CRQ000001902477_Mendix Application Migration from Mendix Cloud to AWS Cloud

Summary

Currently, there are 8 to 9 Mendix applications operational on the Mendix Cloud, utilizing licensed nodes with higher costs compared to AWS-hosted Mendix applications. To optimize costs, migrating these Mendix Cloud-hosted applications to AWS will consolidate all Mendix applications onto a single platform.

Below are the steps to migrate the application from Mendix cloud to AWS cloud.

1. Download DB backup and Files backup from Mendix Cloud

2. Create Parameters in AWS

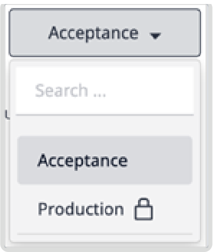
3. Build the mendix code

4. Deploy the application

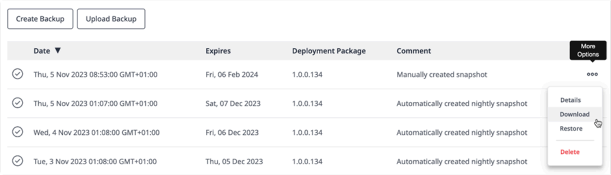
5. Restore S3 files and DB backup

1. Download DB backup and Files backup from Mendix Cloud

1. Go to the Developer Portal.
2. Open the Global Navigation menu in the upper-left corner. Then click **Deployment** (or **Deployment** > **Public Cloud**).
3. On the node that you want to download the backup from, click **Environments**.
4. In the navigation pane, click **Backups**.
5. Select the environment from which you want to download the backup.

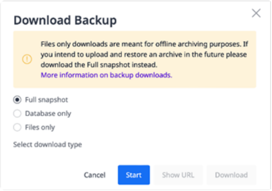


6. If you want to create a backup first, click **Create Backup**.
7. On the backup you want to download, click **More Options** (). Select **Download** from the drop-down list.



Date ▼	Expires	Deployment Package	Comment
Thu, 5 Nov 2023 08:53:00 GMT+01:00	Fri, 06 Feb 2024	1.0.0.134	Manually created snapshot
Thu, 5 Nov 2023 01:07:00 GMT+01:00	Sat, 07 Dec 2023	1.0.0.134	Automatically created nightly snapshot
Wed, 4 Nov 2023 01:08:00 GMT+01:00	Fri, 06 Dec 2023	1.0.0.134	Automatically created nightly snapshot
Tue, 3 Nov 2023 01:08:00 GMT+01:00	Thu, 05 Dec 2023	1.0.0.134	Automatically created nightly snapshot

8. Select the backup type: **Full snapshot**, **Database only**, or **Files only**. Then click **Start**.



Download Backup

Files only downloads are meant for offline archiving purposes. If you intend to upload and restore an archive in the future please download the Full snapshot instead.
More information on backup downloads.

● Full snapshot
○ Database only
○ Files only

Select download type

2. Create Parameters in AWS

After downloading the database and files backup, we should proceed to create a new pipeline on AWS Cloud as outlined below.

1. **Create below mandatory parameters for piepeline on AWS DEV environment**

Replace "Carveoutcredit" with the application name.

You can check or validate the branch property through the developer portal.

Update the revision as the latest value.

Lastly, fill the URL property with the SVN/GIT link from the developer portal.

/dsm/mendix/apps/carveoutcredit/vcs/branch
/dsm/mendix/apps/carveoutcredit/vcs/revision
/dsm/mendix/apps/carveoutcredit/vcs/url

2. **Create below parameters for environment (DEV, QA & PROD each environment separately)**

   You can verify the group name from the Mendix portal.

   For the http-headers parameter value, you can use the default set of http-headers values.

   The bucket_name refers to the S3 bucket name and should follow the format mentioned below, where you replace the application name and environment name accordingly:

   Format: dsm-mx-appname-environment-eu-west-1

   For example: dsm-mx-carveoutdici-dt-eu-west-1

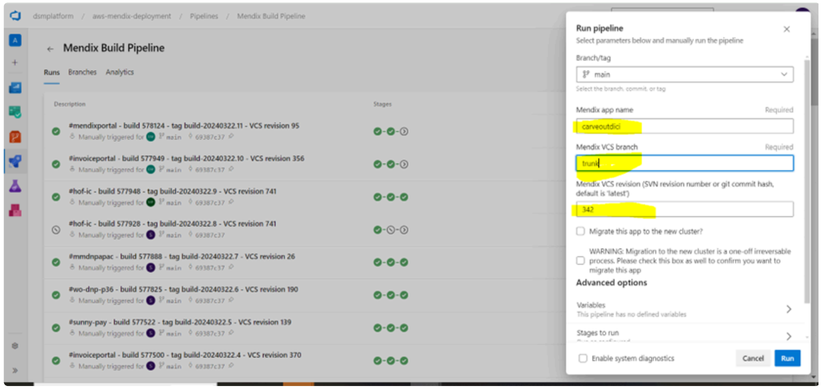
/dsm/mendix/apps/carveoutcredit/config/ingress/group_name
/dsm/mendix/apps/carveoutcredit/config/ingress/http_headers
/dsm/mendix/apps/carveoutcredit/config/aws/bucket_name

3. Build the mendix code

After creating the parameters, proceed to build the code using the build pipeline.

1. Click "Run Pipeline" to create a new build pipeline.
2. Enter the Mendix application name in the "Mendix App Name" field.
3. Specify the branch name in the "Mendix VCS Branch Name" field.
4. Enter the revision number, which is the commit ID you wish to deploy, as suggested by the developer.

All fields are displayed in the snapshot below. Ensure that you fill them out accordingly.


dsmplatform / aws-mendix-deployment / Pipelines / Mendix Build Pipeline
Mendix Build Pipeline
Runs
Branches
Analytics
Cancel
Run

Description	Stages
#mendixportal - build 578124 - tag build-20240322.11 - VCS revision 95 Manually triggered for main 69387c37	✓-✓-○
#invoiceportal - build 577949 - tag build-20240322.10 - VCS revision 356 Manually triggered for main 69387c37	✓-✓-○
#hof-ic - build 577948 - tag build-20240322.9 - VCS revision 741 Manually triggered for main 69387c37	✓-✓-✓
#hof-ic - build 577928 - tag build-20240322.8 - VCS revision 741 Manually triggered for main 69387c37	✓-⊘-○
#mmdnpapac - build 577888 - tag build-20240322.7 - VCS revision 26 Manually triggered for main 69387c37	✓-✓-✓
#wo-dnp-p36 - build 577825 - tag build-20240322.6 - VCS revision 190 Manually triggered for main 69387c37	✓-✓-✓
#sunny-pay - build 577522 - tag build-20240322.5 - VCS revision 139 Manually triggered for main 69387c37	✓-✓-✓
#invoiceportal - build 577500 - tag build-20240322.4 - VCS revision 370 Manually triggered for main 69387c37	✓-✓-✓

Run pipeline
Select parameters below and manually run the pipeline

Branch/tag: main
Select the branch, commit, or tag

Mendix app name (Required): carveoutdici

Mendix VCS branch (Required): trunk

Mendix VCS revision (SVN revision number or git commit hash, default is 'latest'): 342

☐ Migrate this app to the new cluster?

☐ WARNING: Migration to the new cluster is a one-off irreversable process. Please check this box as well to confirm you want to migrate this app

Advanced options

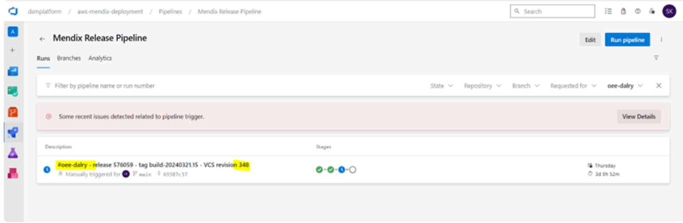
Variables
This pipeline has no defined variables

Stages to run

☐ Enable system diagnostics

4. Deploy the application

Once the build is successfully completed, proceed to the release pipeline to deploy the application. The release pipeline will be automatically generated once the build is complete and will automatically deploy in the DEV environment. Approval is required for the QA and PROD environments.



Filter by pipeline name or run number | State | Repository | Branch | Requested for | oee-dalry

Some recent issues detected related to pipeline trigger.

Description	Stages	
#oee-dalry - release 576059 - tag build-20240321.15 - VCS revision 348 Manually triggered for main 69387c37	✓-✓-●-○	Thursday 3d 0h 52m

You can validate the pipeline using the application name, build ID, and revision ID as the expected release pipeline is generated through the build process. Once the release is completed, validate whether the pods' status is running properly or not through Kubernetes. If the pods are running properly, attempt to log in using the admin ID and password on the portal.

5. Restore S3 files and DB backup

For restoring the database backup of the Mendix application on AWS Cloud, please refer to the following Confluence page link

Link

To Restore S3 files follow below steps

Initially, extract the .tar.gz S3 file backup downloaded from the Mendix cloud using the command provided below.

```
tar xvzf <example.tar.gz> -C <directory> --strip-component 2
```

1. Copy your required AWS account access, secret key, and token and paste them in the kubernete server to access AWS resources programmatically for uploading S3 files to the Dev AWS S3 bucket.

```
export AWS_ACCESS_KEY_ID="***************"
export AWS_SECRET_ACCESS_KEY="**********************"
export AWS_SESSION_TOKEN="***********************************************************************"
```

2. Use the command to upload the S3 files from the EC2 instance to the Dev AWS S3 bucket.

```
aws s3 sync /home/ec2-user/exampledirectoryname/ s3://dsm-mx-dicicarveout-dt-eu-west-1/
```

3. Once uploaded, use the command to check the file count and size to compare with the original and carve-out applications' data.

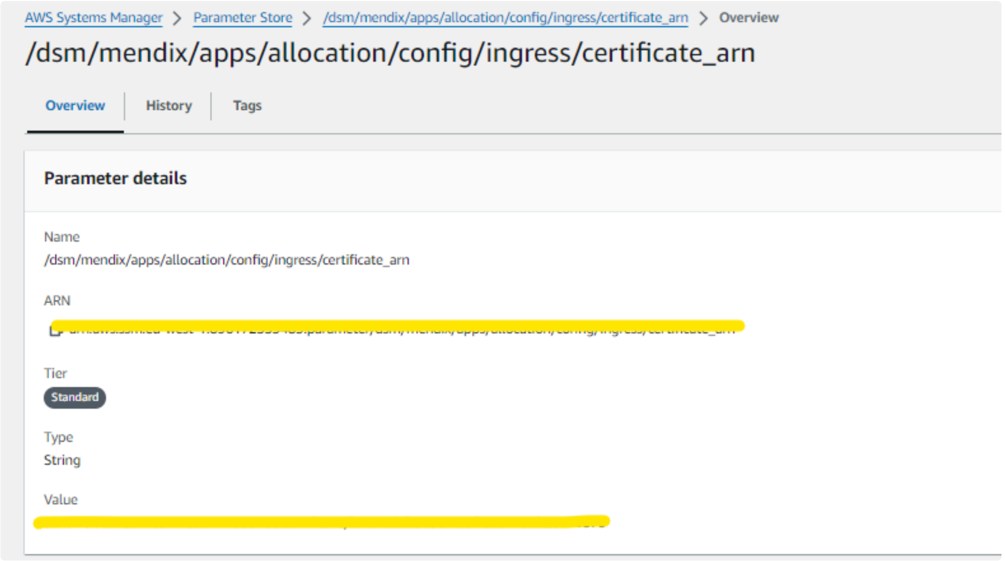
```
aws s3 ls --summarize --human-readable --recursive s3://dsm-mx-dicicarveout-prd-eu-west-1/
```

Once the application up and run, inform to the developer to validate the application.

To migrate a custom domain from Mendix to AWS Cloud, follow these steps:

- Obtain the custom domain certificate credentials from developers/key users and import the certificate into AWS Certificate Manager (ACM)
- After importing the custom domain certificate into ACM, copy the custom domain's ARN and append it with a comma to the existing default domain certificate parameter for the specific application:

  ```
  /dsm/mendix/apps/<app Name>/config/ingress/certificate_arn
  ```



AWS Systems Manager > Parameter Store > /dsm/mendix/apps/allocation/config/ingress/certificate_arn > Overview

/dsm/mendix/apps/allocation/config/ingress/certificate_arn

Parameter details

Name
/dsm/mendix/apps/allocation/config/ingress/certificate_arn

ARN
[redacted]

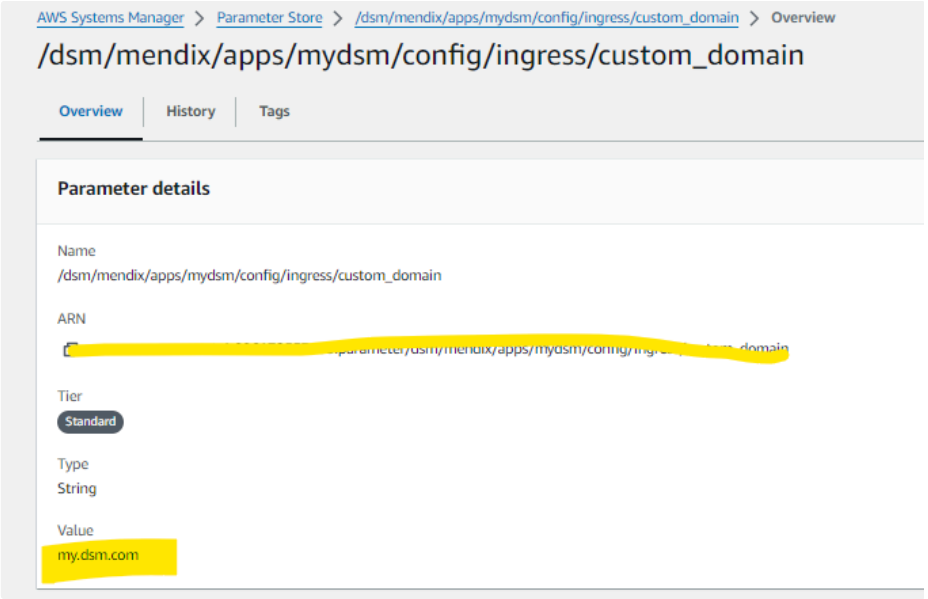
Tier
Standard

Type
String

Value
[redacted]

- Once the custom domain's ARN is appended to the default domain certificate ARN, create a custom domain parameter for the application and add the custom domain:

```
/dsm/mendix/apps/<App Name>/config/ingress/custom_domain
```



AWS Systems Manager > Parameter Store > /dsm/mendix/apps/mydsm/config/ingress/custom_domain > Overview

/dsm/mendix/apps/mydsm/config/ingress/custom_domain

Parameter details

Name
/dsm/mendix/apps/mydsm/config/ingress/custom_domain

ARN
[redacted]

Tier
Standard

Type
String

Value
my.dsm.com

- Remove the custom domain configuration from Mendix Cloud to initiate the actual custom domain migration.
- Redeploy the application on AWS Cloud and verify the status of the pods.
- After ensuring the pods are up and running with the custom domain on AWS, send an email to CSC Global organization (domainsoncall@cscglobal.com) to request changes to the CNAME records in the hosted zone.
- Obtain approval from kripen.verma@dsm-firmenich.com before proceeding with the actual migration. Sample request for changing the CNAME records:
  Existing Mendix record:

my.dsm.com. 86400 IN CNAME my.dsm.com.cname.mendix.net.

New AWS Record to be changed:

my.dsm.com. 300 IN CNAME mydsm.mx.dsm.app

- Once CSC Global changes the CNAME records, verify if the URL is functioning correctly.
- Initially, the custom domain will work on the public network. To enable it to function with DSM VPN, contact the internal DSM VPN DNS server team to adjust the TTL (time to live) seconds for the specific application to update the latest DNS records
- After making these adjustments, the custom domain will work on the DSM VPN network.