Oracle Financial Services

Environment Cloning Guide

ORACLE

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Oracle Financial Services Software, Inc.
World Headquarters
500 Oracle Parkway
Redwood Shores, CA 94065
U.S.A.

Oracle Financial Services Software, Inc.
Worldwide Inquiries:
Phone: +1.650.506.7000
Fax: +1.650.506.7200
www.oracle.com/us/industries/financial-services/

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About This Guide

This guide provides comprehensive instructions and steps in cloning OFSAA infrastructure v7.3.X and applications from one environment to another.

This chapter focuses on the following topics:

- Objectives
- Scope

Objectives

The purpose of this document is to explain the steps involved in cloning OFSAA infrastructure v7.3.X and applications from one environment to another.

Scope

If the products are installed with Oracle Financial Services Analytical Applications Infrastructure (OFSAAI), they will be included in the Clone steps from source to target.

CHAPTER 1 Full Migration

This chapter discusses the following sections:

- Introduction
- Pre-requisites
- Migration / Cloning Steps

Introduction

In the case of Full migration, OFSAA infrastructure need not be installed in the target environment. Instead, OFSAAI will also be cloned from the source environment. you with a clear route to improving the performance and scalability of your applications, albeit with increased administration of hardware and network resources.

Pre-requisites

1. Server (LINUX/AIX/SOLARIS) user in Target machine should have created in K-Shell with "chmod 755" permissions.

2. Pre-requisite software such as Java, Oracle Database and Web server (Tomcat /Websphere / Weblogic) have to be installed in target environment in similar way to source environment.
3. Config schema and same number of atomic schema has to created with same grants as Of source environment.
4. Ensure ports are available in target machine before updating the port numbers.

Note: Database users can be same name in case ORACLE SID is different for both environments, Different name in case ORACLE SID used is same as source environment.
List of ports to check is available in $FIC_HOME/PortsDef.log

Migration / Cloning Steps

For cloning or migration follow these steps:

OFSAAI Architect and Metadata level synchronization

In case of migration/cloning process, we can consider several cases.

Case 1:Single Tier - Single Tier

In this case, Source environment structure is single tier and user want to make the same Single Tier structure for Target as well. In Single Tier, all (App, Web and DB) Layers will be in same machine. Copy the installation folder, ftpshare folder and .profile file from source to target.

Note: The following sub directories under ftpshare contains environment specific data and can be ignored while cloning:

- FTPSHARE#/metadata/restore
- FTPSHARE#/UserReports

Case 2: Multi Tier - Multi Tier

In this case, Source environment structure is Multi tier and user want to make same Multi Tier structure for Target as well. In Multi tier, user has to copy each layer's installation folder, ftpshare folder and .profile in source environment to the Target environment. For more information on Multi tier structure, users can check the OFSAAI 7.3 Installation Manual.

Case 3: Single Tier - Multi Tier And Vice Versa

In this case, Source environment structure is Single tier and user want to make Multi Tier structure for Target.

For example:

In Source environment,

- Installation user Name: **ofsaai**
- Installation Folder Name : OFSAA72
- Installation Mount: /**home**

When you login to server with user ofsaai, it will redirect it to path:

`/home/OFSAA72` (Installation Folder Path). Under installation folder path, you will find all layers like ficapp, ficweb and ficdb folder structures. The installation folder contians only one .profile file with all layer information.

When migrating to Multi Tier environment for Target, the following structure is applicable:

- Installation user Name For App Layer : **ofsaaiapp**
- Installation user Name For Web Layer : **ofsaaiweb**
- Installation user Name For DB Layer : **ofsaaidb**

Accordingly the Installation folder path should be changed as `/home/OFSAA72app, /home/OFSAA72web, /home/OFSAA72db` respectively and the ficapp, ficweb,ficdb folder structure. You have to set three different `.profile` files for each installation folder path. Find a sample of `.profile` files (taken from AIX environment)for your reference. It explains how to modify the Single Tier .profile file entries to Multi Tier `.profile`.

Following are the .profile files attached:

- `.profile`
- `.profile_App`
- `.profile_db`
- `.profile_web`

Note: Download the PDF to your local system to access the attached files.

Note: In any cases listed above .profile copied to target environment should be changed to hold actual local paths for JAVA , PATH , ORACLE_HOME and other environment variables mentioned in `.profile`.

Database level Synchronization

Case 1

- Database user id and password for Config Schema and Atomic Schema are the same in source and target.
- DB Name (with which there should be an entry in the TNSNames.ora file in Oracle installation folder) should be the same in source and target.
- ORACLE SID is different for both environments.

Case 2

- Database user id and password for Config Schema and Atomic Schema are different in source and target.
- DB Name (with which there should be an entry in the TNSNames.ora file in Oracle installation folder) should be the same in source and target.
- ORACLE SID could be same or different for both environments

Importing Configuration schema in target environment

- Export the complete Config schema databases from source machine.
- Restore the exported backup in to target environment database Config schema.
- Follow the "IP Address related changes" section if your target environment is on different machine, "Update Port Addresses" section if your target environment is in same m/c or to change ports.
- Section "Update Configuration Files"," Update Config schema for Configurable Paths" and "Update Log Generating Files" are must be followed.
- Execute the CONFIG_TABLE_PRIVILEGES_FOR_ATOMIC_USER.SQL with Config Db user find config_table_privileges_for_atomic_user.sql file under $FIC_HOME directory.It prompt for the atomic user provide new Atomic schema Name which is created for clone on target enviroment.
- Perform "Post Cloning Activity steps" later stage to modify tables entries for config and atomic userid/password in config schema database.

Note: While importing and exporting the schema ensure that all objects get imported properly.Select 'alter table' table_name'allocate extent;' fromuser_tables where num_rows = 0 Import of atomic schema in target environment.

- Take a backup of atomic schema in source environment database. Include all the tables, packages, functions, procedures, sequences, views etc. Optionally, exclude data for the following tables or any large valume tables during backup (only structures need to be available in the dump and data can be re-loaded):
  - Staging tables
  - Instrument tables
  - Ledger_Stat table
  - FSI_MESSAGE_LOG
  - FSI_PROCESS_ERRORS

- Result output tables of ALM application (RES_DTL_XXXXXX, CONS_DTL_XXXXXX and all tables starting with "FSI_O_" keyword)
- Fact tables that belong to applications
- Restore the backup in to target environment database atomic schema
- Post-restoration, make sure all the database objects are in VALID state. Re-compile all the invalid objects (like packages, procedures, functions and views)
- Re-build indexes if required
- Below steps is optional and must for case 2, in case user name is not the same across environments.

1. Execute the statements in atomic schema of target environment if you want to update DATABASE OWNER information in some of the metadata tables.

Note: Download the PDF to your local system to access the attached file.

2. Replace the old Config DBuser with new config DB user in the views of target atomic schema referring old Config DB user and recompile.

   To get this list of views, you can execute the following query for invalid views from USER_OBJECTS dictionary :

```
SELECT  OBJECT_NAME  FROM USER_OBJECTS OB WHERE OB.STATUS='INVALID' AND
OB.OBJECT_TYPE='VIEW'
```

Case 3

In your source environment database, if you have created some unnecessary tables, views or any other database objects, which you do not want in the target environment database. Then skip those objects and take the dump and restore it in target database.

IP Address Related Changes

Whenever there is a change in the IP address of the machine where OFSAAI is installed following files need to be updated with the new IP, without which the application will not work.

Table 1. Update IP Address in Configuration Files

File to Be Changed	Place Holder	Field Updates
$FIC_HOME /conf/DynamicServices.xml	DEFAULT_CONNECTION_URL	Update the old DB IP with the new Physical DB IP address and SID.
	DATA_SERVER_IP	Update the old DB layer IP with the new DB layer IP address.
	ROUTER_HOST	Update the old DB layer IP with the new DB layer IP address.
	AM_HOST	Update the old DB layer IP with the new DB Layer IP address.
	WINDIR	Update the old IP with the new APP Layer IP address.
$FIC_HOME /conf/LookupServices.xml	IP	Update the old IP addresses with the new WEB Layer IP addresses , Server and Revagent meant for Applayer IP and DB Layer IP
$FIC_HOME /ficapp/common/FICServer/conf/FICWeb.cfg	SERVICES_FILE	Update the old IP with the new WEB Layer IP address.
	SERVLET_URL	Update the old IP with the new WEB Layer IP address.
	FIC_SERVER_IP	Update the old IP with the new APP Layer IP address.
$FIC_HOME /ficapp/ icc/conf/server.conf.properties	ICC_SERVER_HOST	Update the Old APP IP Address with the new APP Server IP Address
	ICC_ROUTER_HOST	Update the Old DB IP Address with the new DB IP Address
	MESSAGE_SERVER_HOST	Update the Old DB IP Address with the new DB IP Address
	REVELEUS_SERVER_HOST	Update the Old IP Addresses with new APP Server IP Address
$FIC_HOME /ficdb/conf/FICDB.cfg	FIC_SERVER_IP	Update the Old IP Address with new APP Server IP Address

Table 1. Update IP Address in Configuration Files

File to Be Changed	Place Holder	Field Updates
$FIC_HOME /ficdb/conf/am.conf	AM_HOST	Update the Old DB IP Address with the new DB IP Address
	ROUTER_NAME	Update the Old DB IP Address with the new DB IP Address
$FIC_HOME /ficweb/webroot/conf/ DynamicServices.xml	DEFAULT_CONNECTION_URL	Update the old DB IP with the new Physical DB IP address and SID
	DATA_SERVER_IP	Update the Old DB IP Address with the new DB IP Address
	ROUTER_HOST	Update the Old DB IP Address with the new DB IP Address
	AM_HOST	Update the Old DB IP Address with the new DB IP Address
	WINDIR	Update the Old IP with the new APP layer IP address.
$FIC_HOME /ficweb/webroot/conf/ LookupServices.xml	IP	Update the old IP addresses with the new WEB Layer IP addresses. Server and Revagent meant for Applayer IP and DB Layer IP
$FIC_HOME /ficweb/webroot/conf/ FICWeb.cfg	ICC_SERVER_HOST	Update the Old APP IP Address with the new APP Server IP Address
$FIC_HOME /ficweb/webroot/WEB-INF/ web.xml	FIC_WEBSERVER_IP	Update the old IP with the new WEB Layer IP address.
<USER_HOME_FOLDER>/. profile	MESSAGE_SERVER_HOST	Update the Old DB IP Address with the new DB IP Address
	FIC_ROUTER_HOST	Update the Old DB IP Address with the new DB IP Address

Update IP Address in Config Schema

Execute the IP_Changes.sql(file attached) under Config schema, provided the placeholders in the sql file are updated with the appropriate values.

Note: Download the PDF to your local system to access the attached file.

Update Port Addresses

The table below shows the file locations where the Infrastructure port numbers has to be changed.

Table 2. Port Address

File Location	Port	Description
$FIC_HOME /conf/DynamicServices.xml	DATA_SERVER_PORT	Update the Old Port with the new OLAPDATASERVER Port.
	ROUTER_PORT	Update the Old Port with the new ROUTER SERVER Port.
	AM_PORT	Update the Old Port with the new AM SERVER Port.
$FIC_HOME /conf/LookupServices.xml	JAVAPORT	Update the Old Port with the new JAVA Port.
	NATIVEPORT	Update the Old Port with the new Native Port.
	PORT	Update the Old Port with the new WEB SERVER Port.
	JAVAPORT(in REVAGENT Tag)	Update the Old Port with the new JAVA Port. (This is the port on which Reveleus agent listens).

Table 2. Port Address

File Location	Port	Description
$FIC_HOME /ficapp/common/FICServer/conf/FICWeb.cfg	FIC_SERVLET_PORT	Update the Old Port with the new WEB Server Port.
	SERVLET_URL	Update the Old Port with the new WEB Server port in the URL.
	FIC_NATIVE_PORT	Same as NATIVEPORT in the $FIC_HOME/conf/ LookupServices.xml.
$FIC_HOME /ficapp/ icc/conf/server.conf.properties	OBJECT_SERVER_PORT	Update the Old Port with the new OBJECT SERVER Port.
	NATIVE_SERVER_PORT	Update the Old Port with the new NATIVE SERVER Port.
	ICC_ROUTER_PORT	Update the Old Port with the new ROUTER SERVER Port.
	MESSAGE_SERVER_PORT	Update the Old Port with new MESSAGE SERVER Port.
	REVELEUS_SERVER_NATIVE_PORT	Same as NATIVEPORT in the $FIC_HOME/conf/ LookupServices.xml
$FIC_HOME/ficdb/conf/am.conf	AM_PORT	Update the Old Port with the new AM SERVER Port.
	ROUTER_PORT	Update the Old Port with the new ROUTER SERVER Port.
$FIC_HOME/ficdb/conf/FICDB.cfg	FIC_SERVER_PORT	Same as NATIVEPORT in the $FIC_HOME/conf/ LookupServices.xml

Table 2. Port Address

File Location	Port	Description
$FIC_HOME /ficdb/conf/olapdataserver.conf	CNF_OLAPDATASERVER_PORT	Update the Old Port with the new OLAPDATASERVER Port.
$FIC_HOME /ficweb/webroot/conf/ DynamicServices.xml	DATA_SERVER_PORT	Update the Old Port with the new OLAPDATASERVER Port.
	ROUTER_PORT	Update the Old Port with the new ROUTER SERVER Port.
	AM_PORT	Update the Old Port with the new AM SERVER Port.
$FIC_HOME/ficweb/webroot/conf/ LookupServices.xml	JAVAPORT	Update the Old Port with the new JAVA Port.
	NATIVEPORT	Update the Old Port with the new Native Port.
	PORT	Update the Old Port with the new WEB SERVER Port.
	JAVAPORT(in REVAGENT Tag)	Update the Old Port with the new JAVA Port. (Port on which OFSAAI agent listens).
$FIC_HOME /ficweb/webroot/conf/ FICWeb.cfg	FIC_SERVLET_PORT	Update the Old Port with the new WEB SERVER Port.
	ICC_SERVER_PORT	Same as OBJECT_SERVER_PORT in $FIC_HOME /ficapp/icc/conf/server.conf. properties
$FIC_HOME /ficweb/webroot/conf/ FivConfig.cfg	SOCK_SERVER_PORT	Update the Old Port with the new OLAPDATASERVER Port.
$FIC_HOME /ficweb/webroot/WEB-INF/ web.xml	FIC_WEBSERVER_PORT	Update the Old Port with the new WEB SERVER Port.

Table 2. Port Address

File Location	Port	Description
<INSTALL_HOME_FOLDER>/.profile	MESSAGE_SERVER_PORT	Update the Old Port with the new MESSAGE SERVER Port.
	FIC_ROUTER_PORT	Update the Old Port with the new ROUTER SERVER Port.
<CATALINA_HOME_FOLDER> /conf/server.xml	<CONNECTOR PORT PROTOCOL="HTTP/1.1" Or <CONNECTOR PORT="8443" PROTOCOL="HTTP/1.1" SSLENABLED="TRUE"	Update the Old Port with the new WEB SERVER Port. In case you web server is tomcat. Also change ' <Server port=' and '<Connector port="8218" protocol="AJP/1.3" .. ' other values

Update Port Address in Config Schema

Execute the PORT_Changes.sql(file attached) under Config schema, provided the placeholders in the sql file are updated with the appropriate values.

Note: Download the PDF to your local system to access the attached file.

Update Configuration Files

These are the changes for configuration related entries.

1. $FIC_HOME/conf/DynamicServices.xml
   - Update the old path of EVENT_REGISTRY with the new path of **EventReg.xml**
   - Update the old path of LOG4J_CONFIG_FILE with the new path of **log4j.conf.**properties.
   - Update the old path of NOTIFICATION_CONFIG_FILE with the new path of NotificationConfig.cfg
   - Update the old path of LOG_REGISTRY with the new path of LogRegistry.xml
   - Update the VALUE having old Config DB user of FIC_MASTER_USER_ID with the new Config DB user.
2. $FIC_HOME/ficweb/webroot/conf/ DynamicServices.xml
   - Update the old path of "EVENT_REGISTRY" with the new path of EventReg.xml
   - Update the old path of "LOG4J_CONFIG_FILE" with the new path of log4j.conf.properties
   - Update the old path of "NOTIFICATION_CONFIG_FILE" with the new path of NotificationConfig.cfg
   - Update the old path of "LOG_REGISTRY" with the new path of LogRegistry.xml

- Update the VALUE having old Config DB user of " FIC_MASTER_USER_ID" with the new Config DB user

3. $FIC_HOME/$FIC_HOME/ficweb/webroot/WEB-INF/web.xml

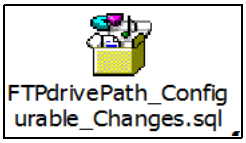
- Update the old path of “FIC_PHYSICAL_HOME_LOC” with the new path.(This is the path of the deployed location of OFSAAI in webserver)
- Update the old path of “FIC_HOME” with the new path.(Same as FIC_PHYSICAL_HOME_LOC)
- Update the old path of the “ICC_SERVLET_LOG_FILE" with the new path.(This is path of icc_servlet.log in the deployed location of OFSAAI in webserver)

4. $HOME/.profile with the new paths of, JAVA_HOME, JAVA_BIN, CATALINA_HOME (if the webserver type is Tomcat), FIC_HOME and ORACLE_SID

- Update the old path of “ORACLE_HOME” with the new path.(This is the path of the ORACLE_HOME directory of oracle client required in app, db and web layers)
- Update the old path of “JAVA_HOME” with the new path.(This is the path of the JDK install directory)
- Update the old path of the “CATALINA_HOME” with the new path.(This is path of tomcat install directory , required only in case webserver type is Tomcat in web layer install)
- Update the old path of “JAVA_BIN” with the new path.(This is the absolute path of the java executable in required in app , db and web layers)
- Update the old path of “FIC_HOME” with the new path.(This is your new OFSAAI install folder required in app , db and web layers)
- Update the old value of “ORACLE_SID” with the new Value in case your target DB server SID name is different. (This is required in db layers)

Update Config Schema for Configurable Paths

Execute the FTPdrivePath_Configurable_Changes.sql(file attached) under Config schema, provided the placeholders in the sql file are updated with the appropriate values.



Note: Download the PDF to your local system to access the attached file.

Note: Since you cannot get the encrypted password, you can skip the password setting step and after the completion of the cloning activity, you can re-login to the application to re-set your password.Further, go to System Configuration Server Details Screen to reset your password.

Update Log Generating Files

The following changes have to be done for configuring the log files with the new paths of OFSAAI and the deployed location of OFSAAI in Webserver.

1. $FIC_HOME/conf/RevLog4jConfig.xml

2. $FIC_HOME/conf/AdminConsolLog4Config.xml
3. $FIC_HOME/ficapp/common/FICServer/conf/LogRegistry.xml
4. $FIC_HOME/ficapp/common/FICServer/conf/log4j.conf.properties
5. $FIC_HOME/ficapp/icc/conf/log4j.conf.properties
6. $FIC_HOME/ficapp/icc/conf/server.conf.properties
7. $FIC_HOME/ficdb/conf/AgentLog4jConfig.xml
8. $FIC_HOME/ficdb/conf/rev_config.ini
9. $FIC_HOME/ficweb/webroot/conf/ExportLog4jConfig.xml
10. $FIC_HOME/ficweb/webroot/conf/RevLog4jConfig.xml
11. $FIC_HOME/ficweb/webroot/WEB-INF/web.xml
12. $FIC_HOME/ ficweb/webroot/conf/PR2Logger.xml
13. $FIC_HOME/ ficdb/conf/PR2Logger.xml
14. $FIC_HOME/ ficweb/webroot/conf/RFDlogger.xml
15. $FIC_HOME/ ficweb/webroot/conf/mdblogger.xml
16. $FIC_HOME/ ficweb/webroot/conf/MFLOGGERr.xml
17. $FIC_HOME/ ficdb/conf/MFLOGGERr.xml

Modify and Configure Webserver

1. Update webapp.dist value `$FIC_WEB_HOME/tomcat/tomcat.properties` with `<FIC_WEB_HOME>` directory (if the webserver type is Tomcat), `FIC_HOME` and `ORACLE_SID`.
2. Update <Context> section of `<Tomcat install Folder>/conf/server.xml` (if the webserver type is Tomcat), with new JDBC url ,Schema user and password and docBase with deploypath accordingly.

   Example:

```
<Context path="/OFSAAI73" docBase="/scratch/ofsaaapp/tom-
cat-7.0.19/webapps/OFSAAI73" debug="0" reloadable="false" crossContext="true">
<Resource auth="Container"
name="jdbc/FICMASTER"
type="javax.sql.DataSource"
driverClassName="oracle.jdbc.driver.OracleDriver"
username=" OFSAAI CONF"
password=" OFSAAI CONF"
url="jdbc:oracle:thin:@10.184.133.112:1521:OFSSEG"
maxActive="100"
maxIdle="30"
```

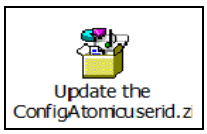
```
maxWait="10000" removeAbandoned="true" removeAbandonedTimeout="60" logAban-
doned="true"/>

<Resource auth="Container"

name="jdbc/ OFSAAI INFO"

type="javax.sql.DataSource"

driverClassName="oracle.jdbc.driver.OracleDriver"

username=" OFSAAI ATM"

password=" OFSAAI ATM"

url="jdbc:oracle:thin:@10.184.133.112:1521:OFSSEG"

maxActive="100"

maxIdle="30"

maxWait="10000" removeAbandoned="true" removeAbandonedTimeout="60" logAban-
doned="true"/>

</Context>
```

3. Configure Connection pool and Datasources in Webserver other than tomcat using respective Admin Console for new config schema and atomic schema of target environment.
4. Navigate to the command prompt, execute the .profile in the target environment.
5. Generate the **WAR/EAR** file and deploy the **WAR/EAR** file in webserver by following steps below.

- In the command prompt, navigate to the `$FIC_WEB_HOME` directory of WEB Layer and type `./ant.sh`. This will trigger the creation of EAR file-`<contextname>.ear`. The EAR file - <contextname>.ear - is created in `$FIC_WEB_HOME` directory of WEB Layer. On completion of EAR file creation, the message "BUILD SUCCESSFUL" is displayed.
- Now deploy this EAR file in webserver and WAR file in case webserver type is Tomcat.

Post Cloning Activity

Attached "Update the ConfigAtomicuserid.zip", which will guide you on how to update the user id /password for the tables `DB_MASTER` and `ETLSOURCEDETAILS`.



Note: Download the PDF to your local system to access the attached file.

1. Unzip the attached file and follow the instructions in the document.
2. Restart the APP and WEB Servers.
3. Login to OFSAAI.