Oracle Financial Services Data Foundation Application Pack

Cloning Reference Guide

Release 8.1.x

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Document Control

Version Number	Revision Date	Change Log
1.0	September 2020	Created the instructions to set up an OFSAA Instance Clone for the 8.1.x release.
2.0	October 2021	• Updated the section Perform the Post-Cloning Configuration. • Removed the EncryptC related content as it is not supported anymore.

Table of Contents

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.x releases.

- Purpose of this Document
- Assumptions
- Audience
- Access to the Oracle Support
- Conventions
- Abbreviations

1.1   Purpose of this Document

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   Access to the Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For more information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

1.5   Conventions

The following text conventions are used in this document.

Table 1: Document Conventions

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.

1.6   Typographic Conventions

The following typographic conventions are used in this document.

Table 2: Typographic Conventions

Conventions	Description
Boldface	The boldface font type indicates graphical user interface elements associated with an action or terms defined in text or the glossary.
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.
Hyperlink	Hyperlink type indicates the links to external websites, internal document links to sections.

1.7   Abbreviations

The following table lists the abbreviations used in this document.

Table 3: Abbreviations

Abbreviations	Description
OS	Operating System
UI	User Interface of the application
OFSAA	Oracle Financial Services Analytical Applications

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 the OFSAA services are stopped.
2. Database connection details such as the RAC or NON-RAC URL, the SID or 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 Oracle Financial Services Advanced Analytical Applications Infrastructure Environment Check Utility Guide Release 8.1.x.

   For details on the software and hardware requirements, see the *Hardware and Software Requirements* section in the Oracle Financial Services Advanced Analytical Applications Infrastructure Installation Guide Release 8.1.0.0.0.

   > **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 Oracle Financial Services Advanced Analytical Applications Infrastructure Installation Guide Release 8.1.0.0.0.

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 or NON-RAC URL, the SID or 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 4 acts as a quick start with a summary view of the cloning process.

Table 4: Quick start 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. • 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: **a.** Provide the select grants permission on the sys.V_$parameter view to the Config and Atomic Schemas of the target environment database. **b.** When you import into different schema names, set the passwords for the Config and Atomic Schemas of the target environment database the same as that of the password in the source.
4.	Copy and restore the OFSAA file system.
5.	Modify files in the path $FIC_HOME when you import the files into different schemas.
6.	Run the Port Changer utility.
7.	Perform the post-cloning configuration.
8.	Create and deploy the .ear/.war files.
9.	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 with the `expdp` command.

For example:

```
expdp SYSTEM/oracle@OFSA12C2DB  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 or tools to archive the schemas.

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

Restore all the exported dumps from the Source environment into the Target environment database with the `impdp` command.

For example:

```
impdp SYSTEM/oracle@OFSA12nDB  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 from the Source environment into the Target environment database with a different database user name (schema) with the `impdp` command.

For example:

```
impdp SYSTEM/oracle@OFSA12nDB 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 ofsaaconf;

Grant succeeded

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

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 newofsaaconf IDENTIFIED BY welcome1;

User Altered

SQL> ALTER USER newofsaaatm 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 archive utility:

   ```
   ./OFSAA_Archive.sh
   ```

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

For example:

```
<FIC_HOME>.zip
<FTPSHARE>.zip
```

3. Copy the `<FIC_HOME>` and `<FTPSHARE>` 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 `FTPSHARE` 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 `<FTPSHARE>` archive files. Extracts both the files in their respective locations in the Target environment.

6. Assign the 750 permission recursively to the `$FIC_HOME` directory and the 775 permission to the `FTPSHARE` directory extracted in the Target environment.

    For example:

    ```
    chmod –R 750 $FIC_HOME
    chmod –R 775 FTPSHARE
    ```

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. After the Cloning Process is complete, in the `ficdb/bin/righttoforget.sh` file, as per the `URL` parameter, the IP or Host Name and the Port values need to be changed manually.

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

2.2.6   Perform the Post-Cloning Configuration

Perform the post-cloning configuration as mentioned in the *Post Installation Configurations* section in the Oracle Financial Services Advanced Analytical Applications Infrastructure Installation Guide Release 8.1.x.

> **NOTE**   Ensure that you apply the Oracle recommended configuration mentioned in the *Configure Referrer Header Validation* Section in the Oracle Financial Services Analytical Applications Security Guide, to update the information.

2.2.7   Create and Deploy the .ear or .war files

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

1. Navigate to the `$FIC_WEB_HOME` directory in the Target environment.

2. Delete the OFSAA application `*.war` or `*.ear` file present in this directory.

3. Execute the command:

   `./ant.sh`

4. Copy the generated `.ear` or `.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` or `.war` file using the web application server Admin console.

2.2.7.1   Access the UI

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

For example:

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

3   Appendix A

Manually modify the occurrences of the Source database user name with a new Target database user name (see the REMAP_SCHEMA attribute mentioned in the <u>Restore the Complete Exported Dumps Into the Target Environment Database</u> section).

1. Log in to the newly imported Config Schema and update the column values as mentioned in the following table (ignore if there are no rows found).

Table 5: Update Config Schema Columns

Sl. No.	Table Name	Column Name
1.	DB_MASTER	DBUSERID and DBNAME
2.	AAI_DB_AUTH_ALIAS	V_AUTH_USERNAME and V_AUTH_ALIAS
3.	AAI_DB_DETAIL	V_SCHEMA_NAME and V_DB_NAME
4.	AAI_DMT_SOURCE	V_TABLE_OWNER and V_DB_NAME
5.	AAI_ETL_SOURCE	V_TABLE_OWNER and V_DB_NAME
6.	ETLSOURCEDETAILS	V_SCHEMA
7.	DSNMASTER	DBNAME, V_INFO_DB_NAME, and CREATEDUSR
8.	AAI_DB_PROPERTY	V_PROPERTY_VALUE and V_DB_NAME
9.	METADATA_ELEMENT_MASTER	V_ELEMENT_VALUE
10.	VIEW_DERIVED_ENTITY_TPOSE	SCHEMA_NAME
11.	I18NMASTER	REVCONTEXT

NOTE	**V_DB_NAME** and **DBNAME** column name values are TNS aliases for Atomic Schema and must not contain underscores.
	For example, if the Target Schema Name is PROD_OFSAAATMNEW, then the value for V_DB_NAME must be entered as PRODOFSAAATMNEW.

2. Manually modify the occurrences of the Source Config database user name with the new Target Config database user name. See the following table for details.

Table 6: Source and Target Config Database User Name Files

Sl. No.	Directory Path	File Name
1.	$FIC_HOME/conf/	Reveleus.SEC
2.	$FIC_HOME/utility/OFSAAGenerateRepository/conf/	Reveleus.SEC
3.	$FIC_HOME/conf/	DynamicServices.xml
4.	$FIC_HOME/MigrationUtilities/Migration_LDAP/conf/	DynamicServices.xml
5.	$FIC_HOME/utility/OFSAAGenerateRepository/conf/	DynamicServices.xml
6.	$FIC_HOME/ficweb/webroot/conf/	DynamicServices.xml

Sl. No.	Directory Path	File Name
7.	$FIC_HOME/EXEWebService/Tomcat/ROOT/conf/	DynamicServices.xml
8.	$FIC_HOME/EXEWebService/WebSphere/ROOT/conf/	DynamicServices.xml
9.	$FIC_HOME/EXEWebService/weblogic/ROOT/conf/	DynamicServices.xml
10.	$FIC_HOME/commonscripts/	ofs_aai_create_atomic.ora

> **NOTE**   Based on the Web Application Server, choose the relevant directory path from Sl. No. 7, 8, or 9 from the above table.
>
> The file mentioned in Sl. No. 10 is not applicable for new installations (that are not upgrade installations from previous versions) of the OFS AAI versions 8.1.0 and higher.

3. Execute scripts on the Atomic Schemas to update the new Target Config database user name as mentioned in the following steps:

> **NOTE**   This step is not applicable for new installations (that are not upgrade installations from previous versions) of the OFS AAI versions 8.1.0 and higher.

   a. Navigate to the `$FIC_HOME/commonscripts/` directory on the OFS AAI server.

   b. Create a copy of the `ofs_aai_create_atomic.ora` file as `ofs_aai_create_atomic_<INFODOM>.ora`.

   c. Replace the $INFODOM placeholder with the actual infodom name in the `ofs_aai_create_atomic_<INFODOM>.ora` file.

> **NOTE**   Enclose the actual infodom name within a single quote.

INFODOM is associated with each Atomic Schema. Therefore, you must create individual files for each Atomic Schema.

You can fetch the INFODOM value associated with each Atomic Schema by executing the following query in the newly modified Config Schema:

```
SQL> select h.dbuserid, g.dsnid from dsnmaster g, db_master h where
g.dbname = h.dbname and h.dbname <> 'CONFIG';
```

   d. Connect to the Atomic Schemas using the sqlplus utility present in the `$ORACLE_HOME/bin` directory.

   e. Execute the `ofs_aai_create_atomic_<INFODOM>.ora` file and ignore the **ORA-00001** and **ORA-02292** errors in the log file. If there are other errors, contact My Oracle Support (MOS).

```
SQL> spool aai_create_<INFODOM>.log
```

```
SQL> @ofs_aai_create_atomic_<INFODOM>.ora
SQL> spool off
SQL> exit;
```

> **NOTE**   Repeat this step for all the Atomic Schemas.
>
> After the execution, delete all the files created as
> `ofs_aai_create_atomic_<INFODOM>.ora`.

f. Log in to the newly imported Atomic Schemas. Perform the following steps on each Atomic Schema to modify the interdependent object:

Execute the following query to verify invalid object status:

```
select object_type, object_name from user_objects
where object_type in ('FUNCTION','PACKAGE','PACKAGE
BODY','PROCEDURE','TRIGGER','VIEW') and status = 'INVALID'
order by object_type , object_name;
```

If the preceding query lists out the objects, then you can compile the invalid objects and enable the object registration elements by following these steps:

i. Run the following anonymous block to compile the invalid objects:

```
BEGIN

  FOR cur_rec IN ( select object_type, object_name from
user_objects

where object_type in ('FUNCTION','PACKAGE','PACKAGE
BODY','PROCEDURE','TRIGGER','VIEW') and status = 'INVALID'

order by object_type , object_name )

  LOOP

    BEGIN

IF cur_rec.object_type = 'PACKAGE BODY' THEN

 EXECUTE IMMEDIATE 'ALTER PACKAGE ' || ' "' || cur_rec.object_name
|| '" COMPILE BODY';

            COMMIT;

            ELSE

 EXECUTE IMMEDIATE 'ALTER ' || cur_rec.object_type || ' "' ||
cur_rec.object_name || '" COMPILE';

            COMMIT;

      END IF;

      EXCEPTION

        WHEN OTHERS THEN NULL;

      END;

    END LOOP;

END;
```

ii. Run the following scripts to enable the object registration elements:

```
spool <Validpath>/restore_owner.log

alter table REV_TABLES_TL disable constraint FK_REV_TABLES_TL_1

/

alter table REV_TABLE_CLASS_ASSIGNMENT disable constraint
FK_V_TABLE_CLASS_ASSIGNMENT_2

/

alter table REV_TAB_COLUMNS disable constraint FK_REV_TAB_COLUMNS_1

/

alter table REV_TABLE_LOG_CLASS_ASMNT disable constraint
FK_V_TABLE_CLASS_LOG_ASMNT_2

/

alter table REV_TAB_CONSTRAINTS disable constraint
FK_REV_TAB_CONSTRAINTS

/

alter table REV_TAB_CONSTRAINT_COLUMNS disable constraint
FK_REV_TAB_CONST_COLUMNS

/

alter table REV_TAB_INDEXES disable constraint FK_REV_TAB_INDEXES

/

update FSI_DB_INFO set owner=USER

/

update REV_COLUMN_PROPERTIES set owner=USER

/

update REV_DESCRIPTION_TABLES set owner=USER ,
DESCRIPTION_TABLE_OWNER=USER

/

update REV_TABLES_B set owner=USER

/

update REV_TABLES_TL set owner=USER

/

update REV_TABLE_CLASS_ASSIGNMENT set owner=USER

/

update REV_TAB_COLUMNS set owner=USER

/

update REV_TAB_COLUMNS_MLS set owner=USER

/

update REV_VIRTUAL_TABLES set owner=USER

/
```

```
update REV_VIRTUAL_TABLES_MLS set owner=USER
/
update REV_VIRTUAL_TABLES_TL  set owner=USER
/
update REV_TAB_CONSTRAINTS set owner=USER
/
update REV_SYNONYMS set table_owner=USER
/
update REV_TABLE_LOG_CLASS_ASMNT set owner=USER
/
update REV_TAB_CONSTRAINT_COLUMNS set owner=USER
/
update REV_TAB_INDEXES set owner=USER
/
update REV_TAB_REF_CONSTRAINTS set owner=USER
/
alter table REV_TABLE_LOG_CLASS_ASMNT enable constraint
FK_V_TABLE_CLASS_LOG_ASMNT_2
/
alter table REV_TAB_CONSTRAINTS enable constraint
FK_REV_TAB_CONSTRAINTS
/
alter table REV_TAB_CONSTRAINT_COLUMNS enable constraint
FK_REV_TAB_CONST_COLUMNS
/
alter table REV_TAB_INDEXES enable constraint FK_REV_TAB_INDEXES
/
alter table REV_TAB_COLUMNS enable constraint FK_REV_TAB_COLUMNS_1
/
alter table REV_TABLE_CLASS_ASSIGNMENT enable constraint
FK_V_TABLE_CLASS_ASSIGNMENT_2
/
alter table REV_TABLES_TL enable constraint FK_REV_TABLES_TL_1
/
commit
/
spool off
exit;
```

OFSAA Support

Raise a Service Request (SR) in My Oracle Support (MOS) for queries related to the OFSAA applications.

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- Is the information clearly presented?

- Do you need more information? If so, where?

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