



Sol4Cloud AlinkServer documentation

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ALinkServer Introduction

ALinkServer is a containerized implementation of SAP® ArchiveLink 4.6 interface that can be used for archiving SAP S/4HANA or SAP ECC data and documents directly to Amazon® S3 buckets. ALinkServer can be acquired as a pay-per-use solution on Amazon Marketplace [here](#).

ALinkServer is very easy to deploy using Amazon CloudFormation and runs natively in Docker containers in two Amazon Elastic Container Service services. ALinkServer has been designed for very low AWS footprint. ALinkServer stores all content related metadata directly as S3 object metadata instead of a traditional relational database. Small amount of ALinkServer configuration data (server configuration and ArchiveLink repository configurations) is stored in AWS DynamoDB. Admin user names and passwords are stored in AWS Secrets Manager.

Chapter Deploying ALinkServer provides step-by-step guide to how to deploy ALinkServer on Amazon AWS. Deployment of the solution is simple thanks to Amazon CloudFormation Stack script. Stack script creates all configuration objects e.g. IAM roles, VPC endpoints and Amazon Elastic Container Service tasks and cluster to run the solution.

Chapter First start of the ALinkServer describes steps carried out upon CloudFormation Stack deployment. “Initial configuration” page will walk admin user through basic server setup.

Chapter ALinkServer Configuration provides details about ALinkServer configuration. All configuration (logging, admin users) is done using ALinkServer Admin application. SAP Content Repositories are configured in ALinkServer Admin application.

Chapter ALinkServer Administration in Amazon ECS provides details about monitoring and administration of the deployed application ECS cluster. ALinkServer application consists of two web applications:

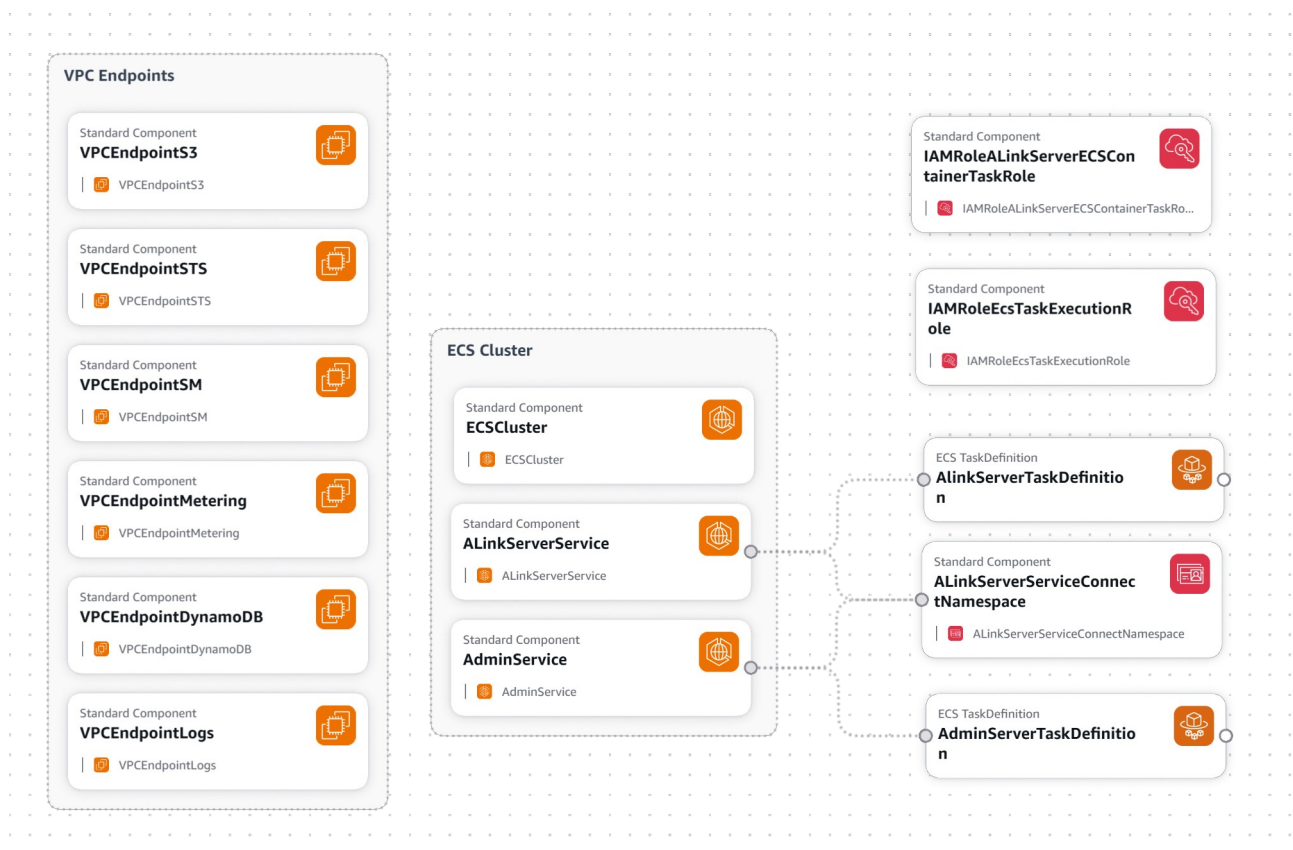
1. Main “worker” ALinkServer service that implements the ArchiveLink functionality and its URLs will be configured in SAP transaction OAC0
2. ALinkServer Admin process that is used for configuration and administration of the ALinkServer e.g. to create new content repositories, create new admin users etc. ALinkServer Admin process is also responsible for reporting server container usage to AWS.

Deploying ALinkServer

Once you've subscribed to ALinkServer on AWS Marketplace you will be able to access the "Launch your software" link on your subscription page. "Deployment templates" section on the launch page contains a link to CloudFormation "Quick create stack". Following paragraphs provide detailed information about the configuration objects that are created using the CloudFormation template.

ALinkServer CloudFormation template objects

CloudFormation configuration file creates the following objects – see information below for more details about each object:



VPC endpoints

ALinkServer uses during runtime the following Amazon AWS services:

- Amazon S3 buckets are configured per SAP ArchiveLink repository to store archived SAP data and documents
- DynamoDB is used to store server configuration data

- AWS Secrets Manager to store admin users passwords
- Amazon CloudWatch is used to store ALinkServer logs
- AWS Security Token Service is used to request temporary, limited-privilege security credentials for running the ALinkServer service
- Amazon Marketplace billing service

In order to avoid that the calls to the above services traverse public internet CloudFormation Stack configuration file creates VPC Endpoints for all of the above Amazon services. Doing so ensures that all requests sent by ALinkServer application travel exclusively over AWS's internal network via AWS PrivateLink, completely bypassing the public internet without needing a NAT Gateway or Internet Gateway.

ECS Task definitions

CloudFormation Stack script creates two ECS Task definitions: AdminServerTaskDefinition and the worker ALinkServerTaskDefinition – task definition specifies infrastructure requirements, container configuration including port mappings and logging settings. Admin service Infrastructure requirements configuration is set to 1CPU and 2GB of Memory.

Namespace

Worker ALinkServer communicates with the Admin Server and for the communication they use AWS Service Connect. Using Service Connect Admin Server publishes an internal DNS host name. CloudFormation Stack script creates the Namespace used in both ALinkServer service and Admin service configurations.

IAM Roles

ALinkServer and ALinkServer admin need authorizations to access several AWS resources – see paragraph “VPC Endpoints” above for more details. CloudFormation stack creates two IAM roles – one for launching the service and one for running the services that provide the running service the necessary authorizations. TaskRole needs the following authorizations:

- Amazon DynamoDB Full Access – application creates new DynamoDB table upon initial configuration and is reading, editing and deleting entries in this table when admin user changes the server configuration or when the Admin server reports the executed work to AWS Metering service
- S3 access – ALinkServer (neither worker nor admin service) creates S3 buckets. Buckets need to be configured by AWS administrator before configuring ALinkServer repositories.
- Access to AWS Metering services for reporting the executed work to AWS
- Access to SecretsManager to safely manage admin user names and passwords

CloudFormation Stack script adds the following policies to the TaskRole:

Permissions policies (4) [Info](#)

You can attach up to 10 managed policies.

☐	Policy name ↗	Type
☐	AmazonDynamoDBFullAccess_v2	AWS managed
☐	AmazonS3FullAccess	AWS managed
☐	AWSMarketplaceMeteringFullAccess	AWS managed
☐	SecretsManagerReadWrite	AWS managed

ECS Cluster and services

CloudFormation Stack creates an ECS Cluster using Amazon FARGATE compute with two services:

- AdminServer service running on port 8001, simple web admin application for basic ALinkServer configuration (e.g. log level configuration, SAP runtime list), configuration of SAP ArchiveLink repositories in ALinkServer and configuration of ALinkServer administrator accounts.
- ALinkServer service running on port 8000 – this is the main worker application that implements SAP ArchiveLink interface. Service running on port 8000 only provides an overview of currently configured SAP content repositories.

Default configuration of both services is set to „Auto-assign a public IP to the task's elastic network interface (ENI)„. Switch off this configuration option in both ECS Cluster Services upon initial testing or after configuring own Application Load Balancer.

Deploying „Quick create stack“ configuration

After you've subscribed to ALinkServer usage on AWS Marketplace you'll be able to launch the application. On the Launch page select „ECS“ as target for deployment. Launch box on the screen provides high-level instructions. „Deployment templates“ box on the right provides link to CloudFormation „Quick create stack“ link. When you click the „Quick create stack“ link AWS will show you a form to configure the stack parameters before creation. Form looks like the example below:

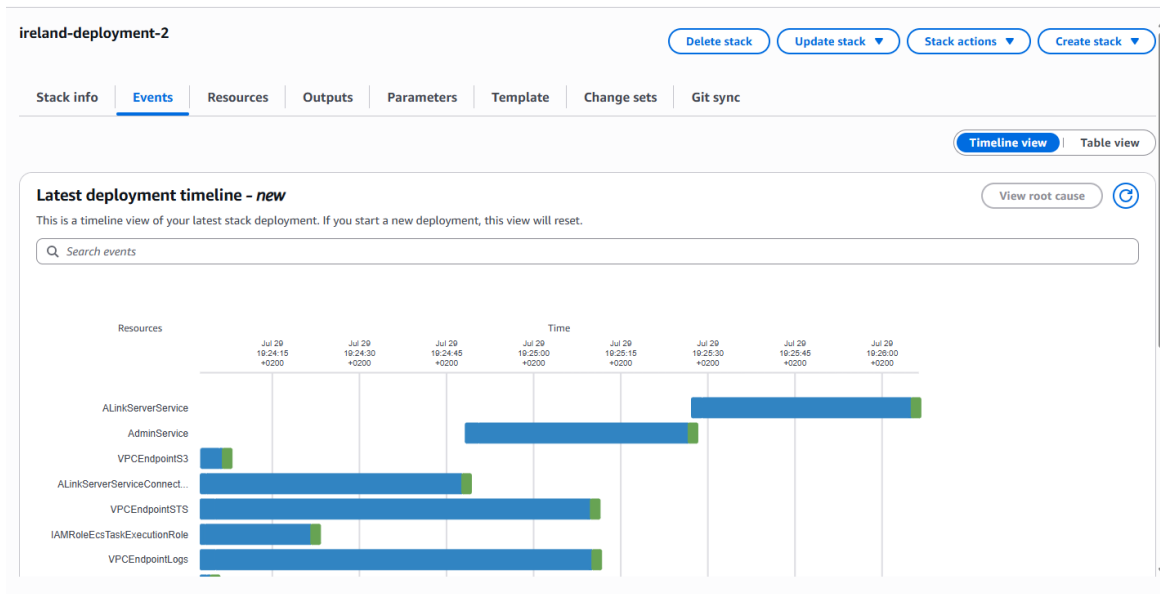
Populate the following parameters for the ALinkServer stack:

1. Provide Stack name
2. Select Target VPC that the ECS cluster will be installed to from a list of your VPCs
3. Select Target Subnets for the VPC selected above
4. Select Security Group ID. Security Group needs to allow inbound connections on ports 8000 and 8001.
5. Endpoints configuration requires ID of Route Table. Open list of Route tables in your VPC in a separate browser window and copy-paste the ID of the route table in this parameter.

Next section are ALinkServer application settings

6. CloudFormation script will create a new ECS cluster for you. Specify the name of the ECS Cluster or keep the default value
7. Specify the name of ALinkServer service in the ECS cluster or keep the default value
8. Specify the name of the Admin service in the ECS cluster or keep the default value
9. Specify the name of the Namespace definition that will be used in the Service Connect configuration to connect both services or keep the default value
10. Specify name for the role that will be used to run ALinkServer services. This role will be granted access to AWS S3, DynamoDB, Secrets Manager and AWS MeteringService.
11. Specify name for the Task execution role. This role will be used by the container agent to make API requests on your behalf when launching the tasks.
12. At the bottom of the page acknowledge that the CloudFormation script will create IAM roles.
13. Click „Create stack“ button and wait for the Stack to be created (creation takes approximately 3 minutes). Upon completion switch to the Resources tab to see a list of all

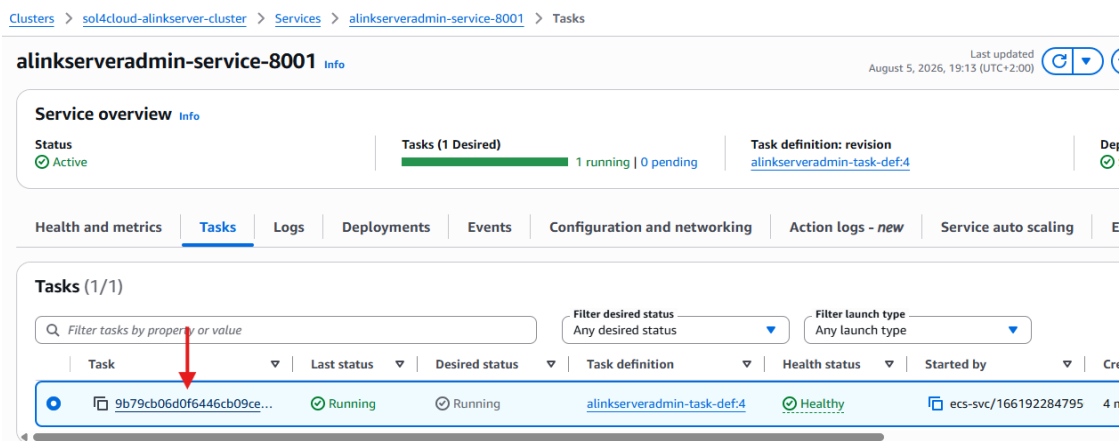
resources created using the CloudFormation Stack script. Example of Stack creation dashboard can be seen below:



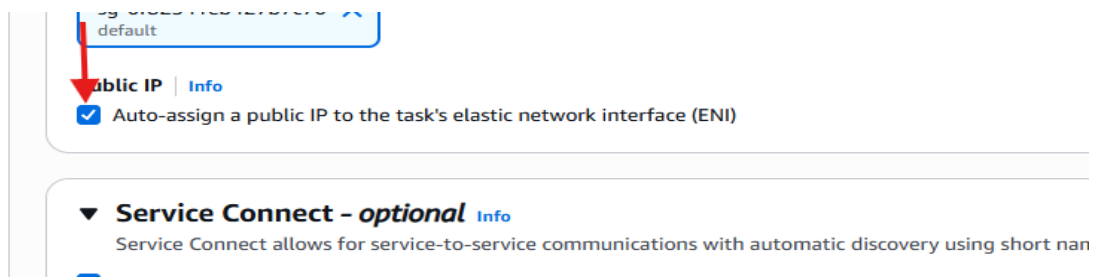
14. Now the ALinkServer ECS Cluster has been successfully deployed. Continue to next chapter for a quick guide on first server start and initial configuration.
15. Warning: Deleting the Stack in CloudFormation deletes all AlinkServer configuration objects created above – DeletionPolicy of the objects in the CloudFormation script is set to „Delete“

First start of the ALinkServer

1. Go to the previously created ECS Cluster and start the alinkserveradmin-service-8001 service by clicking on the service name and clicking on „Update service“ button. In the „Update alinkserveradmin-service-8001“ page specify 1 in the „Desired tasks“ field and click „Update“ at the bottom of the screen. ECS Server will start one instance of the admin task (because of the ServiceConnect configuration for connectivity of ALinkServer service and Admin service each of the containers is started with a small „side car“ for network connectivity – see it in the list of containers for the started task).
2. Wait for the task to start (it takes approximately 1 minute) and open the server URL on port 8001. Default CloudFormation Service configuration is set to assign Public IP address to the service for initial functionality tests. To connect to the admin server UI you can click the Task ID and click the „open address“ link in tab „Network bindings“:



Uncheck the „Public IP“ configuration option once your ECS cluster networking works as expected or once you’ve configured AWS internal routing



3. Initial ALinkServer Admin server configuration screen looks as shown below:

Initial server configuration

Please provide the server configuration details below:

Admin server address

Hostname/IP address and port on which ALinkServer service can reach the admin server. Keep the default value if you haven't changed the default AWS Service Connect configuration of admin service in ECS cluster.

Server logging level

Runtime environment

SAP landscape that this server will be used for (e.g. DEV, QAS, PROD). Specify comma separated list of SAP landscapes for this server e.g. DEV, QAS, PROD.

Optional server parameters

Optional server parameters for future use.

Admin username

Admin password

Confirm admin password

Create initial server configuration

4. Populate the initial configuration parameters:

- a) Change the Admin server address if you've changed the ServiceConnect configuration during CloudFormation deployment or manually after installation, otherwise keep the default value
- b) Select server log level. The same log level applies to Admin service and main ALinkServer worker service.
- c) Update the comma separated list of SAP Runtime environments. Runtime parameter is used as part of the ALinkServer URL and it will enable you later to use the same SAP Content Repository ID in multiple SAP landscapes (DEV, QA, ...)
- d) Leave the Optional server parameters box empty unless instructed otherwise.
- e) Specify admin user name and password.

5. Click the „Create initial server configuration“ button. ALinkServer process will create DynamoDB configuration table and store the admin user details in AWS Secrets Manager. This initial configuration takes approximately 1 minute - wait for the process to complete. Once complete, ALinkServer Admin UI will show a login screen.
6. Login to ALinkServer Admin UI and go to „Repositories“ menu. Click „Create new repository“ and configure at least one SAP content repository.
7. Go to ECS Cluster and start the alinkserver-service-8000 service. Wait for it to start (it takes approximately 1 minute) and open the server URL on port 8000. You should see a page similar to the one below – list at the bottom of the page shows the first repository created in the step above:

Sol4Cloud ALinkServer

Fully containerized SAP ArchiveLink 4.6 server that can be used for SAP data and document archiving. Simply configure new content repository in the ALinkServer and configure a corresponding content repository in SAP.

Instance AWS account id:	671607590936
Instance region:	eu-west-1
Server UTC date:	2026-07-29
Server UTC time:	19:12:29
Server build:	0.1.8.dev0+g790b13f2d.d20260726
Server status:	Server configured

Repositories currently configured in the server

Below is a list of all SAP ArchiveLink repositories configured in this server. Use ALinkServerAdmin tool to configure new repositories or to change existing ones.

SAP Runtime	Content Repository ID	HTTP Script (to be used in SAP OAC0 transaction)	ArchiveLink serverInfo URL
DEV	A6	alinkserver/DEV/671607590936/5fdc3fa79ad0fba72d26	serverInfo page

8. Login to your SAP system and create new SAP content repository in transaction OAC0.
 - a) Use IP address/hostname of the ALinkServer or Application Load Balancer in the HTTP Sever field
 - b) Use port number 8000
 - c) Populate the „HTTP Script“ field by copy-pasting the HTTP Script value from the ALinkServer page
9. Resulting OAC0 configuration looks like the example below:

Content Repository Edit Goto Environment System Help

< **SAP** Change Content Repositories: Detail

Full administration More

Content Rep.: A6 Active: 8 / 165

Description: * ALinkServer in AWS eu-west-1

Document Area: ArchiveLink

Storage type: * HTTP content server

Version no.: 0046 Content Server version 4.6

HTTP server: * 18.201.89.82

Port Number: 8000 SSL Port Number:

HTTP Script: * alinkserver/DEV/671607590936/5fdc3fa79ad0fba72d26

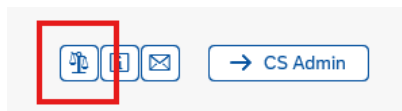
Transfer drctry:

Phys. path: /usr/sap/S23/SYS/global/

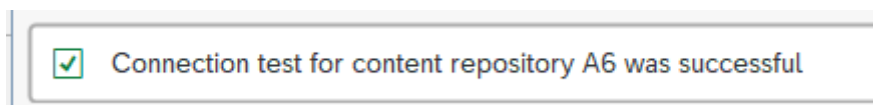
HTTPS on frontend: no HTTPS HTTPS on backend: no HTTPS

→ CS Admin

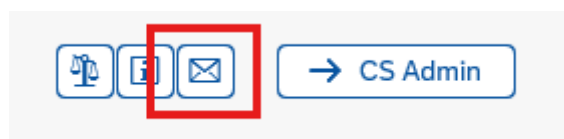
10. Save SAP content repository and test connection to ALinkServer repository from SAP by clicking the „Test connection“ button



If ALinkServer has been configured correctly and the network route is open for the traffic you should see a status message at the bottom of the OAC0 screen as shown below:



11. Send SAP certificate from the repository configuration screen by clicking the „Send certificate“ envelope button. You should see a message „Certificate was sent“ at the bottom of the screen.



12. Congratulations! Your SAP content repository is ready for use. Use the newly configured SAP content repository in SAP data archiving or SAP document archiving scenarios.

ALinkServer Configuration

All ALinkServer configuration is being done using ALinkServer Admin service running by default on port 8001 in ECS Cluster. Main page of the ALinkServer Admin server provides an overview of currently running instance (AWS account id, region, server version etc.). Table on the main page shows information collected from running ALinkServer services, namely the number and performance of requests processed by the ALinkServer service instances.

These are the main configuration menus available in the Admin UI:

Menu „Repositories“

Click the „Repositories“ menu for the list of currently configured SAP content repositories. You can see repository details by clicking on the repository entry in the repository list. From the details page you can edit repository details or delete the repository (only if it is empty).

Click the „Create new repository“ button to create new content repository configuration in ALinkServer. For repository creation specify:

- SAP Repository ID, same ID needs to be used in SAP system in transaction OAC0
- Repository description
- Select one of predefined SAP runtime environment placeholders (e.g. DEV, TEST, PROD)
- Name of the S3 bucket – Amazon S3 bucket needs to be created in Amazon AWS Console first, ALinkServer doesn't create the bucket on behalf of user – your AWS administrator should create the bucket - main reason for this is that your company governance and compliance requirements may require to use different S3 bucket settings e.g. versioning, activate Object Lock (to enable write-once-read-many WORM configuration) and event notification. Do not activate Intelligent-Tiering Archive configuration for ALinkServer buckets – neither ArchiveLink nor ALinkServer support asynchronous content access.
- Optionally provide a Default document protection flag – leave this field empty unless you want to set concrete document protection flag when SAP ArchiveLink request wouldn't specify one.
- If for any reason ArchiveLink signature verification in ALinkServer would fail (e.g. very old SAP instance with signature algorithm that is not supported by our implementation) than you can switch off signature verification routines for this content repository.

Upon repository configuration go to SAP and create the SAP counterpart in transaction OAC0. Use ALinkServer hostname/IP address (not those of the Admin service running by default on port 8001)

and SAP configuration HTTP Script value from the repository detail page. Test connection and exchange SAP certificate as described in the previous chapter.

Menu „User administration“

Only admin users for ALinkServer Admin UI are maintained here – ArchiveLink protocol doesn't authenticate users but instead relies on signing content repository requests for added security. In this menu you can create and delete administrator users or change existing user's passwords.

Menu „Server Configuration“

You can change the Admin server address in the Server Configuration – this is only to be used if you've changed the Service Connect configuration in ECS Server Services, otherwise keep the default value.

ALinkServer and ALinkServer Admin service need to be restarted if you changed the log level – servers do not reload the server configuration upon change.

You can add additional SAP landscape/runtime shortcuts in the „Runtime environment“ box – simply create comma separated list. The runtime environment parameter is part of the OAC0 HTTP Script URL in order to enable SAP administrators to keep the same SAP Content Repository Ids (and thus SAP customizing in OAC3 and SARA transactions) across DEV, TEST and PROD landscapes while only changing HTTP Script value in each SAP environment.

ALinkServer Administration in Amazon ECS

Further ALinkServer services monitoring and administration happens through Amazon Elastic Container Services (ECS). ECS provides for each service in the cluster „Health and metrics“ overview, access to logs etc. Application logs are also accessible in AWS CloudWatch.

The screenshot displays the AWS ECS console interface. The top navigation bar shows the AWS logo, a search bar, and the region 'Europe (Ireland)'. The breadcrumb trail indicates the path: Amazon Elastic Container Service > Clusters > sol4cloud-alinkserver-cluster2 > Services.

Cluster overview

- Cluster ARN:** `arn:aws:ecs:eu-west-1:671607590936:cluster/sol4cloud-alinkserver-cluster2`
- Status:** Active
- CloudWatch monitoring:** Default
- Action logs:** Turned off
- Services:** 2 active | 0 draining
- Tasks:** 1 running | 0 pending
- Registered container instances:** -

Services (2)

Service name	ARN	Status	Schedu...	Launch...	Task de...	Deployments and tasks	Last deployment
alinkserver-service-8000	<code>arn:aws:ecs:eu-v...</code>	Active	Replica	-	alinkserve...	1/1 Tasks running	Completed View
alinkserveradmin-service-8001	<code>arn:aws:ecs:eu-v...</code>	Active	Replica	-	alinkserve...	1/1 Tasks running	Completed View

Any number of ALinkServer „worker“ services `alinkserver-service-8000` can be started to accomodate for SAP data and document archiving load (most probably your AWS Administrator would configure an Application Load Balancer to dynamically distribute the load between multiple running task instances).

Important: Due to current implementation limitation, please, ensure that only one task of `alinkserveradmin-service-8001` is started in the ECS cluster. Admin service is only used for ALinkServer configuration, ALinkServer throughput monitoring and AWS metering and thus a single task is sufficient.

Known product limitations

Single threaded admin server

ALinkServer Admin is using Flask Login libraries to manage administrator user session and collect information from ALinkServer instances. This library stores details about authenticated user in current process of the running application. Due to this limitation it is only possible to start the Admin Server with one thread which is the default option configured in the Admin container.

Signature verification API

ALinkServer unpacks each SAP ArchiveLink request signature to make sure the request hasn't been modified before it reached the server. Current signature verification implementation successfully decrypts the signature details and compares it with the provided URL parameters but the final „verify signature API“ call fails. ALinkServer notifies the user about this happening in the log but, given the fact that the signature payload was checked, ALinkServer continues to process the request.

Q&A

Are there any document size limits?

Please limit document size to approximately 100MB per file. ALinkServer doesn't even temporarily store any SAP request content in the container file system and only processes content objects directly in-memory and therefore the request content size needs to be within reasonable boundaries.

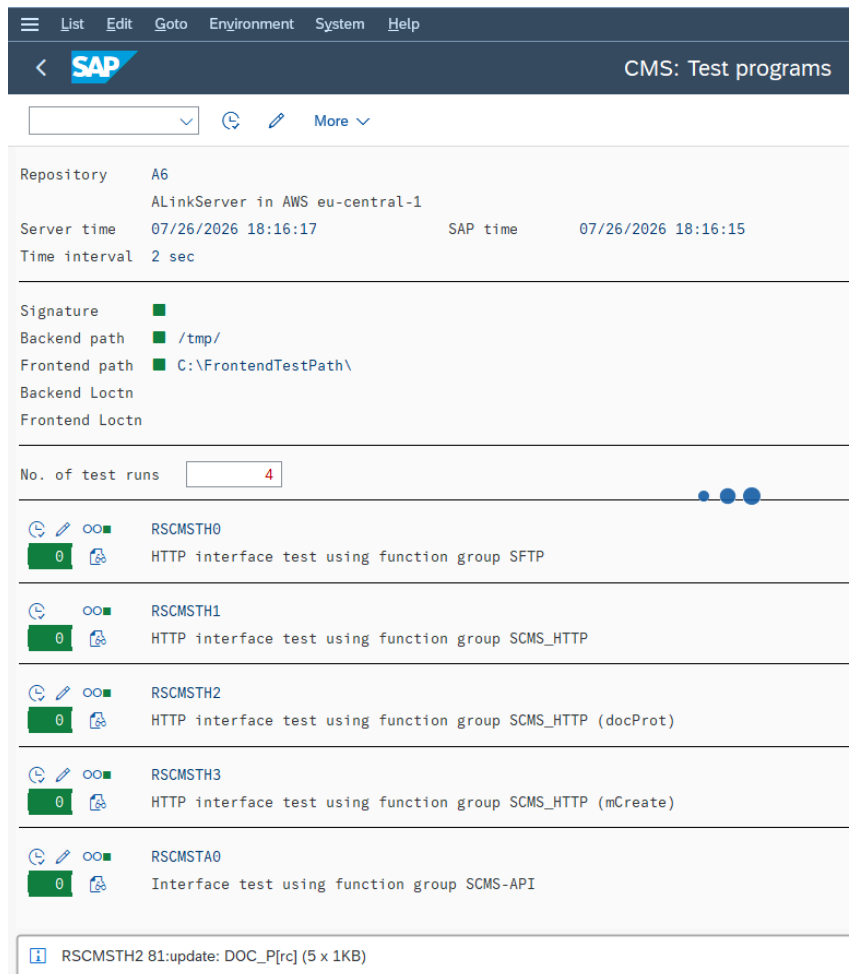
Does ALinkServer support HTTPS/terminate HTTPS connections? Can it communicate with SAP over HTTPS?

Use AWS technologies to configure HTTPS communication between the SAP instance and ALinkServer. An example configuration could be:

1. Request SSL certificate in AWS Certificate Manager
2. Create an Application Load Balancer with Target Group
3. Update ALinkServer ECS Service to attach to the Target Group
4. Adjust Security Groups

Is ALinkServer SAP certified?

While SAP certification is planned it was not our priority for an initial solution release. Solution was extensively tested using built-in SAP ArchiveLink test reports both for compliance with SAP ArchiveLink specification as well as for long term stability. See below an example of running report RSCMST against ALinkServer deployed in AWS:



Can we trust that Sol4Cloud will guarantee long term availability of the ALinkServer product and thus access to our important SAP archived data and documents?

We understand that entrusting your important corporate data to “unknown startup” can be considered high risk. We are committed to continuing the support and development of the solution (in fact next versions of ALinkServer for Microsoft Azure and Google GCP are in planning). If the solution wouldn't prove economically viable for Sol4Cloud in long term we'd publish our development GitHub repositories to ensure that our customers will have access to the ALinkServer code and can run it without limitations.