# Oracle® Banking Origination

## SSL Setup Guide

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# Preface

This topic contains the following sub-topics:


- Purpose
- Audience
- Documentation Accessibility
- Critical Patches
- Diversity and Inclusion
- Related Resources
- Conventions
- Screenshot Disclaimer
- Acronyms and Abbreviations


## Purpose

This guide provides information about the configurations of SSL for Oracle WebLogic application server.

## Audience

This guide is intended for the WebLogic admin or ops-web team who are responsible for installing the banking products of Oracle Financial Services Software Limited.

## Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

**Access to Oracle Support**

Oracle customer access to and use of Oracle support services will be pursuant to the terms and conditions specified in their Oracle order for the applicable services.

## Critical Patches

Oracle advises customers to get all their security vulnerability information from the Oracle Critical Patch Update Advisory, which is available at Critical Patches, Security Alerts and Bulletins. All critical patches should be applied in a timely manner to ensure effective security, as strongly recommended by Oracle Software Security Assurance.

# Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

# Related Resources

For more information, refer to the following documents:

- Oracle Banking Origination Installation Guide
- Security Management System Services Installation Guide

# Conventions

The following text conventions are used in this document:

| Convention | Meaning |
|---|---|
| **boldface** | Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary. |
| *italic* | Italic type indicates book titles, emphasis, or placeholder variables for which user supply particular values. |
| `monospace` | Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that user enter. |

# Screenshot Disclaimer

Personal information used in the interface or documents is dummy and does not exist in the real world. It is only for reference purposes.

# Acronyms and Abbreviations

The list of the acronyms and abbreviations used in this guide are as follows:

**Table 1 Acronyms and Abbreviations**

| Abbreviation | Description |
|---|---|
| API | Application Programming Interface |
| CA | Certificate Authority |
| CSR | Certificate Signing Request |

**Table 1 (Cont.) Acronyms and Abbreviations**

| Abbreviation | Description |
|---|---|
| DER | Distinguished Encoding Rules |
| HTTPS | Hypertext Transfer Protocol Secure |
| JKS | Java keystore |
| JRE | Java Runtime Environment |
| PEM | Privacy Enhanced Mail |
| SSL | Secure Sockets Layer |

1

# Configure SSL on Oracle WebLogic

This topic provides the information about SSL configuration on Oracle Weblogic application server.

This topic contains the following sub-topics:

- Setup SSL on Oracle WebLogic
  This topic provides the systematic instructions to setup the SSL on Oracle WebLogic.
- Certificates and Keypairs
  This topic provides the information about certificates and keypairs.

## 1.1 Setup SSL on Oracle WebLogic

This topic provides the systematic instructions to setup the SSL on Oracle WebLogic.

To setup SSL on Oracle Weblogic application server:

1. Obtain an identity (private key and digital certificates) and trust (certificates of trusted certificate authorities) for Oracle WebLogic application server.
2. Store the identity and trust. The private keys and trust CA certificates are stored in keystores.
3. Configure the identity and trust the keystores for Oracle WebLogic application server in the administration console.
4. Set SSL attributes for the private key alias and password in Oracle WebLogic administration console.

## 1.2 Certificates and Keypairs

This topic provides the information about certificates and keypairs.

The certificates are used for validating the authenticity of the server and the keys are used to secure the certificates. Certificates contains the name of the owner, certificate usage, duration of validity, resource location, or distinguished name (DN), which includes the common name (CN - web site address or e-mail address depending of the usage) and the certificate ID of the person who certified (signs) these information. It also contains the public key and a hash to ensure that the certificate has not been tampered with. A certificate is insecure until it is signed. Signed certificates cannot be modified.

A certificate can be self-signed or obtained from a reputable certificate authority such as Verisign, Inc., Entrust.net, Thawte, GeoTrust or InstantSSL.

SSL uses a pair of cryptographic keys - a *public key* and a *private key*. These keys are similar in nature and can be used alternatively. What one key encrypts can be decrypted by the other key of the pair. The private key is kept secret, while the public key is distributed using the certificate.

A *keytool* stores the keys and certificates in a *keystore*. The default keystore implementation implements it as a file. It protects private keys with a password. The different entities (key pairs

and the certificates) are distinguished by a unique ‘alias’. Through its keystore, Oracle Weblogic server can authenticate itself to other parties.

In Java, a keystore is a **java.security.KeyStore** instance that the user can create and manipulate using the keytool utility provided with the Java Runtime.

There are two keystores to be managed by Oracle Weblogic server to configure SSL:

**Table 1-1 Keystores**

| Keystore | Description |
|---|---|
| **Identity Keystore** | This keystore contains the key pairs and the Digital certificate. This can also contain certificates of intermediate CAs. |
| **Trust Keystore** | This keystore contains the trusted CA certificates. |

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# Choose the Identity and Trust Stores

This topic provides the information to choose the identity and trust stores.

Oracle Financial Services Software recommends that the choice of Identity and Trust stores be made up front. Oracle WebLogic server supports the following combinations of Identity and Trust stores:

- Custom Identity and Command Line Trust
- Custom Identity and Custom Trust
- Custom Identity and Java Standard Trust
- Demo Identity and Demo Trust

Oracle Financial Services does not recommend choosing Demo Identity and Demo Trust for production environments.

It is recommend to separate the identity and trust stores, since each WebLogic server tends to have its own identity but might have the same set of trust CA certificates. Trust stores are usually copied across Oracle WebLogic servers, to standardize trust rules; it is acceptable to copy trust stores since they contain public keys and certificates of CAs. Unlike trust stores, identity stores contain private keys of the OracleWebLogic server, and hence should be protected against unauthorized access.

For more information on choosing trust stores, refer to the table below:

**Table 2-1 Trust Stores**

| Trust Store | Description |
|---|---|
| **Command Line Trust** | If Command Line Trust is chosen, it requires the trust store to be specified as a command line argument in the Weblogic Server startup script. No additional configuration of the trust store is required in the Weblogic Server Administration Console. |
| **Java Standard Trust** | Java Standard Trust would rely on the cacerts files provided by the Java Runtime. This file contains the list of trust CA certificates that ship with the Java Runtime, and is located in the `JAVA_HOME/jre/lib/security` directory. It is highly recommended to change the default Java standard trust store password, and the default access permission of the file. Certificates of most commercial CAs are already present in the Java Standard Trust store. Therefore, it is recommended to use the Java Standard Trust store whenever possible. The rest of the document will assume the use of Java Standard Trust, since most CA certificates are already present in it. |
| **Custom Trust** | One can also create custom trust stores containing the list of certificates of trusted CAs. For further details on identity and trust stores, please refer the Oracle WebLogic Server documentation on Securing Oracle WebLogic Server. |

# 3
# Obtain the Identity Store

This topic provides the information to obtain the identity store as a part of the SSL configuration setup.

This topic contains the following sub-topics:

- Create Identity Store with Self-Signed Certificates
  This topic provides the information about creating the identity store with self-signed certificates.
- Create Keystore
  This topic provides the information about keystore creation.
- Create Identity Store with Trusted Certificates Issued by CA
  This topic provides the information for creating Identity Store with Trusted Certificates Issued by CA.
- Export Private Key as Certificate
  This topic provides the information to export private key as a certificate to obtain the identity store.
- Import as Trusted Certificate
  This topic provides the information to import the obtained certificates as trusted certificates to obtain the identity store.

## 3.1 Create Identity Store with Self-Signed Certificates

This topic provides the information about creating the identity store with self-signed certificates.

Self-signed certificates are acceptable for use in a testing or development environment. Oracle Financial Services Software Limited does not recommend the use of self-signed certificates in a production environment.

In order to create a self-signed certificate, the `genkeypair` option provided by the `keytool` utility of Sun Java 6 needs to be utilized.

**To create Self-Signed Certificate:**

Browse to the bin folder of JRE from the command prompt and type the following command.

```
keytool -genkeypair -alias alias -keyalg RSA -keysize 1024 -sigalg
SHA1withRSA -validity 365 -keystore keystore
```

> **Note**
>
> The items highlighted are placeholders, and should be replaced with suitable values when running the command.

In the above command, the following attributes of the certificate and keystore are prompted:

**Table 3-1 Description of Placeholders and Attributes**

| Placeholder/Attribute | Description |
|---|---|
| `alias` | **`alias`** is used to identify the public and private key pair created. This alias is required later when configuring the SSL attributes for the managed servers in Oracle Weblogic Server. |
| `keystore` | **`keystore`** is used to specify the location of the JKS file. If no JKS file is present in the path provided, a JKS file will be created. |
| **Keystore Password** | Specify a password that will be used to access the keystore. This password needs to be specified later when configuring the identity store in Oracle Weblogic Server. |
| **Key Password** | Specify a password that will be used to access the private key stored in the keystore. This password needs to be specified later when configuring the SSL attributes of the managed server(s) in the Oracle Weblogic Server. |
| **First and Last Name (CN)** | Enter the domain name of the machine used to access Oracle Banking Origination, for instance, www.example.com |
| **Name of your Organizational Unit** | The name of the department or unit making the request, for example, BPD. Use this field to further identify the SSL Certificate you are creating, for example, by department or by the physical server. |
| **Name of your Organization** | The name of the organization making the certificate request, for example, Oracle Financial Services Software Limited. It is recommended to use the company or organization's formal name, and this name entered here must match the name found in official records. |
| **Name of your City or Locality** | The city in which your organization is physically located, for example, Mumbai. |
| **Name of your State or Province** | The state/province in which your organization is physically located, for example, Maharashtra. |
| **Two-Letter Country Code for this Unit** | The country in which your organization is physically located, for example, US, UK, IN, etc. |

> **Note**
>
> The key generation algorithm has been specified as RSA, and the key size as 1024 bits, the signature algorithm as SHA1withRSA, and the validity days as 365. These can be changed to suitable values if the need arises. For further details, please refer to the documentation of the keytool utility in the JDK utilized by the Oracle Weblogic Server.

**The sample execution command is listed as follows:**

```
D:\Oracle\weblogic11g\jrockit_160_05_R27.6.2-20\bin>keytool -genkeypair -
alias selfcert -keyalg RSA -keysize 1024 -sigalg SHA1withRSA -validity 365 -
keystore D:\keystores\AdminOBVAMKeyStore.jks
Enter keystore password: <Enter a password to protect the keystore>
Re-enter new password: <Confirm the password keyed above>
What is your first and last name?
[Unknown]: cvrhp0729.oracle.com
What is the name of your organizational unit?
[Unknown]: BPD
```

```
What is the name of your organization?
[Unknown]: Oracle Financial Services
What is the name of your City or Locality?
[Unknown]: Mumbai
What is the name of your State or Province?
[Unknown]: Maharashtra
What is the two-letter country code for this unit?
[Unknown]: IN
Is CN=cvrhp0729.i-flex.com, OU=BPD, O=Oracle Financial Services, L=Mumbai,
ST=Maharashtra, C=IN correct?
[no]: yes
Enter key password for <selfcert>
(RETURN if same as keystore password): <Enter a password to protect the key>
Re-enter new password: <Confirm the password keyed above>
```

# 3.2 Create Keystore

This topic provides the information about keystore creation.

To create the keystore, use the comment given below:

```
keytool -genkeypair -keystore <keystore_name.jks> -alias <alias_name> -dname
"CN=<hostname>, OU=<Organization Unit>, O=<Organization>, L=<Location>,
ST=<State>,
C=<Country_Code>" -keyalg <Key Algorithm> -sigalg <Signature Algorithm> -
keysize <key size>
-validity <Number of Days> -keypass <Private key Password> -storepass <Store
Password>
```

```
keytool -genkeypair -keystore AdminOBVAMKeyStore.jks -alias OBVAMCert -dname
"CN=ofss00001.in.example.com, OU=OFSS, O=OFSS, L=Chennai, ST=TN, C=IN" -
keyalg "RSA"
-sigalg "SHA1withRSA" -keysize 2048 -validity 3650 -keypass Password@123 -
storepass
Password@123
```

> **Note**
>
> `CN=ofss00001.in.example.com` is the Host Name of the weblogic server.

# 3.3 Create Identity Store with Trusted Certificates Issued by CA

This topic provides the information for creating Identity Store with Trusted Certificates Issued by CA.

This topic contains the following sub-topics:

- Create Public and Private Key Pair
  This topic provides the information on creating the public and private key pair using the command to obtain the identity store.

- Generate CSR
  To purchase an SSL certificate, one needs to generate a Certificate Signing Request (CSR) for the server where the certificate will be installed.

## 3.3.1 Create Public and Private Key Pair

This topic provides the information on creating the public and private key pair using the command to obtain the identity store.

Browse to the bin folder of JRE from the command prompt and type the following command.

```
keytool -genkeypair -alias alias -keyalg keyalg -keysize keysize - sigalg
sigalg -validity valDays -keystore keystore
```

> **Note**
>
> The items highlighted are placeholders, and should be replaced with suitable values when running the command.

In the above command:

**Table 3-2 Description of Placeholders**

| Placeholder | Description |
|---|---|
| `alias` | `alias` is used to identify the public and private key pair created. This alias is required later when configuring the SSL attributes for the managed servers in Oracle Weblogic Server. |
| `keyalg` | `keyalg` is the key algorithm used to generate the public and private key pair. The RSA key algorithm is recommended. |
| `keysize` | `keysize` is the size of the public and private key pairs generated. A key size of 1024 or more is recommended. Please consult with your CA on the key size support for different types of certificates. |
| `sigalg` | `sigalg` is the algorithm used to generate the signature. This algorithm should be compatible with the key algorithm and should be one of the values specified in the Java Cryptography API Specification and Reference. |
| `valdays` | `valdays` is the number of days for which the certificate is to be considered valid. Consult with your CA on this period. |
| `keystore` | `keystore` is used to specify the location of the JKS file. If no JKS file is present in the path provided, a JKS file will be created. |

The command prompts for the following attributes of the certificate and keystore:

**Table 3-3 Description of Attributes**

| Attribute | Description |
|---|---|
| **Keystore Password** | Specify a password that will be used to access the keystore. This password needs to be specified later when configuring the identity store in the Oracle Weblogic Server. |

**Table 3-3 (Cont.) Description of Attributes**

| Attribute | Description |
|---|---|
| **Key Password** | Specify a password that will be used to access the private key stored in the keystore. This password needs to be specified later when configuring the SSL attributes of the managed server(s) in the Oracle Weblogic Server. |
| **First and Last Name (CN)** | Enter the domain name of the machine used to access Oracle Banking Origination, for instance, www.example.com |
| **Name of your Organizational Unit** | The name of the department or unit making the request, for example, BPD. Use this field to further identify the SSL Certificate you are creating, for example, by department or by the physical server. |
| **Name of your Organization** | The name of the organization making the certificate request, for example, Oracle Financial Services Software Limited. It is recommended to use the company or organization's formal name, and this name entered here must match the name found in official records. |
| **Name of your City or Locality** | The city in which your organization is physically located, for example, Mumbai. |
| **Name of your State or Province** | The state/province in which your organization is physically located, for example, Maharashtra. |
| **Two-letter Country Code for this Unit** | The country in which your organization is physically located, for example, US, UK, IN, etc. |

**The sample execution command is listed as follows:**

```
D:\Oracle\weblogic11g\jrockit_160_05_R27.6.2-20\bin>keytool -genkeypair -
alias cvrhp0729 -keyalg RSA -keysize 1024 -sigalg SHA1withRSA -validity 365 -
keystore
D:\keystores\AdminOBVAMKeyStore.jks
Enter keystore password: <Enter a password to protect the keystore>
Re-enter new password: <Confirm the password keyed above>
What is your first and last name?
  [Unknown]: cvrhp0729.i-flex.com
What is the name of your organizational unit?
  [Unknown]: BPD
What is the name of your organization?
  [Unknown]: Oracle Financial Services
What is the name of your City or Locality?
  [Unknown]: Mumbai
What is the name of your State or Province?
  [Unknown]: Maharashtra
What is the two-letter country code for this unit?
  [Unknown]: IN
Is CN=cvrhp0729.i-flex.com, OU=BPD, O=Oracle Financial Services, L=Mumbai,
ST=Maharashtra, C=IN correct? [no]: yes
Enter key password for <cvrhp0729>
RETURN if same as keystore password): <Enter a password to protect the key>
Re-enter new password: <Confirm the password keyed above>
```

### 3.3.2 Generate CSR

To purchase an SSL certificate, one needs to generate a Certificate Signing Request (CSR) for the server where the certificate will be installed.

A CSR is generated from the server and is the server's unique "fingerprint." The CSR includes the server's public key, which enables server authentication and secure communication.

> **Note**
>
> If the keystore file or the password is lost and a new one is generated, the SSL certificate and the private key will no longer match. A new SSL Certificate will have to be requested.

The CSR is created by running the following command in the bin directory of the JRE:

```
keytool -certreq -alias alias –file certreq_file -keystore keystore
```

In the above command,

**Table 3-4 Description of Placeholders**

| Placeholder | Description |
|---|---|
| ***alias*** | ***alias*** is used to identify the public and private key pair. The private key associated with the alias will be utilized to create the CSR. Specify the alias of the key pair created in the previous step. |
| ***certreq_file*** | ***certreq_file*** is the file in which the CSR will be stored. |
| ***keystore*** | ***keystore*** is the location of the keystore containing the public and private key pair. |

For example,

The result of a sample execution of the command is listed below:

```
D:\Oracle\Weblogic11g\jrockit_160_05_R27.6.2-20\bin>keytool -certreq -alias
cvrhp0729 -file D:\keystores\certreq.csr -keystore
D:\keystores\AdminOBREMOKeyStore.jks

Enter keystore password:<Enter the password used to access the keystore>

Enter key password for <cvrhp0729>[Enter the password used to access the key in
the keystore]
```

## 3.4 Export Private Key as Certificate

This topic provides the information to export private key as a certificate to obtain the identity store.

To export the private key, use the comment given below:

```
keytool -export -v -alias <alias_name> -file
<export_certificate_file_name_with_location.cer>
```

```
-keystore <keystore_name.jks> > -keypass <Private key Password> -storepass
<Store Password>
```

For example:

```
keytool -export -v -alias OBREMOCert -file AdminOBREMOCert.cer -keystore
AdminOBREMOKeyStore.jks -keypass Oracle123 -storepass
        Oracle123
```

If successful, the following message is displayed.

Certificate stored in file < `AdminOBREMOCert.cer`>

**Table 3-5 Obtain and Import Trusted Certificate**

| Certificate | Description |
|---|---|
| **Obtain Trusted Certificate from CA** | The processes of obtaining a trusted certificate vary from one CA to another. The CA might perform additional offline verification. Consult the CA issuing the certificate for details on the process to be followed for submission of the CSR and for obtaining the certificate. |
| **Import Certificate into Identity Store** | Store the certificate obtained from the CA in the previous step, in a file, preferably in PEM format. Other formats like the p7b file format would require conversion to the PEM format. Details on performing the conversion are not listed here. Refer to the Oracle WebLogic Server documentation on Securing Oracle WebLogic Server for details on converting a Microsoft p7b file to the PEM format.<br>The command to be executed for importing a certificate into the identity store depend on whether the trust store chosen (refer to Choose the Identity and Trust Stores section). It is highly recommended to verify the trust path when importing a certificate into the identity store. The commands provided below assume the use of the Java Standard Trust store. |

For information on importing the intermediate CA certificate and identity certificate, refer to the below topics:

- Import Intermediate CA Certificate
  This topic provides the systematic instructions to import the intermediate CA certificate into the identity keystore.
- Import Identity Certificate
  This topic provides the systematic instruction to import the identity certificate into the keystore using the command.

## 3.4.1 Import Intermediate CA Certificate

This topic provides the systematic instructions to import the intermediate CA certificate into the identity keystore.

Most Certificate Authorities do not use the root CA certificates to issue identity certificates for use by customers. Instead, Intermediate CAs issue identity certificates in response to the submitted CSRs.

If the Intermediate CA certificate is absent in the Java Standard Trust store, the trust path for the certificate will be incomplete for the certificate, resulting in warnings issued by Weblogic Server during runtime.

To avoid this, the intermediate CA certificate should be imported into the identity keystore. Although the intermediate CA certificate can be imported into the Java Standard Trust store, this is not recommended unless the intermediate CA can be trusted.

Execute the following command to import the intermediate CA certificate into the keystore:

```
keytool -importcert -alias alias -file cert_file -trustcacerts -keystore keystore
```

In the above command,

**Table 3-6 Description of Placeholders**

| Placeholder | Description |
|---|---|
| ***alias*** | ***alias*** is used to identify the public and private key pair. Specify the alias of the key pair used to create the CSR in the earlier step. |
| ***cert_file*** | ***cert_file*** is the location of the file containing the intermediate CA certificate in a PKCS#7 format (PEM or DER file). |
| ***keystore*** | ***keystore*** is the location of the keystore containing the public and private key pair. |

> **Note**
>
> The trustcacerts flag is used to consider other certificates (higher intermediaries and the root CA) in the chain of trust. If no chain of trust is established during verification, the certificate will be displayed and one would be prompted to verify it. It is recommended that due diligence be observed when the prompt is displayed to verify a certificate when a chain of trust is absent.

A sample execution of the command is listed below:

```
D:\Oracle\weblogic11g\jrockit_160_05_R27.6.2-20\bin>keytool - importcert -alias
verisigntrialintermediateca -file

D:\keystores\VerisignIntermediateCA.cer -trustcacerts -keystore

D:\keystoreworkarea\AdminOBREMOKeyStore.jks

Enter keystore password:<Enter the password used to access the keystore>

Certificate was added to keystore
```

## 3.4.2 Import Identity Certificate

This topic provides the systematic instruction to import the identity certificate into the keystore using the command.

Execute the following command to import the identity certificate into the keystore:

```
keytool -importcert -alias alias -file cert_file -
trustcacerts -keystore keystore
```

In the above command,

**Table 3-7 Description of Placeholders**

| Placeholder | Description |
|---|---|
| ***alias*** | ***alias*** is used to identify the public and private key pair. Specify the alias of the key pair used to create the CSR in the earlier step. |
| ***cert_file*** | ***cert_file*** is the location of the file containing the PKCS#7 formatted reply from the CA, containing the signed certificate. |
| ***keystore*** | ***keystore*** is the location of the keystore containing the public and private key pair. |

The trustcacerts flag is used to consider other certificates (intermediate CAs and the root CA) in the chain of trust. If no chain of trust is established during verification, the certificate will be displayed and one would be prompted to verify it. It is recommended that due diligence be observed when the prompt is displayed to verify a certificate when a chain of trust is absent.

A sample execution of the command is listed below:

```
D:\Oracle\weblogic11g\jrockit_160_05_R27.6.2-20\bin>keytool - importcert -alias
cvrhp0729 -file D:\keystores\cvrhp0729.cer - trustcacerts -keystore

D:\keystoreworkarea\AdminOBREMOKeyStore.jks

Enter keystore password:<Enter the password used to access the keystore>

Enter key password for <cvrhp0729>:<Enter the password used to access the private
key>

Certificate reply was installed in keystore
```

> **Note**
>
> The previous set of commands assumed the presence of the appropriate root CA certificate (in the chain of trust) in the Java Standard Trust store, specifically in the cacerts file. If the CA issuing the identity certificate (for the Weblogic Server) does not have the root CA certificate in the Java Standard Trust store, one can opt to import the root CA certificate into cacerts, or the identity store, depending on factors including the trustworthiness of the CA, the necessity of transporting the trust store across the machine, among others.

# 3.5 Import as Trusted Certificate

This topic provides the information to import the obtained certificates as trusted certificates to obtain the identity store.

To import as trusted certificate, execute the comment given below:

```
keytool -import -v -trustcacerts -alias rootcacert
-file <export_certificate_file_name_with_location.cer> -keystore
<keystore_name.jks> >
-keypass <Private key Password> -storepass <Store Password>
```

For example,

```
keytool -import -v -trustcacerts -alias rootcacert -file AdminOBREMOCert.cer -
keystore AdminOBREMOKeyStore.jks -keypass Oracle123
-storepass Oracle123
```

4

# Configure Identity and Trust Stores for Weblogic

This topic provides the information to configure Identity and Trust Stores for Weblogic.

Log in to the Admin Console of WebLogic Server.

To configure the identity and trust stores, follow the steps given below:

1. To enable SSL on Oracle Weblogic Server:
   a. On the Homepage, under the **Change Center** panel, click the **Lock & Edit** button.
   b. Expand **Servers** node.
   c. Select the name of the server that wants to enable SSL.
   For example - exampleserver
   d. Navigate to **Configuration** and select **General** tab.
   e. Select the option **SSL Listen Port Enabled** and specify the SSL listen port.
   f. In the **Listen Address** field, specify the hostname of the machine in which the application server is installed.
2. To configure identity and trust stores
   a. On the Homepage, under the **Change Center** panel, click the **Lock & Edit** button.
   b. Expand **Servers** node.
   c. Select the name of the server that wants to configure the keystores.
   For example - exampleserver
   d. Navigate to **Configuration** and select **Keystores** tab.
   e. In the filed **Keystores**, select the method for storing and managing private keys/digital certificate pairs and trusted CA certificates. This choice should match the one made in Section 2 of this document (Choosing the Identity and Trust Stores).
   f. In the **Identity** section, provide the following details:

**Table 4-1 Identity Section - Field Description**

| Attribute | Description |
|---|---|
| **Custom Identity Keystore File Name** | Fully qualified path to the Identity keystore. |
| **Custom Identity Keystore Type** | Set this attribute to JKS (Java KeyStore), the type of the keystore. If the field is kept blank, it defaults to JKS. |

**Table 4-1 (Cont.) Identity Section - Field Description**

| Attribute | Description |
|---|---|
| **Custom Identity Keystore PassPhrase** | Enter the password when reading or writing to the keystore. This attribute is optional or required depending on the type of keystore. All keystores require the passphrase to write to the keystore. However, some keystores do not require the passphrase to read from the keystore.<br>Oracle Weblogic Server only reads from the keystore. So, whether or not define this property depends on the requirements of the keystore. |

> **Note**
>
> When the identity and trust stores are of the JKS format, the passphrases are not required.

g. In the **Trust** section, provide the following details:

- If the **Java Standard Trust** is selected, specify the password used to access the trust store.
- If the **Custom Trust** is selected, the following attributes have to be provided:

**Table 4-2 Custom Trust - Field Description**

| Attribute | Description |
|---|---|
| **Custom Trust Keystore** | The fully qualified path to the trust keystore. |
| **Custom Trust Keystore Type** | Set this attribute to JKS, the type of the keystore. If the filed is kept blank, it defaults to JKS. |
| **Custom Trust Keystore Passphrase** | Enter the password when reading or writing to the keystore. This attribute is optional or required depending on the type of keystore. All keystores require the passphrase to write to the keystore. However, some keystores do not require the passphrase to read from the keystore. Oracle Weblogic. |

The server only reads from the keystore. Hence, whether or not you define this property depends on the requirements of the keystore.

> **Note**
>
> When the identity and trust stores are of the JKS format, the passphrases are not required.

5

# Configure Weblogic Console

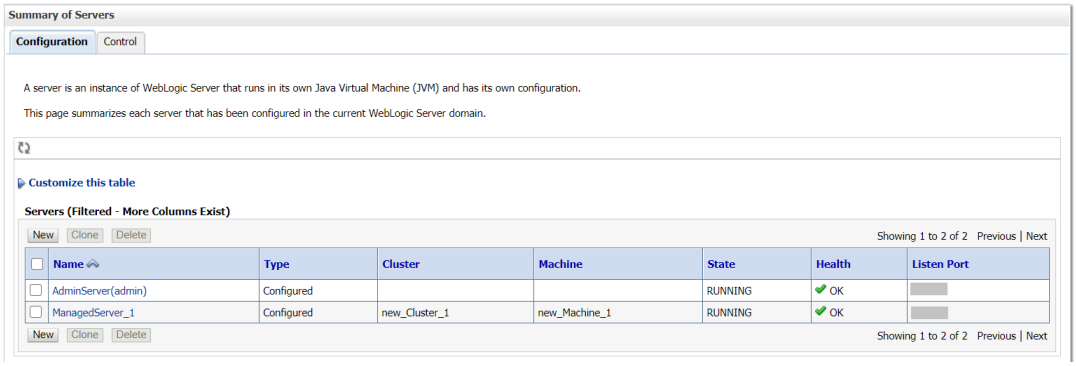
This topic provides the systematic instructions to configure the WebLogic Console.

After domain is created, the SSL needs to be enabled in the WebLogic admin server.

Login to the **Oracle Weblogic Server Admin Console**.

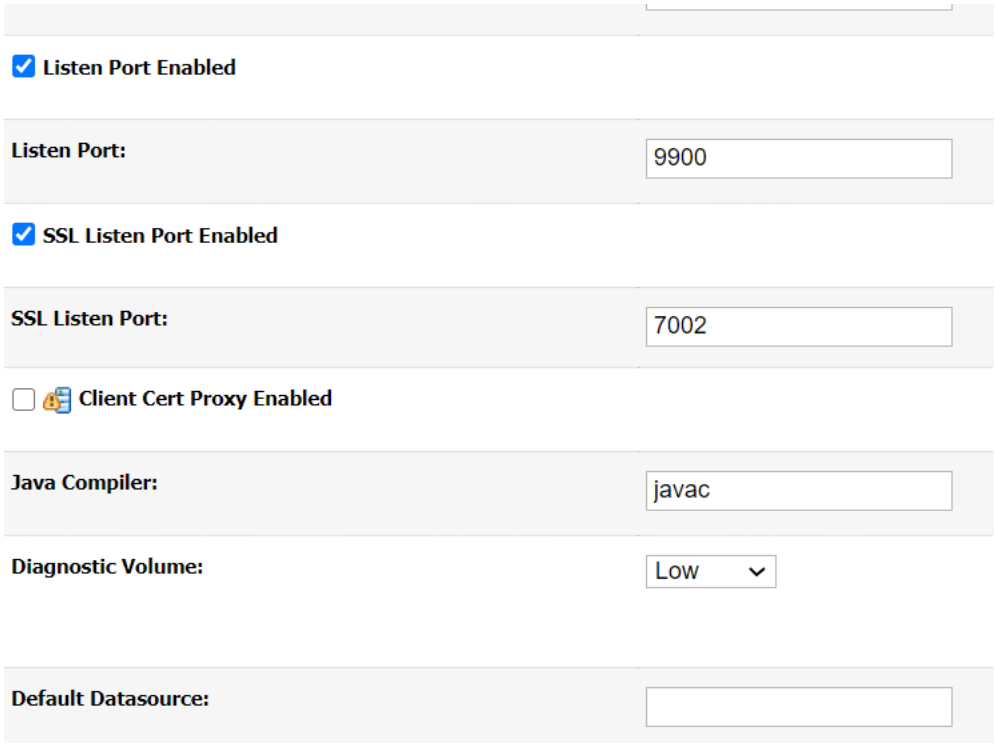
1. Select **Admin Server** to enable SSL options.

**Figure 5-1 Enabling SSL Options**



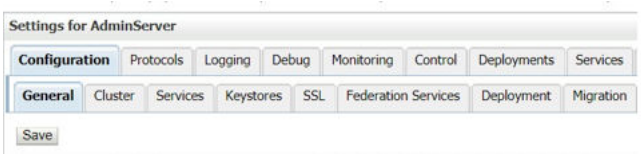

2. Do the below steps in the **General** tab:
   a. Select **SSL Listen Port Enabled**, **Client Cert Proxy Enabled**, and **Weblogic Plug-In Enabled**.

**Figure 5-2 General Tab**




b. Click **Save**.

**Figure 5-3 Settings for AdminServer**




3. Do the below steps in the **Keystores** tab:

   a. In the **Keystores** tab, specify the details.

   For more information on fields, refer to the field description table.

**Table 5-1 Keystores - Field Description**

| Field | Description |
|---|---|
| • **Custom Identity Keystore**<br>• **Custom Trust Keystore** | Specify the value as same as the Keystore Name created in the above steps with full path. |
| • **Custom Identity Keystore Type**<br>• **Custom Trust Keystore Type** | Specify the value as `jks`. |

**Table 5-1 (Cont.) Keystores - Field Description**

| Field | Description |
|---|---|
| • **Custom Identity Keystore Passphrase**<br>• **Confirm Custom Identity Keystore Passphrase**<br>• **Custom Trust Keystore Passphrase**<br>• **Confirm Custom Trust Keystore Passphrase** | Specify the value as same as the Store Password entered in the above steps. |

b. Click **Save**.

4. Do the below steps in the **SSL** tab:

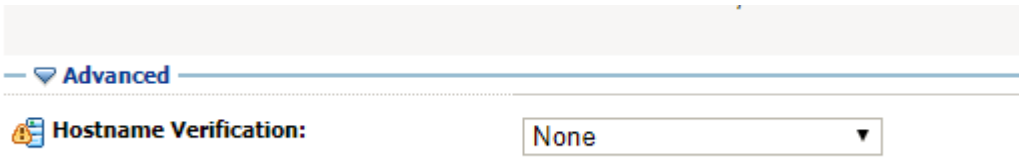
a. In the SSL tab, specify the details.

For more information on fields, refer to the field description table.

**Table 5-2 SSL - Field Description**

| Field | Description |
|---|---|
| **Private Key Alias** | Specify the value as same as the alias name entered in the above steps. |
| • **Private Key Passphrase**<br>• **Confirm Private Key Passphrase** | Specify the value as same as the Private Key Password entered in the above steps. |
| **Hostname Verification** | Change the value to **None**. |

**Figure 5-4 Hostname Verification**




b. Click **Save**.

5. Repeat the steps (1) and (4) for all the managed servers.

The admin server and managed servers are SSL enabled.

6. Restart all the servers.

6

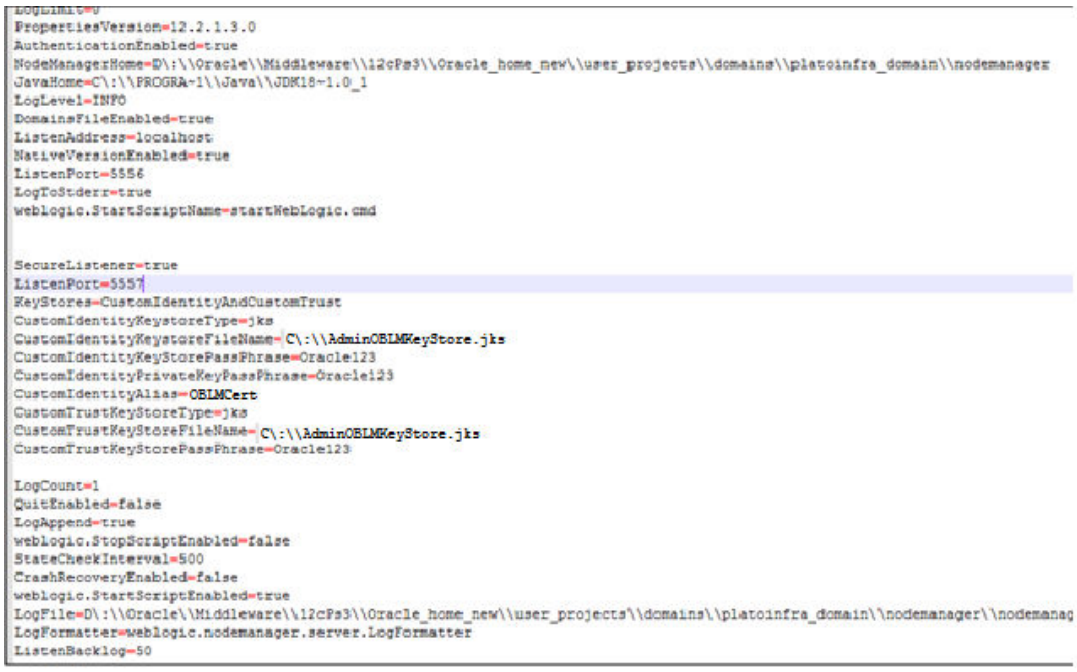
# Configure SSL Mode in Node Manager for Clustered Environment

This topic provides the systematic instructions to configure the SSL mode in node manager for clustered environment.

1. Edit the `nodemanager.properties` with SSL configurations and restart the node manager.

   The following screen appears:

**Figure 6-1 Node Manager Properties**




2. Make sure the SSL configuration is done in other artifacts, such as `startNodeManager.cmd/.sh, startup.properties, config.xml(enable jsse)`.

7

# Set SSL Attributes for Managed Servers

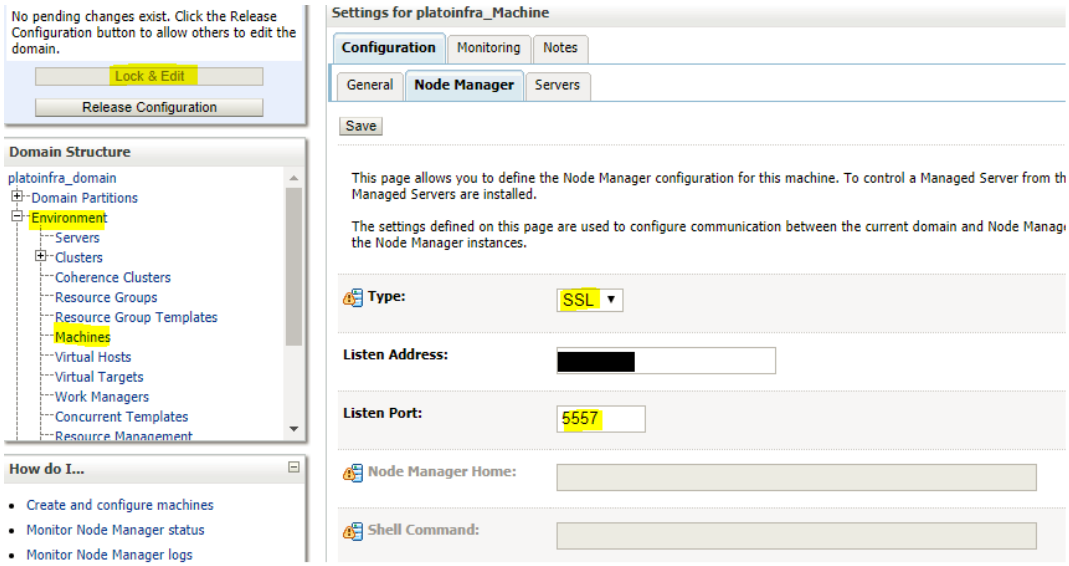
This topic provides the systematic instructions to set the SSL attributes for Managed Servers.

**To configure the private key alias and password:**

1. Log in to the Oracle Weblogic Server Admin Console.
2. Under **Change Center**, click **Lock & Edit**.
3. Expand **Servers** node.
4. Select the name of the server to configure keystores.

   For example: exampleserver
5. Navigate to **Configuration** and select **SSL** tab.

**Figure 7-1 Configuration**



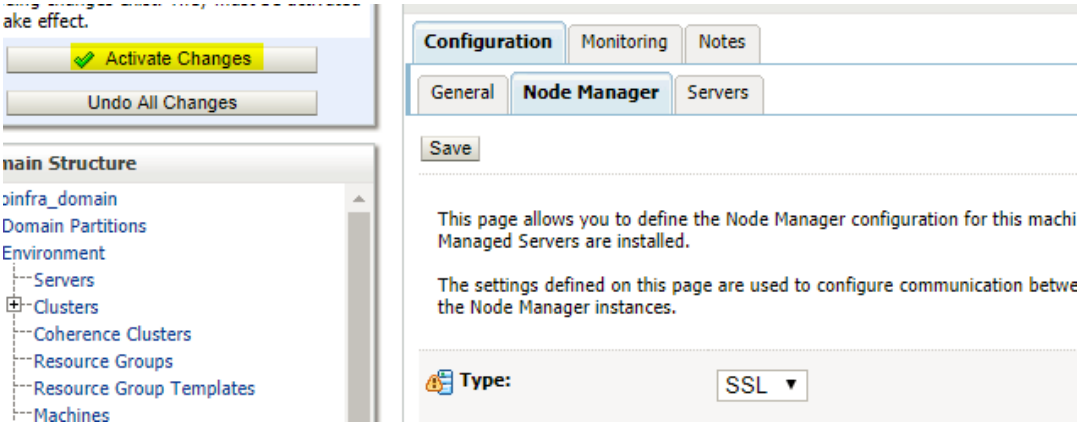

6. Select **Keystores** from **Identity and Trust Locations**.
7. Under **Identity** section, specify the following details:

**Table 7-1 Identity Section - Field Description**

| | |
|---|---|
| **Private Key Alias** | Set this attribute to the alias name defined for the key pair when creating the key pair in the Identity keystore. |
| **Private Key Passphrase** | The password defined for the key pair (alias_password), at the time of its creation. Confirm the password. |

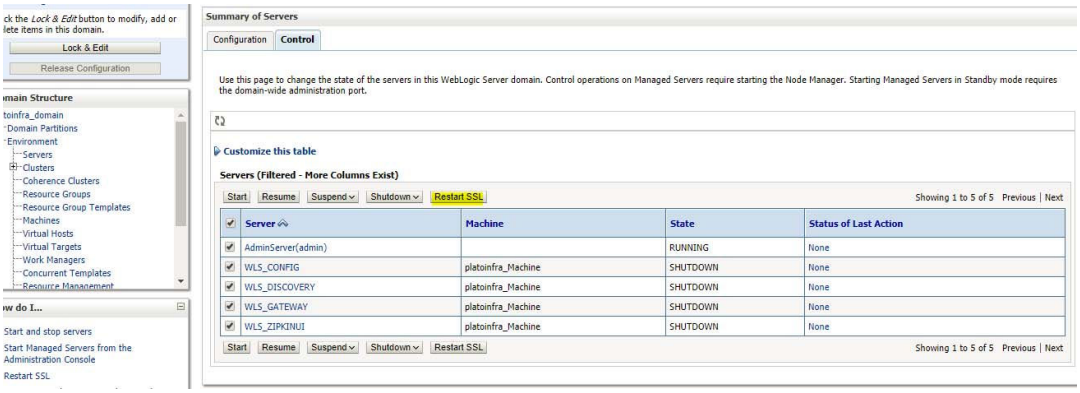
8. Click **Save**.
9. Under **Change Center**, click **Activate changes**.

**Figure 7-2 Configuration - Activate Changes**




10. Navigate to **Controls** tab, check the appropriate server and click **Restart SSL**. Confirm when it prompts.

**Figure 7-3 Restart SSL**



8

# Test the Configuration

This topic provides the information to test the configuration.

Once the Oracle Weblogic has been configured for SSL, deploy the application in the usual manner.

After deployment, user can test the application in SSL mode.

To launch the application in SSL mode, the user need to enter the URL in the following format:

```
https://(Machine Name):(SSL_Listener_port_no)/(Context_root)
```

> **Note**
>
> It is recommended to access the Oracle Banking Origination web application be accessed via the HTTPS channel, instead of the HTTP channel.

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