Oracle® Fusion Middleware

Administering the WebLogic Messaging Bridge for Oracle WebLogic Server



26 (26.1.0.0.0)
G56927-01
November 2026



Oracle Fusion Middleware Administering the WebLogic Messaging Bridge for Oracle WebLogic Server, 26 (26.1.0.0.0)

G56927-01

Copyright © 2007, 2026, Oracle and/or its affiliates.

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 is software, software documentation, data (as defined in the Federal Acquisition Regulation), or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs (including any operating system, integrated software, any programs embedded, installed, or activated on delivered hardware, and modifications of such programs) and Oracle computer documentation or other Oracle data delivered to or accessed by U.S. Government end users are "commercial computer software," "commercial computer software documentation," or "limited rights data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, reproduction, duplication, release, display, disclosure, modification, preparation of derivative works, and/or adaptation of i) Oracle programs (including any operating system, integrated software, any programs embedded, installed, or activated on delivered hardware, and modifications of such programs), ii) Oracle computer documentation and/or iii) other Oracle data, is subject to the rights and limitations specified in the license contained in the applicable contract. The terms governing the U.S. Government's use of Oracle cloud services are defined by the applicable contract for such services. No other rights are granted to the U.S. Government.

This software or hardware 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 that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle®, Java, MySQL, and NetSuite are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Inside are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Epyc, and the AMD logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about 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 unless otherwise set forth in an applicable agreement between you and Oracle. 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, except as set forth in an applicable agreement between you and Oracle.

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.

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.

Contents

Preface

Audience i
Documentation Accessibility i
Diversity and Inclusion i
Related Documentation ii
Conventions ii

1 Understanding the Messaging Bridge

What is a Messaging Bridge? 1
Messaging Bridge Components 2
- Resource Adapters 2
- Source and Target Bridge Destinations 4
  - JMS Bridge Destinations 4
  - General Bridge Destinations 4
- Messaging Bridge Instance 5

Configuring and Managing a Messaging Bridge 5
- Create a Messaging Bridge Instance 5

Configuring Messaging Bridges for High Availability 6

2 Designing a Messaging Bridge

When to use a Messaging Bridge 1
- Store and Forward Messaging 1
- Replicating a Topic 1

When to Avoid Using a Messaging Bridge 2
Selecting a Quality-of-Service (QOS) Level 2
Messaging Persistence 3
Message Ordering 3
Tuning Explicitly Deployed Adapter Connection Pools 3
Preserving Message Properties 4
Using the JMSXUserID Property with a Messaging Bridge 5
Using Distributed Destinations as Source and Target Destinations 5

Copyright © 2007, 2026, Oracle and/or its affiliates.

Tuning a WebLogic Messaging Bridge 5

3 Interoperating with Different WebLogic Server Releases or Foreign Providers

Interoperating with Different WebLogic Server Releases 1
Supported Configurations and Compatibility 1
Naming Guidelines for WebLogic Servers and Domains 1
Configuring Interoperability for WebLogic Domains 1
Configuring Interoperability for Exactly-once QOS 2
Configuring At-least-once or At-most-once QOS 3
Interoperating with Foreign Providers 3

4 FAQs: WebLogic Messaging Bridge

Why did the messaging bridge fail to connect to the source bridge destination? 1
Why are some of my messages not being forwarded? 2
Can the messaging bridge handle two-phase or global transactions between separate WebLogic Server domains or between different releases? 2
Why does the bridge report failed to find bridge adapter? 2
When configuring a source or target messaging bridge destination, do I need to set the Adapter Classpath field? 3
How do I enable debugging for the messaging bridge? 3
Can the messaging bridge use distributed destinations as source and target destinations? 3
Is there another way to monitor the messaging bridge? 3
Can I use the Message Bridge in a Mixed or Dynamic Cluster? 4
What are the recommendations for the bridge Distribution Policy and Migration Policy settings? 4

Copyright © 2007, 2026, Oracle and/or its affiliates.

Preface

This document describes how to configure and manage a WebLogic Messaging Bridge as a forwarding mechanism between any two messaging products—thereby providing interoperability between separate implementations of WebLogic JMS, or between WebLogic JMS and another messaging product.

- Audience
- Documentation Accessibility
- Diversity and Inclusion
- Related Documentation
- Conventions

Audience

This document is a resource for system administrators who want to configure and manage a WebLogic Messaging Bridge. It also contains information that is useful for business analysts and system architects who are evaluating WebLogic Server or considering the use of WebLogic Server JMS for a particular application.

It is assumed that the reader is familiar with programming in Jakarta Platform, Enterprise Edition (Jakarta EE) and JMS concepts. This document emphasizes the value-added features provided by WebLogic Server and key information about how to use WebLogic Server features and facilities to configure and manage a messaging bridge.

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

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.

Copyright © 2007, 2026, Oracle and/or its affiliates.

Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

Related Documentation

For information on topics related to configuring and managing a messaging bridge, see the following documents:

- *Administering JMS Resources for Oracle WebLogic Server* is a guide to configuring and managing WebLogic JMS resources.
- *Developing JMS Applications for Oracle WebLogic Server* is a guide to developing WebLogic JMS applications.
- *Tuning Performance of Oracle WebLogic Server* provides information on how to monitor performance and tune the components in a WebLogic Server.
- *Developing Applications for Oracle WebLogic Server* is a guide to developing WebLogic Server applications.
- *Deploying Applications to Oracle WebLogic Server* is the primary source of information about deploying WebLogic Server applications.
- *Developing Resource Adapters for Oracle WebLogic Server* contains information on WebLogic resource adapters and the WebLogic Server implementation of the Jakarta Connector Architecture.
- Samples and Tutorials
- New and Changed WebLogic Server Features

Samples and Tutorials

Oracle provides a variety of code examples and tutorials that show WebLogic Server configuration and API use, and provide practical instructions on how to perform key development tasks.

For more information, see Sample Applications and Code Examples in *Understanding Oracle WebLogic Server*.

New and Changed WebLogic Server Features

For a comprehensive listing of the new WebLogic Server features introduced in this release, see *What's New in Oracle WebLogic Server*.

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 you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Copyright © 2007, 2026, Oracle and/or its affiliates.

Copyright © 2007, 2026, Oracle and/or its affiliates.

1

Understanding the Messaging Bridge

This chapter describes WebLogic Messaging Bridge components, concepts and functionality. This chapter includes the following sections:

- What is a Messaging Bridge?
  The WebLogic Messaging Bridge is a forwarding mechanism that provides interoperability between WebLogic JMS implementations. A messaging bridge also provides interoperability between JMS and other messaging products.
- Messaging Bridge Components
- Configuring and Managing a Messaging Bridge
- Configuring Messaging Bridges for High Availability
  You can target a messaging bridge to a cluster and configure it for high availability and dynamic scalability.

What is a Messaging Bridge?

The WebLogic Messaging Bridge is a forwarding mechanism that provides interoperability between WebLogic JMS implementations. A messaging bridge also provides interoperability between JMS and other messaging products.

Use the Messaging Bridge to integrate your messaging applications between:

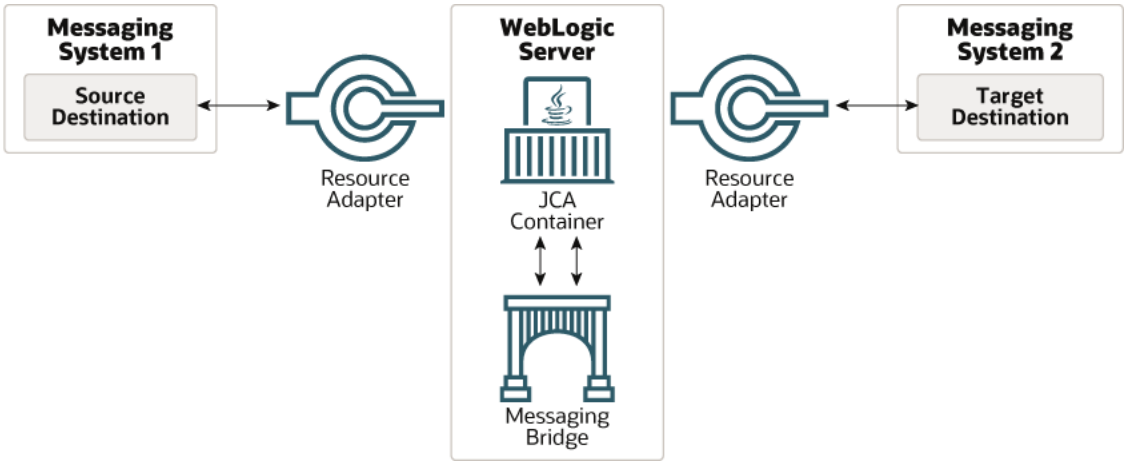
- Any two implementations of WebLogic JMS, including those from separate releases of WebLogic Server.
- WebLogic JMS implementations that reside in separate WebLogic domains.
- WebLogic JMS and a third-party JMS product (for example, MQSeries).

A messaging bridge instance forwards messages between a pair of bridge source and target destinations. These destinations are mapped to a pair of bridge source and target destinations. The messaging bridge reads messages from the source bridge destination and forwards those messages to the target bridge destination. For WebLogic JMS and third-party JMS products, a messaging bridge communicates with source and target destinations using the Jakarta Connector Architecture (JCA) resource adapters provided with WebLogic Server. See Figure 1-1.

Copyright © 2007, 2026, Oracle and/or its affiliates.

> **Note**
>
> Messaging bridge configuration has been simplified since WebLogic Server 12.2.1. You need not explicitly configure and deploy bridge adapters. Instead, a messaging bridge now uses the automatically deployed internal adapters when the bridge is configured with a default adapter JNDI name (`eis.jms.WLSConnectionFactoryJNDINoTX` or `eis.jms.WLSConnectionFactoryJNDIXA`). These internal adapters also have a much larger connection capacity.
>
> Legacy adapters explicitly configured with the default adapter JNDI names still deploy, but are ignored by messaging bridges. The legacy adapter deployments can be removed in the configuration after upgrading to WebLogic Server 12.2.1.

Figure 1-1 WebLogic Messaging Bridge



You designate source and target bridge destinations as either queues, topics, or distributed destinations, as described in *Developing JMS Applications for Oracle WebLogic Server*. Optionally, specify a quality of service (QOS), including message filters, transaction semantics, connection retry policies, and high availability options. After you configure a messaging bridge, you can perform management tasks from the WebLogic Remote Console, including suspending bridge traffic temporarily whenever necessary and monitoring the status of all your configured bridges.

Messaging Bridge Components

The following sections describe resources needed to use a messaging bridge:

- Resource Adapters
- Source and Target Bridge Destinations
- Messaging Bridge Instance

Resource Adapters

A messaging bridge uses JCA resource adapters to communicate with the configured source and target JMS destinations. Associate both the source and target JMS destinations with a

Copyright © 2007, 2026, Oracle and/or its affiliates.

supported resource adapter in order for the bridge to communicate with them. The JNDI name for the adapter is configured as part of the resource adapter's deployment descriptor. See Table 1-1.

> **Note**
>
> Messaging bridge configuration has been simplified since WebLogic Server 12.2.1. You need not explicitly configure and deploy bridge adapters. Instead, a messaging bridge now uses the automatically deployed internal adapters when the bridge is configured with a default adapter JNDI name (`eis.jms.WLSConnectionFactoryJNDINoTX` or `eis.jms.WLSConnectionFactoryJNDIXA`). These internal adapters also have a much larger connection capacity.
>
> Legacy adapters explicitly configured with the default adapter JNDI names still deploy, but are ignored by messaging bridges. The legacy adapter deployments can be removed in the configuration after upgrading to WebLogic Server 12.2.1.

When a messaging bridge needs to use a built-in adapter with modified deployment descriptor parameters, explicit deployment of an adapter is required. In this case, the modified adapter must be deployed with a non-default JNDI name, and the messaging bridge adapter JNDI name attribute needs to be configured to match the non-default name.

WebLogic Server supplies the bridge resource adapters as RAR archives. To inspect or customize an explicitly deployed adapter, copy its RAR to a separate working directory and extract that copy. An exploded adapter directory is not supplied in the installation. Use internal adapters for the default JNDI names; a customized explicitly deployed adapter must use a non-default JNDI name.

> **Note**
>
> Changing a deployment descriptor in an extracted adapter directory does not update the descriptor packaged in the `.rar` archive. See Tuning Explicitly Deployed Adapter Connection Pools.

The supported resource adapters are located in the *`WL_HOME`*`\server\lib` directory and are described in Table 1-1.

Table 1-1 Messaging Bridge Resource Adapters and JNDI Names

Adapter	JNDI Name	Description
`jms-xa-adp`	`eis.jms.WLSConnectionFactoryJNDIXA`	Provides transaction semantics using the `XAResource`. Used when the required QOS is *Exactly-once*. This envelops a received message and sends it within a user transaction (XA/JTA). The following requirements apply to use of this resource adapter: • The source and target JMS connection factories must be configured to use the `XAConnectionFactory`. **Note:** Before deploying this adapter, refer to the Configuring Interoperability for WebLogic Domains for specific transactional configuration requirements and guidelines.

Copyright © 2007, 2026, Oracle and/or its affiliates.

Table 1-1 (Cont.) Messaging Bridge Resource Adapters and JNDI Names

Adapter	JNDI Name	Description
`jms-notran-adp`	`eis.jms.WLSConnectionFactoryJNDINoTX`	Provides no transaction semantics. Used when the required QOS is *Atmost-once or Duplicate-okay*. If the requested QOS is *Atmost-once*, the resource adapter uses `AUTO_ACKNOWLEDGE` mode. If the requested QOS is *Duplicate-okay*, `CLIENT_ACKNOWLEDGE` is used. **Note:** For more information about the acknowledge modes used in non-transacted sessions, see Understanding WebLogic JMS in *Developing JMS Applications for Oracle WebLogic Server*.

Source and Target Bridge Destinations

A messaging bridge connects two actual destinations that are mapped to bridge destinations: a source destination *from which* messages are received, and a target destination *to which* messages are sent.

For JMS messaging products, whether it is a WebLogic JMS implementation or a third-party JMS provider, configure a JMS bridge destination instance for each actual source and target JMS destination being mapped to a messaging bridge. A JMS bridge destination instance defines a unique name for a bridge's source and target destinations within a WebLogic domain; the name of the adapter used to communicate with the specified destination; property information to pass to the adapter (such as Connection URL and Connection Factory JNDI Name), and, optionally, a user name and password.

See Create a JMS Bridge Destination in the *Oracle WebLogic Remote Console Online Help*.

- JMS Bridge Destinations
- General Bridge Destinations

JMS Bridge Destinations

For JMS messaging products, whether it is a WebLogic JMS implementation or a third-party JMS provider, configure a JMS bridge destination instance for each actual source and target JMS destination being mapped to a messaging bridge. A JMS bridge destination instance defines a unique name for a bridge's source and target destinations within a WebLogic domain; the name of the adapter used to communicate with the specified destination; property information to pass to the adapter (such as Connection URL and Connection Factory JNDI Name), and, optionally, a user name and password.

- Interoperating with Different WebLogic Server Releases or Interoperating with Foreign Providers sections for specific configuration requirements and guidelines.
- When configuring third-party JMS provider bridge destination, use the Foreign JMS Server feature to configure multiple source or target destinations quickly. See Configuring Foreign Server Resources to Access Third-Party JMS Providers in *Administering JMS Resources for Oracle WebLogic Server*.

General Bridge Destinations

For non-JMS messaging products, you need to configure a general bridge destination instance for each actual source and target destination being mapped to a messaging bridge. A general bridge destination instance defines a unique name for the actual source and target general bridge destinations within the WebLogic domain; the name of the adapter used to

Copyright © 2007, 2026, Oracle and/or its affiliates.

communicate with the specified destination; a list of properties to pass to the adapter; and, optionally, a user name and password.

> **Note**
>
> Although WebLogic JMS includes a "General Bridge Destination" framework for accessing non-JMS messaging products, WebLogic Server does not provide adapters for such products. Therefore, you must obtain a custom connector adapter from a third-party OEM vendor and consult their documentation for configuration instructions.

Messaging Bridge Instance

A messaging bridge instance communicates with the configured source and target bridge destinations. For each mapping of a source destination to a target destination, whether it is another WebLogic JMS implementation or a third-party JMS provider, you must configure a messaging bridge instance. Each messaging bridge instance defines the source and target destination for the mapping, a message filtering selector, a QOS, transaction semantics, and various reconnection parameters.

See Create a Messaging Bridge Instance in the *Oracle WebLogic Remote Console Online Help*.

Configuring and Managing a Messaging Bridge

The following sections provide information on how to use the WebLogic Remote Console to configure and manage a messaging bridge:

- Create a Messaging Bridge Instance

Create a Messaging Bridge Instance

Creating a messaging bridge consists of the following tasks:

1. Create source and target bridge destinations.
2. Use the automatically deployed internal bridge adapters when the source and target destinations use the default adapter JNDI names. Explicitly deploy an adapter only when a custom configuration is required, using a non-default JNDI name.
3. Create a messaging bridge instance.
4. Configure any required high availability parameters. See Configuring Messaging Bridges for High Availability.
5. Target the messaging bridge.

Use WebLogic Remote Console to configure the bridge destinations, bridge instance, quality of service, and targets. WebLogic Server supplies internal adapters for the default adapter JNDI names. See Resource Adapters for the custom-adapter exception.

See Create a Messaging Bridge Instance in *Oracle WebLogic Remote Console Online Help* for the Remote Console procedure.

Copyright © 2007, 2026, Oracle and/or its affiliates.

Configuring Messaging Bridges for High Availability

You can target a messaging bridge to a cluster and configure it for high availability and dynamic scalability.

When the distribution policy property of the messaging bridge is set to **Distributed**, then one instance of the bridge will be created and started on each cluster member. If the distribution policy is set to **Singleton**, then only a single instance of the bridge will be started in the cluster. See Defining the Distribution Policy for JMS Services in *Administering JMS Resources for Oracle WebLogic Server*.

Bridges require the migration policy set to **On-Failure** or **Off**. A validation error will be logged when the users try to configure the migration policy as **Always**. Bridges already have the built-in mechanism to retry failed operations. Therefore, bridges ignore the restart-in-place settings. See Defining the Migration Policy for JMS Services in *Administering JMS Resources for Oracle WebLogic Server*.

Copyright © 2007, 2026, Oracle and/or its affiliates.

2

Designing a Messaging Bridge

Learn how to design, configure, and tune a Messaging Bridge.

- When to use a Messaging Bridge
- When to Avoid Using a Messaging Bridge
- Selecting a Quality-of-Service (QOS) Level
- Messaging Persistence
- Message Ordering
- Tuning Explicitly Deployed Adapter Connection Pools
- Preserving Message Properties
- Using the JMSXUserID Property with a Messaging Bridge
- Using Distributed Destinations as Source and Target Destinations
- Tuning a WebLogic Messaging Bridge

When to use a Messaging Bridge

The following sections provide information on when to use a messaging bridge:

- Store and Forward Messaging
- Replicating a Topic

Store and Forward Messaging

A messaging bridge provides high availability for remote destinations. Store and forward messaging enables a local client to produce to a local destination and have those messages automatically forwarded to the remote destination when it is available. This allows a local client to continue to produce messages when a remote destination is not available. See Messaging Persistence.

Use the WebLogic Messaging Bridge to provide an administrative solution to store and forward messages between:

- Any two implementations of WebLogic JMS, including those from separate releases of WebLogic Server.
- WebLogic JMS implementations that reside in separate WebLogic domains.
- WebLogic JMS with a third-party JMS product (for example, MQSeries).
- WebLogic JMS with non-JMS messaging products (only by using specialized connector adapters that are not provided with WebLogic Server).

Replicating a Topic

A messaging bridge can replicate a topic, similar to using the distributed topics feature available in WebLogic Server releases, consequently improving scalability and high availability

Copyright © 2007, 2026, Oracle and/or its affiliates.

in some scenarios. (For information about using distributed topics, see Using Distributed Destinations in *Developing JMS Applications for Oracle WebLogic Server*.) Topic replication is accomplished by configuring the bridge to subscribe to one topic and forward the topic's messages to another topic, in essence creating two topics with the same message stream.

See Create a Messaging Bridge Instance in the *Oracle WebLogic Remote Console Online Help*.

When to Avoid Using a Messaging Bridge

The following sections provide information on when to avoid using messaging bridge:

- Receiving messages from a remote destination—Use a message driven EJB or implement a client consumer directly.
- Sending messages to a local destination—Send directly to the local destination.
- Environment with low tolerance for message latency. Messaging Bridges increase latency and may lower throughput. Messaging bridges increase latency for messages as they introduce an extra destination in the message path and may lower throughput because they forward messages using a single thread.
- Forward messages between WebLogic domains—Use WebLogic Store-and-Forward.
- The source or target is not a JMS provider.

Table 2-1 summarizes information on when to use WebLogic Messaging Bridge or other forwarding technologies:

Table 2-1 Comparing Message Forwarding Technologies

Feature	Messaging Bridge	Message Driven Beans	WebLogic Store-and-Forward
Implementation mechanism	Administrative	Programmatic	Administrative
Support for foreign and legacy providers	Yes	No	No, use to forward messages

Selecting a Quality-of-Service (QOS) Level

The WebLogic Messaging Bridge supports three different QOS levels:

- Exactly-once—The highest QOS guarantees that a message is sent to the remote endpoint once and only once. With the required XA configuration, persistent messages, and durable provider storage, Exactly-once messages survive server crashes and network down time, while guaranteeing one occurrence of each message at the endpoint.
- At-least-once—Guarantees that a message is sent to the remote endpoint, but with the possibility of duplicates. With `At-least-once`, multiple copies of a message may appear on the remote endpoint because of network failures or server crashes that occur when the message is in transit.
- At-most-once—The lowest QOS guarantees that each message is sent to the remote endpoint only once, if at all. It does not guarantee that a message is sent to the endpoint. With At-most-once, messages may get lost because of network failures or server crashes. No duplicate messages reach the endpoint.

Copyright © 2007, 2026, Oracle and/or its affiliates.

For WLST or JMX configuration, use the exact `QualityOfService` values: `Exactly-once`, `Duplicate-okay` (at-least-once delivery), or `Atmost-once` (at-most-once delivery). These configuration tokens differ from the conceptual delivery-guarantee labels used above.

In some instances, the target destination may not be able to provide the quality of service configured for the bridge. In these cases, configure the bridge instance to allow the quality of service to be degraded by setting the `QOSDegradationAllowed` flag.

See Create a Messaging Bridge Instance in the *Oracle WebLogic Remote Console Online Help*.

Messaging Persistence

The bridge relies on the source JMS provider to retain messages while forwarding is unavailable; it does not configure a separate bridge message store. For a topic source, enable `DurabilityEnabled` when the subscription must retain messages while the bridge is disconnected. Survival of a provider or server restart also depends on persistent message delivery and correctly configured durable storage at the participating providers. A durable subscription alone does not make nonpersistent messages persistent. When `PreserveMsgProperty` is enabled, the bridge preserves the incoming delivery mode.

See Setting Up Durable Subscriptions in *Developing JMS Applications for Oracle WebLogic Server*.

Message Ordering

A messaging bridge forwards messages received from its source destination to its target destination. With Exactly-once quality of service, the receive and send participate in the bridge's transaction. Ordering also depends on source delivery order, competing consumers, retries, and destination configuration. For WebLogic JMS endpoints that support Message Unit-of-Order, enable `PreserveMsgProperty` on the bridge to preserve the Unit-of-Order name when forwarding. Configure the source producer and destinations for the required Unit-of-Order behavior; do not assume that a foreign provider supports WebLogic Unit-of-Order.

See Using Message Unit-of-Order in *Developing JMS Applications for Oracle WebLogic Server*.

Tuning Explicitly Deployed Adapter Connection Pools

The built-in internal adapters are used for the default adapter JNDI names. Customize an explicitly deployed adapter only when its configuration is required. Inspect the descriptor in the adapter archive from your installation rather than assuming that `max-capacity` is 20. Size each adapter pool for the source and target connections used by all bridge instances on that server.

> **Note**
>
> Do not change Message Bridge adapter `initial-capacity` value. Oracle recommends that the `initial-capacity` value be set to zero (the default) as bridge instances may fail to function with `ResourceAllocation` errors.

Use the following steps to modify the `weblogic-ra.xml` descriptor file:

Copyright © 2007, 2026, Oracle and/or its affiliates.

1. Copy the applicable `jms-xa-adp.rar` or `jms-notran-adp.rar` from `ORACLE_HOME/wlserver/server/lib` to a separate work directory and extract the copy.
2. Edit that copy's `META-INF/weblogic-ra.xml`. Set `max-capacity` as required and keep `initial-capacity` at `0`. Give `jndi-name` a non-default value, for example `eis/jms/MyBridgeXA` for the XA adapter. See Example 2-1.
3. Deploy the customized archive or exploded directory to the servers that host the bridge. Configure the applicable source and target JMS bridge destinations to use exactly that non-default Adapter JNDI Name. Save and activate the changes, then stop and restart the affected bridge instances.

Example 2-1 Custom XA Adapter Descriptor Fragment

```
<weblogic-connection-factory-dd>
  <connection-factory-name>WLSJMSConnectionFactoryXA</connection-factory-name>
  <jndi-name>eis/jms/MyBridgeXA</jndi-name>
  <pool-params>
    <initial-capacity>0</initial-capacity>
    <max-capacity>100</max-capacity>
  </pool-params>
</weblogic-connection-factory-dd>
```

The value `100` is an example capacity, not a universal sizing rule.

Preserving Message Properties

Set `PreserveMsgProperty` to preserve message properties in a message header when a message is forwarded by a bridge instance. In previous releases, message properties are inherited from the `Default Delivery Mode` attribute on the connection factory used when a message is forwarded to its target destination. If the `Default Delivery Mode` is persistent, a non-persistent message is forwarded as a persistent message resulting in a significant performance loss.

When `PreserveMsgProperty` is enabled, an incoming non-persistent message is forwarded by the bridge to the target destination as a non-persistent message and an incoming persistent message is forwarded to the target destination as a persistent message.

See Create a Messaging Bridge Instance in the *Oracle WebLogic Remote Console Online Help*.

The behavior of a messaging bridge instance is determined according to the following guidelines:

- The `PreserveMsgProperty` is not enabled. This setting provides the same forwarding behavior as previous releases.
- The default value of `PreserveMsgProperty` when configuring a messaging bridge instance is not enabled.
- The `PreserveMsgProperty` is enabled. Message properties are preserved as described in Table 2-2:

Table 2-2 Message Properties Preserved at Target Destination by WebLogic Server Release

Property	WebLogic Server 9.0 and Higher	Foreign JMS Servers
Message ID	Yes	No

Copyright © 2007, 2026, Oracle and/or its affiliates.

Table 2-2 (Cont.) Message Properties Preserved at Target Destination by WebLogic Server Release

Property	WebLogic Server 9.0 and Higher	Foreign JMS Servers
Timestamp	Yes	No
Original sender identity (JMSXUserID)	No	No
Delivery Mode	Yes	Yes
Priority	Yes	Yes
Expiration Time	Yes	Yes
Redelivery Limit	Yes	No
Unit-of-Order name	Yes	No

The bridge does not preserve the original sender's `JMSXUserID`. Any identity assigned by the target provider is governed by that provider and the bridge's target connection; it is not proof of the original sender's identity.

Using the JMSXUserID Property with a Messaging Bridge

The messaging bridge does not disclose a message's `JMSXUserID` across messaging bridge boundaries. `JMSXUserID` is an optional, provider-set property identifying the user that sends a message. See Jakarta Messaging 3.1, Section 3.5.9, Jakarta Messaging Defined Properties.

Using Distributed Destinations as Source and Target Destinations

A messaging bridge can send to and receive from distributed destinations. Oracle recommends the following configurations:

- If the source is a distributed destination, the bridge is pinned to one of the members when it connects to the destination. It stays connected to that member until an event occurs that breaks the connection. On reconnection, the bridge uses the next available member. Once a bridge is connected, it does not receive messages from other members of the distributed destination. It is a best practice to configure one bridge for each member of a distributed destination using the member's JNDI Name.
- If the target is a distributed destination, the best practice is to send to the distributed destination using the distributed destination's JNDI Name and disable server affinity. This allows the distributed destination to load balance incoming messages. See Load Balancing for JMS in *Administering Clusters for Oracle WebLogic Server*.

Tuning a WebLogic Messaging Bridge

The main objective when tuning a messaging bridge is to improve overall messaging performance. Raw speed, though important, is only one of several performance-related factors. Other performance factors include reliability, scalability, manageability, monitoring, user transactions, message-driven bean support, and integration with an application server. See Tuning WebLogic Message Bridge in *Tuning Performance of Oracle WebLogic Server*.

Copyright © 2007, 2026, Oracle and/or its affiliates.

3

Interoperating with Different WebLogic Server Releases or Foreign Providers

This chapter provides interoperability guidelines for using the WebLogic Messaging Bridge to access JMS destinations on different releases of WebLogic Server or when accessing foreign providers.
This chapter includes the following sections:

- Interoperating with Different WebLogic Server Releases
- Interoperating with Foreign Providers

Interoperating with Different WebLogic Server Releases

The following interoperability guidelines apply when using the messaging bridge to access JMS destinations on different releases of WebLogic Server and in other WebLogic Server domains.

> **Note**
>
> When the messaging bridge is used to communicate between two domains running different releases of WebLogic Server, Oracle recommends that the messaging bridge be configured to run on the domain using the latest release of WebLogic Server.

- Supported Configurations and Compatibility
- Naming Guidelines for WebLogic Servers and Domains
- Configuring Interoperability for WebLogic Domains

Supported Configurations and Compatibility

For the most current information on supported configurations and compatibility between current version of WebLogic Server and previous releases, see Supported Configurations and WebLogic Server Compatibility in *What's New in Oracle WebLogic Server*.

Naming Guidelines for WebLogic Servers and Domains

Unique naming rules apply to all WebLogic Server deployments if more than one domain is involved. See Integration and Multi-Domain Best Practices in *Administering JMS Resources for Oracle WebLogic Server*.

Configuring Interoperability for WebLogic Domains

Configuring interoperability between domains depends on the QOS:

- Configuring Interoperability for Exactly-once QOS

Copyright © 2007, 2026, Oracle and/or its affiliates.

- Configuring At-least-once or At-most-once QOS

Configuring Interoperability for Exactly-once QOS

Use the following guidelines to configure interoperability to handle transactional messages (using the Exactly-once QOS) between two WebLogic domains

- You must correctly configure either Cross Domain Security or Security Interop Mode for all participating domains.

  Keep all the domains used by your process symmetric with respect to Cross Domain Security configuration and Security Interop Mode. Because both settings are set at the domain level, it is possible for a domain to be in a mixed mode, meaning the domain has both Cross Domain Security and Security Interop Mode set. For more information, see:

  – Configuring Secure Inter-Domain and Intra-Domain Transaction Communication in *Developing JTA Applications for Oracle WebLogic Server*

  – Changing the Asynchronous Mode Enabled Attribute in *Tuning Performance of Oracle WebLogic Server*

- When interoperating between two WebLogic domains, see Naming Guidelines for WebLogic Servers and Domains.

- Ensure that the XA connection factory is enabled for the domains by selecting the `XAConnection` Factory Enabled.

  See Configure Resources for JMS System Modules in the *Oracle WebLogic Remote Console Online Help*.

- For both JMS bridge destinations, use the default XA Adapter JNDI Name, `eis.jms.WLSConnectionFactoryJNDIXA`, to select the automatically deployed internal XA adapter. Explicitly deploy an XA adapter only when custom descriptor settings are required; in that case, use a non-default JNDI name and configure the destinations to match.

  > **Note**
  >
  > Messaging bridge configuration has been simplified since WebLogic Server 12.2.1. You need not explicitly configure and deploy bridge adapters. Instead, a messaging bridge now uses the automatically deployed internal adapters when the bridge is configured with a default adapter JNDI name (`eis.jms.WLSConnectionFactoryJNDINoTX` or `eis.jms.WLSConnectionFactoryJNDIXA`). These internal adapters also have a much larger connection capacity.
  >
  > Legacy adapters explicitly configured with the default adapter JNDI names still deploy, but are ignored by messaging bridges. The legacy adapter deployments can be removed in the configuration after upgrading to WebLogic Server 12.2.1.

- When configuring the JMS bridge destinations, as described in Create a JMS Bridge Destination in the *Oracle WebLogic Remote Console Online Help*, do the following for both the source and target destinations:

  – In the Adapter JNDI Name field, identify the transaction adapter's JNDI name, `eis.jms.WLSConnectionFactoryJNDIXA`.

  – Do not enter anything in the Adapter Classpath field.

- Select a Quality Of Service of *Exactly-once*.

Copyright © 2007, 2026, Oracle and/or its affiliates.

See Create a Messaging Bridge Instance in the *Oracle WebLogic Remote Console Online Help*.

Configuring At-least-once or At-most-once QOS

At-least-once and At-most-once forwarding do not require cross-domain JTA transaction-security configuration solely for bridge forwarding. Configure the JNDI and JMS credentials, permissions, and transport security required by each endpoint. If Cross Domain Security is configured for other interactions, keep the participating domains and exception lists consistent.

> **Note**
>
> Keep all the domains used by your process symmetric with respect to Cross Domain Security configuration—all domains use Cross Domain Security (or are on the appropriate exception lists) or none of the domains have Cross Domain Security configured. For more information, see:
>
> - Configuring Cross-Domain Security in *Administering Security for Oracle WebLogic Server*
> - Changing the Asynchronous Mode Enabled Attribute in *Tuning Performance of Oracle WebLogic Server*

Interoperating with Foreign Providers

Use a provider client library compatible with the `jakarta.jms` APIs used by WebLogic Server. A client implementing only `javax.jms` is not compatible with the built-in Jakarta Messaging bridge adapters merely because its JARs are on the server classpath. Check the supported provider, client-library and JDK combination before deployment. Exactly-once forwarding also requires XA-capable source and target connection factories.

When configuring a messaging bridge involves interoperability with a third-party Jakarta Messaging Service provider, you must configure the following:

- Before starting WebLogic Server:
  - Supply the provider's `CLASSPATH` in the WebLogic Server `CLASSPATH`.
  - Include the `PATH` of any native code required by the provider's client-side libraries in the WebLogic Server system `PATH`. (This variable may vary depending on your operating system.)
- In the `JMSBridgeDestination` instance for the third-party messaging product being bridged, provide *vendor-specific* information in the following attributes:
  - Connection URL
  - Initial Context Factory
  - Connection Factory JNDI Name
  - Destination JNDI Name

Copyright © 2007, 2026, Oracle and/or its affiliates.

> **Note**
>
> The messaging bridge cannot provide the "Exactly-once" quality of service when the source and target bridge destinations are located on the same resource manager (that is, when the bridge is forwarding a global transaction that is using the XA resource of the resource manager). For example, when using MQ Series, it is not possible to use the same Queue Manager for the source and target bridge destinations.

For more information on configuring the remaining attributes for a JMS Bridge Destination, see Create a JMS Bridge Destination in the *Oracle WebLogic Remote Console Online Help*.

Copyright © 2007, 2026, Oracle and/or its affiliates.

4

FAQs: WebLogic Messaging Bridge

This chapter provides answers to frequently asked questions (FAQs) for the WebLogic Messaging Bridge.
This chapter includes the following sections:

- Why did the messaging bridge fail to connect to the source bridge destination?
- Why are some of my messages not being forwarded?
- Can the messaging bridge handle two-phase or global transactions between separate WebLogic Server domains or between different releases?
- Why does the bridge report failed to find bridge adapter?
- When configuring a source or target messaging bridge destination, do I need to set the Adapter Classpath field?
- How do I enable debugging for the messaging bridge?
- Can the messaging bridge use distributed destinations as source and target destinations?
- Is there another way to monitor the messaging bridge?
- Can I use the Message Bridge in a Mixed or Dynamic Cluster?
- What are the recommendations for the bridge Distribution Policy and Migration Policy settings?

Why did the messaging bridge fail to connect to the source bridge destination?

Either an error occurred when configuring the source bridge destination parameters, or the actual source destination is not running and cannot communicate with the messaging bridge.

- Verify whether the bridge's source destination is correctly configured, by making sure that the following fields on the JMS Bridge Destination Configuration page have been properly completed:
  - Connection URL—this must be the URL of the JNDI provider used to look up the connection factory and actual destination.
  - Destination JNDI Name—this must be the JNDI name of the actual destination mapped to the source bridge destination.
  - Connection Factory JNDI Name—this must be the connection factory used to create a connection for the actual destination mapped to the source bridge destination.
  - User Name/Password—ensure that this user ID has permission to access the actual source destination.
- Verify that the actual source queue or topic destination mapped to the source bridge destination is running and healthy, as follows:
  - Is the WebLogic Server instance hosting the source destination running?
  - Is the JMS server hosting the source destination correctly deployed?

Copyright © 2007, 2026, Oracle and/or its affiliates.

> **Note**
>
> This troubleshooting scenario for correcting a source bridge destination connection failure also applies to target bridge destinations.

Why are some of my messages not being forwarded?

Normally, a messaging bridge should forward all messages. If some messages are not being forwarded, here are some possible reasons:

- Some messages may have an expiration time, in which case either the JMS provider for the source or target destination expires the message.
- If you configured the bridge source destination to specify a selector filter, only the filtered messages are forwarded.
- A bridge does not directly provide an option to automatically move messages to an error destination, or to automatically delete messages, after a limited number of forward attempts. However, a JMS provider may provide such an option, which could, in turn, effect any messages on the bridge source destination. If a redelivery limit option is enabled on the JMS provider that hosts the bridge source destination, consider reconfiguring the provider to prevent the bridge automatic retry mechanism from causing messages to exceed the redelivery limit.

Can the messaging bridge handle two-phase or global transactions between separate WebLogic Server domains or between different releases?

Yes, see Interoperating with Different WebLogic Server Releases.

Why does the bridge report failed to find bridge adapter?

For standard XA operation, set the Adapter JNDI Name of both bridge destinations to `eis.jms.WLSConnectionFactoryJNDIXA`; WebLogic Server maps this default name to its internal XA adapter. Do not deploy a duplicate default-name adapter as the normal remedy. If you deliberately use a customized adapter, verify its non-default JNDI name, deployment state, and targeting on each bridge-hosting server.

> **Note**
>
> The `"failed to find bridge adapter"` message does not necessarily indicate a problem if it only occurs once. However, if it occurs repeatedly, you should check the adapter deployment and the adapter JNDI name used in the source and target bridge destinations.

For more information about the bridge resource adapters, see Resource Adapters.

Copyright © 2007, 2026, Oracle and/or its affiliates.

When configuring a source or target messaging bridge destination, do I need to set the Adapter Classpath field?

Leave the Adapter Classpath field blank when connecting to source and target destinations that are both running in WebLogic Server instances. When connecting to a third-party JMS provider, the bridge destination must supply the provider's `CLASSPATH` in the WebLogic Server `CLASSPATH`.

For the provider-client API compatibility and XA prerequisites, see Interoperating with Foreign Providers.

How do I enable debugging for the messaging bridge?

You can enable debugging for the messaging bridge using either of the followings methods:

- Add the following lines to your WebLogic start script (before the `weblogic.Server` line):

  ```
  -Dweblogic.debug.DebugMessagingBridgeStartup=true
  -Dweblogic.debug.DebugMessagingBridgeRuntime=true
  ```

- Alternatively, use supported online configuration tools to set `DebugMessagingBridgeStartup` and `DebugMessagingBridgeRuntime` to `true` on the `ServerDebugMBean` for each server hosting a bridge, then save and activate the changes. Both attributes are dynamic.

After debugging is enabled for the messaging bridge, the debugging messages are sent to the server log by default.

Can the messaging bridge use distributed destinations as source and target destinations?

Yes, the messaging bridge can send to and receive from distributed destinations. Oracle recommends the following configurations:

- If the source is distributed destination, the bridge is pinned to one of the members when it connects to the destination. It stays connected only to that member until it reconnects. The bridge does not receive messages from the other members of the distributed destination. Therefore, the best practice is to configure one bridge for each member of a distributed destinations using the member's `JNDIName`.
- If the target is a distributed destination, the best practice is to send to the distributed destination using the distributed destination's `JNDIName` and disable server affinity. This allows the distributed destination to load balance incoming messages.

Is there another way to monitor the messaging bridge?

Yes, there is a run-time MBean (`MessagingBridgeRuntimeMBean`) for each bridge instance. WebLogic Server run-time MBeans provide a snapshot of information about domain resources. When a particular resource in the domain (such as a messaging bridge) is instantiated, an MBean instance is created which collects information about that resource.

The `MessagingBridgeRuntimeMBean` has a `getState()` method that currently returns a `String` ("Active" or "Inactive") and a `getDescription()` method, which returns a `String` with more

Copyright © 2007, 2026, Oracle and/or its affiliates.

detailed information. Discover bridge runtimes from the hosting server's `ServerRuntimeMBean.MessagingBridgeRuntimes` collection or `lookupMessagingBridgeRuntime` operation. For a bridge named `mybridge`, use that bridge name within the appropriate server runtime; do not construct a runtime name by concatenating the server name with `.bridge`. For JMX, use the `ObjectName` returned by the management interface, including its server and partition context.

For more information, see:

- Introduction and Roadmap in *Developing Custom Management Utilities Using JMX for Oracle WebLogic Server*.
- Using the WebLogic Scripting Tool in *Understanding the WebLogic Scripting Tool*.

Can I use the Message Bridge in a Mixed or Dynamic Cluster?

Yes, a bridge can be targeted to any type of cluster. See the next FAQ entry for more information about tuning a bridge that is cluster-targeted.

What are the recommendations for the bridge Distribution Policy and Migration Policy settings?

The bridge Distribution Policy and Migration Policy settings take effect when a bridge is cluster-targeted. A bridge is cluster-targeted when its target is directly set to a cluster.

When an instance per server is desired for a cluster-targeted bridge, Oracle recommends setting the bridge Distributed Policy and Migration Policy to Distributed/Off respectively - these are the defaults.

When a single instance per cluster is desired for a cluster-targeted bridge, Oracle recommends setting the bridge Distributed Policy and Migration Policy to Singleton/On-Failure respectively. Singleton/On-Failure bridges will not start unless cluster leasing is also configured. (If you cannot cluster-target a bridge and still need singleton behavior in a configured cluster, you can target the bridge to a 'Migratable Target' and configure the Migration Policy on the migratable target to 'Exactly-Once'.)

> **Note**
>
> Oracle recommends against setting a bridge Distributed Policy and Migration Policy to Distributed/On-Failure or Distributed/Always.
> Restart-In-Place settings are ignored for a bridge, since a bridge has its own built-in retry logic.

Copyright © 2007, 2026, Oracle and/or its affiliates.