

# **Oracle Health Insurance Back Office**

## **Service Consumer Installation & Configuration Manual**

Version 1.2

Part number: F25156-01

December 12, 2019

Copyright © 2019, Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this software or related documentation is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

#### **U.S. GOVERNMENT RIGHTS**

Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are “commercial computer software” or “commercial technical data” pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation shall be subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License (December 2007). Oracle USA, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

This software is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications which may create a risk of personal injury. If you use this software in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure the safe use of this software. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software in dangerous applications.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

This software and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

Where an Oracle offering includes third party content or software, we may be required to include related notices. For information on third party notices and the software and related documentation in connection with which they need to be included, please contact the attorney from the Development and Strategic Initiatives Legal Group that supports the development team for the Oracle offering. Contact information can be found on the Attorney Contact Chart.

The information contained in this document is for informational sharing purposes only and should be considered in your capacity as a customer advisory board member or pursuant to your beta trial agreement only. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described in this document remains at the sole discretion of Oracle.

This document in any form, software or printed matter, contains proprietary information that is the exclusive property of Oracle. Your access to and use of this confidential material is subject to the terms and conditions of your Oracle Software License and Service Agreement, which has been executed and with which you agree to comply. This document and information contained herein may not be disclosed, copied, reproduced, or distributed to anyone outside Oracle without prior written consent of Oracle. This document is not part of your license agreement nor can it be incorporated into any contractual agreement with Oracle or its subsidiaries or affiliates.

## CHANGE HISTORY

Release	Version	Changes
10.19.1.3.0	1.0	<ul style="list-style-type: none"><li>• Creation</li></ul>
10.19.1.4.0	1.1	<ul style="list-style-type: none"><li>• Small textual adjustments</li></ul>
10.19.2.0.0	1.2	<ul style="list-style-type: none"><li>• No changes, republished with a new part number</li></ul>

## RELATED DOCUMENTS

A reference in the text (**doc[x]**) is a reference to another document about a subject that is related to this document.

Below is a list of related documents:

- |               |                                                                                         |
|---------------|-----------------------------------------------------------------------------------------|
| <b>Doc[1]</b> | OHI Back Office - Installation & Configuration Manual (CTA13508)                        |
| <b>Doc[2]</b> | OHI Back Office - Custom Development for Oracle Health Insurance Back Office (CTA13678) |

---

# Contents

1	Introduction.....	6
1.1	Licenses.....	6
2	Architectural overview .....	7
2.1	Design .....	7
2.2	Main components .....	8
2.2.1	Queues.....	8
2.2.2	Weblogic.....	9
2.2.3	Oracle Service Bus project.....	9
3	Prerequisites .....	12
3.1	Database account for providing queue access.....	12
3.2	WebLogic Server environment for providing JMS queue access.....	12
3.3	Oracle Service Bus environment .....	12
4	Deployment Instructions .....	14
4.1	Secure storing of credentials .....	14
4.2	Foreign Queue configuration.....	15
4.3	OSB project deployment.....	18
5	Mapping web service consumers .....	21
5.1	Mapping/transformation.....	21
6	Back Office configuration .....	22
6.1	Timeout.....	22
6.2	Activation .....	22
7	Troubleshooting.....	24
7.1	Monitoring.....	24
7.2	Reporting .....	24
7.3	Querying Database Advanced Queues .....	25
7.4	Common errors.....	26

---

# 1 Introduction

The OHI Back Office web service consumers are designed to call third-party web services or web services that have an interface that has been defined by OHI. These web services are present in the world outside OHI Back Office and are called from the PL/SQL code within the OHI Back Office database, with several intermediary steps.

Each web service consumer has a corresponding PL/SQL wrapper package providing a PL/SQL interface to the public methods of the web service consumer.

The PL/SQL wrapper functions are called from within the OHI Back Office database and make use of two database queues with JMS payload. OHI provides an optional Oracle Service Bus (OSB) project definition, to implement the communication with the external service.

## 1.1 Licenses

No additional OHI Back Office license option is required to use the web service consumers. The web services (incoming messages) and web service consumers (outgoing messages) together constitute the 'Service Layer'. The web services part of the 'Service Layer' DO require an additional license.

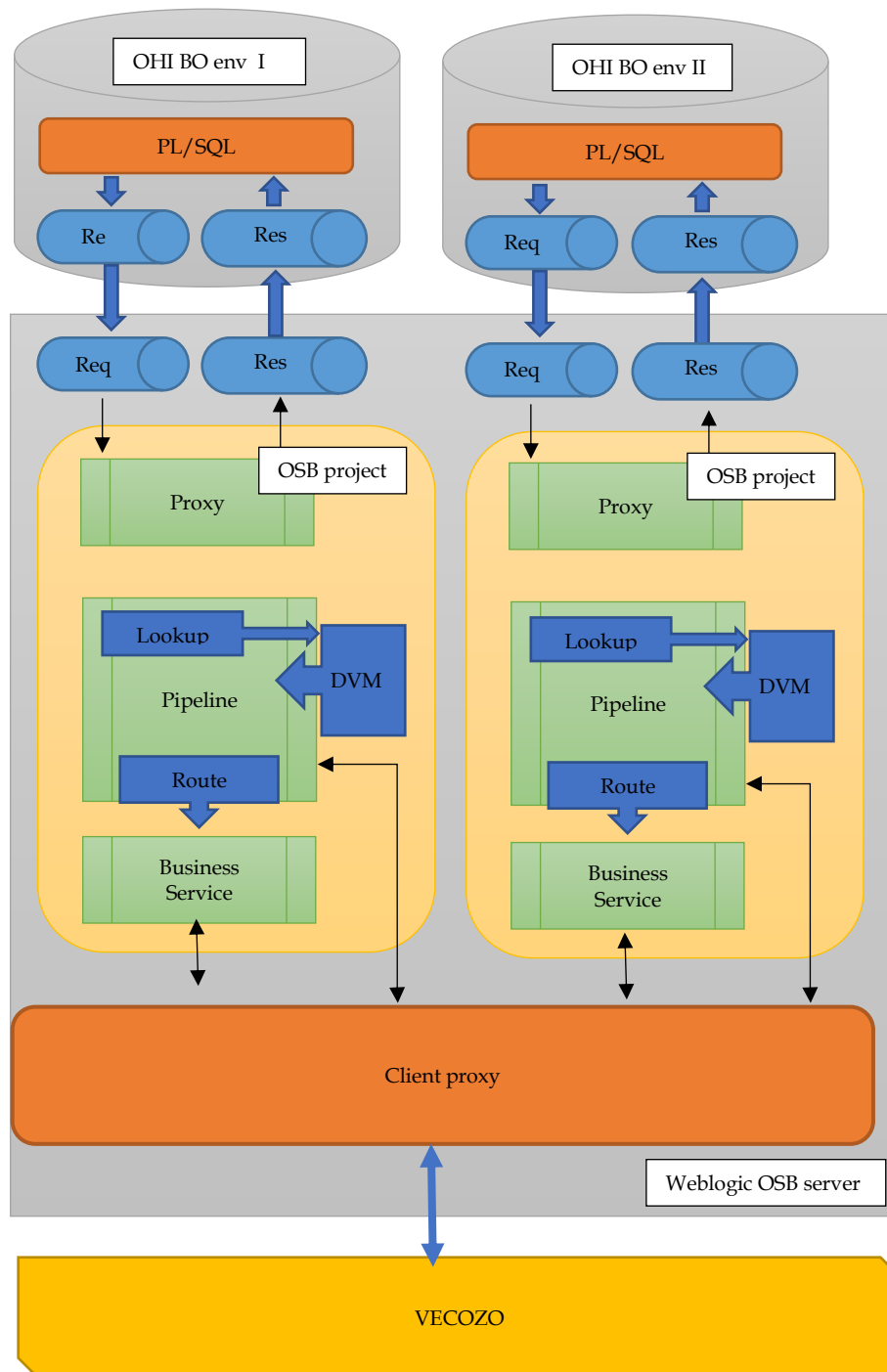
For further information, please consult your OHI sales representative.

## 2 Architectural overview

This chapter gives a high level architectural overview of the web service consumers, in short 'SVC'. The abbreviation SVC is used in many OHI module names to make clear the files belong to the **S**ervice **C**onsumer implementation, which makes use of 2 database queues with a JMS payload. These queues can be exposed by implementing an OSB project definition delivered by OHI. Customers are at liberty to expose the database queues and process the messages in their own custom way.

### 2.1 Design

The diagram below shows how two separate OHI Back Office environments use one Oracle Service Bus (OSB) environment with two OHI BO specific OSB project deployments to call web services offered by Vecozo (as an example) through a customer-specific proxy layer called by the OSB projects.



The solution is based on the following architecture:

- The OHI Back Office application puts a message of a specific type on the request queue from within a PL/SQL routine in the database.
- The calling PL/SQL routine behaves 'synchronously': after the message has been put on the request queue, the calling process waits for a response message on the response queue before it proceeds.
- Internally the PL/SQL routine stores a (SOAP) request message on an Advanced Queuing (AQ) database queue with a JMS payload.
- In the Oracle Service Bus, running within WebLogic Server, the AQ queue in the database is accessible by the WebLogic Server as a JMS queue, because it has been defined within WebLogic as a Foreign Queue. Enqueued requests are immediately dequeued by an OSB Adapter process which passes on the request to the designated web service or proxy service. The response is received and placed back on a JMS response queue, which is a Foreign Queue definition mapped to the AQ response queue in the database.
- The calling PL/SQL routine has been waiting for the response message to appear on the response queue since it has enqueued the request message. Technically, it has started a dequeue for a message with the corresponding correlation id. When the response is received the result is handed over as parameter to the caller. At that moment the PL/SQL call that implements the service call has finished.

## 2.2 Main components

This paragraph describes the components as shown in the diagram. These components are needed for the service consumer implementation to work.

### 2.2.1 Queues

---

The queues in the database are standard database Advanced Queues (AQ) with a JMS (Java Message Service) based payload of type AQ\$JMS\_TEXT\_MESSAGE. They are created by the OHI installation software, no additional action is required.

The AQ\$JMS\_TEXT\_MESSAGE is a structure that conforms to the JMS standard with plain text as message body (payload). This text can be formatted in any structure (XML, json, fixed length etc.)

The retention time on both queues is configured as one day. This means that the payload of the message will remain on the queue for a day after the message has been processed.

The customer can increase the retention time, providing the contents of the queue does not grow too much. The number of messages in the queue does affect the performance.

The message on the request queue gets a default expiration time of 25 seconds, consisting of the timeout for the call plus 10 seconds. The message will be put on the error queue if the message is not processed (dequeued) within this time. This expiration time can be overruled for each service consumer by a Back Office parameter setting.

The same two queues, with database names ALG\_SVC\_REQUEST\_QUEUE and ALG\_SVC\_RESPONSE\_QUEUE, are used for all service consumer implementations.



The type of web service being called is identified by the JMS type property of the request message. This property is used in the Oracle Service Bus project to determine which endpoint to call.

## 2.2.2 Weblogic

---

In Weblogic the request and response queue are exposed in a so called 'foreign server' with its own connection factory in a JMS module, supported by a connection pool with a data source that connects to the OHI BO database. In this way the database queues can be used by the Oracle Service Bus as standard JMS queue. The actual implementation as database based queue is not visible for the processes accessing the JMS queues.

## 2.2.3 Oracle Service Bus project

---

As part of the service consumer implementation, OHI delivers an Oracle Service Bus project definition. It is not mandatory to use this. Customers are free to implement an alternative custom solution as long as it handles the request and response queue messages in a similar way. See the Custom Development Guide **Doc[2]** for details on how to develop your own message handling.

An Oracle Service Bus project usually consists of at least

- a 'proxy service', which is the receiver of a request call
- a 'pipeline' definition implementing the actual logic
- a 'business service' where the endpoint is configured.

The OSB project uses a JMS Adapter as 'proxy service' to process messages enqueued on the request queue. The 'pipeline' determines which 'business service' to call to process the request message. The business service processes the service call and puts the response message on a separate response queue. A correlation id, which is part of the JMS payload, is used to 're-route' the response back on the response queue to the caller. The calling process starts a dequeue with this correlation id directly after having enqueued the request.

Customers need to run multiple OHI BO environments with potentially different OHI BO releases. A different OHI BO release may have a different version of the OSB Project, e.g. when a change is needed in the payload of a consumer service.

The OSB Project comes with tooling to support the parallel deployment of multiple OSB Projects in a single OSB instance. Names of OSB objects can include the OHI environment name, to make them recognizable and unique.

The OSB project must also support the addition of new service consumer with a minimum of code changes, and be configurable at deployment time.

To support this, a 'dynamic routing configuration' has been implemented. A Domain Value Mapping (DVM) file is used. The DVM is a component which is new since release 12 of the OSB. It supports a 'domain value' table/list, in fact a simple table structure.

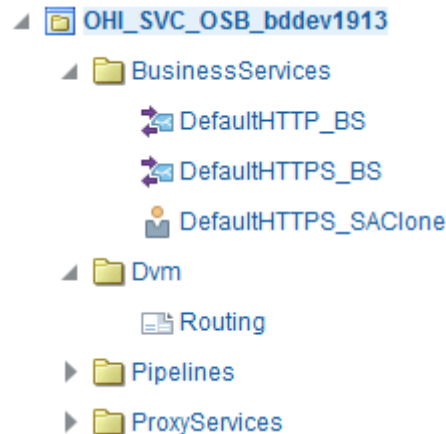
The pipeline determines the correct endpoint based on the JMS type in the request message and the corresponding entry in the DVM. In this way, a different endpoint is chosen for each service consumer. The DVM file can be filled with the correct endpoints for the specific OHI environment as part of the deployment.

Below a few records are shown in the DVM, after deployment. These are records of the OHI environment specific OSB project file for the environment 'bddev1913'. The

project name is 'OHI\_SVC\_OSB\_bddev1913' and is visible in the naming of the RouteService column value. The JMSType column indicates the different service consumers.

JMSType	RouteType	Route Service	endPointURI
SVL1001C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1001C
SVL1002C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1002C
SVL1003C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1003C
SVL1004C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1004C

The BusinessService DefaultHTTP\_BS is part of the same project as shown below in the opened project tree:



Based on the Route Type values in this DVM table a message can be routed in one of three possible ways. Note that the Routing Type can differ for each service consumer:

- When Route Type contains 'BS' a Business Service of the same project (by default) is specified that represents the provider system. In practice, this provider will not be the external party (e.g. VECOZO), but a service on an internal application server (e.g. in a DMZ) that forwards the call to the external party, e.g. VECOZO. The Business Service endpoint (that points to the provider) is also set according to the DVM record, using the 4<sup>th</sup> column. There is a default HTTP business service as well as an HTTPS business service. The protocol of the endPointURI should match that of the Business Service (e.g. be http or https too).  
There is also an option to route a request to a different business service as part of a different OSB project implementation, for example, if there are some specific configuration requirements, such as transformation of the message payload, additional security, etc.
- The Routetype column may also contain PP to specify a Pipeline to implement custom logic, if required. This requires a PipeLine definition to be added to the OSB project which makes adoption of newer versions of the OHI provided OSB project harder. The endPointURI is not relevant in this situation.
- Another option is to specify PS to redirect the request to a different Proxy Service that may be implemented by the customer. This Proxy Service might be used to handle message translation and interfacing with provider system(s). In this situation the endPointURI is not relevant either.

The 'business service' definition contains calls to external web services as well as service accounts containing the client certificates or credentials to implement

connectivity to client proxy services. The OSB currently includes one http and one https enabled business service, as described in the first bullet.

---

## 3 Prerequisites

The functionality of the service consumers may not be required in all OHI BO environments. It is needed in the Production environment and in some test environments. In environments where the service consumers are needed, this functionality must be enabled by fulfilling the prerequisites described below.

The deployment itself is described in the next chapter.

### 3.1 Database account for providing queue access

The optional database account OHI\_JMS\_QUEUE\_USER needs to be present. This account is also needed for accessing other JMS queues provided by OHI Back Office, so it may already be present.

How to configure this account is described in the generic OHI Back Office Installation, Configuration and DBA Manual (as mentioned in Doc[1]).

When the account is present it is possible to directly access the database queues from outside the database as JMS payload queues. In Java the JMS API is available by means of the oracle.jms Java package. For more information please use the database documentation and consult the Advanced Queuing User's Guide and/or the Advanced Queuing Java API Reference.

### 3.2 WebLogic Server environment for providing JMS queue access

If you decide not to use the Oracle Service Bus project definition provided by OHI, but use a custom solution to dequeue messages in the request queue, to implement the web service call and to return the response message on the response queue, you may still want to access the database queues as standard JMS queues.

One way of doing is, using WebLogic, is to set up a datasource, connection pool, JMS Server and JMS Module to create Foreign Queue definitions for both database queues. These Foreign Queues will then act as standard JMS queues.

You may choose to use a separate WebLogic domain for these Foreign Queues, or re-use a domain that is already used for the OHI web service components SVL, HSL or PSL.

For smaller OHI BO test environments with a limited use it may be convenient to combine these Foreign Queues with other service deployments in the same domain. It may well be that you configure Foreign Queues for multiple environments in the same domain.

A separate, clustered domain may be more appropriate for a highly available production situation.

As this all is standard WebLogic Server functionality available in all recent releases, there is no strict requirement for the WebLogic Server release to use to implement the Foreign Queues. A supported and certified version for the database release of OHI Back Office will suffice. Make sure you apply recent security and corrective patches on WebLogic.

### 3.3 Oracle Service Bus environment

If you decide to use the Oracle Service Bus project definition that is delivered as part of the OHI release you need to have a separate WebLogic Server installation for running the Oracle Service Bus (OSB).

In this way you can apply patches separately on the OSB technology stack and for the WebLogic Server environment that is used for the OHI Back Office web services and Forms components. OHI will perform a separate certification for the OSB technology stack, so the OSB and Forms/Web Services WebLogic Server versions will not have to be upgraded at the same moment.

Consult the Oracle Service Bus documentation for installing the WebLogic Server software and the Oracle Service Bus.

When the OSB is running you need to create Foreign Queues and accompanying components for each OHI BO environment that needs to be serviced by the OSB installation. Typically an OSB project and a set of Foreign Queues is created per OHI BO environment.

OHI advises a separate highly available OSB instance for a production situation.

---

## 4 Deployment Instructions

This chapter explains

- how to create the Foreign Queue definitions to access the two database queues
- how to deploy the OSB project delivered as part of OHI BO releases
- how to tailor the OSB project to your situation
- how to support multiple OHI BO environments with multiple instances of the OSB project. The versions of the OSB projects can be different.

Each OHI BO environment needs the following basic WebLogic objects, before the OSB project can be imported. If you decide not to use the OSB project but do want to use the Foreign JMS Queues to expose the database queues, these objects are needed too, with the exception of the Work Manager.

- A data source that can access the relevant request and response queue for the service consumer implementation messages.
- WebLogic foreign JMS queues for each of these queues.
- A work manager. The OSB project will link the work manager to the queues.

The OHI BO release contains template scripts and template property files to automate the setup of the Foreign Queues and a working OSB environment. The instructions in this chapter are based on these templates.

As these are templates you are free to change them as long as you do realize that a newer OHI releases may deliver a changed version of a template and you may have to merge changes into your version. The templates only provide limited functionality for simple deployment situations and are provided as a starting point. They are not intended as a configuration tool for handling more complicated configuration requirements. If you run into situations that are not supported adapt the templates to the situation or use a different method to deploy the components.

The templates are delivered in directory \$OZG\_BASE/Back-Office when OHI BO is patched so you will find them on the application server for OHI Back Office. Your OSB installation may well reside on other application servers. The scripts need to be run on the OSB server, so you need to consider where you will store and maintain them

NOTE: in this chapter, we will use “bddev1913” as the name of the OHI Environment

### 4.1 Secure storing of credentials

If you do not want to specify unencrypted usernames and passwords in scripts and do not want to provide them over and over when running the scripts interactively, consider the option to store the Weblogic credentials for the administrative account (typically ‘weblogic’) of the OSB domain in a set of secure files.

The commands below save the credentials for a Weblogic user in two files (a credential file and an accompanying key file).

The credential file can be decrypted by WLST using the key file during the execution of the WLST scripts.

To create the files execute the following steps:

- Set the environment variables to the WebLogic domain for OSB (typically \$DOMAIN\_HOME/setDomainEnv.sh)
- Run WLST:  
`$MW_HOME/oracle_common/common/bin/wlst.sh`
- Connect to the admin server:  
`connect('weblogic', '<pw>', 't3://<host>:<port>')`
- Create the files with `storeUserConfig`:  
`storeUserConfig(userConfigFile='myconfigfile.secure',  
userKeyFile='mykeyfile.secure')`

The files are created in the current directory unless you include a directory in the values.

- Exit:  
`disconnect()`  
`exit()`

In a property file, e.g. file `ohi_svc_osb_import.properties` that is discussed later in this chapter, provide both files (assuming the file location is in `/ohi/security`):  
`admin.configfile=/ohi/security/myconfigfile.secure`  
`admin.keyfile=/ohi/security/mykeyfile.secure`

## 4.2 Foreign Queue configuration

This paragraph describes how to define Foreign Queues to access the two database queues. For most non production environments the scripted configuration will facilitate the setup and provide an efficient deployment.

For a highly available production environment a manual setup may be preferred. We expect you to have the requisite knowledge to make this decision and to set this up. Feel free to tailor the Foreign Queue definitions to your needs to support a potential high load, fail-over, etc..

The instructions in this paragraph assume you are deploying to the OSB domain. If you are not using the OSB project, the Foreign JMS Queues may be deployed on another WebLogic Domain. The instructions are valid in that situation too. You may not require the Work Manager in that case.

Open a terminal window on the application server where you want to deploy the Foreign JMS Queues.

NOTE: It is possible to connect to the Admin Server of a WebLogic Domain remotely. That does work for the deployment of the Foreign JMS Queue, but not for the deployment of OSB Project later on In the remainder of this document, we will assume you run the deployment actions on the application server where the Admin Server of the OSB domain runs .

Please follow the configuration instructions below:

- Set the environment variables to the WebLogic domain for OSB (typically \$DOMAIN\_HOME/setDomainEnv.sh)
- Determine a working directory on the OSB server. Consider creating this directory in a central location outside the \$OZG\_BASE if you plan to adapt them or use them for multiple OHI BO environments. Be aware that the files in \$OZG\_BASE/conf/Back-Office will be overwritten by OHIPATCH.
- Copy the following files from \$OZG\_BASE/conf/Back-Office to the working directory. The first file is the script that will be actually called while the other three create the datasource, the foreign queues and the work manager, as implied by their name.
 

```

ohi_svc_wls.sh
ohi_svc_wls_datasource.py
ohi_svc_wls_queues.py
ohi_svc_wls_workmanager.py

```
- Copy ohi\_svc\_wls.properties.template to file ohi\_svc\_wls.properties (or include the name of the OHI environment e.g. ohi\_svc\_wls.bddev1913.properties) in that same working directory.
- Adapt the file ohi\_svc\_wls.properties to your specific circumstances.
- A short explanation for each property is given:
  - admin.url:  
Insert the administrative URL of the admin server (prefix it with t3 or t3s depending on whether you use the normal or SSL port).
  - admin.configfile and admin.keyfile:  
Insert the config- and keyfile name and location to connect securely automatically or leave these blank and provide username and password at the prompt at runtime.
  - env.name:  
Specify the name of the OHI BO environment (typically used also for the \$OZG\_BASE directory). Beware of the case sensitive nature of the value.
  - env.domain:  
Specify the WebLogic OSB domain of the OSB server (or the WebLogic domain if not deploying to OSB).
  - env.target.type:  
Specify the target type for the WLS data source and foreign queues. Choices are *Server* for a single Managed Server or *Cluster* for a cluster of Managed Servers.
  - env.target.name:  
Specify the name of the Server or Cluster.
  - datasource.user:  
This is the first property of a set of properties that are used to create the datasource definition in WebLogic to access the queues in the



OHI BO database of the OHI environment. The value MUST be OHI\_JMS\_QUEUE\_USER.

- `datasource.pwd_osvar`:  
This property specifies the name of an OS environment variable that may contain the value for the password of the datasource user account. This is one way to specify the password. See the description of file `ohi_svc_wls.sh` described below.
- `datasource.ohi_table_owner`:  
This specifies the table owner account of the OHI BO tables (for most OHI customers OZG\_OWNER). `datasource.dbhost`:  
The server name where the OHI BO database runs. This will be used to compose the classical JDBC connect string for the datasource, consisting of server name, port name and service name.. If a different format is required the provided scripts could be adapted .
- `datasource.dbport`:  
For the host specified in the previous property please provide the port of the Oracle Net listener (most often 1521).
- `datasource.dbservice`:  
specify the service name to connect to the database through the listener on the specified database server.

**NOTE: You have 3 options to supply the password for `ohi_jms_queue_user`. This is the user for the data source.**

1. **Supply the password interactively, while running `ohi_svc_wls.sh`**
2. **Register the name of an environment variable `<XXX>` in `datasource.pwd_osvar` in file `ohi_svc_wls.properties` and set `<XXX>` with this value before starting `ohi_svc_wls.sh`. Unset `<XXX>` after the script has been executed**
3. **Store the password in file `ohi_svc_wls.sh` before running the script and remove it after the script has been executed.**
  - Optionally adapt the file `ohi_svc_wls.sh` and set the password for the JMS queue database user account (`ohi_jms_queue_user`). When not set (no value specified) it will be asked interactively when running the script.
  - Run the file `ohi_svc_wls.sh` while specifying the properties file. This will create the different components in WebLogic to create the Foreign Queue definitions:  
`./ohi_svc_wls.sh ohi_svc_wls.properties`
  - Use the Weblogic Admin Console of the OSB domain at <http://<server>:<port>/console> (Not the OSB Console at `http://<server>:<port>/servicebus`) to check that the script has created the objects correctly:

Path	Name
Services -> Data Sources	DS_OHI_SVC_bddev1913
Services -> Messaging -> JMS Servers	OHI_SVC_bddev1913_Server
Services -> Messaging -> JMS Modules	OHI_SVC_bddev1913_Module

Services -> Messaging -> JMS Modules -> OHI_SVC_bddev1913_Module	OHI_SVC_bddev1913_ForeignServer
Services -> Messaging -> JMS Modules -> OHI_SVC_bddev1913_Module -> OHI_SVC_bddev1913_ForeignServer -> Destinations	OHI_SVC_bddev1913_REQUEST_QUEUE
Services -> Messaging -> JMS Modules -> OHI_SVC_bddev1913_Module -> OHI_SVC_bddev1913_ForeignServer -> Destinations	OHI_SVC_bddev1913_RESPONSE_QUEUE
Environment -> Work Managers	OHI_SVC_bddev1913_MT_2
Environment -> Work Managers	OHI_SVC_bddev1913_WM

- Restart the Managed Server(s) that form the Target.

### 4.3 OSB project deployment

The next step is to deploy the OHI OSB project.

OHI delivers a simple generic OSB project that needs to be customized and configured for each OHI environment.

The following steps are needed to create and deploy an environment specific project:

- Copy the following files from the Back-Office templates directory (\$OZG\_BASE/conf/Back-Office) to the working directory you created earlier.
  - o `ohi_svc_osb_configure.properties.template`;  
copy this to `ohi_svc_osb_configure.properties` or to `ohi_svc_osb_configure.bddev1913.properties`
  - o `ohi_svc_osb_import.properties.template`;  
copy this to `ohi_svc_osb_import.properties` (this file is not OHI environment specific, but will differ for each OSB domain)
  - o `ohi_svc_osb_configure.sh`
  - o `ohi_svc_osb_import.sh`
  - o `ohi_svc_osb_import.py`
- Copy the file `OHI_SVC_OSB.jar` from `$OZG_BASE/java` directory to the same working directory.
- Adapt the file `ohi_svc_osb_configure.bddev1913.properties` to your situation.
  - o `environmentCode`:  
typically you enter the name you use to identify the OHI BO environment, like you did before. We use `bddev1913` here.

- jms\* properties:  
Use the same replacements as in the previous paragraph “Foreign Queue configuration”. The results should match the properties of the objects in the WebLogic Admin Console.
- Next there is a set of three properties for each service consumer that is defined in OHI BO:
  - ...ROUTE\_TYPE:  
The type of the OSB service to route to. This can be BS for a business service, PS for a proxy service and PP for a pipeline. See the paragraph “Oracle Service Bus project” above for an explanation.
  - ...ROUTE\_SERVICE :  
Provide the default business service value for the property. When using unencrypted http this is: OHI\_SVC\_OSB/BusinessServices/DefaultHTTP\_BS. When using encrypted https this is: OHI\_SVC\_OSB/BusinessServices/DefaultHTTPS\_BS
  - ...URI:  
Specify the endpoint where the business service can be reached. The protocol (http or https) must match the ROUTE\_SERVICE.
- Adapt the file `ohi_svc_osb_import.properties`:
  - `admin.url` : Specify the same value as in `ohi_svc_wls.properties`.

`admin.configfile` and `admin.keyfile`:

Insert the config- and keyfile name and location to connect securely automatically or leave these blank and provide username and password at the prompt at runtime. Use the same values as in `ohi_svc_wls.properties`. See paragraph “Secure storing of credentials” for details. Run the configuration script that modifies the standard OSB project definition file to an environment specific project definition:

```
./ohi_svc_osb_configure.sh
ohi_svc_osb_configure.bddev1913.properties
OHI_SVC_OSB.jar
```

- As a result you should have a new project .jar file in a subdirectory ‘output’ of the working directory with the name `OHI_SVC_OSB-bddev1913.jar`.
- Copy or move the new .jar file one level up to your working directory.
- Make sure you set your environment to the WLS OSB settings.
- Run the OSB import script to import the environment specific project definition (for environment `bddev1913` in the example below):  

```
./ohi_svc_osb_import.sh ohi_svc_osb_import.properties
OHI_SVC_OSB-bddev1913.jar
```
- Use the OSB Console at `http://<server>:<port>/servicebus` to check that the script has created the objects correctly:

BusinessServices x

## Project Definition

General

Description

OHI\_SVC\_OSB\_bddev1913

View

✕

Detach

✎

Name

↑ ...

BusinessServices

Dvm

Pipelines

ProxyServices

meta-data

ORACLE Service Bus Console 12c

Create Discard Exit

Search for resources by n

All Projects

default

OHI\_SVC\_OSB\_bddev1913

BusinessServices

DefaultHTTP\_BS

DefaultHTTPS\_BS

DefaultHTTPS\_SAClor

Dvm

Routing

Pipelines

Dequeueer\_PP

ProxyServices

Dequeueer\_PS

meta-data

System

Routing x

## DVM Definition

General

Description

Based on JMSType, is used to lookup and decide the service the request to be routed.  
RouteType = PS | BS | PP

Map Table

Detach

+

✎

✕

JMSType	RouteType	RouteService	endPointURI
SVL1001C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1001C
SVL1002C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1002C
SVL1003C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1003C
SVL1004C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1004C
SVL1005C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1005C
SVL1006C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1006C
SVL1007C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1007C
SVL1008C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1008C
SVL1009C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1009C
SVL1010C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1010C
SVL1011C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1011C
SVL1012C	BS	OHI_SVC_OSB_bddev1913/BusinessServices/DefaultHTTP_BS	http://slc11ali.us.oracle.com:8088/SVL1012C

---

## 5 Mapping web service consumers

To actually call the web services in the outside world, you need to supply an intermediate mapping. This will map the OHI definition of the web service contract to the similar, but slightly different, web service contract of the external web service.

The OHI specific definition typically differs in namespace and may miss some functionality that is not implemented or may have a slightly different structure to provide the functionality.

When comparing the OHI specific contracts and the external versions the mapping should be quite trivial and easy.

### 5.1 Mapping/transformation

To do the runtime transformation for the web service consumers, an application server or middleware tier is a requirement. This will map the OHI specific WSDL to an outside world WSDL. That middleware tier will implement the actual call, including the required authentication, to the service in the outside world.

The mapping or transformation can easily be implemented through service bus functionality.

Please load the .wsdl files for this purpose in your proxy or service bus environment. These .wsdl files can be obtained at the service provider organization, e.g. VECOZO.

The OHI specific WSDL files can be found in \$OZG\_BASE/xml on the application server instance of the environment. The files have names like SVLxxxxC.wsdl where xxxx can be any number between 0000 and 9999.

Currently the files SVL1001C.wsdl up to SVL1012C.wsdl do exist.

## 6 Back Office configuration

Part of the configuration is done in the OHI Back Office application.

### 6.1 Timeout

The timeout per service consumer can be set in the Back Office parameter values screen (SYS1145F) of the application instance.

All parameters can be found in the group 'Service callouts':

The screenshot shows a window titled 'Back Office parameterwaarden'. It contains a table with the following columns: Nr, Parameter, Groep, Type Groep, S?, and Datatype. The table lists 12 parameters, all belonging to the 'Service Callouts' group and having a 'Systeemparameter' type. The parameters are:

Nr	Parameter	Groep	Type Groep	S?	Datatype
1	Timeout Fraudecontrole	Service Callouts	Systeemparameter		Numeriek
2	Timeout Opzegservice	Service Callouts	Systeemparameter		Numeriek
3	Timeout Machtiging retourbericht	Service Callouts	Systeemparameter		Numeriek
4	Timeout borderrel ambtshalve verzekeren	Service Callouts	Systeemparameter		Numeriek
5	Timeout AVG-bestand	Service Callouts	Systeemparameter		Numeriek
6	Timeout GBA-webservice	Service Callouts	Systeemparameter		Numeriek
7	Timeout Wanbetalergegevens	Service Callouts	Systeemparameter		Numeriek
8	Timeout Procedure authorizationdetails	Service Callouts	Systeemparameter		Numeriek
9	Timeout Machtigingportaal	Service Callouts	Systeemparameter		Numeriek
10	Timeout COV-webservice	Service Callouts	Systeemparameter		Numeriek
11	Timeout VECOZO verdragsrecht	Service Callouts	Systeemparameter		Numeriek
12	Timeout Digitale Contractering	Service Callouts	Systeemparameter		Numeriek

Below the table is a 'Helptext' field. At the bottom, there is a section for 'Parameterwaarden' with a 'Waarde' field, 'Datum ingang' and 'Datum einde' fields, and a 'Functionele sleutel' field.

This timeout determines the maximum time the OHI calling process waits for a response message to appear on the response queue, before returning an error message.

The default when not set is 15 seconds.

**Note:** The value set for these parameters is a maximum for the timeout. Setting a high value could cause a screen or batch session seem to "hang" waiting for the response.

### 6.2 Activation

To enable the OHI Back Office processes to use the queues instead of the deprecated database callouts used prior to release 10.19.1.3.0 the Back Office parameter values for the endpoints needs to be set to the fixed text <USE\_QUEUE>.

Group VECOZO

- EVR URL request handler for service SVL1001C
- Premieachterstand URL request handler for service SVL1002C
- Opzegservice URL request handler for service SVL1002C
- Machtigingen URL request handler for service SVL1003C
- AVG URL request handler for service SVL1005C
- Ambtshalve URL request handler for service SVL1004C
- Wanbetaler URL request handler for service SVL1007C

- COV URL request handler for service SVL1010C
- EESSI URL request handler for service SVL1011C
- VDC URL request handler for service SVL1012C

#### Group GBA

- GBAEndPoint for service SVL1006C

#### Group SERVICE CONSUMER

- Procedure Auth URL request handler for services SVL1008C and SVL1009C

## 7 Troubleshooting

This chapter contains some troubleshooting paragraphs. These can be used if the service consumer calls do not work and result in errors that are not functional by nature.

### 7.1 Monitoring

Apart from using the tools provided by Fusion Middleware Control and Weblogic, monitoring specific OHI Service Consumer encountered error situations could be useful to identify issues in communication with downstream providers or other issues. When an error happens during the OHI OSB service execution, it will be logged in the default Managed Server log of the OSB server (severity level ERROR), providing only minimal error information for security reasons. For example:

```
Message      [null, null, null, ERROR] OHISVL: Error during
service execution: <OHISVLErrorInfo>
```

```
Supplemental Detail
<faultstring>OHISVL-100: OSB error during backend
invocation</faultstring>
<JMSCorrelationID>10000000023906</JMSCorrelationID>
<JMSType>SVL1003C</JMSType>
<operation>IndienenTerugkoppeling</operation>
</OHISVLErrorInfo>
```

The log message would contain the static string “OHISVL: Error during service execution” and extra information within details to identify the issue.

There are two types of error scenarios that will be logged:

- A SOAP fault is returned by provider system
- An error happens within the OHI OSB project pipeline layer for the service consumer implementation

Therefore, the faultstring in the log message would be either the corresponding faultstring value from the provider system or the OHI OSB error code.

These are the current error codes from the OHI SVC OSB project:

- OHISVL-100: OSB error during backend invocation
- OHISVL-101: Incomplete routing configuration for JMSType
- OHISVL-110: OSB technical error – Any runtime error that does not fall in the error cases above

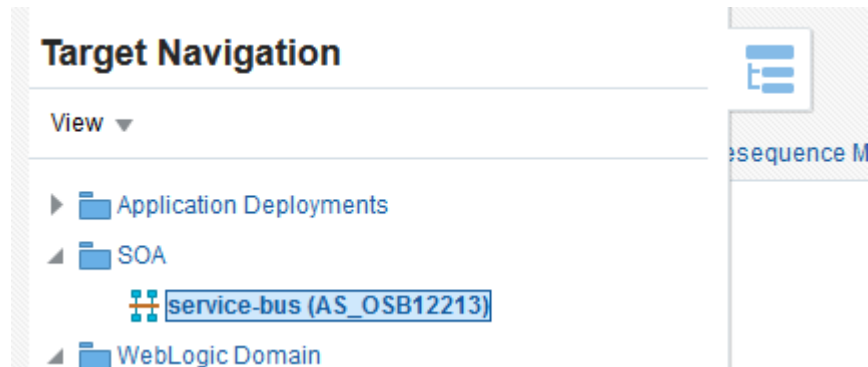
### 7.2 Reporting

If more detailed information needs to be logged and traced, reporting can be enabled on the Dequeue\_PP pipeline service. Reporting should be off by default, for performance and privacy reasons. By using a CorrelationID value as a search key, for example, it is possible to find all the records during the processing of a particular message in the OSB layer. Report details will give more information on payload (the actual request message processed by the OSB and/or the actual response message that was received from the called web service), technical and transport settings, etc.



Message reports are accessible through the Enterprise Manager Fusion Middleware Control GUI (at <http://<server>:<port>/em>)

Access to these reports can be obtained via the target navigation menu. Select SOA and then service bus. The monitoring is available under the operations tab:



#### Operations

View ▾ Apply Revert

Name	Path	Type	<input checked="" type="checkbox"/> State	<input checked="" type="checkbox"/> Reports	<input type="checkbox"/> Monitoring	Aggregation Interval	<input type="checkbox"/> S
DefaultHTTP_BS	OHI_SVC_OSB_bddev1913/BusinessServices	Business Service	<input checked="" type="checkbox"/>	...	<input type="checkbox"/>	10 Mins ▾	<input type="checkbox"/>
DefaultHTTPS_BS	OHI_SVC_OSB_bddev1913/BusinessServices	Business Service	<input checked="" type="checkbox"/>	...	<input type="checkbox"/>	10 Mins ▾	<input type="checkbox"/>
Dequeueer_PP	OHI_SVC_OSB_bddev1913/Pipelines	Pipeline	...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> (S)	10 Mins ▾	<input type="checkbox"/>
Dequeueer_PS	OHI_SVC_OSB_bddev1913/ProxyServices	Proxy Service	<input checked="" type="checkbox"/>	...	<input type="checkbox"/>	10 Mins ▾	<input type="checkbox"/>

If needed, Oracle Service Bus tracing functionality can be enabled in case the reporting feature does not provide enough information.

**Note:** After deployment verify that the reporting option is disabled globally or it is disabled for all the pipeline services of OHI OSB projects, to avoid generating unnecessary report information.

## 7.3 Querying Database Advanced Queues

Both request and response messages are temporarily stored in the database advanced queue tables ALG#SVC\_REQUEST\_TAB and ALG#SVC\_RESPONSE\_TAB. These tables also implement the exception/error queues.

These queue tables can be queried like any normal table, using the following query:

```
select q.corrid
,      q.state
,      q.expiration
,      q.enq_time
,      q.deq_time
,      q.user_data.header.type
,      q.user_data.text_vc
,      q.user_data.text_lob
,      q.q_name
```

```
from alg#svc_response_tab q
order by to_number(q.corrid) desc
```

- The `corrid` column contains the correlation id used to uniquely identify the specific message.
- The `state` defines the state the message is in. Typically you would see any of the values 0, 2 or 3.
  - 0; message is ready and available for dequeue
  - 2; message is processed and/or retained. Meaning it is dequeued but still present on the queue until the retention time has passed. That retention time is set on the queue.
  - 3; message is expired. The message is not dequeued within the expiration time set on the message.
- The `expiration` column holds the time in seconds before the message expires based on the enqueue time.
- `Enq_time` contains the timestamp when the message was put onto the queue.
- `Deq_time` contains the timestamp when the message was read from the queue by the consumer of the queue.
- The `user_data` column holds all the functional data of the message:
  - `Header.type` contains the JMS type of this specific message. It can be used to identify the type of message for this record (from which service consumer the message originates, like SVL1001C, etc.).
  - Either `text_vc` or `text_lob` holds the actual (SOAP) message. Based on the message size the database puts it in one of these two columns.
- The `q_name` column identifies to which queue the message belongs. It can be either the normal request or response queue or the exception queues (`aq$alg#svc_request_tab_e` and `aq$alg#svc_response_tab_e`) when the message is moved to the exception queue. The exception queue is also often referenced as the error queue.

**Note:** When monitoring the queues pay specific attention to:

- Messages with state 3. This may indicate that the timeout configured in the OHI Back Office parameters is too small
- Messages in the error queues; these could identify other issues.

## 7.4 Common errors

As discussed in the monitoring paragraph a small set of OHI OSB project errors can occur, apart from the errors that can occur from the provider side.

OHISVL-100 usually means that the endpoint which is set in the DVM is not accessible, available or not meant for the given message type.

OHISVL-101 means that one or more values in the DVM are incorrect or missing for the given service type.

When an ORA-3xxxx is given this usually means the response can not be validated against the stored xsd(s). There can be many reasons why the validation failed, from wrong namespaces to invalid values.

SVL-184 (SVL-00007) means a timeout has occurred. The response message was not available within the given time.

SVL-208 (SVL-00008) means some form of a SOAP fault is returned. The details returned within the SOAP fault may help in finding what actually went wrong.