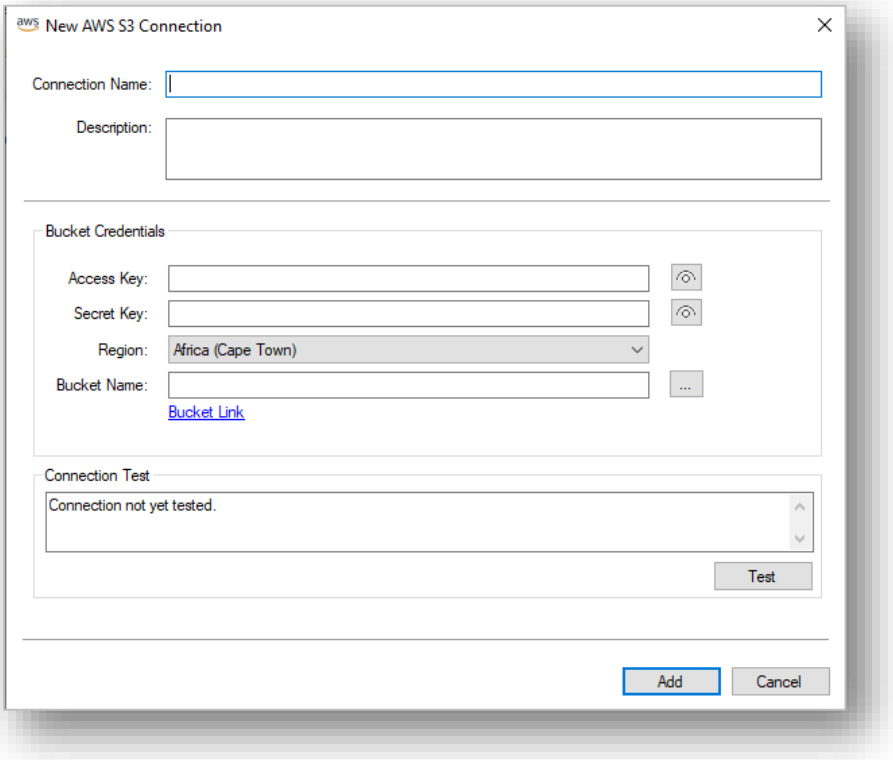
2.1. AWS S3 Connections

2.1.1. Adding a New Connection

To create a new AWS S3 connection:

1. Right-click the **AWS S3** Microservice in the treeview.
2. Select the option to create a new connection.





In the **Add AWS S3 Connection** dialog, configure the following settings:

- **Connection Name**: The display name of the connection under the AWS S3 Microservice.
- **Description**: A description of the connection. Used as a brief tooltip description for the connection.
- **Bucket Credentials**:
  - **Access Key:** This specifies the Access Key assigned to your AWS account. It works like a username and provides access to your AWS service
  - **Secret Key:** This specifies the Secret Key assigned to you AWS account. It acts like a password and works together with your Access Key.
  - **Region:** This specifies the geographical area where your bucket is located. This dropdown provides a list of all regions where AWS is offered.
  - **Bucket Name:** This specifies the name of the bucket you wish to upload to.

Connection Testing

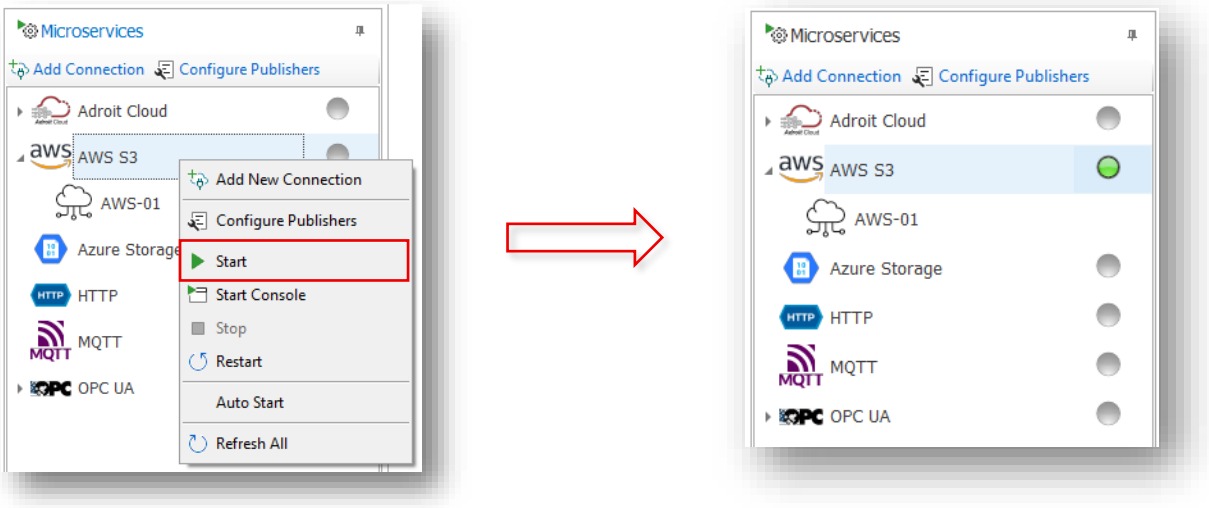
A connection test feature is available to verify the bucket credentials are correct.

Edit or Delete a Connection

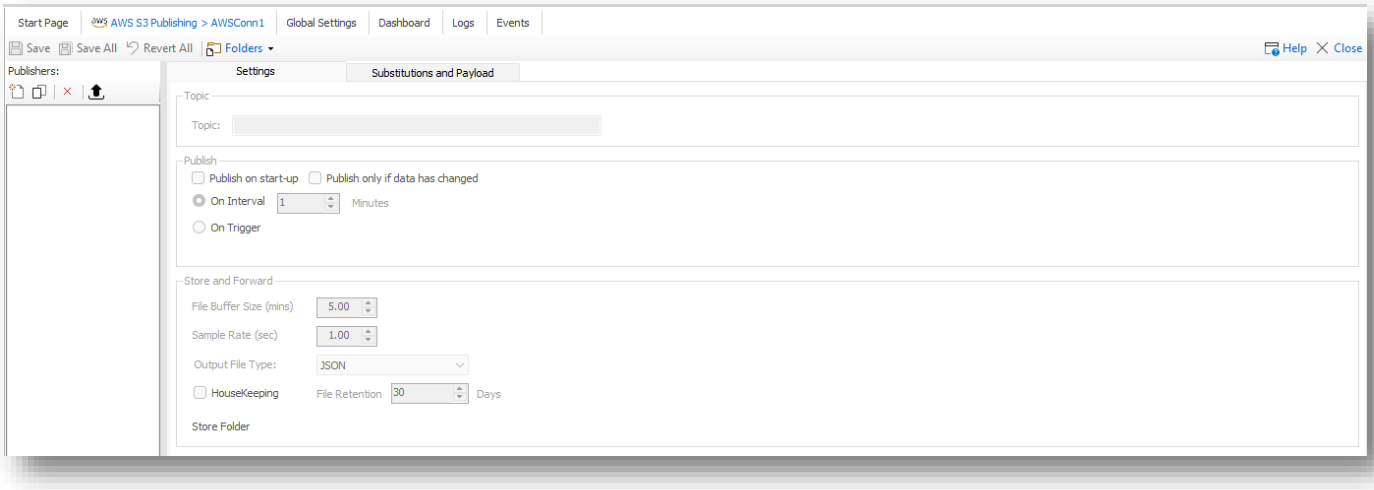
To edit or delete a connection, simply right-click on the connection and select the required option. NB: Deleting a connection will delete any associated Publishers configured for the connection.

Start the Connection

To start he Microservice, right-click on the required Microservice and select Start.


Microservices
Add Connection
Configure Publishers
Adroit Cloud
AWS S3
AWS-01
Azure Storage
HTTP
MQTT
OPC UA
Add New Connection
Configure Publishers
Start
Start Console
Stop
Restart
Auto Start
Refresh All
Microservices
Add Connection
Configure Publishers
Adroit Cloud
AWS S3
AWS-01
Azure Storage
HTTP
MQTT
OPC UA

After creating a connection, double-clicking it will present the configuration options for **AWS S3 Publishers**. You can add multiple Publishers to a connection and configure each one with these two tabs:



These tabs are:

Tab	Description
Settings	General settings, including bucket configuration and publishing modes (e.g., interval or trigger-based).
Substitutions and Payload	Configure Dataelement substitutions and the payload message for the AWS S3 bucket. Validate and preview the final payload message with live data and test uploading the payload message to the AWS S3 bucket.

2.2. AWS S3 Publishers

After creating a connection, multiple Publishers can be added by selecting the connection in the treeview and clicking **Configure Publishers** from the toolbar or by double-clicking it.

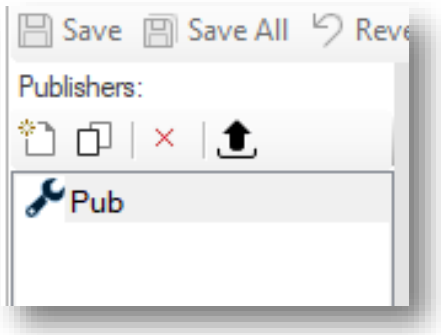
2.2.1. Adding Publishers

To add a Publisher:

1. Click the **Add New Publisher** from the toolbar.
2. Provide a name and description for the Publisher.

Each Publisher starts in **Maintenance Mode** (not actively publishing) by default. To switch to **Publish Mode**, use the context menu or toolbar buttons options. Additional options allow you to:

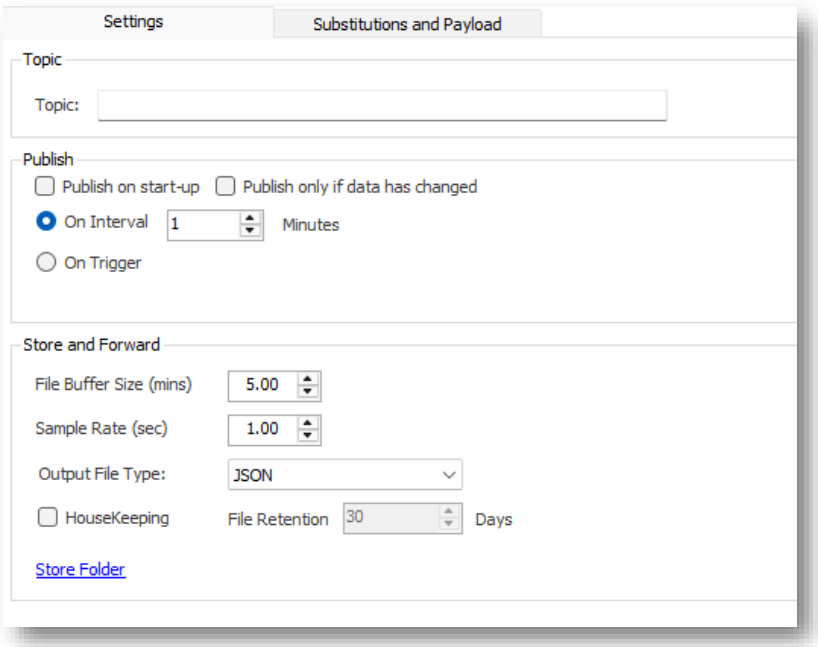
- Edit the Publisher's description.
- Delete the Publisher.
- Copy the Publisher, including all settings, substitutions, and payload configurations. The copy function also supports Find and Replace for substitution Dataelement names.



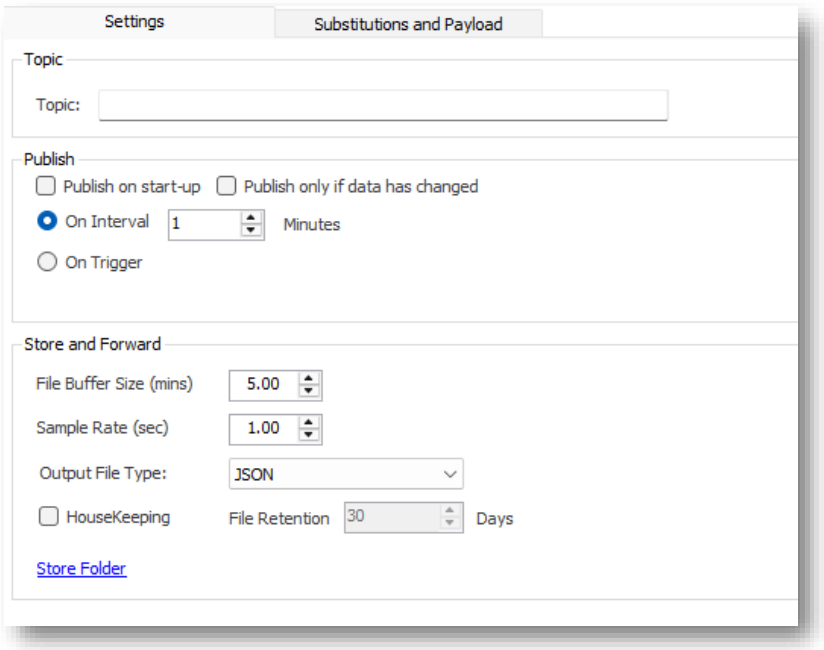
2.2.2. Publisher Settings

The **Settings** tab includes:

- **Topic**: This provides a topic name which is inserted into the JSON payload.
- **Publish Mode Settings**:
  - **On Interval**: Publishes messages at a regular interval (defined in minutes).
    - Interval (in minutes): Specifies the publishing interval.



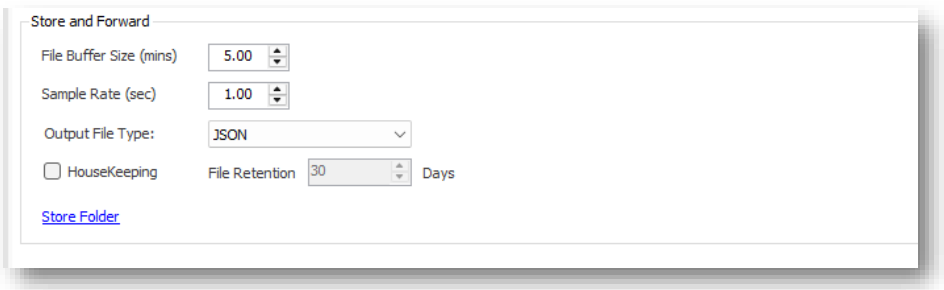
- **On Trigger**: Publishes messages triggered by a Dataelement value change, provided that the trigger Dataelement has changed and holds a non-zero value.
  - Deadband: Defines the waiting period (in minutes) before accepting the next trigger after the last published time.



For both publishing modes above you can also:

- **Publish on start-up:** This publishes on startup of the microservice and when the Publisher is set to publish mode.
- **Publish only if data has changed**: Publishes only if any substitution Dataelement values have changed.

- **Store and Forward Settings:**
  Payload messages will be appended to a file based on the configured Sample Rate. The file will be uploaded when the configured File Buffer Size is reached.
  - **File Buffer Size (mins):** Specify the file buffer size in minutes. This determines how long the buffer will accumulate messages before being uploaded.
  - **Sample Rate (sec):** Specify the sample rate in seconds. This determines how frequently the payload messages are sampled and appended to the file.
  - **Output File Type:** Indicate the output file type(s) (e.g., JSON, CSV, Parquet).
  - **Housekeeping:** After uploading the file, the file is moved to a backup folder. The Housekeeping deletes any files older than the File Retention days.
  - **Store Folder:** This opens a Windows Explorer to the Publishers Store and Forward folder where the processing of the upload folder has been done.



2.2.3. Substitutions and Payload

In the Substitutions and Payload tab we can configure the substitution Dataelements for the AWS S3 Publisher as well as the payload messages which will be uploaded.
We are also provided with an option to validate, preview and test the substituted payload message before it's been uploaded.

2.2.3.1. Substitutions

The Substitutions grid allows users to define multiple substitutions with corresponding Dataelements and formatting.
To add Dataelements to the Substitutions grid:

1. Navigate to the Dataelements tree view under the relevant Adroit Datasource.
2. Select the desired Dataelements (you can multiselect) and drag them into the Substitutions grid.
3. Alternatively, you can directly input the full names of the Dataelements into the Substitutions grid by simply typing the name into the grid.

Additional Substitutions functionalities include:

- **CSV Import/Export**: Handle substitution lists and their configurations using CSV files. Import or export them seamlessly within the Substitution Grid.
- **Find and Replace**: Locate and modify text within substitution Dataelement names directly in the Substitution Grid.

2.2.3.2. Payload

The Payload configuration provides a markup editor for creating the JSON payload. Substitutions from the grid can be inserted into the JSON by selecting a substitution and using the Payload toolbar buttons to insert a substitution of specific Dataelement's data i.e. its value, quality and timestamp:

- **Value**: Inserts a ${substitution name}, which will substitute in the Dataelements value.
- **Quality**: Inserts a ${substitution name}ST, which will substitute in the Dataelements quality i.e. bad, good etc.
- **Timestamp**: Inserts a ${substitution name}TS, which will substitute in the Dataelements timestamp

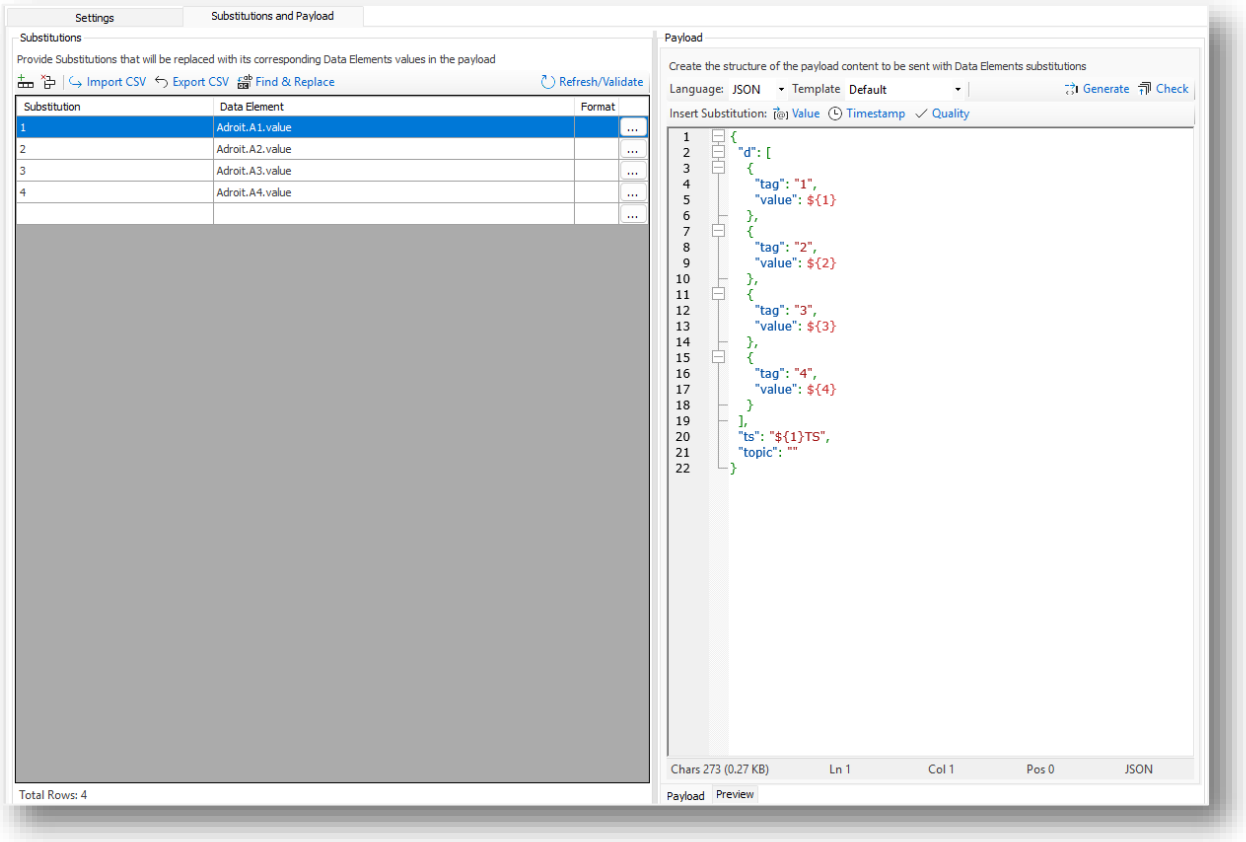
These Substitutions can be also added manually into the JSON in the markup editor.
Additional Payload features include:

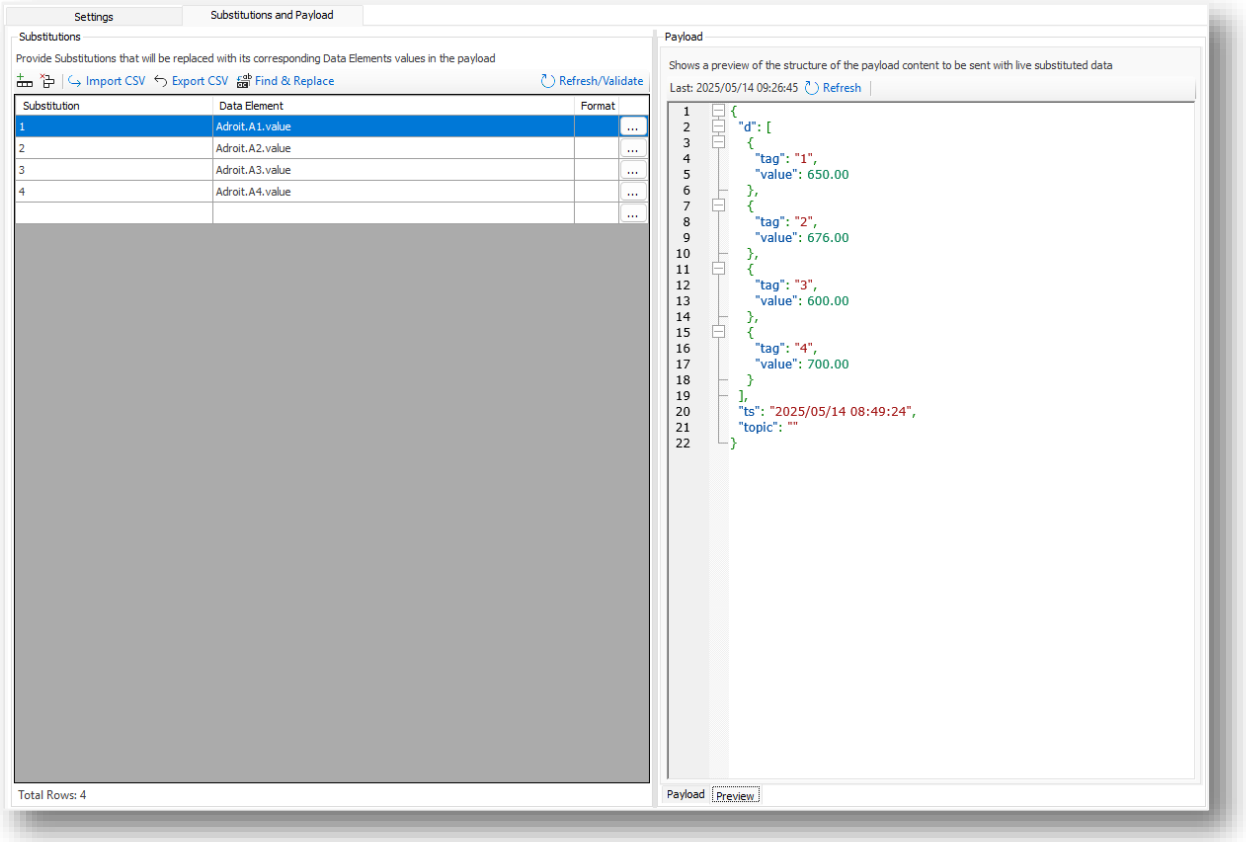
- **Templates**: Create JSON payloads using predefined imported templates. A default template is available to generate a JSON structure containing key-value pairs for each substitution, such as *substitution name: ${substitution name}*
- **Validation**: Verify the JSON payload to ensure accuracy and receive feedback on any errors.

2.2.3.3. Preview and Test

The **Preview** tab allows you to:

- **View** - View the final JSON payload with live substituted values.
- **Test** - executes a publish event of the payload message to ensure functionality. If the test fails, an error response will be displayed.


Settings
Substitutions and Payload
Substitutions
Provide Substitutions that will be replaced with its corresponding Data Elements values in the payload
Import CSV
Export CSV
Find & Replace
Refresh/Validate
Substitution
Data Element
Format
1
Adroit.A1.value
2
Adroit.A2.value
3
Adroit.A3.value
4
Adroit.A4.value
Total Rows: 4
Payload
Create the structure of the payload content to be sent with Data Elements substitutions
Language: JSON
Template Default
Generate
Check
Insert Substitution: Value Timestamp Quality
{
"d": [
{
"tag": "1",
"value": ${1}
},
{
"tag": "2",
"value": ${2}
},
{
"tag": "3",
"value": ${3}
},
{
"tag": "4",
"value": ${4}
}
],
"ts": "${1}TS",
"topic": ""
}
Chars 273 (0.27 KB)
Ln 1
Col 1
Pos 0
JSON
Payload
Preview


Settings
Substitutions and Payload
Substitutions
Provide Substitutions that will be replaced with its corresponding Data Elements values in the payload
Import CSV
Export CSV
Find & Replace
Refresh/Validate
Substitution
Data Element
Format
1
Adroit.A1.value
2
Adroit.A2.value
3
Adroit.A3.value
4
Adroit.A4.value
Total Rows: 4
Payload
Shows a preview of the structure of the payload content to be sent with live substituted data
Last: 2025/05/14 09:26:45
Refresh
{
"d": [
{
"tag": "1",
"value": 650.00
},
{
"tag": "2",
"value": 676.00
},
{
"tag": "3",
"value": 600.00
},
{
"tag": "4",
"value": 700.00
}
],
"ts": "2025/05/14 08:49:24",
"topic": ""
}
Payload
Preview

2.3. Work Folder Location

All configuration files related to the AWS S3 are stored in:
C:\ProgramData\Adroit Technologies\SmartDataServices\AWSS3

Users typically do not need direct access to these folders, as configuration can be managed via the Config Editor. However, key files include:

- *config.xml*: Stores all settings, Dataelement substitutions, and payload configurations.
- *AWSS3.log*: Available only if "Log to file" is enabled. This log file must be opened manually.

Subfolders include:

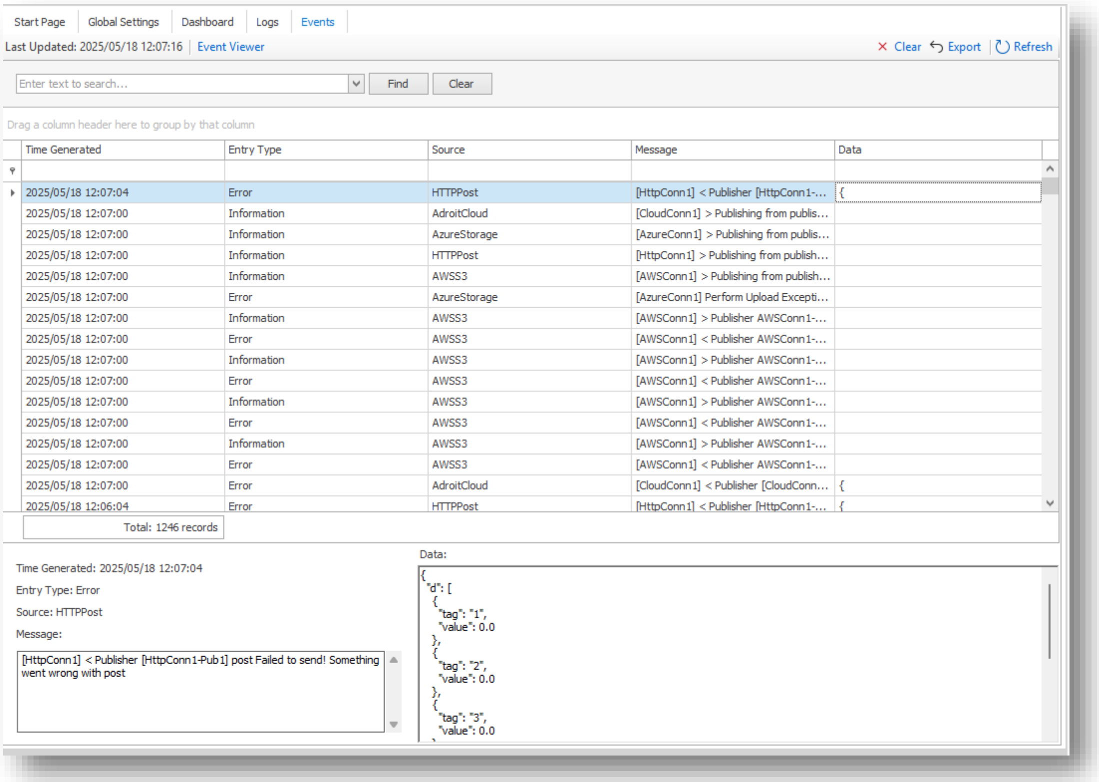
- CSV: Contains CSV files for importing and exporting Dataelement substitutions.
- Templates: Contains predefined JSON templates for generating specific payload messages.

3. Troubleshooting

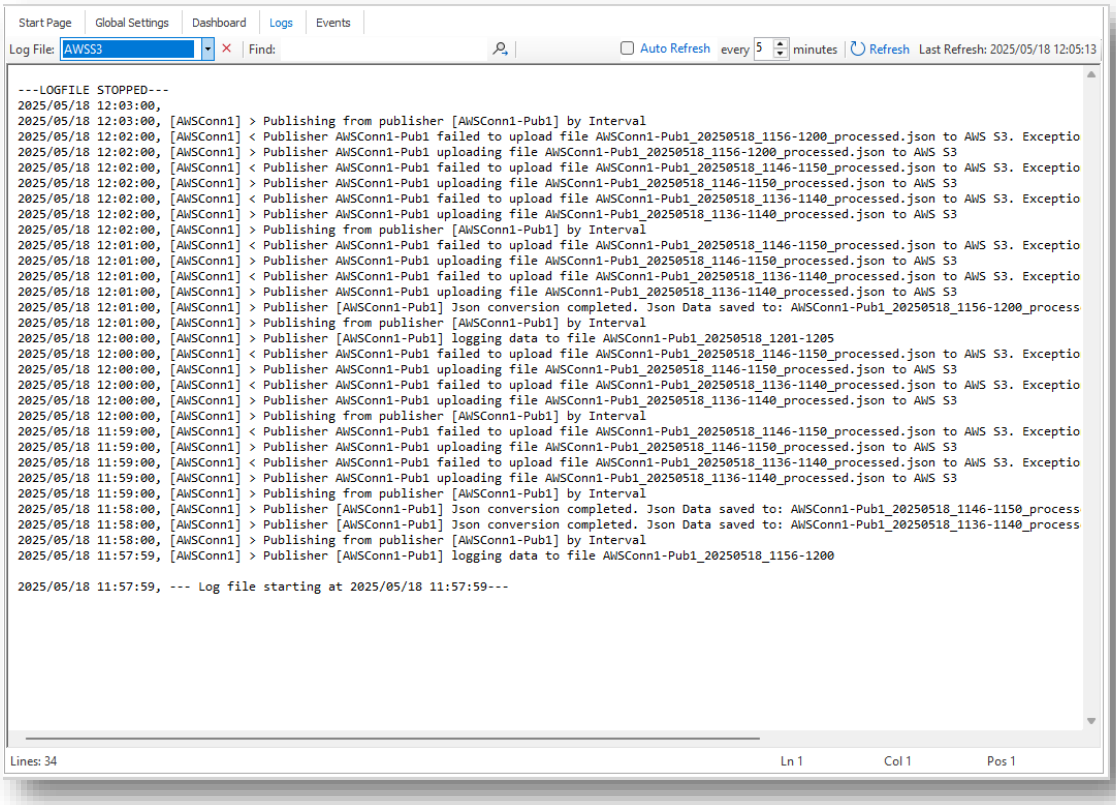
The AWS S3 Microservice provides various tools to help resolve issues:

- **Connection Testing**: The AWS S3 connection settings include a test functionality to verify the connection to the AWS S3 bucket.
- **Substitution Validation**: In the AWS S3 Publishers configuration, the substitution grid highlights invalid Dataelements of a substitution in red for easy identification.
- **Payload Validation**: The payload configuration features a validation tool to ensure the JSON payload is properly formatted, providing detailed feedback on any errors.
- **Preview**: The Preview tab allows users to preview the final JSON payload with live substituted values.
- **Diagnostics**: Access additional tools on the main Adroit Edge Gateway tabs for advanced troubleshooting:

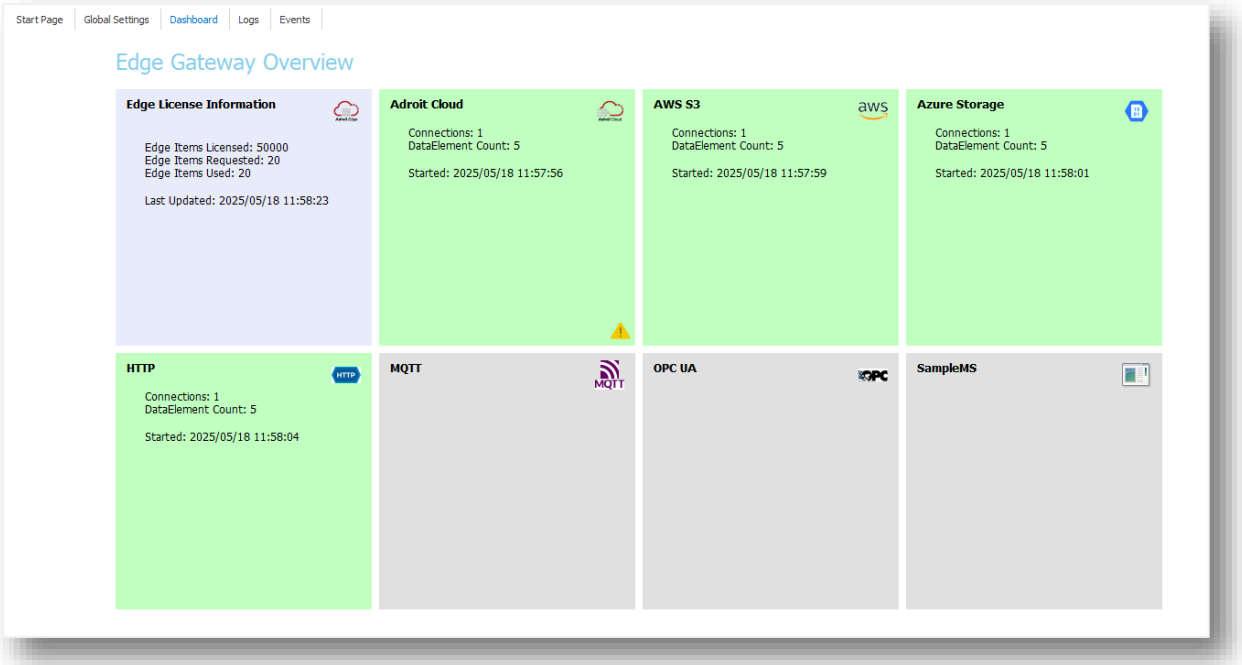
  - **Event Log Viewer**: View all Microservice event log messages sourced from the SmartDataServices event log.



- **Log File Viewer**: Examine the complete contents of a selected Microservice log file.

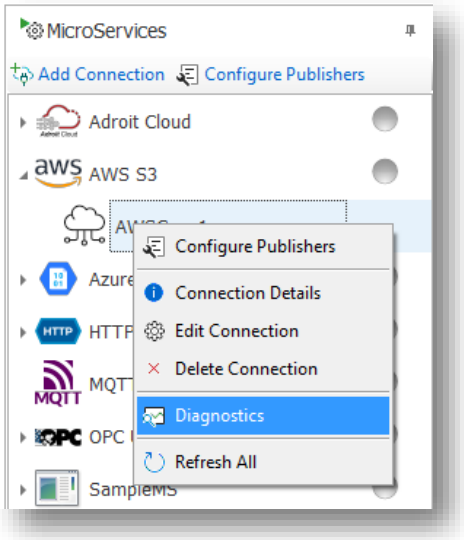


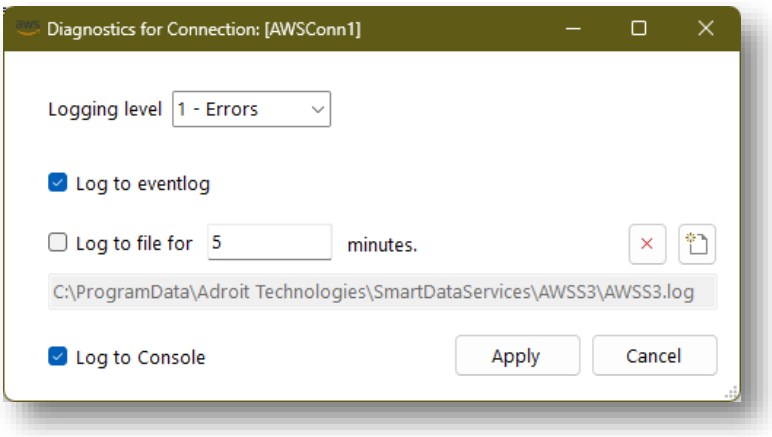
- **Dashboard**: Gain real-time dashboard-like feedback from Microservices, featuring specific Microservices statuses, counters, and indicators.



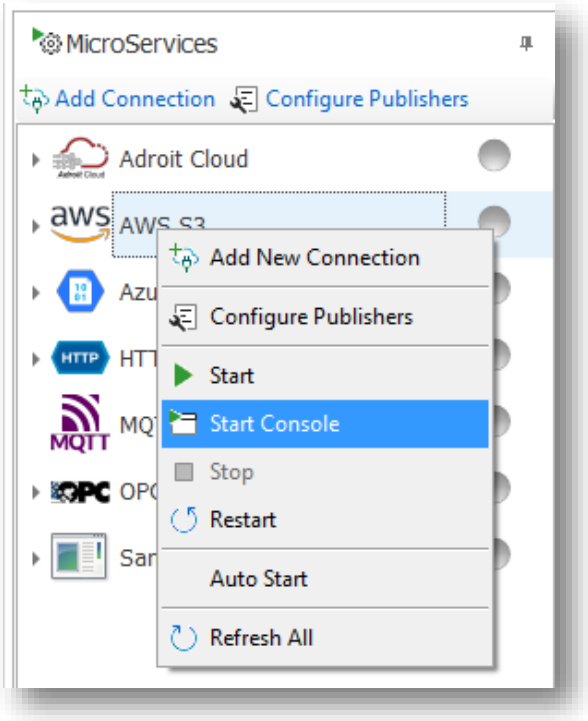
Diagnostics information logging, including its log level (i.e. Errors, Warnings, Information and Debug levels etc.) and output destination (i.e. Event log, log file, console etc.) is configured through the Diagnostics dialog for each AWS S3 connection.

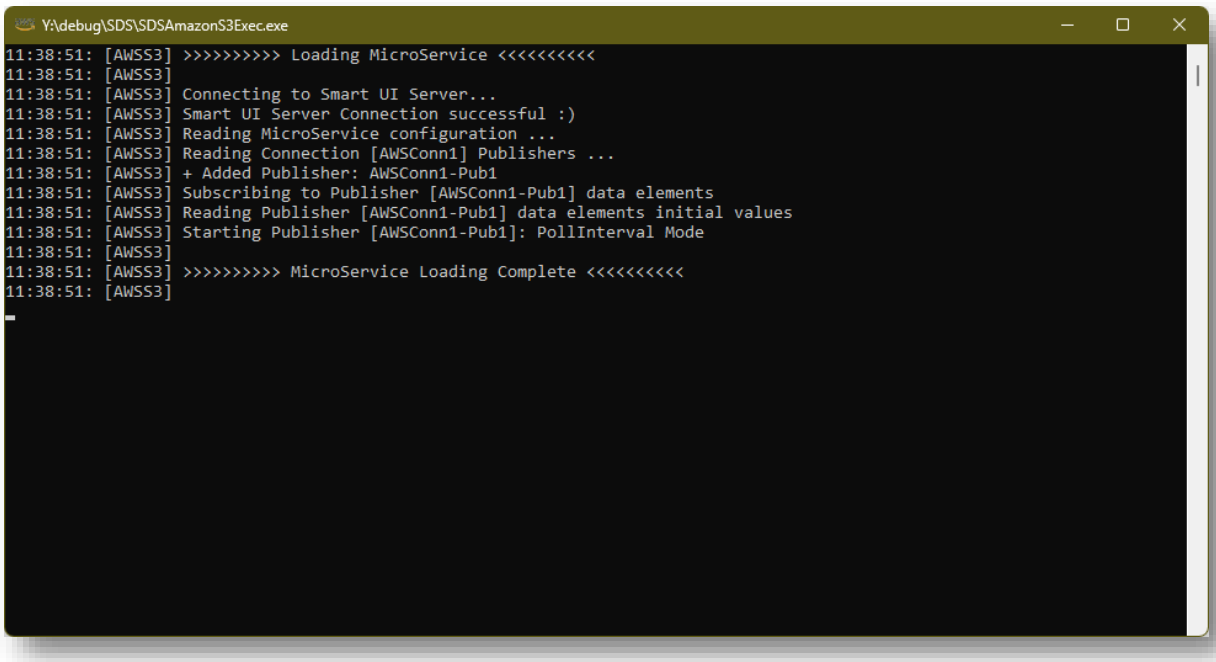
To configure the Diagnostics for an AWS S3 connection, right-click the AWS S3 connection and click Diagnostics.





- **Microservice Console View**: Operate each Microservice as a console application to observe its real-time console messages. To run a Microservice as a console right- click the Microservice and click Start Console.




Y:\debug\SDS\SDSAmazonS3Exec.exe
11:38:51: [AWSS3] >>>>>>>>>> Loading MicroService <<<<<<<<<<
11:38:51: [AWSS3]
11:38:51: [AWSS3] Connecting to Smart UI Server...
11:38:51: [AWSS3] Smart UI Server Connection successful :)
11:38:51: [AWSS3] Reading MicroService configuration ...
11:38:51: [AWSS3] Reading Connection [AWSConn1] Publishers ...
11:38:51: [AWSS3] + Added Publisher: AWSConn1-Pub1
11:38:51: [AWSS3] Subscribing to Publisher [AWSConn1-Pub1] data elements
11:38:51: [AWSS3] Reading Publisher [AWSConn1-Pub1] data elements initial values
11:38:51: [AWSS3] Starting Publisher [AWSConn1-Pub1]: PollInterval Mode
11:38:51: [AWSS3]
11:38:51: [AWSS3] >>>>>>>>>> MicroService Loading Complete <<<<<<<<<<
11:38:51: [AWSS3]