

Oracle Financial Services Data Integration

Cloning Guide

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ORACLE
Financial Services

OFS Data Integration Cloning Reference Guide

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Table of Contents

1	Preface	5
1.1	Background	5
1.2	Assumptions	5
1.3	Audience	5
1.4	Conventions	5
1.5	Typographic Conventions	5
1.6	Abbreviations	6
2	Set Up an OFSAA Instance Clone for the 8.1.x Release	7
2.1	Prerequisites	7
2.1.1	General Requirements	7
2.1.2	Source System Requirements	7
2.1.3	Target System Requirements	7
2.2	Cloning Process	9
2.2.1	Export the Complete Configuration and Atomic Schemas From the Source Environment	9
2.2.2	Restore the Complete Exported Schema Dumps Into the Target Environment Database	10
2.2.3	Provide Grants and Set Passwords Using the SysDBA User Login	11
2.2.4	Copy and Restore the OFSAA File System	11
2.2.5	Run the Port Changer Utility	12
2.2.6	Run the EncryptC.sh Utility to Change the Key and Encryption Strings for the OFS AAI Versions 8.1.0.0.0 and Higher	13
2.2.7	Perform the Post-Cloning Configurations	14
2.2.8	Create and Deploy the .ear/.war files	14
2.3	DIH Cloning Process	14

1 Preface

The purpose of this document is to serve as the reference material to the OFSAA administrators. This document contains detailed steps to set up an OFSAA Instance Clone for the 8.1.x.x releases.

1.1 Background

There is a consistent requirement for a faster and effective approach of replicating an existing OFSAA instance for further project developments. The approach is to set up the OFSAA instances that are exact copies of the current OFSAA instance.

1.2 Assumptions

The assumptions made in this document are:

- A working source OFSAA 8.1.x instance is in place.
- An appropriate target system exists for the new OFSAA setup.

1.3 Audience

This reference guide is for the administrators and implementation consultants responsible for the cloning of an OFSAA instance.

1.4 Conventions

The following text conventions are used in this document:

Conventions	Description
8.1.x	The OFSAA 8.1.x release.
Atomic Schema	The Database Schema where the application data model is uploaded.
Configuration Schema (Config Schema)	The Database Schema which contains setup related configurations and metadata.
Source	The source OFSAA system.
Target	The target OFSAA system.

1.5 Typographic Conventions

The following typographic conventions are used in this document:

Conventions	Description
Boldface	The boldface font type indicates graphical user interface elements associated with an action or terms defined in text or the glossary.
Configuration Schema (Config Schema)	The Database Schema which contains setup related configurations and metadata.
Italic	The italic font type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
Monospace	The monospace font type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1.6 Abbreviations

The following table lists the abbreviations used in this document:

Abbreviations	Description
OS	Operating System
UI	User Interface of the application

2 Set Up an OFSAA Instance Clone for the 8.1.x Release

This chapter contains information about the prerequisites, cloning, and post-cloning configurations for the 8.1.x release when setting up an OFSAA Instance Clone.

Topics:

- [Prerequisites](#)
- [Cloning Process](#)

2.1 Prerequisites

To set up an OFSAA Instance Clone for the 8.1.x release, complete the following prerequisites:

1. [General Requirements](#)
2. [Source System Requirements](#)
3. [Target System Requirements](#)

NOTE Complete the prerequisites and then perform the procedures mentioned in the [Cloning Process](#) section.

2.1.1 General Requirements

The following general requirements must be set up before beginning the cloning process:

1. The minimum OFSAA version must be Release 8.1.0.0.0.
2. The FTP/SFTP service is running on the OFSAA target system and the user credentials are available before you begin the cloning activities.

2.1.2 Source System Requirements

In the source system, complete the following requirements:

1. All DIH objects must be unpublished.
2. All the OFSAA services are stopped.
3. Database connection details such as the RAC/NON-RAC URL, the SID/Service Name, and the user credentials are available.

2.1.3 Target System Requirements

In the target system, complete the following requirements:

1. All the basic software required for the installation of OFSAA applications (including infrastructure) are installed and working on the machine identified as the Target OFSAA

instance. You can use the Environment Check utility to verify system readiness. For details on how to use the Environment Check Utility, see the [OFS Analytical Applications Environment Check Utility Guide](#).

For details on the software and hardware requirements, see the *Hardware and Software Requirements* section in the [OFS AAI Application Pack Installation and Configuration Guide](#).

NOTE Upgrade the Target OS version to the same version as that of the Source OS. Binaries are OS version specific and cloning requires that there is no mismatch of library files.

2. The web server and the web application server are configured. For details on how to configure web servers, see the *Configuring Web Server* section in the [OFS AAI Application Pack Installation and Configuration Guide](#).
3. The OFSAA installation directory is set as `$FIC_HOME` with the 750 permission.
For example, `/scratch/ofsaanew/OFSAA`
4. The OFSAA staging/metadata repository directory is set as `ftpshare` with the 775 permission.
For example, `/scratch/ofsaanew/ftpsharenew`
5. The database connection details such as the RAC/NON-RAC URL, the SID/Service Name, and the user credentials are available.

NOTE Create a new database instance that is different from the database instance used in the Source OFSAA instance.

6. The web server and the web application server identified for the deployment of the OFSAA applications are installed and configured on the machine which is identified as the web server and web application server.

NOTE If you intend to use the same web application server, then create a separate profile (WebSphere) or a domain (WebLogic).

7. The details of the WebSphere profile or the WebLogic domain or the Tomcat context are available.

NOTE Before executing the utility, ensure to configure the `RevLog4jConfig.xml` file with the default log paths.

2.2 Cloning Process

Before initiating the cloning process, perform these steps to retrieve the schema names:

1. Log in to the Source Config Schema.
2. Execute the following query to retrieve the Config Schema name and Atomic Schema name.

```
select dbuserid from db_master;
```

In the `expdp` and `impdp` database utilities, you can use the schema names in the `SCHEMAS` attribute.

Subsequent steps for cloning are described in the subsections in this topic and Table 1 acts as a quick start with a summary view of the cloning process.

Table 1: Quickstart for Cloning

Sl. No.	Cloning Process (click the links to go to the specified steps in the document)
1.	Export the complete Configuration and Atomic Schemas from the source environment.
2.	Restore the complete exported schema dumps into the target environment database. <ul style="list-style-type: none"> • Restore the complete exported schema dumps into the target environment database with a different database user name (schema).
3.	Provide grants and set passwords using the SysDBA user login: <ol style="list-style-type: none"> Provide the select grants permission on the <code>sys.V_\$parameter</code> view to the Config and Atomic Schemas of the target environment database. When you import into different schema names, set the passwords for the Config and Atomic Schemas of the target environment database same as that of the password in the source.
4.	Copy and restore the OFSAA file system.
5.	Modify files in the path <code>\$FIC_HOME</code> when you import the files into different schemas.
6.	Run the Port Changer utility.
7.	Run the <code>EncryptC.jar</code> utility to change the key and encryption strings.
8.	Perform the post-cloning configurations.
9.	Create and deploy the <code>.ear/.war</code> files.
10.	Access the UI.

2.2.1 Export the Complete Configuration and Atomic Schemas From the Source Environment

Export all the Configuration and Atomic Schemas from the Source environment.

For example:

```
expdp SYSTEM/oracle@OFSAA12C2DB DIRECTORY=data_pump_dir
DUMPFILE=ofsaaconf_ofsaaatm_%U.dmp filesize=2G SCHEMAS=ofsaaconf,ofsaaatm
LOGFILE=ofsaaconf_ofsaaatm_exp.log
```

NOTE Running the preceding command creates data dumps in the files in multiples of 2 GB. You can use any other equivalent commands/tools to archive the schemas.

2.2.2 Restore the Complete Exported Schema Dumps Into the Target Environment Database

Restore all the exported dumps into the Target environment database.

For example:

```
impdp SYSTEM/oracle@OFSAA12nDB DIRECTORY=data_pump_dir
DUMPFILE=ofsaaconf_ofsaaatm_%U.dmp SCHEMAS=ofsaaconf,ofsaaatm
LOGFILE=ofsaaconf_ofsaaatm_imp.log
```

NOTE Restoring the exported dumps creates the Config and Atomic Schemas with the same user credentials as that of the user credentials in the Source, along with the existing grants.

2.2.2.1 Restore the Complete Exported Schema Dumps Into the Target Environment Database With a Different Database User Name (Schema)

Restore all the exported dumps into the Target environment database with a different database user name (schema).

For Example:

```
impdp SYSTEM/oracle@OFSAA12nDB DIRECTORY=data_pump_dir
DUMPFILE=ofsaaconf_ofsaaatm_%U.dmp REMAP_SCHEMA=
ofsaaconf:newofsaaconf,ofsaaatm:newofsaaatm
LOGFILE=new_ofsaaconf_ofsaaatm_imp.log
```

NOTE

- Restoring the exported dumps creates the Config and Atomic Schemas with the users mentioned under the *REMAP_SCHEMA* attribute. The *REMAP_SCHEMA* attribute is replaced as that of the Source along with the existing grants as in the Source environment.
- Ignore the **ORA-39082** object type created with the compilation errors. You can rectify this later in the subsequent steps.

2.2.3 Provide Grants and Set Passwords Using the SysDBA User Login

[Restoring the complete exported dumps into the Target environment database with a different database User Name \(Schema\)](#) does not provide the select grants permission. You must log in with the SysDBA user role to provide the select grants permission and set the passwords. The following subsections provide the instructions.

2.2.3.1 Provide the Select Grants Permission on the `sys.v_$parameter` View to the Config and Atomic Schemas of the Target Environment Database

Provide the select grants permission on the `sys.v_$parameter` view to the Config and Atomic Schemas of the Target environment database.

For example:

Log in as sys user and run the following commands:

```
SQL> GRANT SELECT ON SYS.V_$PARAMETER TO ofsaacnf;
```

```
Grant succeeded
```

```
SQL> GRANT SELECT ON SYS.V_$PARAMETER TO ofsaatm;
```

```
Grant succeeded
```

2.2.3.2 Set the Passwords for the Config and Atomic Schemas of the Target Environment Database with Different Schema Names

When you import the Config and Atomic Schemas into the Target environment database with different schema names, set the passwords for the Config and Atomic Schemas the same as that in the Source environment database.

NOTE If this step is not applicable, ignore it and proceed to the next step.

For example:

Log in as sys user and run the following commands:

```
SQL> ALTER USER newofsaacnf IDENTIFIED BY welcome1;
```

```
User Altered
```

```
SQL> ALTER USER newofsaatm IDENTIFIED BY welcome1;
```

```
User Altered
```

2.2.4 Copy and Restore the OFSAA File System

To copy and restore the OFSAA file system, follow these steps:

1. Navigate to the `$FIC_HOME/utility/Clone/bin` directory in the Source environment and grant the 750 permission to all the files present in the directory.

2. Execute the command:

```
./OFSAA_Archive.sh
```

This step creates zipped files for the `$FIC_HOME` and `FTP SHARE` directories in their respective locations in the Source.

For example:

```
<FIC_HOME>.zip
```

```
<FTP SHARE>.zip
```

3. Copy the `<FIC_HOME>` and `<FTP SHARE>` archive files in the Binary mode from the Source to the Target in their respective locations, that is, as per the directories created in the `$FIC_HOME` and `FTP SHARE` directories. For more information, see [Set the OFSAA installation directory as \\$FIC_HOME](#) and [Set the OFSAA staging/metadata repository directory as ftpshare](#) in the *Target System Requirements* section.
4. The OFSAA installer creates entries in the `.profile` file of the Source. Copy the entries to the `.profile` file of the Target in the respective locations.
5. To extract the archive file, navigate to the directory where the zipped directory is present in the Target environment, and execute the following command:

```
unzip -a <<Zipped_file>>
```

For example:

```
unzip -a ftpshare.zip
```

Perform this step for both the `<FIC_HOME>` and `<FTP SHARE>` archive files. Extracts both the files in their respective locations in the Target environment.

6. Give the 750 permission recursively to the `$FIC_HOME` directory and the 775 permission to the `FTP SHARE` directory extracted in the Target environment.

For example:

```
chmod -R 750 $FIC_HOME
```

```
chmod -R 775 FTP SHARE
```

7. In the `.profile` file of the Target environment, modify the variables `FIC_HOME`, `JAVA_BIN`, `PATH`, `ORACLE_HOME`, `TNS_ADMIN`, `ORACLE_SID`, and `OFSAA_LOG_HOME` in the entries made by the installer according to the required values of the Target environment.

For example, change the path of Java Runtime in the `JAVA_BIN` variable according to the Java Runtime installation on the Target environment.

8. Execute the `.profile` file in the Target environment.
9. Edit the `tnsnames.ora` file present in the `$TNS_ADMIN` directory to add or edit the connection details to the OFSAA schemas of the Target environment.

2.2.5 Run the Port Changer Utility

Before running the Port Changer utility, complete the following prerequisites:

- Ensure that the `RevLog4jConfig.xml` file is configured with the default log paths.

- This utility connects to the Config Schema to collect all the configurations. Therefore, in the `$FIC_HOME/conf` directory, you must edit the `DynamicServices.xml` file for the `DEFAULT_CONNECTION_URL` attribute. Ensure that the `VALUE` is a qualified JDBC URL of the Target database.

To run the Port Changer utility, follow these steps:

1. Navigate to the `$FIC_HOME/utility/PortC/bin` directory in the Target.
2. Run the `PortC.sh` utility using the command:

```
./PortC.sh DMP
```

This command creates a file with the name `DefaultPorts.properties` in the `$FIC_HOME` directory. The directory contains the information related to the ports, IPs, and paths currently in use.

NOTE

It is mandatory to run the Port Changer utility using the `DMP` parameter every time before executing the utility using the `UPD` command.

3. Make the necessary changes to those ports, IPs, and paths in the `DefaultPorts.properties` file as per the Target environment. Save the changes.
4. Run the `PortC.sh` utility using the command:

```
./PortC.sh UPD
```

This command changes the ports, IPs, and paths in the `.profile` file (in the home directory), all the files in the `$FIC_HOME` directory, and the database tables according to the values mentioned in the `DefaultPorts.properties` file.

5. Execute the `.profile` file and create the EAR/WAR file. Then restart the OFSAA services and redeploy to the configured web application server.

2.2.6 Run the `EncryptC.sh` Utility to Change the Key and Encryption Strings for the OFS AAI Versions 8.1.0.0.0 and Higher

Run the `EncryptC.sh` utility to change the key and encryption strings for the OFS AAI 8.1.0.0.0 and higher versions.

NOTE

The file `EncryptC.sh` utility primarily maintains the new encrypt keys for a new environment. Therefore, there is no impact if you skip this optional step. You can choose to change the key and encryption strings at any time after cloning. However, it is recommended that you complete this step now.

For more information, see the *Generating new AESCryptKey.ext and updating the keystore* section in the *Key Management* section in the [OFS Analytical Applications Infrastructure Administration Guide](#).

2.2.7 Perform the Post-Cloning Configurations

Perform the post-cloning configurations as mentioned in the *Post Installation Configurations* section in the [OFS AAI Application Pack Installation and Configuration Guide](#).

2.2.8 Create and Deploy the .ear/.war files

To create and deploy the .ear/.war files, follow these steps:

1. Navigate to the `$FIC_WEB_HOME` directory in the Target environment.
2. Delete the OFSAA application *.war/*.ear file present in this directory.
3. Execute the command:

```
./ant.sh
```
4. Copy the generated .ear/.war file to the web application server identified for this OFSAA instance.
5. Modify all the database connection resources done on the web application server that is mapped to the new JDBC URL and database user credentials. Verify the test connection to validate.
6. Deploy the .ear/.war file using the web application server Admin console.

2.2.8.1 Access the UI

Access the OFS AAI UI by using the new IP Address/Host Name, the new Port, and the new Context Name.

For example:

```
http://<IP ADDRESS/ HOSTNAME>:<PORT>/<CONTEXT NAME>/login.jsp
```

2.3 DIH Cloning Process

The DIH Cloning process is as follows:

1. From the **Data Integration Hub Designer** window, select **Configure** and then select **Settings**.
2. Update the details (JDBC URL and Agent URL) with a new IP address and click **Save**.

NOTE

The ODI Project Name and Folder Name, to which the Cloned Environment would be pointed, must be the same as the Source.

3. Trigger ADI Refresh.
4. Resave all the EDS with new credentials and location as applicable.
5. Perform Target Datastore Refresh.

6. Import the following Knowledge modules and procedure to ODI. Obtain the following XMLs from \$FIC_HOME/\$FIC_HOME/ODI/Knowledge_Modules/ directory:
- KM_IKM_Hive_Control_Append.xml
 - KM_IKM_MultiFiles_to_Oracle__SQLLDR_with_EBCDIC__Direct_Target.xml
 - KM_IKM_MultiFiles_to_Oracle__SQLLDR__Direct_Target.xml
 - KM_IKM_Oracle_Extract.xml
 - KM_IKM_Oracle_Insert_Only.xml
 - KM_IKM_Oracle_Insert_Only__Ext_Tab_and_DB_.xml
 - KM_IKM_Oracle_Multi_Table_Insert_NonDirect.xml
 - KM_IKM_Oracle_Multi_Table_Insert_NonDirect__Ext_Tab_and_DB_.xml
 - KM_IKM_Oracle_Multi_Table_Insert__SQLLDR_with_EBCDIC__Direct_Target.xml
 - KM_IKM_Oracle_Multi_Table_Insert__SQLLDR__Direct_Target.xml
 - KM_IKM_SQL_to_File_Append.xml
 - KM_LKM_File_Hive_to_Oracle_Multi_Insert__OLH_.xml
 - KM_LKM_File_Hive_to_Oracle__OLH_.xml
 - KM_LKM_File_to_SQL.xml
 - KM_LKM_Hive_to_Oracle__Big_Data_SQL_.xml
 - KM_LKM_MultiFiles_to_Hive__EXTERNAL_TABLE_.xml
 - KM_LKM_MultiFiles_to_Oracle_Multi_Insert__EXTERNAL_TABLE_.xml
 - KM_LKM_MultiFiles_to_Oracle_Multi_Insert__SQLLDR.xml
 - KM_LKM_MultiFiles_to_Oracle_Multi_Insert__SQLLDR_with_EBCDIC.xml
 - KM_LKM_MultiFiles_to_Oracle__EXTERNAL_TABLE_.xml
 - KM_LKM_MultiFiles_to_Oracle__SQLLDR.xml
 - KM_LKM_MultiFiles_to_Oracle__SQLLDR_with_EBCDIC.xml
 - KM_LKM_Oracle_to_Oracle_Datapump__DBLINK_.xml
 - KM_LKM_Oracle_to_Oracle_Multi_Insert__DBLINK_No_Source_View__.xml
 - KM_LKM_Oracle_to_Oracle__DBLINK_No_Source_View__.xml
 - KM_LKM_SQL_to_Oracle.xml
 - KM_LKM_SQL_to_SQL.xml
 - KM_LKM_XML_to_Oracle.xml
 - KM_LKM_XML_to_Oracle_Multi_Table_Insert.xml

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In case of an upgrade, the following steps must be completed before importing Knowledge Modules:

1. Unpublish all the Connectors in DI.
 2. Delete all the Knowledge Modules from an ODI project referred to in DIH.
-
7. Obtain the following XMLs from standard ODI installation directory <ODI_INSTALL_DIR>/odi/sdk/xml-reference.
 - KM_CKM_Oracle.xml
 8. Obtain the following procedure XMLs from \$FIC_HOME/ODI/Procedures.
 - TRT_ControlFromHive.xml
 - TRT_Recon.xml

OFSAA Support

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