

# Oracle® Application Integration Architecture Cloud Native Deployment Guide



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# Contents

## About This Content

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### 1 Overview of the AIA Cloud Native Deployment

---

About AIA and the AIA Cloud Native Deployment	1
AIA Cloud Native Architecture	2
About the AIA Cloud Native Toolkit	2
About Helm Charts and Overrides	3

### 2 Prerequisites for Your AIA Cloud Native Deployment

---

Downloading SOA Cloud Native	1
Downloading and Installing the AIA Cloud Native Toolkit	1
Preparing Your Environment	1

### 3 Creating AIA Cloud Native Images

---

Prerequisites for Creating AIA Cloud Native Images	1
Configuring an AIA Cloud Native Image	1
Creating an AIA Cloud Native Image	2

### 4 Deploying AIA Cloud Native

---

Deploying SOA Cloud Native	1
Creating PV-PVCs	2
Updating the Oracle SOA Suite Domain	3

### 5 Configuring and Deploying Pre-built Integrations

---

Configuring AIA PIP Credentials	1
Configuring the BRM JCA Adapter	3
Deploying the BRM JCA Adapter	3
Configuring Pre-built Integrations	5

Deploying Pre-built Integrations	6
----------------------------------	---

## 6 Performing Post-deployment Tasks

---

Integrating Applications with AIA Cloud Native	1
Integrating Siebel Cloud Native	1
Integrating BRM Cloud Native	7
Integrating OSM Cloud Native	8
Performing AABC Post-deployment Tasks	12
Deploying Custom Components	14
Deploying Custom AIA Artifacts	14
Deploying AIA Shipped Native Artifacts and Non-native Artifacts	15
Deploying Modified AIA-shipped Artifacts	15
Deploying New or Custom Built Artifacts	16
Undeploying Services	17
Installing SSL Certificates	18
Updating Files in AIA MDS	19
Validating the AIA Cloud Native Deployment	20

## 7 Managing Your Cloud Native Deployment

---

Scaling the AIA Application Cluster	1
Configuring Dynamic Autoscaling	1
Restarting the AIA Cloud Native Instance	1
Deleting the AIA Cloud Native Instance	1
Monitoring the AIA Cloud Native Domain and Publishing Logs	2
Patching and Upgrading Your AIA Cloud Native Deployment	3
Troubleshooting Issues	3
Generating a Diagnostic Report	8

## 8 Configuring Parameters in Helm Charts

---

Global Parameters	1
Parameters for AIA PV-PVC	2
Parameters for AIA PIPs	2
Parameters for AIA Certificates	4
Parameters for AIA PIPs Credentials	5

## 9 Upgrading to AIA Cloud Native

---

About Upgrading to AIA Cloud Native	1
Performing Pre-Upgrade Tasks	1

Performing the Upgrade	2
Performing Post-Upgrade Tasks	2
Setting JVM Parameters for Siebel CRM	2
Migrating Custom Artifacts	3
Migrating Database Tables	5

## 10 Securing Your AIA Cloud Native Deployment

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# About This Content

This document describes how to install and administer Oracle Application Integration Architecture Cloud Native Deployment.

## **Audience**

This document is intended for DevOps administrators and those involved in installing and maintaining Oracle Application Integration Architecture Cloud Native Deployment.

# 1

## Overview of the AIA Cloud Native Deployment

This chapter provides an overview of Oracle Communications Application Integration Architecture (AIA) deployed in a cloud native environment using container images and a Kubernetes cluster.

### About AIA and the AIA Cloud Native Deployment

AIA for Communications is an Oracle Communications Solutions Integration framework that includes pre-built integrations using standard integration patterns, business processes, orchestration logic, and common objectives and services that enable seamless interaction with Oracle Applications.

The packaged integrations provide business and functional flows that map to key business processes in the domain of operations support system and business support systems for a communication service provider.

AIA for Communications includes the following set of pre-built and packaged integrations that can be either licensed as a complete suite or selectively based on your requirements:

- Order to Cash for Siebel CRM Cloud Native
- Order to Cash for Oracle Communication Order and Service Management
- Order to Cash for Oracle Communications Billing and Revenue Management

#### Overview of AIA for Communications Cloud Native Deployment

AIA in a cloud native architecture increases operational efficiency by improving hardware utilization and scaling real-time business events to capture revenue.

The AIA cloud native deployment option combines the features and extensibility of AIA with the agility and efficiency of cloud infrastructure with DevOps aligned.

The key features of AIA cloud native are:

- Container images (Docker, CRI-O), orchestrated in Kubernetes - production support for AIA-DBE Deployment on Kubernetes
- Install and manage using Helm charts
- Docker files and scripts for development and testing
- Lifecycle management using WebLogic Kubernetes Operator

The integrations interface across the following applications to automate order-to-cash-to care business processes:

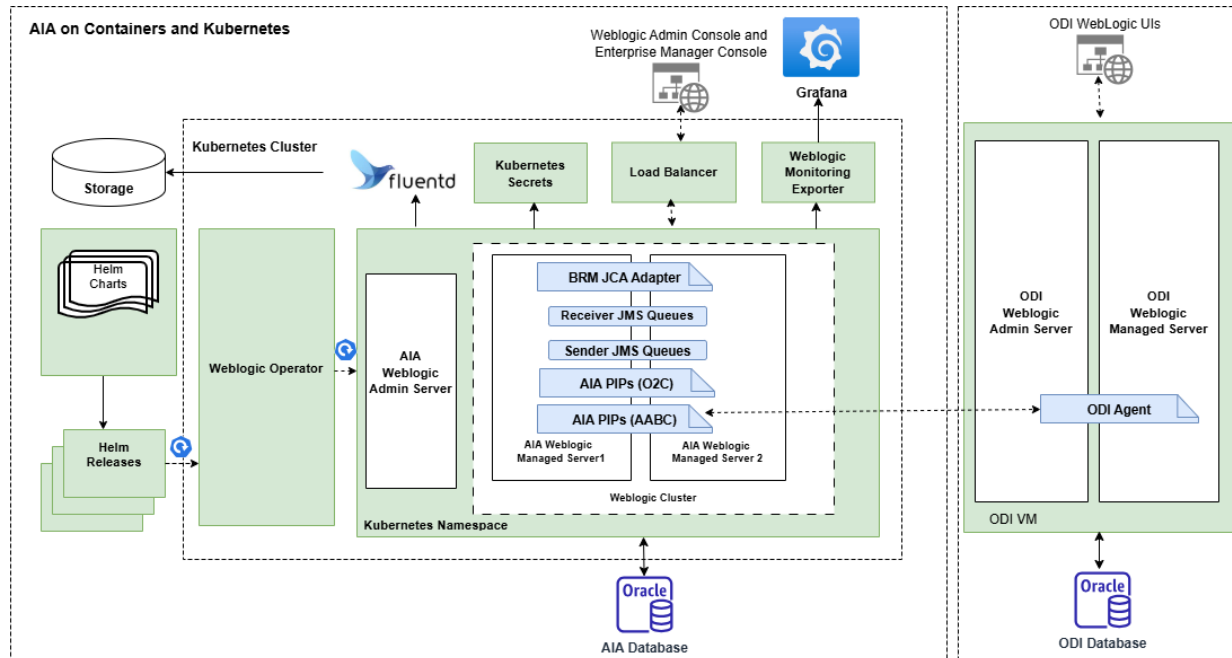
- Siebel CRM Cloud Native
- Oracle Communications Order and Service Management (OSM) Cloud Native
- Oracle Communications Billing and Revenue Management (BRM) Cloud Native

See *AIA Compatibility Matrix* for information about the recommended and supported versions of applications.

# AIA Cloud Native Architecture

The following diagram illustrates AIA on containers and Kubernetes.

**Figure 1-1 AIA Cloud Native Deployment Architecture**



## About the AIA Cloud Native Toolkit

The AIA cloud native toolkit is an archive file that contains the default configuration files, scripts for generating an AIA image and for deploying AIA in a cloud native environment.

The toolkit contains the following artifacts:

- Helm charts and configuration override values yaml files for configuring and managing AIA Order-to-Cash PIP deployment and SOA.
- Scripts for creating and managing secrets for AIA's edge systems, XRef, SOA and RCU.
- Scripts for generating AIA images.
- Scripts for restarting managed servers.
- Scripts for deploying AIA in a cloud native environment.
- Scripts for managing the life cycle of an AIA cloud native instance.

Table 1-1 AIA Cloud Native Toolkit Artifacts

Artifact	Artifact Type	Description
AIA Docker Image	Build	This is the AIA image that you build using the scripts and the Dockerfile provided with the toolkit. <b>Note:</b> Dockerfile is the docker image configuration file to be passed into the docker build command.
SOA Cloud Native Docker Image	Build	This is the SOA cloud native CPU image that is later than April 2025 that you pull before building the AIA image.
Secrets	Deployment	These are Kubernetes secrets used to create credentials and SSL certificates for systems.
Helm charts	Deployment	These are the charts used for other configuration parameters and sizing. The domain is static, as recommended by SOA. Hence, the maximum number of servers cannot be changed after the deployment, but they can be shut down and brought up.
Build scripts	Build	These are scripts used at build-time.
Deployment scripts	Deployment	These are scripts used to deploy the AIA artifacts, custom artifacts, and other artifacts.
PV/PVC	Deployment	This is the domain on Persistent Volume (PV) model (as recommended by SOA) that AIA cloud native uses. A persistent volume (PV) is a piece of storage in the Kubernetes cluster, while a persistent volume claim (PVC) is a request for storage.
Config Map	Deployment	This contains the deployable custom artifacts such as custom composites. The deployment job pods are configured to use these artifacts.
Scripts	Deployment	These are the scripts for restarting the managed servers (WebLogic Operator deployed) in the cloud native environment. You update and run the python script, which invokes WKO-based shell scripts to restart the servers.

## About Helm Charts and Overrides

You use Helm charts for the following tasks:

- For managing Kubernetes
- For defining, updating, deploying, and managing versions
- For managing release history
- For customizing values and templates

The AIA cloud native toolkit contains the following charts:

- **aia-comms-pv-pvc:** This chart creates AIA PV/PVCs and service accounts.
- **aia-comms-deploy-aiapip:** This chart deploys AIA Foundation Pack and AIA Pre-integrated Packs (PIPs) in SOA and WebLogic servers.
- **aia-comms-certs:** This chart manages SSL trust certificates of Siebel and OSM in SOA and WebLogic servers.

The charts pick the customized values defined in the custom **values.yaml** configuration file and map them to the respective Kubernetes yaml files defined in the chart's **/template** directory. Each chart can be installed and managed through helm commands.

For details about sizing, see "[Oracle SOA cluster sizing recommendations](#)".

### **About Helm Overrides**

The specification files are consumed in a hierarchical fashion. If a value is found in multiple specification files (layers), the one further up the hierarchy takes precedence. This allows the instance specification to have the final control over its configuration by being able to override a value that is prescribed in either the shape or project specifications. This also allows Oracle to define sealed, base configuration, while still providing you the control over the values used for any specific AIA instance.

The main chart is **aia-comms-chart** within which there are multiple sub charts. The values in the **values.yaml** file are global and accessible to the sub charts.

The instance specification remains the final authority on any values that are found in multiple specification files.

# 2

## Prerequisites for Your AIA Cloud Native Deployment

In preparation for the Oracle AIA cloud native deployment, you must set up and validate prerequisite software. This chapter provides information about planning and setting up the environment for the AIA cloud native deployment. For details about the recommended and supported versions of required and supported software, see *AIA Compatibility Matrix*.

### Downloading SOA Cloud Native

Download the WebLogic Kubernetes Operator and prepare and deploy Oracle SOA Suite domains.

For detailed instructions, see the installation guide for Oracle Fusion Middleware on Kubernetes for Oracle SOA Suite at: <https://oracle.github.io/fmw-kubernetes/soa-domains/installguide/>.

### Downloading and Installing the AIA Cloud Native Toolkit

To download and install the AIA cloud native toolkit:

1. Create an AIA Home directory:

```
mkdir $HOME/AIA_Home
```

2. Run the following command:

```
export AIA_DIR=$HOME/AIA_Home
```

3. Go to the Oracle software delivery website (<https://edelivery.oracle.com/>).
4. Search for and then download the **Oracle Communications Application Integration Architecture 14.0 Cloud Native Toolkit** .zip file to **\$AIA\_DIR** and extract it.
5. Navigate to the home directory and unzip the PIPs by running the following commands:

```
$ cd $AIA_DIR/oc-cn-aia-comms  
$ unzip -j aiapip-14.0.zip comms_home_installer_generic.jar
```

### Preparing Your Environment

Perform the following steps to prepare your environment for deploying AIA cloud native:

1. Set up the code repository to deploy Oracle SOA Suite domains by running the following commands:

**Note**

For each Weblogic Kubernetes Operator (WKO) version, the branches for fmw scripts may change. Confirm the branch for the WKO version before running git clone. For WKO version 4.2.19, use branch `release/25.3.2` in the git clone command.

```
$ cd $AIA_DIR
$ git clone https://github.com/oracle/fmw-kubernetes.git -b release/25.3.2
$ export WORKDIR=$AIA_DIR/fmw-kubernetes/OracleSOASuite/kubernetes
```

Refer to the Oracle SOA Suite documentation available at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/installguide/prepare-your-environment/#set-up-the-code-repository-to-deploy-oracle-soa-suite-domains>.

2. Update and save the **createSOADomain.py** Fusion Middleware script for jar details:

```
$ vi $WORKDIR/create-soa-domain/domain-home-on-pv/common/createSOADomain.py

## Make sure '@@ORACLE_HOME@@/soa/common/templates/wls/
oracle.soa.fp_template.jar' is added to SOA_TEMPLATES section ##
## Ensure to include ',' in the SOA_TEMPLATES ##
## Find below sample ##
    SOA_TEMPLATES = {
        'extensionTemplates' : [
            '@@ORACLE_HOME@@/soa/common/templates/wls/
oracle.soa.refconfig_template.jar',
            '@@ORACLE_HOME@@/oracle_common/common/templates/wls/
oracle.ess.basic_template.jar',
            '@@ORACLE_HOME@@/em/common/templates/wls/
oracle.em_ess_template.jar',
            '@@ORACLE_HOME@@/soa/common/templates/wls/
oracle.soa.fp_template.jar'
        ],
```

# 3

## Creating AIA Cloud Native Images

This chapter describes how to create AIA cloud native images.

### Prerequisites for Creating AIA Cloud Native Images

The prerequisites for creating AIA cloud native images are:

- Ensure that the AIA cloud native toolkit has been downloaded. For instructions, see "[Downloading and Installing the AIA Cloud Native Toolkit](#)".
- Ensure that Oracle SOA suite docker image is available. For details, see the documentation about Oracle Fusion Middleware on Kubernetes on Oracle GitHub at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/installguide/prepare-your-environment/#obtain-the-oracle-soa-suite-docker-image>.

### Configuring an AIA Cloud Native Image

To configure an AIA cloud native image:

1. Update the AIA dockerfile for SOA suite image tag:

```
$ cd $AIA_DIR/oc-cn-aia-comms
$ vi Dockerfile

# Update the base soasuite_cpu image tags as per your requirements and save
#
# Search for and update the following lines for image tags
#
# FROM container-registry.oracle.com/middleware/soasuite_cpu:tag as builder
#
# FROM container-registry.oracle.com/middleware/soasuite_cpu:tag
```

2. Update the domain lifecycle scripts:

#### Note

By default, the AIA cloud native toolkit contains domain lifecycle scripts for WKO 4.0.4. This step is not required for WKO 4.0.4.

```
$ cd $AIA_DIR/oc-cn-aia-comms/scripts/common
$ cp $WORKDIR/domain-lifecycle/helper.sh .
$ cp $WORKDIR/domain-lifecycle/startCluster.sh .
$ cp $WORKDIR/domain-lifecycle/stopCluster.sh .
```

```
$ cp $WORKDIR/domain-lifecycle/startServer.sh .  
$ cp $WORKDIR/domain-lifecycle/stopServer.sh .
```

## Creating an AIA Cloud Native Image

To create an AIA cloud native image, run the Docker build command using the updated Docker file:

```
$ cd $AIA_DIR/oc-cn-aia-comms  
$ docker build --no cache -f Dockerfile -t aia-comms:14.0 .
```

Confirm that the AIA image is created and available:

```
$ docker images | grep aia-comms
```

This Dockerfile installs *kubectl* inside the AIA image at location */u01/oracle/*.

# 4

## Deploying AIA Cloud Native

This chapter provides information about deploying AIA cloud native. AIA cloud native deployment leverages the SOA cloud native deployment scripts and uses Helm charts for configuration management.

The configuration details for AIA cloud native are the same as the configuration of standard deployments such as connection details, credentials, and XRef details of edge applications.

Along with AIA configuration details, SOA configuration details, such as RCU schema, domain parameters and other configurations are also managed by Helm charts. Helm charts are organized in a hierarchy and a parent chart holds the references to several child charts for better management.

## Deploying SOA Cloud Native

Deploy SOA cloud native as per the instructions provided in the Oracle SOA Suite documentation.

Deploying SOA cloud native has the following tasks:

- **Preparing the environment**

For instructions, refer to the information at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/installguide/prepare-your-environment/>.

Perform all required steps and as per your requirement. For example, the following are some steps you perform based on your requirements:

- Installing WebLogic Operator:
  1. Get dependent images. Refer to the information at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/installguide/prepare-your-environment/#get-dependent-images>.
  2. Install the WebLogic Kubernetes Operator. Refer to the information at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/installguide/prepare-your-environment/#install-the-weblogic-kubernetes-operator>.
- Preparing the environment for Oracle SOA Suite domains:
  1. Create a namespace. Refer to the information at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/installguide/prepare-your-environment/#create-a-namespace-for-an-oracle-soa-suite-domain>.
  2. Create a persistent storage. Refer to the information at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/installguide/prepare-your-environment/#create-a-persistent-storage-for-an-oracle-soa-suite-domain>.
  3. Create a Kubernetes secret with domain credentials. Refer to the information at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/installguide/prepare-your-environment/#create-a-kubernetes-secret-with-domain-credentials>.

4. Create a Kubernetes secret with the RCU credentials. Refer to the information at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/installguide/prepare-your-environment/#create-a-kubernetes-secret-with-the-rcu-credentials>.
5. Configure access to your database. Refer to the information at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/installguide/prepare-your-environment/#configure-access-to-your-database>.
6. Run the Repository Creation Utility to set up your database schemas (create schemas).

#### Note

Use the AIA cloud native image with the utility (command).

Refer to the information at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/installguide/prepare-your-environment/#run-the-repository-creation-utility-to-set-up-your-database-schemas>.

- **Creating the SOA domain**

#### Note

Use the AIA cloud native image for deploying the SOA domain. Also, ensure that you include the `-Dweblogic.rjvm.allowUnknownHost=true` parameter. For more information, refer to the WKO documentation on Oracle GitHub at: <https://oracle.github.io/weblogic-kubernetes-operator/managing-domains/accessing-the-domain/external-clients/#enabling-unknown-host-access>.

Refer to the instructions at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/installguide/create-soa-domains/>.

#### Note

For productionModeEnabled domain deployments, set `secureEnabled` to `false` until AIA is deployed. This can be enabled after the deployment. For more information, see: <https://github.com/oracle/fmw-kubernetes/blob/master/OracleSOASuite/kubernetes/domain-upgrade/README.md#enable-secure-domain-post-upgrade>

- **Configuring a load balancer**

Configure a load balancer as per your requirement. Refer to the instructions at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/adminguide/configure-load-balancer/>.

## Creating PV-PVCs

You can create AIA PV-PVCs by using the **values.yaml** files.

To create AIA PV-PVCs:

1. Update the following **values.yaml** files as per your requirement:

- **\$AIA\_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/values.yaml**. See "[Global Parameters](#)" for details about the parameters.
  - **\$AIA\_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-pv-pvc/values.yaml**. See "[Parameters for AIA PV-PVC](#)" for details about the parameters.
2. Run the following command to install the Helm chart:

```
$ cd $AIA_DIR/oc-cn-aia-comms/helm-charts/  
$ helm install aia-comms-pv-pvc \  
  aia-comms-chart/charts/aia-comms-pv-pvc/ \  
  --namespace namespace \  
  --values ./aia-comms-chart/values.yaml \  
  --values ./aia-comms-chart/charts/aia-comms-pv-pvc/values.yaml
```

This creates the following:

- Kubernetes PV PVC
  - Kubernetes job **aia-comms-create-home-job** to populate AIA PV
  - Service Account with name *domain\_name*-cluster-kubectl
  - ClusterRole of name *domain\_name*-access-pod-cluster-role
  - RoleBinding of name *domain\_name*-access-pod-role-binding
3. Wait till the **aia-comms-create-home-job** job completes.

```
$ kubectl wait --for=condition=complete job.batch/aia-comms-create-home-  
job -n namespace
```

Alternatively, you can check the status of the Kubernetes job or pod by running the following commands:

```
$ kubectl get pods -n namespace  
$ kubectl get jobs -n namespace
```

## Updating the Oracle SOA Suite Domain

To update the Oracle SOA Suite domain with the AIA PV:

1. Stop the Oracle SOA Suite domain:

```
$ cd $AIA_DIR/fmw-kubernetes/OracleSOASuite/kubernetes/domain-lifecycle/  
$ sh stopDomain.sh -d domain -n namespace -v
```

(Optional. This does not add extra time.) To get more information on the shutdown process, you can run:

```
$ cd $AIA_DIR/oc-cn-aia-comms/scripts/common  
$ sh waitForCluster.sh -a shutdown -d domain -n namespace
```

Confirm all servers are down.

2. Do any one of the following to update the AIA PV with domain:

- Run the following AIA cloud native scripts:

```
$ cd $AIA_DIR/oc-cn-aia-comms/scripts
# Remove any existing domain.yaml file from the folder
$ rm domain.yaml
$ sh register-AIAPV.sh \
  -n namespace \
  -d domain_name \
  -c cluster_name \
  -w SOA_PVC_name \
  -p AIA_PVC_name \
  -f $WORKDIR/create-soa-domain/domain-home-on-pv/path_to_output-
directory/weblogic-domains/domainUID/domain.yaml
```

This script does the following:

- Appends the volumes and volumeMounts with the AIA PVC details to the Oracle SOA Suite domain
- Runs the `kubectl apply` operation
- Waits till all the managed servers are available
- Update manually:

```
$ cd $WORKDIR/create-soa-domain/domain-home-on-pv/
$ vi path_to_output-directory/weblogic-domains/domainUID/domain.yaml
# Take a backup of YAML file before making any changes.
#
# Append volumes in volumes section
#   - name: aia-comms-shared-storage-volume
#     persistentVolumeClaim:
#       claimName: AIA_PVC_name

# Append volumeMounts in volumeMounts section
# Do not change the mount path here.
#   - mountPath: /u01/shared
#     name: aia-comms-shared-storage-volume

# Apply the new changes
$ kubectl apply -f path_to_output-directory/weblogic-domains/domainUID/
domain.yaml
```

Wait till all the managed servers are up.

# 5

## Configuring and Deploying Pre-built Integrations

This chapter provides instructions for configuring and deploying the AIA pre-built integrations.

### Configuring AIA PIP Credentials

Deployment of AIA PIPs requires Kubernetes secrets for OSM, BRM, Siebel, ODI, Xref, and SOA. Do not create a Kubernetes secret if you are not configuring OSM, Siebel, ODI or BRM with AIA.

To configure AIA PIP credentials, navigate to the **\$AIA\_DIR/oc-cn-aia-comms/scripts** folder and then run the **create-aiapip-credentials.sh** script with updated values for each component. See "[Parameters for AIA PIPs Credentials](#)" for details about the parameters.

- (Optional) For OSM, run the script with the following parameters:

```
$ cd $AIA_DIR/oc-cn-aia-comms/scripts/  
$ sh create-aiapip-credentials.sh \  
  -c osm \  
  -n namespace \  
  -d domain_name \  
  -OSM_CFS_WL_JMS_QUEUE_ACCESS_USER username \  
  -OSM_CFS_WL_JMS_QUEUE_ACCESS_PSWD password \  
  -OSM_PROV_WL_JMS_QUEUE_ACCESS_USER username \  
  -OSM_PROV_WL_JMS_QUEUE_ACCESS_PSWD password \  
  -OSM_CFS_ADMIN_USER username \  
  -OSM_CFS_ADMIN_PSWD password \  
  -OSM_PROV_ADMIN_USER username \  
  -OSM_PROV_ADMIN_PSWD password
```

- (Optional) For BRM, run the script with the following parameters:

```
$ cd $AIA_DIR/oc-cn-aia-comms/scripts/  
$ sh create-aiapip-credentials.sh \  
  -c brm \  
  -n namespace \  
  -d domain_name \  
  -BRM_AQ_USER username \  
  -BRM_AQ_PSWD password
```

- (Optional) For Siebel, run the script with the following parameters:

```
$ cd $AIA_DIR/oc-cn-aia-comms/scripts/  
$ sh create-aiapip-credentials.sh \  
  -c siebel \  
  -n namespace \  
  -d domain_name \  
  -d domain_name \  
  -d domain_name
```

```
-SBL_EAI_USER username \  
-SBL_EAI_PSWD password \  
-SBL_DB_USER username \  
-SBL_DB_PSWD password
```

- (Optional) For ODI, run the script with the following parameters:

```
$ cd $AIA_DIR/oc-cn-aia-comms/scripts/  
$ sh create-aiapip-credentials.sh \  
-c odi \  
-n namespace \  
-d domain_name \  
-ODI_USER username \  
-ODI_PASSWORD password \  
-ODI_DB_USER username \  
-ODI_DB_PSWD password
```

- For Xref, run the script with the following parameters:

#### Note

Ensure that you specify a working DB SYS username and password for the Xref scripts.

```
$ cd $AIA_DIR/oc-cn-aia-comms/scripts/  
$ sh create-aiapip-credentials.sh \  
-c xref \  
-n namespace \  
-d domain_name \  
-XREF_SCHEMA_NAME schema_name \  
-XREF_SCHEMA_PASSWORD schema_password \  
-XREF_SCHEMA_SYS_USER sys_user \  
-XREF_SCHEMA_SYS_PASSWORD sys_password
```

- For SOA, run the script with the following parameters:

#### Note

Ensure that you specify a working DB SYS username and password for the SOA scripts.

```
$ cd $AIA_DIR/oc-cn-aia-comms/scripts/  
$ sh create-aiapip-credentials.sh \  
-c soa \  
-n namespace \  
-d domain_name \  
-SOA_WL_ADMIN_USER username \  
-SOA_WL_ADMIN_PASSWORD password \  
-SOA_DB_USER username \  
-SOA_DB_PASSWORD password \  

```

```
-SOA_DB_SYS_USER username \  
-SOA_DB_SYS_PASSWORD password
```

## Configuring the BRM JCA Adapter

### Note

For more information, see Integrating with JCA Resource Adapter in *Oracle Communications Billing and Revenue Management (BRM) Cloud Native System Administrator's Guide*.

To configure BRM JCA Adapter:

1. Update the **ra.xml** and **weblogic-ra.xml** files in the META-INF directory. For more information, see "[Deploying and Configuring JCA Resource Adapter on Oracle WebLogic Server](#)" in the *BRM JCA Resource Adapter Guide*.
2. Set the following parameters with actual values for a single cluster as shown in the following samples:
  - **ConnectionString:** `ip cm.brmcn 11960`
  - **FailoverConnectionString:** `root.0.0.0.1:password@cm.brmcn:11960`
  - **UserName:** `root.0.0.0.1`
  - **Password:** `password`
  - **SslWalletLocation:** `/u01/shared/brm/brm_adapter/wallet`

### Note

This is the location inside SOA server pods. Ensure that the path in **SslWalletLocation** is correct and exists on PV with correct wallet files downloaded and saved from the CM pods of BRM Cloud Native.

In a multi-cluster scenario, set the values of **ConnectionString** and **FailoverConnectionString** as shown in the following samples:

- **ConnectionString:** `ip 192.0.2.1 31773`
  - **FailoverConnectionString:**  
`root.0.0.0.1:password@192.0.2.1:31773,root.0.0.0.1:password@192.0.2.1:31773`
3. Download wallet files from the CM pod of the BRM cloud native instance and re-package **ra.xml**, **weblogic-ra.xml**, and wallet files into **OracleBRMJCA15Adapter.rar**.
  4. Upload the wallet files to location mentioned in **SslWalletLocation**.

## Deploying the BRM JCA Adapter

You can install BRM JCA Adapter using either WebLogic Remote Console or AIA Helm charts.

### Deploying BRM JCA Adapter using WebLogic Remote Console

To deploy BRM JCA Adapter using WebLogic Remote Console:

1. Log in to WebLogic Remote Console.
2. Go to **Edit Tree**.
3. Go to **Deployments**, then **App Deployments** and then **New**.
4. Update the **Name** to OracleBRMJCA15Adapater.
5. In Targets, select AdminServer and SOA Cluster from Available to Chosen.
6. Do one of the following:
  - If the archive file is present on the host machine, click **Upload**, update **Source** and **Plan**.
  - If the archive file is present on pod or on PV, unselect **Upload**, update **Source Path** and **Plan Path**.
7. Update **On Deployment** to Start Application.
8. Click **Create**.
9. Validate the details on the screen.
10. If you made any changes on this screen, then select **Save**.
11. Click the cart icon.
12. Click **Commit Changes**.

### Deploying BRM JCA Adapter Using AIA Helm Charts

The AIA Helm chart for deploying BRM JCA Adapter requires the following:

- AIA PV
- **OracleBRMJCA15Adapter.rar**.
- **plan.xml**

To deploy BRM JCA Adapter:

1. Update the following **values.yaml** files as per your requirement:
  - **\$AIA\_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/values.yaml**. See "[Global Parameters](#)" for details about the parameters.
  - **\$AIA\_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-install-brm-adapter/values.yaml**.

The following table lists the parameters in the **values.yaml** file.

**Table 5-1 Parameters in the values.yaml file**

Parameter	Description	Default
undeployExistingAdapter	To undeploy existing BRM JCA Adapter with name <b>OracleBRMJCA15Adapter</b> , set this to <b>true</b> . If set to <b>false</b> , jobs will exit after checking if any OracleBRMJCA15Adapter deployment exists.	true
deploymentPath	Path where BRM JCA Adapter archive file is present under the BRM directory, <b>/u01/shared/brm/brm_adapter</b> .	OracleBRMJCA15Adapter.rar
deployUsingPlan	To deploy using plan.xml, set this to <b>true</b> .	false

**Table 5-1 (Cont.) Parameters in the values.yaml file**

Parameter	Description	Default
planPath	If <b>deployUsingPlan</b> is set to <b>true</b> , uncomment this parameter and provide the path where <b>plan.xml</b> exists under the BRM directory, <b>/u01/shared/brm/brm_adapter</b> .	Not applicable

2. Upload the files to AIA PV:

- Upload the **OracleBRMJCA15Adapter.rar** archive file:

```
kubectl cp OracleBRMJCA15Adapter.rar SOA_Admin_Pod:/u01/shared/brm/brm_adapter/ -n SOA_Namespace
```

- (Optional) Upload the **plan.xml** file:

```
# kubectl cp plan.xml SOA_Admin_Pod:/u01/shared/brm/brm_adapter/ -n SOA_Namespace
```

3. Deploy BRM JCA Adapter by using the **values.yaml** file:

```
cd $AIA_DIR/oc-cn-aia-comms/helm-charts/

helm install aia-comms-install-brm-adapter \
  aia-comms-chart/charts/aia-comms-install-brm-adapter/ \
  --namespace namespace \
  --values ./aia-comms-chart/values.yaml \
  --values ./aia-comms-chart/charts/aia-comms-install-brm-adapter/
values.yaml
```

This chart restarts the managed servers as required during the installation.

4. Wait till **aia-comms-install-brm-adapter-job** completes before proceeding to the next step.

## Configuring Pre-built Integrations

You can configure the following Oracle Communications pre-built integration options:

- Order to Cash
- Agent-Assisted Billing Care

Run the **aia-comms-config** helm chart to configure pre-build integrations.

This chart requires the following:

- aia-comms-pv-pvc helm chart
- BRM JCA adapter deployed
- All secret credentials
- ODI installed (For AABC, ODI Agent URL should be accessible inside the Kubernetes pods)

**Note**

This chart requires a minimum Java heap size of 4 GB, upto a maximum of 8 GB on the Kubernetes node.

If this configuration is not available in the Kubernetes cluster, update the templates YAML file as follows:

```
$ vi $AIA_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-deploy-aiapip/charts/aia-comms-config/templates/aia-comms-execute-runconfig-job.yaml
```

```
# Update the value for USER_MEM_ARGS environment variable
# "-Djava.security.egd=file:/dev/./urandom -Xmsinitial_heap_size -Xmxmax_heap_size "
# -Xmsinitial_heap_size is the initial size of the heap.
# -Xmxmax_heap_size is the maximum size of the heap.
```

To configure pre-built integrations:

1. Update the following **values.yaml** files as per your requirement:
  - **\$AIA\_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/values.yaml**. See "[Global Parameters](#)" for details about the parameters.
  - **\$AIA\_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-deploy-aiapip/values.yaml**. See "[Parameters for AIA PIPs](#)" for details about the parameters.
2. Run the following command to install the Helm chart:

**Note**

This chart requires all of the configured managed servers up and running.

```
$ cd $AIA_DIR/oc-cn-aia-comms/helm-charts/
$ helm install aia-comms-config \
  aia-comms-chart/charts/aia-comms-deploy-aiapip/charts/aia-comms-config/ \
  --namespace namespace \
  --values ./aia-comms-chart/values.yaml \
  --values ./aia-comms-chart/charts/aia-comms-deploy-aiapip/values.yaml
```

This chart restarts the managed servers as required during the installation.

3. Wait till **aia-comms-execute-runconfig-job** completes before proceeding to the next step. Depending on the configuration, this job may take hour(s) for completion.

If you encounter any errors during the deployment, refer to the "Redeploying Pre-built Integrations Configurations Helm Chart" section in "[Troubleshooting Issues](#)".

## Deploying Pre-built Integrations

After configuring the pre-built integrations, you must deploy them to the SOA server by using the deployment helm chart **aia-comms-pips**:

This chart requires the following:

- **aia-comms-pv-pvc** helm chart
- BRM JCA adapter deployed
- All secret credentials
- ODI installed (For AABC, the ODI Agent URL should be accessible inside the Kubernetes pods.)
- **aia-comms-config** chart
- Ensure that **RMI JDBC Security** is set to `Compatibility` mode for each managed server. For more details, refer to: <https://docs.oracle.com/en/middleware/fusion-middleware/weblogic-remote-console/administer/configuring-services.html#GUID-4349E9ED-33AE-43F3-A7FC-47017F5EC9BA>

### Note

This chart requires a minimum Java heap size of 4 GB, up to a maximum of 8 GB on the Kubernetes node.  
If this configuration is not available in Kubernetes cluster, update the templates YAML file as follows:

```
$ vi $AIA_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-deploy-aiapip/charts/aia-comms-pip/templates/aia-comms-deploy-aiapip-job.yaml

# Update the value for USER_MEM_ARGS environment variable
# "-Djava.security.egd=file:/dev/./urandom -Xmsinitial_heap_size -Xmxmax_heap_size "
# -Xmsinitial_heap_size is the initial size of the heap.
# -Xmxmax_heap_size is the max size of the heap.
```

To deploy pre-built integrations:

1. Update the following **values.yaml** files as per your requirement:
  - **\$AIA\_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/values.yaml**. See "[Global Parameters](#)" for details about the parameters.
  - **\$AIA\_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-deploy-aiapip/values.yaml**. See "[Parameters for AIA PIPs](#)" for details about the parameters.
2. Run the following command to install the Helm chart:

**Note**

This chart requires all of the configured managed servers up and running.

```
$ cd $AIA_DIR/oc-cn-aia-comms/helm-charts/  
$ helm install aia-comms-deploy-pip \  
  aia-comms-chart/charts/aia-comms-deploy-aiapip/charts/aia-comms-pip/ \  
  --namespace namespace \  
  --values ./aia-comms-chart/values.yaml \  
  --values ./aia-comms-chart/charts/aia-comms-deploy-aiapip/values.yaml
```

This chart restarts the managed servers as required during the installation.

3. Wait till **aia-comms-deploy-aiapip-job** completes before proceeding to the next step.

Depending on the configuration, this job may take hour(s) for completion.

To validate PIPs deployment, see "[Validating the AIA Cloud Native Deployment](#)".

If you encounter any errors during the deployment, refer to the "Redeploying Pre-built Integrations Helm Chart" section in "[Troubleshooting Issues](#)".

# 6

## Performing Post-deployment Tasks

This chapter describes the tasks you perform after deploying AIA cloud native.

### Integrating Applications with AIA Cloud Native

This section describes procedures for integrating the following cloud native applications with AIA cloud native:

- Siebel CRM Cloud Native
- Billing and Revenue Management (BRM) Cloud Native
- Order and Service Management Cloud Native

See *Application Integration Architecture Compatibility Matrix* for supported and recommended versions of these applications.

#### ① Note

Before proceeding with integrating these applications, ensure that all web user interfaces of these applications are available for integration.

### Integrating Siebel Cloud Native

This section provides instructions for integrating Siebel cloud native with AIA cloud native.

To integrate Siebel CRM on Containers with AIA cloud native:

1. Get the following JAR files:
  - From Siebel containers, get **siebel.jar** and **SiebelJI\_enu.jar**.
  - From the WebLogic container, get **wlthint3client.jar**.
2. Log in to the Siebel eCommunication Web UI as SADMIN user and update the JAVA64 profile parameters to include the three JAR files:

#### ① Note

Ensure that the path **/sfs/aiacn/jms** is a persistent store so that the files are retained after the pod restarts.

```
/sfs/aiacn/jms:/sfs/aiacn/jms/Siebel.jar:/sfs/aiacn/jms/  
SiebelJI_enu.jar:/sfs/aiacn/jms/wlthint3client.jar:.
```

3. Relocate the JAR files:
  - a. Connect to the Siebel SES pod.

- b. Create a folder with the same name as what is listed in step 2 (**/sfs/aiacn/jms**), where **/sfs** is a shared persistent folder, and then copy the 3 JAR files into the folder.
4. In the same folder, create the **jndi.properties** file and copy the following text into it:

**Note**

- Ensure that the AIACN t3 channel URL and user name and password are set with the correct values.
- In the below example, Siebel and AIA are in the same cluster and different namespace.

```
java.naming.factory.initial=weblogic.jndi.WLInitialContextFactory
java.naming.provider.url=t3://
soa_cluster_service_name.soa_namespace.svc.cluster.local:soa_service_cluster_port
java.naming.security.principal=soa_console_username
java.naming.security.credentials=soa_console_password
```

5. Copy the three JAR files into the Apache TOMCAT **/siebel/mde/applicationcontainer/lib** folder.
6. Restart Apache TOMCAT server inside Siebel SES pod.
7. Configure Siebel Web Service in Siebel DB.
  - a. Create the `update_siebel_ws.sql` SQL script with the following content:

```
UPDATE S_WS_PORT SET PORT_ADDRESS='jms://jms/aia/
AIA_SALESORDERJMSQUEUE@jms/aia/COMMS_SUBMITORDER_CONSUMER',
PORT_TRANSPORT='JMS' WHERE NAME='SWISubmitOrderPort';
UPDATE S_WS_PORT SET PORT_ADDRESS='jms://jms/aia/
AIA_SALESORDERJMSQUEUE@jms/aia/COMMS_SUBMITORDER_CONSUMER',
PORT_TRANSPORT='JMS' WHERE NAME='SWISubmitOrder_o2cPort';
UPDATE S_WS_PORT SET PORT_ADDRESS='jms://jms/aia/
AIA_SALESORDERJMSQUEUE@jms/aia/COMMS_SUBMITORDER_CONSUMER',
PORT_TRANSPORT='JMS' WHERE NAME='SWISubmitQuote_o2cPort';
UPDATE S_WS_PORT SET PORT_ADDRESS='jms://jms/aia/
AIA_SPECIALRATINGJMSQ@jms/aia/COMMS_SPECIALRATINGLIST_CONSUMER',
PORT_TRANSPORT='JMS' WHERE NAME='SWISpecialRatingListPort';
UPDATE S_WS_PORT SET PORT_ADDRESS='jms://jms/aia/
AIA_CMUREQADJIOJMSQUEUE@jms/aia/COMMS_ADJUSTMENT_CONSUMER',
PORT_TRANSPORT='JMS' WHERE NAME='SWICreateAdjustmentPort';
UPDATE S_WS_PORT SET PORT_ADDRESS='http://
aiacn_clusterService_name.aiacn_kubernetes_name:aiacn_clusterService_port/soa-infra/services/default/AccountBalanceSiebelCommsReqABCS/
AccountBalanceSiebelCommsReqABCS_ep' WHERE
NAME='_soap_AccountBalanceSiebelCommsReqABCS_AccountBalanceSiebelCommsReqABCS';
UPDATE S_WS_PORT SET PORT_ADDRESS='http://
aiacn_clusterService_name.aiacn_kubernetes_name:aiacn_clusterService_port/soa-infra/services/default/AdjustmentSiebelCommsReqABCS/
AdjustmentSiebelCommsReqABCS_ep' WHERE
NAME='AdjustmentSiebelCommsReqABCSPort';
```

```

UPDATE S_WS_PORT SET PORT_ADDRESS='http://
aiacn_clusterService_name.aiacn_kubernetes_name:aiacn_clusterService_port/soa-infra/services/default/InvoiceSiebelCommsReqABCS/
InvoiceSiebelCommsReqABCS_ep' WHERE
NAME='_soap_InvoiceSiebelCommsReqABCS_InvoiceSiebelCommsReqABCS';
UPDATE S_WS_PORT SET PORT_ADDRESS='http://
aiacn_clusterService_name.aiacn_kubernetes_name:aiacn_clusterService_port/soa-infra/services/default/PaymentSiebelCommsReqABCS/
PaymentSiebelCommsReqABCS_ep' WHERE
NAME='PaymentSiebelCommsReqABCSPort';
UPDATE S_WS_PORT SET PORT_ADDRESS='http://
aiacn_clusterService_name.aiacn_kubernetes_name:aiacn_clusterService_port/soa-infra/services/default/UnbilledUsageSiebelCommsReqABCS/
UnbilledUsageSiebelCommsReqABCS_ep' WHERE
NAME='_soap_UnbilledUsageSiebelCommsReqABCS_UnbilledUsageSiebelCommsReqABCS';
UPDATE S_WS_PORT SET PORT_ADDRESS='http://
aiacn_clusterService_name.aiacn_kubernetes_name:aiacn_clusterService_port/soa-infra/services/default/SyncCustomerSiebelEventAggregator/Client'
WHERE NAME='SyncCustomerSiebelEventAggregatorPort';
UPDATE S_WS_PORT SET PORT_ADDRESS='http://
aiacn_clusterService_name.aiacn_kubernetes_name:aiacn_clusterService_port/soa-infra/services/default/UpdateCreditAlertSiebelCommsReqABCSImpl/
UpdateCreditAlertSiebelCommsReqABCSImpl' WHERE
NAME='UpdateCreditAlertSiebelCommsReqABCSImplServicePort';
SET ESCAPE ON;
UPDATE S_WS_PORT SET PORT_ADDRESS='https://Siebel_hostname:Siebel_port/
siebel/eai/enu/start.swe?
SWEExtSource=SecureWebService\&SWEExtCmd=Execute\&WSSOAP=1' WHERE
NAME='SWIOrderUpsert';
UPDATE S_WS_PORT SET PORT_ADDRESS='https://Siebel_hostname:Siebel_port/
siebel/eai/enu/start.swe?
SWEExtSource=SecureWebService\&SWEExtCmd=Execute\&WSSOAP=1' WHERE
NAME='SWI Product Attribute Import';
UPDATE S_WS_PORT SET PORT_ADDRESS='https://Siebel_hostname:Siebel_port/
siebel/eai/enu/start.swe?
SWEExtSource=SecureWebService\&SWEExtCmd=Execute\&WSSOAP=1' WHERE
NAME='SWI Product Class Import';
UPDATE S_WS_PORT SET PORT_ADDRESS='https://Siebel_hostname:Siebel_port/
siebel/eai/enu/start.swe?
SWEExtSource=SecureWebService\&SWEExtCmd=Execute\&WSSOAP=1' WHERE
NAME='SWIProductImport';
UPDATE S_WS_PORT SET PORT_ADDRESS='https://Siebel_hostname:Siebel_port/
siebel/eai/enu/start.swe?
SWEExtSource=SecureWebService\&SWEExtCmd=Execute\&WSSOAP=1' WHERE
NAME='SWIPromotionImport';
UPDATE S_WS_PORT SET PORT_ADDRESS='https://Siebel_hostname:Siebel_port/
siebel/eai/enu/start.swe?
SWEExtSource=SecureWebService\&SWEExtCmd=Execute\&WSSOAP=1' WHERE
NAME='SWIUpsertQuote';
UPDATE S_WS_PORT SET PORT_ADDRESS='https://Siebel_hostname:Siebel_port/
siebel/app/eai/enu?
SWEExtSource=WebService\&SWEExtCmd=Execute\&WSSOAP=1' WHERE
NAME='COMMSCancelOrderPort';
UPDATE S_WS_PORT SET PORT_ADDRESS='https://Siebel_hostname:Siebel_port/
siebel/app/eai/enu?

```

```

SWEExtSource=WebService\&SWEExtCmd=Execute\&WSSOAP=1' WHERE
NAME='COMMSCustomServicesPort';
UPDATE S_WS_PORT SET PORT_ADDRESS='https://Siebel_hostname:Siebel_port/
siebel/app/eai/enu?
SWEExtSource=WebService\&SWEExtCmd=Execute\&WSSOAP=1' WHERE
NAME='COMMSOrderUpsert';
UPDATE S_WS_PORT SET PORT_ADDRESS='https://Siebel_hostname:Siebel_port/
siebel/app/eai/enu?
SWEExtSource=WebService\&SWEExtCmd=Execute\&WSSOAP=1' WHERE
NAME='COMMSSubmitBillingOrder';
commit;
quit;

```

- b. Connect to Siebel DB and run the SQL script with DB user name and the corresponding password.
8. Configure the Siebel repository in Siebel DB:
    - a. Create the `update_siebel_repository.sql` SQL script with the following contents:

```

UPDATE S_SYS_PREF SET VAL='TRUE' WHERE SYS_PREF_CD='Enable AIA Comms';
UPDATE S_SYS_PREF SET VAL='TRUE' WHERE SYS_PREF_CD='Enable AIA MDM';
UPDATE S_SYS_PREF SET VAL='TRUE' WHERE SYS_PREF_CD='Enable AIA Testing';
UPDATE S_SYS_PREF SET VAL='FALSE' WHERE SYS_PREF_CD='Enable AIA
Utility';
UPDATE S_SYS_PREF SET VAL='No' WHERE SYS_PREF_CD='Enable Promotion
Group';
UPDATE S_SYS_PREF SET VAL='/siebel/mde/siebsrvr/temp/OrderBackup/'
WHERE SYS_PREF_CD='AIA Order Backup Path';
UPDATE S_SYS_PREF SET VAL='Yes' WHERE SYS_PREF_CD='Enable Promotion
Group';
UPDATE S_SYS_PREF SET VAL='Y' WHERE SYS_PREF_CD='Promotion Group
Compatibility';
commit;
quit;

```

- b. Connect to Siebel DB and run the SQL script with DB user name and the corresponding password.
9. Configure EAI File Transfer Folder:
    - a. Connect to the SES pod of the Siebel CRM on Containers instance.
    - b. Run the following two Siebel commands respectively and set **EAIFileTransportFolders** with the created **OrderBackup** sub-folder's full path as follows:

**Note**

Ensure that the `/siebel/mde/siebsrvr/temp/OrderBackup` folder is created in the Siebel SES container. If not, then create the folder and proceed with below commands.

```
[aiacn_pod-0:/siebel/mde]#srvrmgr /g cgw-aiacn-0.ses-aiacn.siebel-
cn.svc.cluster.local:2320 /e aiacn /u username /p password /c "change
ent param EAIFileTransportFolders=/siebel/mde/siebsrvr/temp/OrderBackup"
```

```
srvrmgr> change ent param EAIFileTransportFolders=/siebel/mde/siebsrvr/
temp/OrderBackup
```

```
srvrmgr> change ent param EAIFileTransportFolders=/siebel/mde/siebsrvr/
temp/OrderBackup for server aiacn_pod-0
```

- c. Restart the SES service by running the following command:

```
kubectl -n siebel_namespace, delete pod
Siebel_Enterprise_Server_pod_name-0
```

- d. After the pod is recreated and you have verified that it is running, follow steps 5 and 6.
10. (Optional) Import products into Siebel cloud native by using the Siebel eCommunication application. Refer to Siebel CRM documentation for instructions.
11. Import Siebel cloud native SSL/TLS security certificates and configure AIA cloud native with the certificates. See [Installing SSL Certificates](#) for more details.
- a. Validate that keystore custom identity and custom trust are created successfully. To do this, log in to the Enterprise Manager Console for AIA and navigate to the Keystore section.
  - b. Validate that Siebel trust certificate is available in the custom trust keystore in the Keystore section.
  - c. Log in to the Weblogic Console of AIA cloud native. For each managed server, in the Keystore section, ensure the following:
    - `kss://system/custom_identity_keystoreName` is displayed for Custom Identity Store.
    - `kss://system/custom_trust_keystoreName` is displayed for Custom Trust Store.
  - d. Validate `/u01/oracle/user_projects/domains/ domain_name /bin/setDomainEnv.sh` with custom trust:
    - i. Connect to any managed server pod.
    - ii. Open the `/u01/oracle/user_projects/domains/ domain_name /bin/setDomainEnv.sh` using the vi tool.
    - iii. Validate that `-Djavax.net.ssl.trustStore=kss: //system/ custom_trust_keystoreName -Djavax.net.ssl.trustStoreType=kss -Djavax.net.ssl.keyStorePassword=password -Djavax.net.ssl.trustStorePassword=password` is configured in `EXTRA_JAVA_PROPERTIES`.

12. Configure Siebel credentials in the Enterprise Console of AIA cloud native.
  - a. Navigate to the Credentials section and edit **participatingapplications.siebel.server.eai.password** to specify the username and password.
  - b. Repeat step a. for **participatingapplications.siebel.server.db.password** if you want to change the Siebel DB credentials.
  - c. Restart the AIA cloud native services by using the domain-lifecycle scripts.
13. Configure AIA cloud native MetaData with Siebel Connection details, Business Unit ID, and PRICELIST.
  - a. Get the latest **AIAConfigurationProperties.xml** and **PRICELIST.dvm** files:
    - i. In the Enterprise Manager Console for AIA, navigate to the **MDS Configuration** section and export the zip file.
    - ii. Copy the following files from the zip: **soa/configuration/default/AIAConfigurationProperties.xml** and **apps/AIAMetaData/dvm/PRICELIST.dvm**. For more information on MDS operations, refer to [Managing the Metadata Repository](#) in *Administering Oracle Fusion Middleware*.
  - b. Update **Siebel connection** details:
    - i. In the **AIAConfigurationProperties.xml** file, update all the values of the XML tag **SEBL\_01.EndpointURI** with correct details if required.
  - c. Update the **Business Unit ID** details:
    - i. Log in to Siebel and get Siebel Business Unit ID by navigating to **Organizations**. Navigate to **About Record**, and copy the Row Number.
    - ii. In the **AIAConfigurationProperties.xml** file, update all the values of the XML tag **Siebel.SEBL\_01.BusinessUnit**, with the copied Default Organization Row Number.
  - d. Update Pricelist details:
    - i. **Pricelists:**
      - i. Log in to Siebel and create or confirm pricelists as required on Siebel. Copy the Row Number of the required pricelist. For more information, refer to [Siebel Price List](#) in the *Application Services Interface Reference Guide*.
      - ii. In the **PRICELIST.dvm** file, update or add the values for **SEBL\_01 column of row** with the copied Row Number and with the other required values.  
For more information, refer to "Working with the PRICELIST DVM" in the *AIA Order to Cash Integration Pack Implementation Guide*.
      - iii. Repeat steps 1 and 2 for each pricelist.
    - ii. **Default Pricelist:**
      - i. In the **AIAConfigurationProperties.xml** file, update all the values of XML tag **Siebel.SEBL\_01.PriceList.ID** with Row Number from Siebel for default pricelist.

**Note**

Mention the default pricelist details in the **AIAConfigurationProperties.xml** file. In case of multi-pricelist configuration, do not mention the default pricelist section in the **PRICELIST.dvm** file.

- e. Update AIA MDS with the updated **PRICELIST.dvm** and the **AIAConfigurationProperties.xml** files. For more information about updating files in AIA MDS, refer to [Updating Files in AIA MDS](#).
  - f. Restart AIA cloud native using the domain-lifecycle scripts.
14. Enable the eai\_enu application configuration using the Siebel Management Console. Refer to the Siebel Management Console documentation for instructions.

## Integrating BRM Cloud Native

This section provides instructions for integrating BRM cloud native with AIA cloud native.

To integrate BRM cloud native with AIA cloud native:

1. Validate the BRM cloud native CM parameter by running the following command:

**Note**

Ensure that the BRM CM service is configured with the `dnsName` of the cluster, so that the CM service can be connected using the `dnsName` in the cluster.

```
kubectl -n brmcn_namespace get deployment/cm -o yaml
```

A sample output is as follows:

```
- name: CM_DNS_NAME
  value: dns:<cm service>.<brm ns>.svc.cluster.local
```

2. Deploy the BRM JCA Adapter. See *Deploying the BRM JCA Adapter in Oracle Communications Application Integration Architecture Cloud Native Deployment Guide* for more information.
3. (Optional) Validate the connection between AIA cloud native and BRM cloud native by deploying the BRM JCA Adapter test client (Web application) and sending a test request with the test client Web UI. See *Testing JCA Resource Adapter Configuration and BRM Connectivity in Oracle Communications BRM JCA Resource Adapter Guide* for more information.
4. Enable notification and Product Sync in BRM cloud native.
  - a. Ensure that the **fm\_publish\_enable\_publish** parameter is set to **1** in the CM `pin.conf`. You can set this by using the helm chart or by editing the Kubernetes config manager entry of `cm cm-pin-conf-config`.
  - b. For EAI (**eai-java-server** container in the cm pod), ensure that payload for **Infranet.properties** is set to **payloadconfig\_crm\_sync.xml**. This payload contains the required events (ProductInfoChange and DiscountInfo change) for generating the XML for EAI. Ensure that the DB is 0.0.0.0, which points to EAI. The DB entries

mapping can be found in `dm-oracle.pin.conf`. You can set this by using the helm chart or by editing the Kubernetes config manager entry of the EAI `eai-java-server-infranet-properties-config` and `eai-java-server-payload`.

### Note

Bounce the CM pod after the change to reflect the changes.  
 Publisher DB="0.0.0.0"

- c. In the **dm-oracle-aq-event-map-config** config file, uncomment ALL in `aq_event_map`.
- d. Ensure that notifications are enabled for the following:

```
/event/notification/price/products/modify
/event/notification/price/discounts/modify
/event/notification/price/sponsorships/modify
/event/customer/status
/event/notification/amt/AccountInfoChange
```

- e. Run helm command from the BRM Helm charts path to publish Prod Sync data.

```
cd $BRM_CNTK/artifacts
$ helm upgrade --namespace <brm_namespace> brm-cn-apps helm-charts/ --
values profiles/deploy-oci.yaml --values profiles/pdc-publish.yaml
```

- f. Restart the **cm**, **dm-oracle**, and **dm-ifw-sync** pods of the BRM cloud native instance.

## Integrating OSM Cloud Native

This section provides instructions for integrating OSM cloud native with AIA cloud native.

To integrate OSM cloud native with AIA cloud native:

1. Create a t3 channel in the AIA cloud native instance:
  - For a single cluster scenario, where in AIA cloud native, Siebel CRM cloud native, BRM cloud native, and OSM cloud native are deployed in the same cluster, create a t3 channel in the WebLogic Admin Console for AIA cloud native.
    - a. Log in to AIA cloud native Weblogic Console.
    - b. Navigate to the Servers section in the Domain Structure pane and then select a managed server (for example, select **soa\_server1**).
    - c. Navigate to the Channels tab in Protocols and create a new channel (for example, T3Channel).
    - d. Specify the following:
      - Listen Address as **soainfra-cluster-soa-cluster.namespace.svc.cluster.local**.
      - External Listen Port as **soa-cluster-service-name.namespace.svc.cluster.local**
    - e. Ensure that **Tunneling Enabled** is selected.
    - f. Repeat steps b. to e. for remaining managed servers.

- For multiple clusters, where in AIA cloud native and OSM cloud native are deployed in different clusters, do the following:
  - a. Connect to the AIA cloud native cluster and create an ingressroute that includes route rules for all common names and the respective ports.

```

apiVersion: traefik.containo.us/v1alpha1
kind: IngressRoute
metadata:
  name: aia-ingress
  namespace: namespace
spec:
  entryPoints:
  - web
  routes:
  - kind: Rule
    match: Host(`soa.domain_name.namespace.aia.org`)
    services:
    - name: soa_cluster_service_name
      port: soa_ms_port
      sticky:
        cookie:
          httpOnly: true
  - kind: Rule
    match: Host(`t3.domain_name.namespace.aia.org`)
    services:
    - name: soa_cluster_service_name
      port: soa_cluster_service_port
      sticky:
        cookie:
          httpOnly: true
  - kind: Rule
    match: Host(`admin.domain_name.namespace.aia.org`)
    services:
    - name: soa_admin_server_service_name
      port: soa_admin_server_port
      sticky:
        cookie:
          httpOnly: true

```

- b. Apply the yaml file to create the ingressroute:

```
kubectl apply -f aia-ingress.yaml
```

- c. Edit the AIA cloud native domain configuration to specify the following settings for integrating with the OSM cloud native instance:

**Note**

If the previous node is cordoned, deleted, or repaved, update the values for `hostAliases` and change the IP addresses to new IP addresses of a working node.

```
spec:
  .....
  .....
  serverPod:
  .....
  .....
  hostAliases:
  - hostnames:
    - t3.instance.project.osm.org
    - instance.project.osm.org
    - admin.instance.project.osm.org
    ip: osm_node_IP_address
  - hostnames:
    - soa.soainfra.soa_namespace.aia.org
    - t3.domain_name.namespace.aia.org
    - admin.domain_name.namespace.aia.org
    ip: soa_node_IP_address
```

- d. Edit the OSM cloud native domain configuration to specify the same settings as described in step 1.b for integrating with the AIA cloud native instance.

**Note**

Ensure that the AIA cloud native and OSM cloud native instance pods restart automatically after steps b and c. If they do not restart automatically, run the corresponding scripts to manually restart the AIA and OSM instances.

- e. Create a t3 channel in the WebLogic Admin Console for AIA cloud native, ensuring that the External Listen Address is set as the hostname defined earlier. In addition, ensure that the **HTTP Enabled for This Protocol** option is selected.
2. Deploy the O2A cartridge into the OSM cloud native instance. See [Creating Order-to-Activate Credentials and Accounts and Deploying the Sample Cartridge](#) for instructions.
  3. Set the AIA cloud native SAF t3 value which was created earlier, in the OSM project specification file as follows:
    - For single cluster, specify the following:

```
safConnectionConfig:
  - name: O2A_SAFImportedDestinations
    t3Url: t3://
    soa_cluster_servicename.namespace.svc.cluster.local:soa_cluster_serviceport
    secretName: osm_project_instance__saf_credentials_aia_secret_name
```

**Note**

`osm_project_instance_saf_credentials_aia_secret_name` is the secret you created while setting up and deploying OSM.

- For multiple clusters, specify the following:

```
safConnectionConfig:
- name: O2A_SAFImportedDestinations
  t3Url: http://t3_hostname_in_ingressroute:t3_port_created
  secretName: osm_project_instance_saf_credentials_aia_secret_name
```

4. Restart the OSM instance to deploy the O2A cartridge with the AIA cloud native configuration. See *Restarting the Instance in Oracle Communications Order and Service Management Cloud Native Deployment Guide*.
5. Log in to the Weblogic Admin Console for OSM cloud native and verify that the SAF setting is configured with the expected t3 URL value.
6. Log in to the OSM Task Web client and verify that the O2A cartridge is deployed.
7. In WebLogic Admin Console for OSM cloud native, copy the t3 URL displayed for **T3ClustChannel** for single cluster or the value of **T3Channel (HTTP)** for multi-cluster channel.
8. In the WebLogic Admin Console for AIA cloud native, navigate to the JMS Modules page, for the **OSM** and **SOM** AIAJMSModules, set the URL test fields with the copied t3 URLs.

**Note**

You must set a username and password for the WebLogic Admin Console for AIA cloud native.

9. Restart the AIA cloud native domain services by using the domain-lifecycle scripts.
10. In AIA WebLogic Console, navigate to the **Store and Forward Agents** page. In the **Remote Endpoints** tab for OSM\_SAFAgent, ensure that for each Remote Endpoint, the t3 URL is displayed for single-cluster environment.
11. Log in to Oracle Enterprise Manager Fusion Middleware Control for AIA cloud native, and add the singleton property. See the AIA Installation Guide for instructions.
12. Configure the AIA queues to support JMS Priority. See the AIA Installation Guide for instructions.
13. Add the No Authentication security policy to the Product class service. See the AIA Installation Guide for instructions. Ensure that you select "QueryProductClassAndAttributesSCECommsReqABCSImpl" in the Service and References region.
14. Ensure that the JAVA\_OPTIONS parameter `-Dweblogic.rjvm.allowUnknownHost=true` is added into AIA cloud native domain setting.
15. In Oracle Enterprise Manager Fusion Middleware Control, for SOA Infrastructure, set the **Callback Server URL** and **Server URL** common properties with the SOA infrastructure URL.

# Performing AABC Post-deployment Tasks

This section describes tasks that you perform after deploying AABC.

## Prerequisites and Assumptions

The following are the prerequisites for performing AABC post-installation tasks:

- The Master Repository and the Work Repository are created in Oracle Data Integrator (ODI).
- Oracle Data Integrator (ODI) is installed with template - J2EE Enterprise Agent and has the **encode.sh** script in **\$ODI\_HOME/bin** directory.
- Oracle Data Integrator (ODI) agent is available and agent wsdl is reachable inside the AIA cloud native 14.0 installation pods.
- The AABC PIPs are deployed successfully. Confirm that the Comms Agent Assisted Billing Care: Siebel - BRM Pre-Built Integration services are installed. See Verifying Composite Deployment in the AIA Installation Guide for details.
- Verify Collections installation. Within the admin pod, verify that the following are present in the DVM path **/u01/shared/aia-comms/commsOracleHome/comms\_home/source/soainfra/apps/AIAMetaData/dvm**:
  - CURRENCY\_CODE.dvm
  - COLLECTION\_STATUS.dvm
  - COLLECTION\_ACTIONNAME.dvm
  - COLLECTION\_PRIORITY.dvm
  - COLLECTION\_SUBSTATUS.dvm
- Confirm the URL for composite definition for "SyncCollectionHeaderInfoBRMCommsReqImpl" composite is correct.
- Mount AIA PV on the machine where ODI is installed. Mount the PV at location **/u01/shared/**.

## AABC PIPs Post-installation Tasks

Perform the following AABC PIPs post-installation tasks:

1. Update the mailing details in the **/u01/shared/aia-comms/commsOracleHome/comms\_home/source/soainfra/apps/config/AIAConfigurationProperties.xml** file as required. Update the below properties for module **CollectionsParameters** file:
  - **FromMailAddress**
  - **ToMailAddress**
  - **MailServer**
  - **MailSMTPPort**
2. Encode passwords for the following:
  - **AIA XREF**  
To encode the XREF password, run the following command and note the encoded password:

```
$ODI_HOME/bin/encode.sh -INSTANCE=OdiInstanceName AIA_XREF_DB_Password
```

Update the encoded password in the connections file:

```
cd $AIA_PV/aia-comms/commsOracleHome/comms_home/source/soainfra/apps/
services/industry/Communications/BulkDataProcess/BRMToSiebel/
Collections/ODI/Oracle/V1/ODI_Master_Repository

# Replace fp.db.xref.password with value received from encode.sh
vi CONN_AIADS.xml
```

- **BRM**

To encode the BRM password, run the following command and note the encoded password:

```
$ODI_HOME/bin/encode.sh -INSTANCE=OdiInstanceName
BRM_Database_Advanced_Queueing_user_password
```

Update the encoded password in the connections file:

```
cd $AIA_PV/aia-comms/commsOracleHome/comms_home/source/soainfra/apps/
services/industry/Communications/BulkDataProcess/BRMToSiebel/
Collections/ODI/Oracle/V1/ODI_Master_Repository

# Replace participatingapplications.brm.db.password with value received
from encode.sh
vi CONN_OracleBRMDS.xml
```

- **Siebel**

To encode the Siebel password, run the following command:

```
$ODI_HOME/bin/encode.sh -INSTANCE=OdiInstanceName
Siebel_database_user_password
```

Update the encoded password in the connections file:

```
cd $AIA_PV/aia-comms/commsOracleHome/comms_home/source/soainfra/apps/
services/industry/Communications/BulkDataProcess/BRMToSiebel/
Collections/ODI/Oracle/V1/ODI_Master_Repository

# Replace participatingapplications.siebel.db.password with value
received from encode.sh
vi CONN_SiebelDS.xml
```

3. Import the AIA connections to ODI Studio. If AABC installation is successful, then the **importAIAODIConnections.sh** script will be generated in the **AIA\_PV** directory. Run the following command to import:

```
sh importAIAODIConnections.sh \
  -a AIA_PV_Path \
  -o ODI_DOMAIN_HOME_path \
  -i ODI Instance Name. Example: OracleDIAgent \
  -w ODI Workrep name. Example: WORKREP
```

## Verifying the Deployment

To verify the Comms Agent Assisted Billing Care: Siebel CRM - BRM Pre-Built Integration deployment:

1. Login to ODI Studio with ODI user credentials.
2. Verify and confirm **AIA Collections Project** is imported into the **Designer** section.
3. Verify and confirm connection details under **Topology - Physical Architecture - Oracle and XML**.
  - Oracle - AIA DS
  - Oracle - Oracle BRM DS
  - Oracle - Siebel DS
  - XML - AIA Config Properties DS
  - XML - Collection Action Name
  - XML - Collection Priority DS
  - XML - Collection Status Mapping
  - XML - Collection Substatus model
  - XML - Currency DS

## Deploying Custom Components

This section describes how to deploy custom components.

You can deploy the following:

- **SOA Adapter customizations**. For instructions, refer to the Oracle Fusion Middleware on Kubernetes documentation at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/adminguide/persisting-soa-adapters-customizations/>.
- **Custom SOA composites**. For instructions, refer to the Oracle Fusion Middleware on Kubernetes documentation at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/adminguide/deploying-composites/>.
- **Custom AIA artifacts**. See "[Deploying Custom AIA Artifacts](#)" for instructions.

## Deploying Custom AIA Artifacts

The deployment of the artifacts is done by AIA Installation Driver (AID). AID takes the deployment plan and the **AIAInstallProperties.xml** file as input. Based on the tags specified in the deployment plan, AID configures and deploys the artifacts onto the server.

AID supports the following deployment plans:

- Main Deployment Plan
- Supplementary Deployment Plan
- Custom Deployment Plan

Main Deployment Plan is auto-generated by the Deployment Plan Generator. Whereas, Supplementary Deployment Plan and Custom Deployment Plan are handcoded. Support to add custom deployment tags to the main deployment plan is available through Pre-Install and Post-Install sections in the Deployment plan. However, the problem with using these sections is that the deployment plan may not be upgrade-safe. To mitigate the issue, supplementary

and custom deployment plans are introduced. The supplementary deployment plan is used mostly by the internal Pre-Built Integration development team. Use custom deployment plan to meet the requirement of non-native artifact deployment plan.

The running sequence of deployment plans followed by AID is as follows:

1. Main Deployment Plan
2. (Optional) Supplementary Deployment Plan
3. (Optional) Custom Deployment Plan

#### Note

To facilitate durability across upgrades and patch updates, place the custom modified files in a directory path different from AIA-shipped *PIP\_Name DP.xml* and *PIP\_Name SupplementaryDP.xml*.

The following sections show the deployment commands for various deployment scenarios.

## Deploying AIA Shipped Native Artifacts and Non-native Artifacts

This scenario does not involve any customizations. The following command takes the main deployment plan and the supplementary deployment plan which are shipped with the Pre-Built Integration installer as input.

Run this command inside the domain admin pod:

```
source $COMMS_AIA_HOME/comms_home/bin/commsenv.sh
ant -f $SOA_HOME/aiafp/Install/AID/AIAInstallDriver.xml \
-DPropertiesFile=$VOLUME_DIR/domains/$DOMAIN_NAME/soa/aia/bin/
AIAInstallProperties.xml \
-DDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/PIP_nameDP.xml \
-DSupplementaryDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/
PIP_nameSupplementaryDP.xml \
-DDeploymentPolicyFile=$COMMS_HOME/pips/PIP_name/DeploymentPlans/
PIP_nameConditionalPolicy.xml
```

## Deploying Modified AIA-shipped Artifacts

This section describes how to deploy modified AIA-shipped native and non-native artifacts.

### Deploying Modified Native Artifacts and Original Non-native Artifacts

For modified native artifacts scenario, re-harvest the modified artifacts and regenerate the deployment plan, and name it as *PIP\_Name CustomDP.xml*. Pass this as the main deployment plan, instead of the shipped deployment plan.

Run the following AID command inside the domain admin pod:

```
source $COMMS_AIA_HOME/comms_home/bin/commsenv.sh
ant -f $SOA_HOME/aiafp/Install/AID/AIAInstallDriver.xml \
-DPropertiesFile=$VOLUME_DIR/domains/$DOMAIN_NAME/soa/aia/bin/
AIAInstallProperties.xml \
-DDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/
PIP_nameCustomDP.xml \
```

```
-DSupplementaryDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/PIP_nameSupplementaryDP.xml \
-DDeploymentPolicyFile=$COMMS_HOME/pips/PIP_name/DeploymentPlans/PIP_nameConditionalPolicy.xml
```

### Deploying Original Native Artifacts and Modified Non-native Artifacts

For the original native artifacts and modified non-native artifacts scenario, copy the contents of the shipped supplementary DP to a new file and name it as *PIP\_Name CustomSupplementaryDP.xml*. Modify this file with the customizations. This is passed as the supplementary deployment plan, instead of the shipped supplementary DP.

Run the following AID command inside the domain admin pod:

```
source $COMMS_AIA_HOME/comms_home/bin/commsenv.sh
ant -f $SOA_HOME/aiafp/Install/AID/AIAInstallDriver.xml \
-DDPropertiesFile=$VOLUME_DIR/domains/$DOMAIN_NAME/soa/aia/bin/AIAInstallProperties.xml \
-DDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/PIP_nameDP.xml \
-DSupplementaryDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/PIP_nameCustomSupplementaryDP.xml \
-DDeploymentPolicyFile=$COMMS_HOME/pips/PIP_name/DeploymentPlans/PIP_nameConditionalPolicy.xml
```

## Deploying New or Custom Built Artifacts

This section discusses how to deploy newly added native and non-native artifacts.

### Deploying Newly-added Native Artifacts and Original Non-native Artifacts

If you are introducing new native artifacts, harvest the new artifacts and regenerate the deployment plan for the new artifacts along with the shipped ones, and name it *PIP\_Name CustomDP.xml*. Pass this as the main deployment plan, instead of the shipped deployment plan.

Run the following AID command inside the domain admin pod:

```
source $COMMS_AIA_HOME/comms_home/bin/commsenv.sh
ant -f $SOA_HOME/aiafp/Install/AID/AIAInstallDriver.xml \
-DDPropertiesFile=$VOLUME_DIR/domains/$DOMAIN_NAME/soa/aia/bin/AIAInstallProperties.xml \
-DDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/PIP_nameCustomDP.xml \
-DSupplementaryDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/PIP_nameSupplementaryDP.xml \
-DDeploymentPolicyFile=$COMMS_HOME/pips/PIP_name/DeploymentPlans/PIP_nameConditionalPolicy.xml \
-l $COMMS_HOME/pips/PIP_name/DeploymentPlans/PIPDeploymentPlanName.log
```

### Deploying Newly Added Non-native Artifacts

For new non-native artifacts scenario, add customizations to *PIP\_Name CustomDP.xml*, which is an empty deployment plan shipped with the Pre-Built Integration. This custom plan is in the same location as the main plan. Pass this as Custom Deployment Plan to AID.

Run the following AID command inside the domain admin pod:

```
source $COMMS_AIA_HOME/comms_home/bin/commsenv.sh
ant -f $SOA_HOME/aiafp/Install/AID/AIAInstallDriver.xml \
-DPropertiesFile=$VOLUME_DIR/domains/$DOMAIN_NAME/soa/aia/bin/
AIAInstallProperties.xml \
-DDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/PIP_nameDP.xml \
-DSupplementaryDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/
PIP_nameSupplementaryDP.xml \
-DCustomDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/
PIP_nameCustomDP.xml > \
-DDeploymentPolicyFile=$COMMS_HOME/pips/PIP_name/DeploymentPlans/
PIP_nameConditionalPolicy.xml
```

The **AIAInstallProperties.xml** file contains the details of the AIA environment and is located at **\$VOLUME\_DIR/domains/\$DOMAIN\_NAME/soa/aia/bin/AIAInstallProperties.xml**.

## Undeploying Services

The undeployment plan is generated at the same location as the deployment plan with the name *PIP\_Name UndeployDP.xml*. The undeployment plan is generated only for native artifacts modified through the Project Lifecycle Workbench. This contains undeploy tasks for all the services deployed and the configurations done as part of the Deployment Plan. The undeployment plan is run using the AID.

The undeployment command is similar to the deployment plan command except for the input argument and an additional argument `Uninstall`. You run this command inside the domain admin pod.

For example, if you have used the following command to deploy modified native artifacts:

```
source $COMMS_AIA_HOME/comms_home/bin/commsenv.sh
ant -f $SOA_HOME/aiafp/Install/AID/AIAInstallDriver.xml \
-DPropertiesFile=$VOLUME_DIR/domains/$DOMAIN_NAME/soa/aia/bin/
AIAInstallProperties.xml \
-DDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/PIP_nameDP.xml \
-DSupplementaryDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/
PIP_nameSupplementaryDP.xml \
-DDeploymentPolicyFile=$COMMS_HOME/pips/PIP_name/DeploymentPlans/
PIP_nameConditionalPolicy.xml
```

Then, the undeployment command would be:

```
source $COMMS_AIA_HOME/comms_home/bin/commsenv.sh
ant -f $SOA_HOME/aiafp/Install/AID/AIAInstallDriver.xml \
-DPropertiesFile=$VOLUME_DIR/domains/$DOMAIN_NAME/soa/aia/bin/
AIAInstallProperties.xml Uninstall \
-DDeploymentPlan=$COMMS_HOME/pips/PIP_name/DeploymentPlans/
PIP_nameUndeployDP.xml
```

For non-native artifacts, generate the undeployment plan manually:

1. Copy the supplementary deployment plan and name it as *PIP\_Name UndeploySupplementaryDP.xml* or *PIP\_Name*

**UndeployCustomSupplementaryDP.xml**, depending on the supplementary deployment plan name.

2. In the new deployment plan, change the action attributes of all the tasks from `deploy` to `undeploy` or from `create` to `delete`.

## Installing SSL Certificates

To install SSL certificates:

### Note

This procedure automates the process of importing certificates to kss-based keystore. If you wish to use jks-based keystore, you need to set it up manually.

1. Create keystore credentials by running the following commands:

### Note

Ensure that certificates are available in the **\$AIA\_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-certs/certificates** directory and that proper management policies are used to store the private keys.

```
cd $AIA_DIR/oc-cn-aia-comms/scripts/
./create-keystore-secret.sh -h
usage: ./create-keystore-secret.sh -k keystore -c custTrust -i
custIdentity [-d domainUID] [-n namespace] [-h]
  -k password for KeyStore, must be specified.
  -c password for Cust Trust, must be specified.
  -i password for Cust Identity , must be specified.
  -d domainUID, optional. The default value is soainfra. If specified, the
secret will be labeled with the domainUID unless the given value is an
empty string.
  -n namespace, optional. Use the soans namespace if not specified
  -h Help
```

2. Run the following command, which creates Kubernetes secret:

```
kubectl -n soa_namespace create secret generic secret_name --from-
file=certificates
```

3. Update values in the following files:

- **oc-cn-aia-comms/helm-charts/aia-comms-chart/values.yaml**
- **oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-certs/values.yaml**

The values to be updated are:

- **name:** The Keystore name on which the operation is to be performed. For example, `custTrust` or `CustIdentity`.

- **identityKeyStoreName**: The Keystore name of the Identity Keystore. For example, `custIdentity`.
- **trustKeyStoreName**: The Keystore name of Custom Trust Keystore. For example, `custTrust`.
- **type**: The type of the certificate which is to be imported, updated, and deleted. For example, `TrustedCertificate`.
- For each Siebel certificate and OSM certificate to be imported, specify the following:
  - **fileName**: The certificate filename which is to be imported. This should be available in the `aia-comms-chart/charts/aia-comms-certs/certificates` directory.
  - **alias**: The alias name.
  - **operation**: The supported operation types are: **import**, **delete**, and **update**. Leave this value empty or commented in case no operation is required to be performed on either OSM certificate or Siebel certificate.

### Note

The helm chart execution supports adding, updating, and deleting the certificate. The mandatory fields are:

- **import**: alias, fileName, operation
- **delete**: alias, operation
- **update**: alias, fileName (the file name of the new certificate to be updated), operation

4. After the **aia-comms-ssl-certificate-job** completes, restart the domain to import, update, or delete the OSM certificate, Siebel certificate, or both certificates as specified in the **values.yaml** file of the chart.

```
cd $AIA_DIR/oc-cn-aia-comms/helm-charts

helm install aia-comms-certs\
  aia-comms-chart/charts/aia-comms-certs/ \
  --namespace namespace \
  --values ./aia-comms-chart/values.yaml \
  --values ./aia-comms-chart/charts/aia-comms-certs/values.yaml

# Restart domain
```

## Updating Files in AIA MDS

To update multiple files at once in **AIA MDS**:

1. Update the following **values.yaml** files as per your requirement:
  - \$AIA\_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/values.yaml**
  - \$AIA\_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-update-mds/values.yaml**

See [Global Parameters](#) for details about the parameters.

**Table 6-1 Parameters in the values.yaml**

Parameter	Description	Example
fileList	List of files with their full paths in MDS. <b>Note:</b> This is the destination path where files need to be uploaded in MDS and not a source path where files are present in AIA PV at <b>/u01/shared/mds</b> .	soa/configuration/default/ AIAConfigurationProperties.xml  apps/AIAMetaData/config/ AIAInstallProperties.xml

2. Upload the files to AIA PV:

```
kubectl cp File_to_be_Uploaded_in_MDS SOA_Admin_Pod:/u01/shared/mds/-n
SOA_Namespace
```

3. Run the following command:

```
$ cd $AIA_DIR/oc-cn-aia-comms/helm-charts/
$ helm install aia-comms-update-mds \
  aia-comms-chart/charts/aia-comms-update-mds/ \
  --namespace namespace \
  --values ./aia-comms-chart/values.yaml \
  --values ./aia-comms-chart/charts/aia-comms-update-mds/values.yaml
```

4. Wait till the **aia-comms-update-mds-job** completes.
5. Restart the domain.  
This validates the path in **MDS**.

## Validating the AIA Cloud Native Deployment

To validate your AIA cloud native deployment:

1. Verify the logs:
  - a. Run the following command:

```
kubectl exec -it admin_server -n namespace -- bash

cd $ORACLE_HOME/user_projects/domains/domain_name
```

- b. Verify there are no errors in the log files.

**Note**

If you want to verify the PIP deployment log, refer to the below log files within the admin server pod:

- /u01/shared/logs/runconfig.log
- /u01/shared/logs/setupo2c.log

As these logs contain sensitive information, delete them once the validation is complete. For more information, see *Oracle Communications Application Integration Architecture Security Guide*.

2. Verify the deployment of composites for Siebel CRM, OSM, and BRM. See "[Verifying Composite Deployment](#)" in the *AIA Installation Guide* for details. To generate a diagnostic report, see "[Generating a Diagnostic Report](#)."
3. Test the order flow to check connectivity between Siebel, OSM, and BRM.

# 7

## Managing Your Cloud Native Deployment

This chapter describes the tasks you perform to manage your AIA cloud native deployment.

### Scaling the AIA Application Cluster

To scale the AIA application cluster, perform the procedures described in the following sections in the WebLogic Kubernetes Operator user's guide:

- Scaling: <https://oracle.github.io/weblogic-kubernetes-operator/4.2/managing-domains/domain-lifecycle/scaling/>
- Scripts: <https://oracle.github.io/weblogic-kubernetes-operator/4.2/managing-domains/domain-lifecycle/scripts/>

### Configuring Dynamic Autoscaling

You can configure your AIA cloud native deployment with dynamic autoscaling. For dynamic autoscaling, a minimum of WKO version 4.0.x is required, along with Horizontal pod Autoscaler configured with threshold for the resource metrics.

For information on how to configure dynamic autoscaling, see WKO documentation at: <https://oracle.github.io/weblogic-kubernetes-operator/4.2/managing-domains/domain-lifecycle/scaling/#kubernetes-horizontal-pod-autoscaler-hpa>

### Restarting the AIA Cloud Native Instance

To restart (rolling restart) your AIA cloud native instance, perform the procedures described in the following sections in the WebLogic Kubernetes Operator user's guide:

- Restarting: <https://oracle.github.io/weblogic-kubernetes-operator/4.2/managing-domains/domain-lifecycle/restarting/>
- Scripts: <https://oracle.github.io/weblogic-kubernetes-operator/4.2/managing-domains/domain-lifecycle/scripts/>

### Deleting the AIA Cloud Native Instance

To delete the AIA cloud native instance:

1. Get the details of AIA and SOA PV paths:

```
$ kubectl describe pv soainfra-domain-pv
$ kubectl describe pv aia-comms-shared-pv
```

## 2. Uninstall the helm charts:

```
helm uninstall aia-comms-pv-pvc -n namespace
helm uninstall aia-comms-config -n namespace
helm uninstall aia-comms-install-brm-adapter -n namespace
helm uninstall aia-comms-deploy-aiapip -n namespace
helm uninstall aia-comms-certs-osm -n namespace
helm uninstall aia-comms-certs-siebel -n namespace
```

## 3. Delete the Kubernetes Network resources, which AIA cloud native creates as part of AIA PV creation:

- Get the details of the resources:

```
$ kubectl get serviceAccount -n namespace | grep cluster-kubectl
$ kubectl get clusterrole | grep access-pod-cluster-role
$ kubectl get rolebinding -n namespace | grep access-pod-role-binding
```

- Delete the resources:

```
$ kubectl delete serviceAccount service-account-name -n namespace
$ kubectl delete clusterrole cluster-role-name
$ kubectl delete rolebinding role-binding-name -n namespace
```

## 4. Uninstall the domain and drop the RCU schema. For instructions, see: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/cleanup-domain-setup/>.

- 5. Clean up the persistent volume data. To remove the AIA PV that is generated during AIA deployment, using appropriate privileges, delete the contents of the storage attached to the domain home persistent volume manually.

For example, to delete the persistent volume of type host\_path, run:

```
$ rm -rf /export/shared/*
```

## 6. Clean up ODI Studio.

# Monitoring the AIA Cloud Native Domain and Publishing Logs

You can monitor your AIA cloud native deployment using Grafana and OpenSearch and publish logs to Elasticsearch and Kibana.

For enabling metrics, JKS-based keystores support both types of options for deploying Weblogic Monitoring Exporter:

- Deployment of WME war file to Weblogic console. For details, see "<https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/adminguide/monitoring-soa-domains/#set-up-monitoring>."
- Deploying WME as a sidecar. For details, see "<https://github.com/oracle/weblogic-monitoring-exporter#use-the-monitoring-exporter-with-weblogic-kubernetes-operator>"

### Note

KSS-based keystores supports deploying WME as a sidecar only.

Refer to the Oracle Fusion Middleware on Kubernetes documentation for information about using Grafana for monitoring your deployment at: <https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/adminguide/monitoring-soa-domains/#set-up-monitoring>.

For information about using Elasticsearch and Kibana, see the WKO documentation at: <https://oracle.github.io/weblogic-kubernetes-operator/4.2/samples/elastic-stack/>.

## Patching and Upgrading Your AIA Cloud Native Deployment

To patch and upgrade your AIA cloud native deployment from prior releases of AIA cloud native, perform the procedures described in the *Oracle Fusion Middleware on Kubernetes* documentation at: [https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/patch\\_and\\_upgrade/](https://oracle.github.io/fmw-kubernetes/25.3.2/soa-domains/patch_and_upgrade/).

### Note

Upload the **AIAInstallProperties.xml** file to MDS after patching the new image and then restart the AIA domain. See "[Restarting the AIA Cloud Native Instance](#)".

## Troubleshooting Issues

This section describes how to troubleshoot common issues with your AIA cloud native deployment.

### Redeploying the AIA PV PVC Helm Chart

You can redeploy the aia-comms-pv-pvc helm chart if the aia-comms-config helm chart is not installed.

The aia-comms-pv-pvc helm chart creates the following:

- Kubernetes PV PVC
- Kubernetes job aia-comms-create-home-job to populate AIA PV
- Service Account with name domain\_name-cluster-kubectl
- ClusterRole of name domain\_name-access-pod-cluster-role
- RoleBinding of name domain\_name-access-pod-role-binding

The Kubernetes job aia-comms-create-home-job pods would be in the Pending state till the required PV PVC is created.

To redeploy the PV PVC helm chart:

1. Find the pod name for a given job:

```
$ kubectl get pods -n namespace | grep aia-comms-create-home-job
```

2. Get logs of the pod and identify issues:

```
$ kubectl logs job_pod_name -n namespace
```

3. Clean up the AIA Persistent Volume data if there is any. To get details of storage path, run:

```
$ kubectl describe pv AIA_PV_name
```

To remove the AIA PV that is generated during AIA deployment, using appropriate privileges, delete the contents of the storage attached to the domain home persistent volume manually. For example, to delete the persistent volume of type `host_path`, run:

```
$ rm -rf /export/shared/*
```

4. Uninstall the helm chart.

```
$ helm uninstall aia-comms-pv-pvc -n namespace
```

5. Reinstall the helm chart with updated parameters, if any. See "[Creating PV-PVCs](#)"

### Redeploying the BRM JCA Adapter Helm Chart

The AIA Helm chart for deploying BRM JCA Adapter requires the following:

- AIA PV
- OracleBRMJCA15Adapter.rar
- plan.xml

To redeploy this chart:

1. Find the pod name for a given job:

```
$ kubectl get pods -n namespace | grep aia-comms-install-brm-adapter-job
```

2. Get logs of the pod and identify issues:

```
$ kubectl logs job_pod_name -n namespace
```

3. Uninstall the helm chart.

```
$ helm uninstall aia-comms-install-brm-adapter namespace
```

4. Reinstall the helm chart with the parameter `undeployExistingAdapter` set to `true`. See "[Deploying the BRM JCA Adapter](#)."

### Redeploying Pre-built Integrations Configurations Helm Chart

The `aia-comms-config` helm chart requires the following:

- `aia-comms-pv-pvc` helm chart
- `aia-comms-install-brm-adapter` helm chart (BRM Adapter deployment)
- all secret credentials
- ODI installation (in case of AABC installation)

This helm chart updates the AIA PV and SOA PV data as per configuration. Hence, this chart does not support the re-run of helm installation of this chart.

To reinstall this chart:

1. Find the pod name for a given job:

```
$ kubectl get pods -n namespace | grep aia-comms-execute-runconfig-job
```

2. Get logs of the pod:

```
$ kubectl logs job_pod_name -n namespace
```

3. Identify and resolve issues, if any:

- **ERROR - Deployment found:** Confirm that this is not a rerun of the aia-comms-config helm chart. The chart will not allow the rerun of this helm chart.
- **User failed to be authenticated:** Confirm the username credentials are mentioned in the AIA PIPs SOA credentials.
- **Error connecting to server please check to see if the server exists:** Confirm that the username credentials are mentioned in the SOA credentials. Confirm all the servers are accessible.
- **Configuration error in executing runConfig.sh:** Confirm the values entered in all values.yaml files are used in the installation.

4. Uninstall the helm chart:

```
$ helm uninstall aia-comms-config -n namespace
```

5. Delete Oracle SOASuite Domain. See "[Deleting the AIA Cloud Native Instance](#)". For this case, you do not need to delete namespaces or helm charts for weblogic-operator and load balancer.
6. Redeploy the domain. See "[Deploying AIA Cloud Native](#)".
7. Install the aia-comms-config helm chart.

### Redeploying Pre-built Integrations Helm Chart

The aia-comms-pips helm chart requires the following:

- aia-comms-pv-pvc helm chart
- aia-comms-install-brm-adapter helm chart (BRM Adapter deployment)
- all secret credentials
- aia-comms-config helm chart
- ODI installation (in case of AABC installation)

To reinstall this chart:

1. Find the pod name for a given job:

```
$ kubectl get pods -n namespace | grep aia-comms-deploy-aiapip-job
```

2. Get logs of the pod:

```
$ kubectl logs job_pod_name -n namespace
```

3. Identify and resolve issues, if any:

- **Configuration error in executing runConfig.sh:** Confirm that the aia-comms-config helm chart has been installed.

- `ERROR: runconfig log file does not exist.:` Confirm `aia-comms-config` helm chart is installed before running this helm chart.
  - `Error connecting to server please check to see if the server exists:` Confirm that the username credentials are mentioned in the AIA PIPs credentials.
  - `Error in deployment:` Review the helm chart logs for deployment errors. If there are no errors related to `aia-comms-config` helm chart, resolve the errors and perform steps 4 and 7. If the errors are related to `aia-comms-config` helm chart, continue with the steps from 4 to 7 to resolve the issues.
4. Uninstall the helm chart:
 

```
$ helm uninstall aia-comms-pips -n namespace
```
  5. Delete Oracle SOASuite Domain. See "[Deleting the AIA Cloud Native Instance](#)". For this case, you do not need to delete namespaces or helm charts for `weblogic-operator` and load balancer.
  6. Redeploy the domain. See "[Deploying AIA Cloud Native](#)".
  7. Install the `aia-comms-pips` helm chart.

#### Oracle SOASuite Domain fails with "folder already exists" error

This error occurs when a domain folder already exists even before deploying Oracle SOA Suite domain. Generally, this error occurs during the redeployment of domain when domain PV is not cleaned up properly.

To resolve this issue, clean up the Oracle SOASuite PV properly and redeploy.

#### Clean a previous deployment

To clean a previous deployment, perform the steps described in "[Deleting the AIA Cloud Native Instance](#)".

#### AIA Helm chart jobs are in the "imagePullBackOff" state

This is a Kubernetes error which occurs in case the Docker image is present on the worker node. The current version of AIA cloud native toolkit does not include `imagePullSecret` support in its template yml files. For this error, for the `aia-comms-config`, `aia-comms-pips` helm chart, you do not need to follow the procedure of redeployment of the AIA helm chart. Once the image is available on a given worker node, pods execution continues.

To solve this issue, follow any redeployment option described in [Table 7-1](#).

**Table 7-1 Redeployment Options**

Option	Redeployment Steps
Manually pull the image on the worker node using <code>docker pull image_name</code>	Once the image is available on a given worker node, pod execution continues on its own. You do not need to uninstall the helm chart.
Add <code>imagePullSecret</code> in the templates yml files of the respective AIA helm chart.	Uninstall the helm chart and install it again after updating the yml file.
Restrict Kubernetes cluster to deploy on certain worker nodes only, where the image is present until the installation of AIA cloud native.	Uninstall the helm chart and install it again after the Kubernetes configuration is done.

### ODI session Synchronize task fails with "Prefix not found:xmlns" error

For Agent Assisted Billing Care (AABC) scenarios, if your ODI session's Synchronize task displays the following error:

```
ODI-1227: Task Procedure-Synchronize-SynchronizeAIAConfig fails on the source connection AIA Config Properties DS.  
Caused by: java.sql.SQLException: class java.sql.SQLException  
org.xml.sax.SAXException: ODI-40786: Prefix not found: xmlns
```

To resolve this issue:

In the `/u01/shared/aia-comms/commsOracleHome/comms_home/source/soainfra/apps/config/AIAConfigurationProperties.xml` file, for the **SessionPoolManager** module, update the **all\_hosts** property to remove the xmlns namespace attribute.

### Managed servers move to the Admin state after the Domain restarts

If your managed servers are down even after restarting and the pod status remains as **0/1**, then:

1. Navigate to your EM Console.
2. In the **Servers** tab:
  - a. Select the managed server that is down.
  - b. From the **Control** drop-down list, select **Resume**.

#### Note

You can repeat the above steps for all managed servers.

If your servers are still down, check the Server log for any errors or warnings.

### Switching the Launch Flag After Deployment

To enable integration with Launch, you configure a parameter in the AIA configuration properties file.

#### Note

Perform this task only if you have missed enabling intergration with Launch during the installation of AIA. Do not perform this procedure for switching in a production environment.

To switch the launch flag post-deployment:

1. Get the latest **AIAConfigurationProperties.xml** file:
  - a. In Enterprise Manager Console for AIA, navigate to the **MDS Configuration** section and export the zip file.
  - b. Copy the **soa/configuration/default/AIAConfigurationProperties.xml** file from the exported zip file.

See <https://docs.oracle.com/en/middleware/fusion-middleware/14.1.2/asadm/managing-metadata-repository.html> for more information on MDS.

2. In the `LaunchIntegrationParameters` module, switch the **O2C.isLaunchIntegrationEnabled** property value to either **true** or **false**.
3. Update AIA MDS with the updated **AIAConfigurationProperties.xml** file. See [Updating Files in AIA MDS](#) for more information.

## Generating a Diagnostic Report

You can use Helm charts to generate a diagnostic report about your AIA cloud native instance.

Update the `$AIA_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/values.yaml` file as per your requirement. See "[Global Parameters](#)" for details about the parameters in `$AIA_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-diagnostic/values.yaml`.

```
cd $AIA_DIR/oc-cn-aia-comms/helm-charts/  
  
helm install aia-comms-diagnostic \  
  aia-comms-chart/charts/aia-comms-diagnostic/ \  
  --values ./aia-comms-chart/values.yaml \  
  --values ./aia-comms-chart/charts/aia-comms-diagnostic/values.yaml \  
  --namespace namespace
```

The reports are generated in the `/u01/shared/logs` folder in AIA PV.

# 8

## Configuring Parameters in Helm Charts

This chapter lists and describes the parameters in the Helm charts.

The AIA cloud native toolkit contains the following charts:

- **aia-comms-pv-pvc**: This chart creates AIA PV/PVCs and service accounts.
- **aia-comms-deploy-aiapip**: This chart deploys AIA Foundation Pack and AIA Pre-integrated Packs (PIPs) in SOA and WebLogic servers.
- **aia-comms-certs**: This chart manages SSL trust certificates of Siebel and OSM in SOA and WebLogic servers.

The charts pick the customized values defined in the custom **values.yaml** configuration file and map them to the respective Kubernetes yaml files defined in the chart's **/template** directory. Each chart can be installed and managed through helm commands.

### Global Parameters

[Table 8-1](#) lists the parameters that you configure globally. These are available in the `$AIA_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/values.yaml` file.

**Table 8-1 Global Parameters**

Parameter	Description
Image	AIA Docker image.
imagePullPolicy	AIA Docker image pull policy. Valid values are IfNotPresent, Always, Never.
containerPort	Kubernetes container port for the kubernetes job to be triggered.
Namespace	Kubernetes namespace in which domain is created.
domainUID	Unique ID that is used to identify this particular domain where AIA needs to be installed.
domainName	Unique name that is used to identify this particular domain where AIA needs to be installed.
weblogicCredentialsSecretName	Name of the Kubernetes secret for the Administration Server's user name and password.
persistentVolumeClaimName	Name of the persistent volume claim created to host the domain home.
domainPVMountPath	Mount path of the domain persistent volume.
soaClusterName	Name of the SOA WebLogic Server cluster instance generated for the domain.
adminServerName	Name of the Administration Server.
adminServerNameSvc	Name of the Administration Server Base Service. This can be found in create-domain-job.yaml of output folder specified during domain creation.
adminPort	Port number for the Administration Server inside the Kubernetes cluster.
managedServerNameSvc	Name of the Managed Server Base Service name. This can be found in create-domain-job.yaml of output folder specified during domain creation.

Table 8-1 (Cont.) Global Parameters

Parameter	Description
sharedPersistentVolumeClaimName	Name of the persistent volume claim to be created to host the AIA home.

## Parameters for AIA PV-PVC

[Table 8-2](#) lists the parameters that you configure for AIA PV-PVC. These parameters are available in the `$AIA_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-pv-pvc/values.yaml` file.

Table 8-2 Parameters for AIA PV-PVC

Parameter	Description
createPV	To create AIA PV PVC, specify <b>true</b> .
persistentVolumeName	Name of the persistent volume to be created to host the AIA home.
storageClassName	Kubernetes storage class name of the persistent volume claim to be created to host the AIA home.
aiacommsStorageType	Type of storage. Legal values are <b>NFS</b> and <b>HOST_PATH</b> . If using <b>NFS</b> , <b>aiacommsStorageNFSServer</b> must be specified.
aiacommsStoragePath	Physical path of the storage for the PV. When <b>aiacommsStorageType</b> is set to <b>HOST_PATH</b> , this value should be set to the path to the domain storage on the Kubernetes host.  When <b>aiacommsStorageType</b> is set to <b>NFS</b> , then <b>aiacommsStorageNFSServer</b> should be set to the IP address or name of the DNS server, and this value should be set to the exported path on that server.  Note that the path where the domain is mounted in the WebLogic containers is not affected by this setting; that is determined when you create your domain.
aiacommsStorageReclaimPolicy	Kubernetes PVC policy for the persistent storage. Valid values are: <b>Retain</b> , <b>Delete</b> , and <b>Recycle</b> .
aiacommsStorageSize	Total storage allocated for the AIA PVC.

## Parameters for AIA PIPs

[Table 8-3](#) lists the parameters that you configure for AIA PIPs. These parameters are available in the `$AIA_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-deploy-aiapip/values.yaml` file.

Table 8-3 Parameters for AIA PIPs

Parameter	Description
wlsServerHome	The root directory of your WebLogic installation. If this is not changed during image creation, then root directory will be used as the default.
Order2Cash_Siebel	Select true if want to install PIPs for Siebel.
SPLIT_XREF	Creates Split XRef schema. The default is <b>true</b> .
Order2Cash_brm	Select true if want to install PIPs for BRM.
Order2Cash_osm	Select true if want to install PIPs for OSM.

Table 8-3 (Cont.) Parameters for AIA PIPs

Parameter	Description
DOMAIN_LOCATION	Weblogic Domain location for SOA
isLaunchIntegrationEnabled	Type true if Launch is integrated. Otherwise, type false.
OSM_VERSION	The version of OSM to which you are connecting. This value must be 10 characters or fewer. For example: 7.4.0.0.0.
OSM_PROV_WL_JMS_QUEUE_ACCESS_PORT	OSM Provisioning Weblogic JMS Queue port
OSM_CFS_WL_JMS_QUEUE_ACCESS_HOST	OSM CFS Weblogic JMS Queue Host
OSM_CFS_WL_JMS_QUEUE_ACCESS_PORT	OSM CFS Weblogic JMS Queue port
OSM_PROV_WL_JMS_QUEUE_ACCESS_HOST	OSM Provisioning Weblogic JMS Queue Host
BRM_PRIMARY_CM_HOST	BRM CM Host Name
BRM_VERSION	BRM Server Version. For example, 12.2.0.0.
BRM_DB_HOST	BRM Database Host Name
BRM_AQ_DB_SID	BRM AQ Database System ID
BRM_PRIMARY_CM_PORT	BRM CM Port Number
BRM_AQ_QUEUE	BRM AQ Queue Name. For example, AQ_QUEUE.
BRM_DB_PORT	BRM Database Port Number
BRM_DB_JDBC_URL	BRM Database JDBC URL. JDBC URL is used to connect and configure the corresponding database. Examples are: SID : jdbc:oracle:thin:@host:port:sid Service Name : jdbc:oracle:thin:@//host:port/service_nameTNS_ADMIN : jdbc:oracle:thin:@db_name?TNS_ADMIN=tns_admin_location
SPM_PROXY_PORT	Siebel Session Pool Manager Port Number. Can be empty if one is not available.
SPM_PROXY_HOST	Siebel Session Pool Manager Host. Can be empty if one is not available.
XREF_TEMP_TABLESPACE	An existing temp tablespace name, which can be used to create XRef schema. Tablespace must exist before installing AIA cloud native.
XREF_DEFAULT_TABLESPACE	An existing users tablespace name, which can be used to create XRef schema. Tablespace must exist before installing AIA cloud native.
XREF_SCHEMA_SYS_ROLE	System role name to create XRef Schema. Example: SYSDBA.
XREF_SCHEMA_JDBC_URL	XRef Schema JDBC URL. This should be same as SOA_DB_JDBC_URL.
SBL_VERSION	Siebel Server Version. Example: 21.2.0.0.
SBL_HOST	Siebel Host Name
SBL_PROTOCOL	Protocol to connect Siebel Server. Example: http://
SBL_LANG	Siebel local language. Example: enu
SBL_ENTERPRISE_SERVER_NAME	Siebel Enterprise Server Name. Example: SBA_82
SBL_PORT	Siebel Port, if siebel is running on Kubernetes, you can use Tomcat's exposed port number.
SBL_DB_HOST	Siebel Database Host Name
SBL_DB_PORT	Siebel Database Port Number
SBL_DB_SID	Siebel Database SID/Service Name

Table 8-3 (Cont.) Parameters for AIA PIPs

Parameter	Description
SBL_DB_JDBC_URL	Siebel Database JDBC URL. JDBC URL is used to connect and configure the corresponding database. Examples are: SID : jdbc:oracle:thin:@host:port:sid Service Name : jdbc:oracle:thin:@//host:port/service_name TNS_ADMIN : jdbc:oracle:thin:@db_name?TNS_ADMIN=tns_admin_location
SOA_WL_MS_PORT	SOA Managed Server Cluster port. This will be the port number of the SOA cluster service inside Kubernetes SOA namespace.
SOA_DB_SYS_ROLE	SOA Database System role name. Example: SYSDBA
SOA_WL_ADMIN_PORT	SOA Admin server port. This will be the port number of the SOA admin server's service inside the Kubernetes SAO namespace.
SOA_WL_DOMAIN_NAME	Unique name that is used to identify this particular domain where AIA needs to be installed.
SOA_WL_MS_NAME	For single node WebLogic Server, use the WebLogic managed server's name. For cluster based WebLogic Server configuration, use the name of the SOA WebLogic Server cluster instance generated for the domain.
SOA_DB_JDBC_URL	SOA Database JDBC URL JDBC URL is used to connect and configure corresponding database. Example: SID : jdbc:oracle:thin:@host:port:sid Service Name : jdbc:oracle:thin:@//host:port/service_name TNS_ADMIN : jdbc:oracle:thin:@db_name?TNS_ADMIN=tns_admin_location
SOA_WL_MS_HOST	SOA managed server host name. This will be SOA cluster service name inside Kubernetes SOA namespace. The value can be derived from <i>domain_name-cluster-soa-cluster</i> .
SOA_WL_ADMIN_HOST	SOA Admin server host name. This will be the service name of admin server inside Kubernetes SOA namespace.
ODI_AABC_AGENT_PORT	The port assigned to the agent. For example: 20910.
ODI_AABC_REPID	The repository ID of the Oracle Data Integrator work repository for integration artifacts.
ODI_AABC_REPNAME	The name of the Oracle Data Integrator work repository for integration artifacts. For example: WORKREP
ODI_AABC_AGENT_APP_NAME	The application name for the standalone or Java EE agent. For example: oraclediagent Note: The application name for a standalone agent is always oraclediagent.
ODI_DB_HOST	The DNS name of the master repository database host. For example: odim.example.com
ODI_DB_SID	The master repository database system ID. For example: oracle
ODI_DB_PORT	The port assigned to the master repository database. For example: 1521
ODI_HOST	ODI host URL as per ODI Agents WSDL URL (only IP section is required)

## Parameters for AIA Certificates

[Table 8-4](#) lists the parameters that you configure for AIA Certificates. These parameters are available in the `$AIA_DIR/oc-cn-aia-comms/helm-charts/aia-comms-chart/charts/aia-comms-certs/values.yaml` file.

**Table 8-4 Parameters for AIA Certificates**

Parameter	Description
certificate.name	Name of the keystore where the certificate operation is to be performed. This value can be either the identityKeyStoreName or trustKeyStoreName.
certificate.identityKeyStoreName	Name of the identity KeyStore.
certificate.trustKeyStoreName	Name of the Trusted keyStore.
certificate.type	The type of certificate to be imported: TrustedCertificate.
wlsServerHome	The root directory of your WebLogic installation. If this is not changed during image creation, then root directory will be used as the default.
certificateSecretName	Specify the Kubernetes secret name used to create secrets of certificates to be imported.
seibel.alias	Specify the Siebel certificate details to be imported, deleted, or updated. The certificate alias name.
seibel.fileName	The file name placed in certificate directory to be imported.
seibel.operation	Supported operation types are import, delete, and update. Leave the operation field empty or commented in case no operation is required to be performed.
osm.alias	Specify the osm certificate details to be imported, deleted, or updated. The certificate alias name.
osm.fileName	Filename placed in certificate directory to be imported.
osm.operation	Supported operation types are import, delete, and update. Leave the operation field empty or commented in case no operation is required to be performed.

## Parameters for AIA PIPs Credentials

[Table 8-5](#) lists the parameters that you configure for AIA PIPs credentials. Deployment of AIA PIPs requires Kubernetes secrets for OSM, BRM, Siebel, Xref, and SOA. Do not create a Kubernetes secret for a particular component, if any of the components among OSM, Siebel, or BRM is not being deployed.

**Table 8-5 Parameters for AIA PIPs Credentials**

Component	Parameter	Description
OSM	OSM_CFS_WL_JMS_QUEUE_ACCESS_USER	OSM CFS Weblogic JMS Queue User Name
OSM	OSM_CFS_WL_JMS_QUEUE_ACCESS_PASSWORD	OSM CFS Weblogic JMS Queue Password
OSM	OSM_PROV_WL_JMS_QUEUE_ACCESS_USER	OSM Provisioning Weblogic JMS Queue User Name
OSM	OSM_PROV_WL_JMS_QUEUE_ACCESS_PASSWORD	OSM Provisioning Weblogic JMS Queue Password
OSM	OSM_CFS_ADMIN_USER	OSM CFS Admin User Name
OSM	OSM_CFS_ADMIN_PASSWORD	OSM CFS Admin Password
OSM	OSM_PROV_ADMIN_USER	OSM Provisioning Admin User Name
OSM	OSM_PROV_ADMIN_PASSWORD	OSM Provisioning Admin Password
BRM	BRM_AQ_USER	BRM AQ Queue User Name

Table 8-5 (Cont.) Parameters for AIA PIPs Credentials

BRM	BRM_AQ_PSWD	BRM AQ Queue Password
Siebel	SBL_EAI_USER	Siebel EAI Server User Name
Siebel	SBL_EAI_PSWD	Siebel EAI Server Password
Siebel	SBL_DB_USER	Siebel Database User Name
Siebel	SBL_DB_PSWD	Siebel Database Password
Xref	XREF_SCHEMA_NAME	Given Schema name will be used to create XRef
Xref	XREF_SCHEMA_PASSWORD	Given password will be used to create Xref
Xref	XREF_SCHEMA_SYS_USER	SOA Database SYS user name
Xref	XREF_SCHEMA_SYS_PASSWORD	SOA Database SYS password
SOA	SOA_WL_ADMIN_USER	SOA Weblogic server admin user name
SOA	SOA_WL_ADMIN_PASSWORD	SOA Weblogic server admin password
SOA	SOA_DB_USER	SOA DB user name in the format: <i>RCU_Prefix</i> <b>SOAINFRA</b>
SOA	SOA_DB_PASSWORD	SOA DB password
SOA	SOA_DB_SYS_USER	SOA DB SYS admin user name
SOA	SOA_DB_SYS_PASSWORD	SOA DB SYS admin user password
ODI	ODI_USER	The Oracle Data Integrator administrator's user name. For example: SUPERVISOR
ODI	ODI_PASSWORD	The password for the Oracle Data Integrator administration user.
ODI	ODI_DB_USER	The master repository database user. For example: ODI_REPO
ODI	ODI_DB_PSWD	The master repository database password.

# 9

## Upgrading to AIA Cloud Native

This chapter describes how to upgrade to this release of Oracle Application Integration Architecture cloud native deployment.

### About Upgrading to AIA Cloud Native

As a part of upgrading to AIA, you upgrade Oracle AIA pre-built integrations and Oracle AIA Foundation Pack to Oracle AIA cloud native.

It applies to upgrades from Oracle AIA version 12.3.2 (both cloud native and traditional deployments) deployed on Oracle Fusion Middleware 12.2.1.4, referred to as the source version. Oracle AIA cloud native 14.0 includes significant structural changes, including compatibility with Oracle Service Oriented Architecture (SOA) 14.1.2.0. Because of these changes, you cannot perform a traditional upgrade, and instead must perform a new installation of SOA 14.1.2.0 and migrate any relevant data. SOA 14.1.2.0 does not support in-place migration if the domains include SOA Core Extension. Hence, perform a side-by-side migration. For more information about SOA domain upgrade restrictions, see Oracle Fusion Middleware Upgrading SOA Suite and Business Process Management for release 14c (14.1.2.0).

### Performing Pre-Upgrade Tasks

Before upgrading to this release of Oracle AIA, perform the following pre-upgrade tasks:

1. Back up your source version of Oracle AIA, including the Oracle AIA home directory and any customized Oracle AIA artifacts in the enterprise object library. This includes customizations to:
  - Enterprise Business Objects (EBOs), including custom XSD files in the following directories:
    - *Install\_home/comms\_home/source/soainfra/apps/AIAMetaData/AIAComponents/EnterpriseObjectLibrary/Core/Custom/EBO/*
    - *Install\_home/comms\_home/source/soainfra/apps/AIAMetaData/AIAComponents/EnterpriseObjectLibrary/Industry/Industry\_Name/Custom/EBO*
  - Extensible style sheet language transformations (XSLTs)
  - Enterprise Business Services (EBS)
  - Web Service Definition Language (WSDL)
  - Any EBS with custom routing rules
  - The AIAConfigurationProperties.xml file.
2. Install or upgrade to compatible versions of the foundational software, as described in "Software Requirements".

**Note**

You must install SOA Suite 14.1.2.0 and create a new domain. Because Oracle AIA cloud native 14.0 requires a custom domain extension, you cannot upgrade an existing SOA domain.

For information about installing SOA Suite, see *Oracle Fusion Middleware Upgrading SOA Suite and Business Process Management*.

For information about version compatibility, see *Application Integration Architecture Compatibility Matrix*.

## Performing the Upgrade

To upgrade to Oracle AIA Cloud Native 14.0, install and configure Oracle AIA Cloud Native 14.0 as described in this guide. Because of the structural changes between source versions and Oracle AIA Cloud Native 14.0, you must perform a new installation of Oracle AIA.

Also, refer to "Overview of Oracle AIA Installation Procedure" for an overview of the installation process.

Do not deploy the pre-built integrations until after you have performed the other post-upgrade tasks described in "[Performing Post-Upgrade Tasks](#)".

## Performing Post-Upgrade Tasks

After upgrading to this release of Oracle AIA, perform the following tasks:

1. Set JVM parameters for Siebel CRM. See "[Setting JVM Parameters for Siebel CRM](#)" for more information.
2. Migrate any customizations or extensions that you made in source files and composites to 14.0 versions manually. See "[Migrating Custom Artifacts](#)" for more information.
3. Migrate Oracle AIA database tables, including error tables and cross-reference tables to the 14.0 database schema. See "[Migrating Database Tables](#)" for more information.
4. Deploy the 14.0 pre-built integrations as described in "[Deploying Pre-built Integrations](#)."
5. Perform post-installation tasks as described in "[Performing Post-deployment Tasks](#)."

## Setting JVM Parameters for Siebel CRM

After the upgrade, the Siebel CRM administrator must perform the following tasks for Siebel CRM:

1. Set up the Oracle WebLogic Server thin client for Siebel CRM:
  - a. On the SOA 14.1.2.0 host, navigate to `MW_home/wlserver/server/lib`.
  - b. Copy the `wlthint3client.jar` file to the JMS directory on the Siebel CRM host. This is the directory that contains the JNDI properties, `siebel.jar`, and `siebelUI_enu.jar` files.
  - c. If the `wlfullclient.jar` file also appears in the JMS directory on the Siebel CRM host, back the file up to another location and remove it from the JMS directory.
2. In Siebel CRM, from the site map, select **Administration - Server Configuration** and then select **Profile Configuration**.

3. In the Enterprise Profiles list, in the **Alias** column, select the row with **JAVA64**.
4. In the Profile Parameters list, select the JVM Classpath row.
5. In the **value** column, add the path to the newly-copied **wlthint3client.jar** file. On UNIX, separate the files in this field with a colon (:). On Windows, separate the files in this field with a semicolon (;). For example, on UNIX, `Oracle_home/jms/siebel.jar:Oracle_home/jms/wlthint3client.jar`.
6. Restart the Siebel CRM services.

## Migrating Custom Artifacts

After installing AIA, you must manually migrate any customizations you made to the source data.

To migrate custom artifacts:

1. For any of the Oracle AIA artifacts listed in the table that follows, merge any customizations to ready-to-use artifacts and copy custom-created artifacts into the 14.0 directory. The artifacts listed in the **14.0 Directory and Modified Artifacts** column have been updated for 14.0. When merging customizations to these artifacts, be careful not to overwrite the updated functionality.

**Table 9-1 Customized Oracle AIA Artifacts to Migrate**

Artifact	14.0 Directory and Modified Artifacts
Enterprise Business Objects Enterprise Business Services WSDL schemas	Directory: The appropriate subdirectory under <code>\$AIA_PV/aia-comms/commsOracleHome/comms_home/source/soainfra/apps/AIAMetaData/AIAComponents</code> No modified artifacts.
Cross-reference files	Directory: <code>\$AIA_PV/aia-comms/commsOracleHome/comms_home/source/soainfra/apps/AIAMetaData/xref</code> Modified artifacts: <ul style="list-style-type: none"> <li>• CUSTOMERPARTY_PARTYLOCATIONID</li> <li>• CUSTOMERPARTY_PAYPROFILEID</li> <li>• CUSTOMERPARTY_LOCATIONREFID</li> <li>• CUSTOMERPARTY_PARTYCONTACTID</li> <li>• CUSTOMERPARTY_BILLPROFILEID</li> <li>• SALESORDER_LINEID</li> <li>• CUSTOMERPARTY_ACCOUNTID</li> <li>• ITEM_ITEMID</li> <li>• CUSTOMERPARTY_CONTACTID</li> <li>• CUSTOMERPARTY_CONTACT_PHONECOMMID</li> <li>• CUSTOMERPARTY_ADDRESSID</li> <li>• CUSTOMERPARTY_HIERARCHYBILLINFO</li> <li>• CUSTOMERPARTY_PARTYID</li> <li>• INSTALLEDPRODUCT_ID</li> <li>• CUSTOMERPARTY_DEFAULTBALANCEGROUPID</li> <li>• SALESORDER_ID</li> <li>• CUSTOMERPARTY_CONTACT_EMAILCOMMID</li> </ul>

**Table 9-1 (Cont.) Customized Oracle AIA Artifacts to Migrate**

Artifact	14.0 Directory and Modified Artifacts
Domain value maps	Directory: \$AIA_PV/aia-comms/commsOracleHome/comms_home/source/ <b>soainfra/apps/AIAMetaData/dvm</b> Modified artifacts: <ul style="list-style-type: none"> <li>• SALESORDER_STATUS</li> <li>• ADDRESS_COUNTRYID</li> <li>• PRICE_OVERRIDETYPECODE</li> <li>• CUSTOMERPARTY_ACCOUNTTYPECODE</li> <li>• APPLIES_TO</li> <li>• PRICECHARGETYPE</li> <li>• SALESORDER_LINESTATUS</li> <li>• CUSTOMERPARTY_PAYPROFILE_PAYMETHODCODE</li> <li>• ITEM_BILLINGTYPECODE</li> <li>• CURRENCY_CODE</li> <li>• STATE</li> </ul>
XSLT files	Directory: \$AIA_PV/aia-comms/commsOracleHome/comms_home/source/ <b>soainfra/apps/services/.../service_name/SOA/Transformations</b> No modified artifacts.

2. Upload any new or changed files to the Oracle Metadata Services repository as described in "Managing Oracle AIA Files in the MDS Repository".
3. For any custom-created source services:
  - a. In Oracle JDeveloper version 14.1.2.0.0, open the **.jpr** file for the service. JDeveloper updates the composite.
  - b. Save the project and files under the appropriate directories. For example, save **.wsdl** files in the WSDL directory.
  - c. Deploy the custom services from the JDeveloper context menu. Use the **composite.xml** file in the service's SOA directory as the deployment descriptor file. For information about deploying applications using JDeveloper, see *Oracle Fusion Middleware Developing Applications with Oracle JDeveloper*.
4. For any ready-to-use source services that you have customized within customizable scopes:
  - a. Copy the required composite from the AIA server **COMMS\_Home/comms\_home/source/soainfra/apps** or **COMMS\_Home/comms\_home/pips** to your local JDeveloper.
  - b. Open the project in JDeveloper 14.1.2.0.0 and customize the customizable scopes.
  - c. Copy the composite and files back to the AIA server location from where they were copied.
  - d. Deploy the customized composite from the AIA server using PIP deployment scripts.
5. For the Agent Assisted Billing Care pre-built integration, manually migrate any customizations made in the source Oracle Data Integrator integration projects to 14.0. See *Oracle Fusion Middleware Developer's Guide for Oracle Data Integrator* for information about customizing Oracle Data Integrator integration projects.

## Migrating Database Tables

After migrating customizations, you must migrate the data in the following Oracle AIA database tables:

- Migrate the data in the source *domainName\_AIA* schema to the 14.0 SOAINFRA schema for the following tables:
  - AIA\_ERROR\_MONITOR
  - AIA\_ERROR\_FLEX\_FIELD

### Note

Because AIA\_ERROR\_FLEX\_FIELD depends on AIA\_ERROR\_MONITOR, you must migrate the data in AIA\_ERROR\_MONITOR first.

- Migrate your Oracle AIA cross-reference data from the source *AIAInstanceName\_XREF* schema to the 14.0 *domainName\_COMMS\_XREF* schema created by the Oracle AIA Configuration Wizard (where *AIAInstanceName* is the name of the source Oracle AIA instance and *domainName* is the name of the 14.1.2.0 SOA domain). You must migrate one cross-reference table at a time.

You can use Oracle SQL Developer to migrate the data as follows:

1. On the source environment in SQL Developer, in the Connections navigator, expand your source database connection, then expand **Tables**.
2. Right-click the table you want to export and select **Export**.
3. Select the **Export Data** option, specify the SQL format, and complete the export.
4. Move the exported SQL file from the source environment to the AIA 14.0 environment and open it in a text editor.
5. Remove the schema name and keep the file open.
6. On the 14.0 environment in SQL Developer, open the SQL Worksheet for your 14.0 database connection.
7. From the exported SQL file, copy all SQL statements and paste them into the SQL Worksheet.
8. Click the **Run Script** icon.

The data is imported.

### Note

If you see an error about large data size in the stack trace column, edit the SQL file to make one insert statement in a single line and try the import again.

Consult your database administrator for help migrating database data and see *Oracle SQL Developer User's Guide* for more details about using SQL Developer.

# 10

## Securing Your AIA Cloud Native Deployment

See *AIA Security Guide* for security considerations for your AIA cloud native deployment.