

Pure Storage
ObjectEngine
Configuration Guide for
Oracle® Secure Cloud
Backup Module



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About this Guide

This configuration guide is intended for array administrators considering implementing flash-to-flash-to-cloud (F2F2C) data protection architecture using Pure Storage flash array systems and Oracle Secure Backup Cloud Module (OSB) integrated with Oracle Recover Manager (RMAN). Users should be familiar with storage and networking concepts.

Prerequisites

Before you begin:

- Review additional documentation to understand the process and requirements (see Reference Documentation)
- Ensure all host servers meet specified requirements before installing Oracle RMAN using Oracle® Secure Backup Cloud Module. For more information about system requirements, see *Oracle® Secure Backup Installation and Configuration Guide*.
- Configure all deployed standalone media with a hostname-based security.
- Complete the ObjectEngine setup:
 - Install ObjectEngine Software and set up on nodes.
 - Configure the ObjectEngine cluster.
 - Add a FlashBlade backend data store.

NOTE: If you are planning to configure two backends and change the data retention period on the primary, it is recommended that you first configure a FlashBlade as the primary and then configure AWS as the second backend data store.

For more information about setting up an ObjectEngine cluster, see *Pure Storage ObjectEngine Software Installation and Configuration Instructions 5.1.0*.

- Use ObjectEngine GUI-Settings to create the users. If there are existing Amazon IAM users, make sure the users are configured with the proper access keys to connect to ObjectEngine and use Oracle Secure Backup.
- Use ObjectEngine GUI to create user access key ID, secret access key, and S3 bucket name(s) mapped to an AWS endpoint.

Reference Documentation

The following supporting documentation are available for reference:

Document	Location
Quick Hardware Installation guide	https://support.purestorage.com/ObjectEngine/ObjectEngine_Hardware/ObjectEngineA/ObjectEngineA_Install_and_Upgrade_Guides/ObjectEngineA_Quick_Installation_Guide
ObjectEngine Technical Specifications	https://support.purestorage.com/ObjectEngine/ObjectEngine_Hardware/ObjectEngineA/ObjectEngineA_Product_Information/ObjectEngineA_Technical_Specifications
ObjectEngine Platform User Guide	https://support.purestorage.com/ObjectEngine/ObjectEngine_User_Guides
ObjectEngine Software Installation and Configuration Instructions	https://support.purestorage.com/ObjectEngine/ObjectEngine_User_Guides
Console Connection for OE//A270	https://support.purestorage.com/ObjectEngine/ObjectEngine_KB_Internal_Staging/Console_Connection_for_OE%2F%A270
ObjectEngine Production Passwords	https://support.purestorage.com/ObjectEngine/Object_Engine_Software_-_OES/OES_General_Troubleshooting/ObjectEngine_Production_Passwords
ObjectEngine Dynamic Root Login (currently using FA information)	https://support.purestorage.com/FlashArray/PurityFA/General_Troubleshooting/Pure_Storage_FlashArray_Dynamic_Root_Password_User_Guide
Backup Configuration Guides	https://support.purestorage.com/Solutions
ObjectEngine RemoteAssist and Phonehome Requirements (currently using FA information)	https://support.purestorage.com/FlashBlade/Purity_FB/Purity_FB_General_Troubleshooting/Requirements_for_FlashBlade_Remote_Assist_(RA)_and_Phonehome

Configure Oracle Secure Backup Cloud Module

The Oracle Secure Backup (OSB) Cloud Module is an integrated module that enables RMAN to use cloud-based storage such as Amazon S3 services for backing up and recovering Oracle databases.

Before you begin, ensure the following tasks are completed before installing the OSB Cloud Module:

- [Register](#) for an Oracle Technology Network (OTN) Account
- Ensure the device running the S3 Backup Installer is running Java software version JDK 1.7 or later
- [Download](#) the S3 Backup installer for the OSB Cloud Module

Installing OSB Cloud Module

The OSB Cloud Module library needs to be installed and configured at the client before backing up the databases to ObjectEngine. The S3 backup installer command can be specified with certain parameters. For more information about command parameters, see [S3 Backup Installer Parameters](#).

Before you proceed, gather the following information for configuration purposes:

- User access ID
- Secret key from ObjectEngine
- Location of wallet directory for the Oracle database
- ObjectEngine node name
- Bucket name from ObjectEngine

To install the OSB Cloud Module library:

- 1 Enter the following command with specified parameters to run the S3 Backup installer:

```
java -jar osbws_install.jar
-AWSID <userid>
-AWSKey <secret key>
-walletDir $ORACLE_HOME/dbs/<wallet dir>
-libDir $ORACLE_HOME/lib
-awsEndpoint <OE node>
-location <bucket name>
-no-import-certificate
```

After running the command, the **libosbws.so** file is downloaded and placed in the **\$ORACLE_HOME/lib** directory. The command creates the directory for the wallet under **\$ORACLE_HOME/dbs** with the given name where the S3 credentials are stored. In addition, the command creates a configuration file with the name **osbws<ORACLE_SID>.ora** under **\$ORACLE_HOME/dbs**.

The following is an example of the output of the S3 backup installer command along with the contents of the configuration file.

```
[oracle@ora-m701-db01 ~]$ more oe_setup.sh
java -jar osbws_install.jar -AWSID FXXXXXX -AWSKey 4uxxxxx -walletDir
$ORACLE_HOME/dbs/sr_oltp_wallet1 -libDir $ORACLE_HOME/lib -awsEndpoint sn1-x601-
g10-30-node1 -location orabackup -no-import-certificate
[oracle@ora-m701-db01 ~]$ more $ORACLE_HOME/dbs/osbwsoltp01.ora
OSB_WS_HOST=http://sn1-x601-g10-30-node1
OSB_WS_BUCKET='orabackup'
OSB_WS_VIRTUAL_HOST=FALSE
OSB_WS_WALLET='location=file:/u01/app/oracle/product/12.2.0/dbhome_1/dbs/sr_oltp_
wallet1 CREDENTIAL_ALIAS=root-use_aws'
```

NOTE: Update the entry from **OSB_WS_LOCATION** to **OSB_WS_BUCKET** under the configuration file. The use of **OSB_WS_LOCATION** is not implemented at the ObjectEngine level and will display an error.

Configuring Oracle RMAN with ObjectEngine

After running the S3 Backup installer, run the following command specifying both the library and configuration file to connect your target database and configure an RMAN channel.

- 1 Enter the following command to run a backup from RMAN.

```
RMAN > CONNECT TARGET
RMAN> run
{
allocate channel c1 device type sbt
parms='BLKSIZE=1048576,SBT_LIBRARY=libosbws.so,
SBT_PARMS=(OSB_WS_PFILE=/home/oracle/Desktop/database/dbs/osbwsorcl.ora) '
format '%d_%u_s%s_p%p';
backup database filesperset 1;
}
```

NOTE: For Oracle 11g Release 2 databases and later, you must use the **SBT_PARMS** parameter for specifying environment variables. For databases before Oracle 11g Release 2, the **ENV** parameter of the **PARMS** option is still available to specify environment variables.

Appendix

Best Practices for OSB with ObjectEngine

The following explains the best practices for implementing OSB with ObjectEngine:

- Increase the number of RMAN channels to increase higher backup and restore bandwidth.
- Keep the FILESPERSET the same to preserve the deduplication across backups. If the FILESPERSET is changed between each backup, there is not a guarantee that each backup set will have the same set of datafiles and can significantly impact data reduction at the ObjectEngine level. For best practice, set the value at 1 as each backup set is comprised of one datafile to ensure data deduplication is not impacted.

OSB Cloud Module Configuration Parameters

The following table lists the OSB Cloud Module configuration parameters for specifying the settings used for backup operations.

Parameter Name	Description	Mandatory?
OSB_WS_PFILE	Indicates the configuration file for the SBT library. The default location for the configuration file is: Linux: ?/dbs/osbwsORACLE_SID.ora Windows: ?\database\osbwsORACLE_SID.ora Here, ? represents the ORACLE_HOME and ORACLE_SID represents the SID of the target database.	No
OSB_WS_HOST	Specifies the name of the host to which the backups are sent.	Yes
OSB_WS_PROXY	Specifies the proxy server and port when the target database is behind a firewall. It is specified in the <host>:<port> format.	No
OSB_WS_BUCKET	Specifies the bucket in which the SBT library stores backups. If this parameter is not specified, then the SBT library first attempts to find an existing bucket whose location matches the specified location from buckets whose names are prefixed	No

	with oracle-data-account name- . If no such bucket exists, then the SBT library creates a unique bucket with the above prefix.	
OSB_WS_LOCATION	<p>Specifies the Amazon S3 location where the backups must be stored. This value must match the location of the specified OSB_WS_HOST and the location of the OSB_WS_BUCKET (if specified). If this parameter is not specified, then the default Amazon S3 region is used.</p> <p>Refer to the Amazon S3 documentation for a list of valid pairs of endpoints and locations.</p>	No
OSB_WS_CHUNK_SIZE	<p>Specifies the object size, in bytes, that will be used when storing backups to Amazon S3. The default size is 100MB.</p>	No
OSB_WS_LICENSE_ID	<p>Specifies the unique license ID generated during installation for each AWS account.</p> <p>The current installer does not perform registration and therefore, this parameter is available only for compatibility reasons.</p>	No
OSB_WS_LICENSE_MAX_SESSIONS	<p>Specifies the number of connection sessions that can run. The SBT library does not allow you to create more than the specified number of sessions at any given time.</p>	No
OSB_WS_WALLET	<p>Defines the wallet location, alias, and proxy authentication alias through which the SBT library reads credentials.</p> <p>The format of this parameter is:</p> <p>LOCATION=<filename> CREDENTIAL_ALIAS=<alias> PROXY_AUTH_ALIAS=<alias></p> <p>LOCATION defines the location of wallet, CREDENTIAL_ALIAS defines the alias in the wallet from which AWS credentials are retrieved, and PROXY_AUTH_ALIAS defines the alias in the wallet from which the proxy authentication credentials are</p>	Yes

	retrieved. PROXY_AUTH_ALIAS is optional, the others are mandatory.	
OSB_WS_VIRTUAL_HOST	<p>Specifies the format of the host. The default value is TRUE.</p> <p>When set to TRUE, the format is http[s]://<bucket>.<host>. When set to FALSE, the format is http[s]://<host>/<bucket>. Use FALSE when the storage provider is not Amazon S3 but is compatible with S3.</p>	No
OSB_WS_IAM_ROLE	<p>Specifies the name of the IAM role that can be used to back up to Amazon S3. The Amazon EC2 instance must be configured with the specified IAM role.</p>	Yes, when using the metadata service.
OSB_WS_IAM_ROLE_META_URI	<p>Specifies the name of the metadata URI where temporary credentials for the IAM role are stored.</p>	No
OSB_WS_PRIVATE_CLOUD	<p>This parameter is the same as OSB_WS_VIRTUAL_HOST. It is obsolete and is available only for compatibility reasons.</p>	No

S3 Backup Installer Parameters

The following table lists the various parameters and its description used during the installation process.

Table 1 Available Parameters to Use When Installing the OSB Cloud Module Library

Parameter Name	Description	Mandatory?
AWSID	Access Key ID for the ObjectEngine account used to store RMAN backups.	Yes, if ObjectEngine identifiers are used to authenticate with Amazon S3.
AWSKey	Secret access key for the ObjectEngine account specified in -AWSID NOTE: To authenticate with Amazon S3, you must provide one of the following: <ul style="list-style-type: none"> • AWSID along with AWSKey • IAMRole 	Yes, if ObjectEngine identifiers are used to authenticate with Amazon S3.
IAMRole	AWS IAM (Identity and Access Management) role name that contains the temporary credentials that RMAN will use for backup and recovery operations. This role must be assigned with the appropriate privilege to access your S3 account. NOTE: To authenticate with Amazon S3, you must provide one of the following: <ul style="list-style-type: none"> • IAMRole • AWSID along with AWSKey 	Yes, when using IAM roles to authenticate with Amazon S3.
IAMRoleMetaURI	Temporary credentials for the specified IAM role are stored in Metadata URI. For Amazon EC2 users, specifying the metadata URI is optional. If this parameter is omitted, the temporary credentials are retrieved from the instance metadata.	No
awsEndpoint	Name of host specified for storing backups. If this parameter is omitted, backups will be stored on the default host.	Yes
awsPort	Non-default HTTP/HTTPS connection port number. The default port number for HTTP is 80- and HTTPS is 443.	No
location	ObjectEngine bucket name where the RMAN backups must be stored. If specified, the value must match the location of the awsEndPoint. For third-party S3-	No

	<p>compatible services, if a location is not required, set location to “us”.</p> <p>For more information, refer to the Amazon S3 documentation for a list of valid locations.</p>	
walletDir	<p>Location that stores the Oracle wallet that contains S3 credentials and proxy information.</p> <p>The Oracle wallet directory must exist before running the S3 Backup installer.</p> <p>For more information, see Hardware and Software Prerequisites for Oracle Secure Backup Cloud Module.</p>	Yes
configFile	<p>Name (with the complete path) of the configuration file that will be created by the installer. The parameters that are used while running RMAN jobs are obtained from this configuration file.</p> <p>If this parameter is omitted, the installer creates the configuration file and places it in a default system-dependent location.</p> <p>Default Linux location: \$ORACLE_HOME/dbs/osbsws<ORACLE_SID>.ora</p> <p>Default Windows location: \$ORACLE_HOME\database\osbsws<ORACLE_SID>.ora</p>	No
libPlatform	<p>Name of platform specified for library installation.</p> <p>The install tool determines the platform automatically by examining the system where it is running. This parameter allows specifying it explicitly.</p> <p>Supported values for the parameter are linux64, windows64, solaris_sparc64, solaris_x64, hpux_ia64</p>	No
proxyHost	<p>Name of the HTTP proxy server, if required. If the proxy server is specified, then the -proxyID and -proxyPass parameters are required.</p>	No
proxyPort	<p>Port number of the HTTP proxy server.</p>	No
proxyID	<p>User name of the HTTP proxy server.</p>	No
proxyPass	<p>Password for the HTTP proxy server user.</p>	No
trustedCerts	<p>List of SSL certificate to be imported into the Oracle wallet.</p>	No
argFile	<p>Name of the file where arguments must be read during installation. To read arguments from the standard input, specify “-”.</p>	No

useHttps	Sets up an HTTPS connection. If omitted, an HTTP connection is used.	No
useSigV2	Sets up an authentication scheme. If this parameter is specified, Signature Version 2 authentication is set up. If parameter is not specified, Signature Version 4 is set up. The recommended scheme is Signature Version 4.	No