

Serverless ETL

# Data Connector for SAP

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Installation Guide





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## HTTPS & SSL (Secure Sockets Layer)

- All communications from the SAP Server to AWS will be done through HTTPS protocol and using SSL (Secure Sockets Layer)

### AMAZON Trust Services

<https://www.amazontrust.com/repository/>

#### Root CAs

Distinguished Name	SHA-256 Hash of Subject Public Key Information	Self-Signed Certificate	Test URLs
CN=Amazon Root CA 1,O=Amazon,C=US	fbe3018031f9586bcfb41727e417b7d1c45c2f47f93be372a17b96b50757d5a2	DER PEM	Valid Revoked Expired
CN=Amazon Root CA 2,O=Amazon,C=US	7f4296fc5b6a4e3b35d3c369623e364ab1af381d8fa7121533c9d6c633ea2461	DER PEM	Valid Revoked Expired
CN=Amazon Root CA 3,O=Amazon,C=US	36abc32656acfc645c61b71613c4bf21c787f5cabbee48348d58597803d7abc9	DER PEM	Valid Revoked Expired
CN=Amazon Root CA 4,O=Amazon,C=US	f7ecded5c66047d28ed6466b543c40e0743abe81d109254dcf845d4c2c7853c5	DER PEM	Valid Revoked Expired
CN=Starfield Services Root Certificate Authority - G2,O=Starfield Technologies, Inc.,L=Scottsdale,ST=Arizona,C=US	2b071c59a0a0ae76b0eadb2bad23bad4580b69c3601b630c2eaf0613afa83192	DER PEM	Valid Revoked Expired

The certificate files above are licensed under a [Creative Commons Attribution-NoDerivatives 4.0 International License](https://creativecommons.org/licenses/by-nd/4.0/).

#### Procedure

1. use of encryption facilitated by X.509 certificates published by Certificate Authorities (CA) in tandem with public and private decryption keys.
2. For AS ABAP to be able to access the AWS Services, network connectivity should be granted to at least the following list of endpoints

## HTTPS Service check

➤ T-Code : SMICM HTTPS Service Activate check,

**ICM Monitor of Server armiq7\_ARZ\_06**

ICM Status: Running ●●●  
Restart After Error: Yes  
Trace Level (0-3): 1  
Created Worker Threads: 10 / 10 / 250 ( Current / Peak / Maximum )  
Connections Used: 0 / 3 / 500 ( Current / Peak / Maximum )  
Queue Entries Used: 0 / 1 / 1000 ( Current / Peak / Maximum )

No.	Thread ID	Number	Status	Processed Request
<input type="checkbox"/>	1	12840	912 Available	
<input type="checkbox"/>	2	6592	912 Available	
<input type="checkbox"/>	3	16068	913 Available	
<input type="checkbox"/>	4	12500	912 Available	
<input type="checkbox"/>	5	15324	911 Available	
<input type="checkbox"/>	6	12348	912 Running	Administration
<input type="checkbox"/>	7	20056	912 Available	
<input type="checkbox"/>	8	12160	911 Available	
<input type="checkbox"/>	9	12892	912 Available	
<input type="checkbox"/>	10	12916	911 Available	

### Procedure

1. T-code : SMICM – ICM Monitor  
Check available service in you system.
2. https service & port setting check.  
(if you do not have authority, ask your basis consultant)

**ICM Monitor - Service Display**

Active Services

No.	Protocol	Service Name/Port	Host Name	Keep Alive	Proc.Timeo	Actv	
<input type="checkbox"/>	1	HTTP	8006	armiq7.armiq.com	60	3,600	✓
<input type="checkbox"/>	2	HTTPS	8643	armiq7.armiq.com	60	3,600	✓
<input type="checkbox"/>	3	SMTP	2506	armiq7.armiq.com	120	120	✓
<input type="checkbox"/>	4	HTTPS	5206	armiq7.armiq.com	15	15	✓

### Prerequisite for RESTful API

- Check notes 2628631 - ABAP REST Library (package SREST)

#### 2628631 - ABAP REST Library (package SREST) is not available in the system and classes cannot be found for ABAP REST programming

<b>Version</b>	4	<b>Type</b>	SAP Knowledge Base Article
<b>Language</b>	English	<b>Master Language</b>	English
<b>Release Status</b>	Released to Customer	<b>Category</b>	How To
<b>Component</b>	BC-MID-RST (REST-based Protocols)	<b>Released On</b>	02.10.2018

Please find the original document at <https://launchpad.support.sap.com/#/notes/2628631>

#### Symptom

- ABAP REST Library (package SREST) is not available in the system, AND
- Classes from the ABAP REST Library (for example: CL\_REST\_HTTP\_CLIENT) cannot be found on the system.

#### Environment

- SAP Gateway 2.0 (for example: GW\_CORE 200)
- SAP NetWeaver 7.31 or lower (SAP\_BASIS =< 7.31)

#### Reproducing the Issue

1. Open transaction **SE80**,
2. Select **Package** type,
3. Enter the object name: **SREST**.

OR

1. Open transaction **SE24**,
2. Enter one of the classes (Object type) from the ABAP REST Library, for example: CL\_REST\_HTTP\_CLIENT.

#### Cause

The ABAP REST Library is delivered with the **GW\_CORE software component** (add-on) in the **/IWCOR/SREST package** within the SAP Gateway 2.0 Product.

(And the objects can be found in the embedded packages:

- /IWCOR/SREST
  - /IWCOR/SREST\_CORE
  - /IWCOR/SREST\_EXT
  - /IWCOR/SREST\_HTTP
  - /IWCOR/SREST\_TEST
  - /IWCOR/SREST\_UTIL)

The relevant **classes of the SREST package** can be found **under namespace /IWCOR/** (for example: /IWCOR/CL\_REST\_HTTP\_CLIENT).

#### Procedure

1. SREST package is needed for RESTful communication with AWS.
  2. Minimum SAP Version required  
SAP Netweaver 7.31 or higher (SAP Kernel release 730 or higher)
- ✳ Low version system only can use Idoc Transfer from SAP to AWS Cloud. Customization task may need.

## AWS Account Create

- You have to create AWS cloud ID for serverless infra.

### Create Account

<https://portal.aws.amazon.com/billing/signup#/start>

Create an AWS account

**AWS Accounts Include  
12 Months of Free Tier Access**

Including use of Amazon EC2, Amazon S3, and Amazon DynamoDB  
Visit [aws.amazon.com/free](https://aws.amazon.com/free) for full offer terms

Email address

Password

Confirm password

AWS account name ⓘ

**Continue**

[Sign in to an existing AWS account](#)

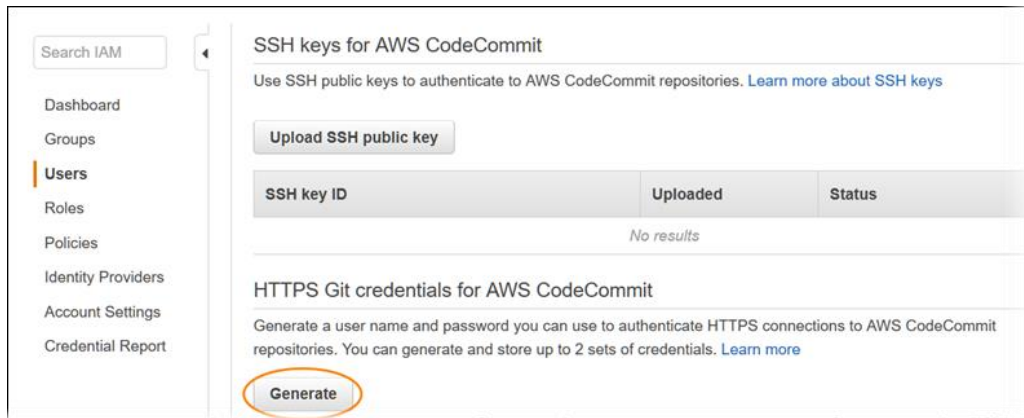
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### Procedure

1. Create AWS Account & make IAM user for serverless infra.
2. Assign serverless administration role for IAM user.
  - For more information plz contact [helpdesk@armiq.com](mailto:helpdesk@armiq.com)

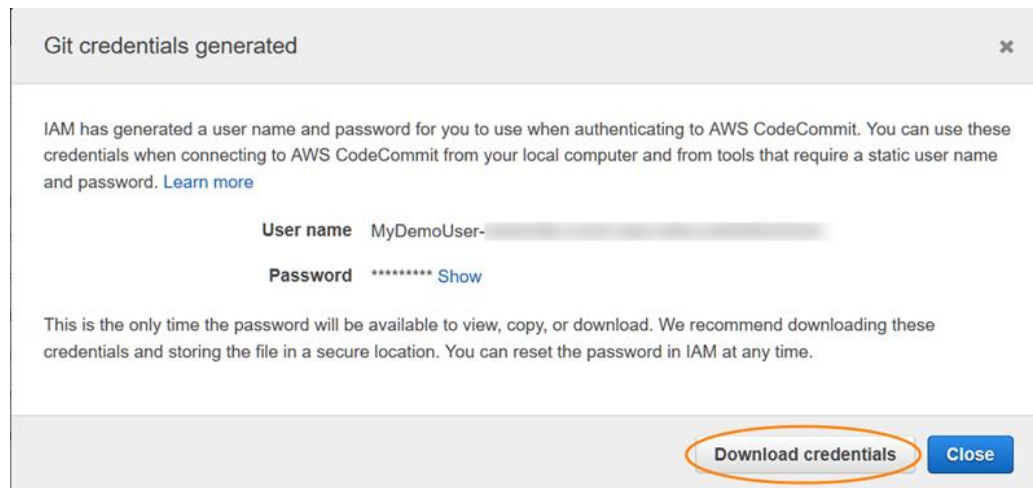
## Credential Check for IAM user

- Generate credentials in Identity and Access Management (IAM) service menu.



### Procedure

1. Generate credentials in IAM service
2. Download and save credentials



### Serverless Infra deploy

- AWS serverless infra deploy with your credentials in your AWS Account



#### Procedure

1. ARMIQ deploy serverless Infra in your AWS Account with CDK.
  - Inform us your IAM user credentials.
2. We do not offer CDK code for Product. We only deploy serverless infra in your AWS Account. (AWS PaaS services & Lambda code)

For more information plz contact [helpdesk@armiq.com](mailto:helpdesk@armiq.com)

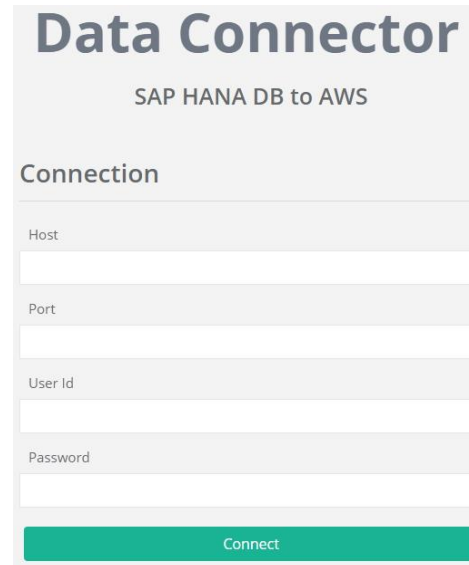
## Deployed Object check

➤ Total 11 AWS PaaS Services is deployed & usage.

No	Service	Description
1	API GW	creating, publishing, maintaining, monitoring, and securing REST, HTTP, and WebSocket APIs at any scale
2	Lambda	compute service that lets you run code without provisioning or managing servers
3	Cognito	provides authentication, authorization, and user management for your web and mobile apps
4	DynamoDB	fully managed NoSQL database service that provides fast and predictable performance with seamless scalability
5	S3	Amazon Simple Storage Service is storage for the Internet. It is designed to make web-scale computing easier for developers.
6	KMS	makes it easy for you to create and control customer master keys (CMKs), the encryption keys used to encrypt your data
7	CloudWatch	monitors your Amazon Web Services (AWS) resources and the applications you run on AWS in real time
8	Glue	fully managed ETL (extract, transform, and load) service
9	X-Ray	collects data about requests that your application serves, and provides tools you can use to view, filter, and gain insights into that data to identify issues and opportunities for optimization
10	SQS	a secure, durable, and available hosted queue that lets you integrate and decouple distributed software systems and components
11	Athena	interactive query service that makes it easy to analyze data directly in Amazon Simple Storage Service (Amazon S3) using standard SQL

### Procedure

1. You can see total 11 AWS services in your AWS account.
2. For more information refer AWS online document
3. If all infra deploy complete, you can see below screen. you can test your HDB connection.



## ABAP module request

- We offer ABAP module by CTS files.

Upload File: Parameters

Source file on front end  
c:\Wtemp\substanc.dat

Target file on application server  
\\data01\usr\sap\ehs\_data\substanc.dat

Transfer format for data   Overwrite file

Name of Directory Parameter	Directory
DIR_PROTOKOLLS	D:\Wusr\Wsap\WARZ\WDVEBM
DIR_PUT	\\Warmiq7\Wsapmnt\Wput
DIR_REORG	D:\Wusr\Wsap\WARZ\WDVEBM
DIR_RSYN	D:\Wusr\Wsap\WARZ\WDVEBM
DIR_SAPHOSTAGENT	C:\WProgram Files\SAP\Wh
DIR_SAPUSERS	.
DIR_SETUPS	\\Warmiq7\Wsapmnt\WARZ1
DIR_SORTTMP	D:\Wusr\Wsap\WARZ\WDVEBM
DIR_SOURCE	\\Warmiq7\Wsapmnt\WARZ1
DIR_TEMP	.
<b>DIR_TRANS</b>	<b>\\Warmiq7\Wsapmnt\Wtrans</b>
DIR_AOCS_ARZ_TEST	D:\Wusr\Wsap\Warz\WAOCS
SRD_Backup	\\Warmiq7\SRD_Backup

### Procedure

1. Plz request ABAP module  
– [helpdesk@armiq.com](mailto:helpdesk@armiq.com)
2. We will check your contract information and send CTS files(cofiles, data)
3. Plz import CTS file in T-CODE: CG3Z  
(check directory in T-CODE: AL11)

### ABAP Object

- ABAP package is displayed in T-code : SE80

Object Name	Description	Procedure
<ul style="list-style-type: none"> <li>▼ ZLCS_AWS_POC</li> <li> <ul style="list-style-type: none"> <li>▶ Dictionary Objects</li> <li>▼ Class Library                             <ul style="list-style-type: none"> <li>▼ Classes                                     <ul style="list-style-type: none"> <li>▶ ZCL_ABAP_GZIP</li> <li>▶ ZCL_BTC_JOB_SCHEDULING</li> <li>▶ ZCL_BTC_PARALLEL_PROCESSING</li> <li>▶ ZCL_DP_0010</li> <li>▶ ZCL_DP_PROCESSING</li> </ul> </li> <li>▼ Programs                                     <ul style="list-style-type: none"> <li>▶ ZSDIF_AWS_01</li> <li>▶ ZSDIF_AWS_01_01</li> <li>▶ ZSDIF_AWS_02</li> <li>▶ ZSDIF_AWS_03</li> <li>▶ ZSDIF_AWS_04</li> <li>▶ ZSDIF_AWS_05</li> <li>▶ ZSDIF_AWS_06</li> <li>▶ ZSDIF_AWS_07</li> <li>▶ ZSDIF_AWS_08</li> <li>▶ ZSDIF_AWS_09</li> <li>▶ ZSDIF_AWS_10</li> <li>▶ ZSDIF_AWS_11</li> <li>▶ ZSDIF_AWS_12</li> </ul> </li> <li>▶ Function Groups</li> <li>▶ Includes</li> <li>▶ Transactions</li> <li>▶ SET/GET Parameters</li> <li>▶ Message Classes</li> </ul> </li> </ul> </li> </ul>	<p>SAP Data Interface with AWS</p> <p>Data Compress GZIP</p> <p>Job Scheduling</p> <p>Batch Job – Parallel Processing</p> <p>Parallel Processing – SEND Data to AWS</p> <p>Parallel Processing</p> <p>Integration Tool</p> <p>Batch Processing – Get Data</p> <p>Web Browser</p> <p>Configuration – Transfer Data</p> <p>Data Transfer – Batch Processing</p> <p>Batch Processing – Load Balacing</p> <p>Batch Processing – Load Balacing – Subroutine</p> <p>Batch Processing – Monitoring</p> <p>Batch Processing – Data Transfer</p> <p>Management – Transport ID</p> <p>Data Transfer – Batch Processing – Transport ID</p> <p>Data Connector Menu</p> <p>Do Not Use!!! Delete AWS-DT Data</p>	<p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Check installed package. Package name may change for your system. We will inform change name.</li> <li>2. Activate all object in your system.</li> </ol> <p>For more information plz contact <a href="mailto:helpdesk@armiq.com">helpdesk@armiq.com</a></p>

## Idoc Setup

- Idoc Setup for EDI communication SAP & AWS

The screenshot shows the SAP Trust Manager interface. On the left, a tree view shows the 'SSL client SSL Client (AWS)' folder expanded, with sub-items 'arniq7\_A17\_10' and 'arniq7\_A17\_11' highlighted. The main area displays the 'Own Certificate' details for 'SSL client SSL Client (AWS)', showing a self-signed certificate with the subject 'CN=A17 SSL client SSL Client (AWS), OU=I0090203970, OU=SAP Web AS...'. Below this is a 'Certificate List' containing several certificates, including Amazon Root CA 4, Amazon Root CA 1, Starfield Services Root Certificate Authority - G2, and Amazon Root CA 2. A yellow box highlights the 'Certificate List' area with a circled '1'. Below the Trust Manager is the 'Partner profiles' window, showing a table with columns for Partner No., Partner Type, and Logical system. The entry 'AWS\_SEND' is highlighted with a yellow box and a circled '3'. The 'Outb. Parameters' table below shows 'Partner Role' as 'AWS\_IDOC'.

### Procedure

1. Receiver port setting
  - AWS CA file
2. Idoc Segment define
3. Partner profile setting.

For more information plz contact [helpdesk@arniq.com](mailto:helpdesk@arniq.com)

The screenshot shows the SAP Idoc Segment definition window. The 'Segment type attributes' section shows 'Segment type' as 'ZAWSIDOC' and 'Short Description' as 'AWS IDOC INTERFACE SEGMENT TYPE'. The 'Segm. definition' section shows 'ZAWSIDOC000' as the segment definition. The 'Last Changed By' field is 'SWLEE'. Below this is a table of 'Fields in Segment' with columns for 'Field Name' and 'Data element'.

Field Name	Data element
MANDT	MANDT
VERSION	NUMC10
TABNAME	TABNAME
DTSEQ	NUMC10
DTCNT	INT4
DATA	ZSDIF_E_0001
SEGSEQ	IDOCDSGNUM
DLENGTH	INT4

## RFC Destination Setup

- AWS Service endpoint config in RFC destination

RFC Destination: AWS\_SEND  
Connection Type: G HTTP Connection to External Serv Description

Description

Description 1: AWS\_SEND (dev)  
Description 2:  
Description 3:

Administration Technical Settings Logon & Security Special Options

Target System Settings

Host: u32x25gwx6.execute-api.ap-northeast-2.amazo Port: 443  
Path Prefix: /dev/save

HTTP Proxy Options

Global Configuration

Proxy Host:  
Proxy Service:  
Proxy User:  
Proxy PW Status: is initial

### Procedure

1. Fill in AWS API GW endpoint at Host field.
2. Connection Test result 200.
3. Connection config complete.

For more information plz contact [helpdesk@armiq.com](mailto:helpdesk@armiq.com)

**Connection Test HTTP Destination AWS\_GW**

Destination: AWS  
Ty.: HTTP Connection to External Server

Test Result Response Header Fields Response Body Response Text

Detail	Value
Status HTTP Response	200
Status Text	OK
Duration Test Call	4565 ms



# END OF DOCUMENT

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[info@armiq.com](mailto:info@armiq.com) | [www.armiq.com](http://www.armiq.com)



## Trust Manager configure

- AWS Certificate Authorities (CA) register

Trust Manager: Change

SSL client SSL Client (AWS)

**Own Certificate**

Subject: CN=ARZ SSL client SSL Client (AWS), OU=I0090203971, OU=SAP Web AS, O=SAP Tru... (Self-Signed)

**Certificate List**

Subject
CN=Amazon Root CA 1, O=Amazon, C=US
CN=Amazon Root CA 2, O=Amazon, C=US
CN=Amazon Root CA 4, O=Amazon, C=US
CN=Starfield Services Root Certificate Authority - G2, O="Starfield Technologies, In...

**Certificate**

Subject	CN=Starfield Services Root Certificate Authority - G2, O="Starfield Technologies, Inc.", L...
Subject (Alt.)	
Issuer	CN=Starfield Services Root Certificate Authority - G2, O="Starfield Technologies, Inc.", L...
Serial Number (Hex.)	00
Serial Number (Dec.)	0
Valid From	2009.09.01 00:00:00 to 2037.12.31 23:59:59
Algorithm	RSA with SHA-256 Key Length 2048
Check Sum (MD5)	17:35:74:AF:7B:61:1C:EB:F4:F9:3C:E2:EE:40:F9:A2
Checksum (SHA1)	92:5A:8F:8D:2C:6D:04:E0:66:5F:59:6A:FF:22:D8:63:E8:25:6F:3F

Veri. PSE Password

**2** Add to Certificate List **3**

**Procedure**

1. Prepare CA files
2. Select client SSL
3. Import CA file
4. Add to Certification List
5. 5file same process

For more information plz contact [helpdesk@armiq.com](mailto:helpdesk@armiq.com)