Oracle® Fusion Middleware

System Requirements and Specifications for Oracle Weblogic Server and Coherence

14c (14.1.1.0.0)
F30992-10
January 2025

ORACLE

Oracle Fusion Middleware System Requirements and Specifications for Oracle Weblogic Server and Coherence, 14c (14.1.1.0.0)

F30992-10

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Contents

Preface

This document lists all the system requirements and the required specifications for the Oracle WebLogic Server and Coherence software.

Audience

In general, this document is intended for administrators of Oracle Fusion Middleware, who need to know the system requirements and specification details for the Oracle WebLogic Server and Coherence.

Documentation Accessibility

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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.

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.

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System Requirements and Specifications

This document contains system and platform-specific information for Oracle WebLogic Server and Coherence software.
The following topics are covered in this document:

Using This Document with the Certification Matrix and Product Installation Guides

This document is intended for use in conjunction with the Oracle WebLogic Server and Coherence installation guides and the *Oracle Fusion Middleware 14c Certifications*.

Consider the following pre-installation workflow:

Task 1 Find Out What is Certified
The *Oracle Fusion Middleware 14c Certifications* can be found in the table on the Oracle Fusion Middleware Supported System Configurations page. Find the `.xls` document that includes your products.
Oracle has tested and verified the performance of your product on all certified systems and environments; whenever new certifications occur, they are added to the proper certification document right away. New certifications can occur at any time, and for this reason the certification documents are kept outside of the documentation libraries and are available on Oracle Technology Network.
If you use My Oracle Support, you can reference **My Oracle Support Certifications**, which is a self-service certification application which provides a structured display of most common certification data. Go to

`http://support.oracle.com/`

and refer to the **Certifications** tab.

Task 2 Verify the Requirements of the Certification
This document should be used to verify that the requirements of the certification are met. For example, if the certification document indicates that your product is certified for installation on

Oracle Linux 7, this document should be used to verify that your Oracle Linux 7 system has met the required minimum specifications, such as disk space, available memory, specific platform packages and patches, and other operating system-specific items.

Task 3 Install Your Software
After you have verified that your environment meets the requirements specified in both the certification and system requirements documents, you are ready to begin your installation. Your product installation guides contain the step-by-step instructions to get your product physically installed and configured on your system. These guides are available only from the Oracle WebLogic Server and Coherence 14.1.1.0.0 documentation library. Both the certification and system requirement documents can be updated multiple times in between product releases, depending on whether or not new information is available.

Processor Requirements

Oracle WebLogic Server and Coherence requires a minimum 1-GHz CPU.

Java Development Kit (JDK) Requirements

To run installers in the 14*c* (14.1.1.0.0), you must have a certified JDK already installed on your system. For information about the latest certified JDKs, refer to the certification document for your software version listed in Oracle Fusion Middleware Supported System Configurations page.

> **Note:**
>
> It is recommended that you install the JDK version used by Oracle Fusion Middleware products in a separate location from the default JDK installation on the system, so that the JDK version used by Oracle Fusion Middleware products can be managed and maintained with the Fusion Middleware products.

General Memory and Disk Space Requirements

This section contains the general memory and disk space requirements for Oracle WebLogic Server and Coherence.

The following topics are covered:

- General Memory Requirements
- Temporary Disk Space Requirements

General Memory Requirements

The following sections provide general information about how to determine the amount of memory required to run the Oracle WebLogic Server and Coherence:

- Minimum Memory Requirement for Installing Oracle WebLogic Server and Coherence
- Using a Formula to Determine Memory Requirements for a Specific Deployment
- Example: Determining Memory Requirements for a Development Environment
- Example: Determining Memory Requirements for a Production Environment

- Considering the Impact of Open File and Process Limits on Memory Requirements

Minimum Memory Requirement for Installing Oracle WebLogic Server and Coherence

Unless otherwise noted, Table 1-1 lists the general minimum memory requirements for installing Oracle Weblogic Server and Coherence.

> **Note:**
>
> For the purposes of this document, memory requirements fall into two categories: **physical memory** (the amount of physical RAM installed on host) and the **minimum available memory**, which includes swap space in addition to the physical memory.
>
> The memory requirements listed here are **minimum requirements**. The actual required memory will vary, depending upon the number of Managed Servers and the number of Oracle Fusion Middleware products you configure in the domains on each host. For some guidelines about determining the amount of memory required for a specific deployment, see Using a Formula to Determine Memory Requirements for a Specific Deployment.
>
> If you plan to install and configure a database instance on the same server, you should add at least an additional 2 GB of physical and 2 GB of available memory. For more information about memory requirements for the database, see the documentation for your version of the database software.

Table 1-1 Memory Requirements for Installing Oracle WebLogic Server and Coherence

Operating System	Minimum Physical Memory Required	Minimum Available Memory Required
Linux	4 GB	8 GB
UNIX	4 GB	8 GB
Windows	4 GB	8 GB

Using a Formula to Determine Memory Requirements for a Specific Deployment

Oracle Fusion Middleware installations vary widely in terms of how the Oracle WebLogic Server domains that support them are configured. For example, in some highly available production environments, you might have several Managed Servers running on each host. On the other hand, a single Administration Server is adequate for some development purposes.

To estimate the amount of required memory to run the Oracle WebLogic Server and Coherence in a particular deployment configuration, you can consider the amount of memory required by the operating system and other software, and then add a set amount of memory that will be required for each Java Virtual Machine (JVM) that you plan to configure on the host. Each Managed Server configured in a domain represents a single JVM instance.

> **Note:**
>
> Oracle recommends that for the performance of well-scaled production environments, the total Java heap memory allocations for all the Managed Servers per host add up to no more than 50% of the total physical memory on the host. If larger JVM heap sizes are required, or more managed servers are needed, physical memory should be increased accordingly.

In general, you can use the following formula as a general guideline to predict the minimum available memory requirements for Oracle WebLogic Server and Coherence:

```
    3 GB of available memory for the operating system and other software
 +  3 GB of available memory for each Managed Server
-----------------------------------------------------
    Total required available memory
```

It is important to note that this is a general guideline and the actual memory required for the operating system or a specific Managed Server can vary widely, depending on the resources and services targeted to the host or to the Managed Server.

Example: Determining Memory Requirements for a Development Environment

When determining memory required for a development environment, consider the type of domain you are using to test your applications.

If you are using an Administration Server for your development system you can use the general formula in Using a Formula to Determine Memory Requirements for a Specific Deployment as a guideline to determine the initial memory requirements.

For example:

```
   3 GB for the operating system and other software
 + 3 GB for the Administration Server
-------------------------------------
   6 GB of available memory
```

Example: Determining Memory Requirements for a Production Environment

In a production environment, Oracle recommends as a best practice that you target products and services to specific Managed Servers and clusters, based on the resources required by the products and services.

For example, if you are planning to configure a Oracle WebLogic Server domain with an Administration Server and two Managed Servers, then you could use the following formula to determine the minimum required available memory:

```
   3 GB for the operating system and other software
   3 GB for the Admin Server
 + 6 GB for the two Managed Servers
--------------------------------------
  12 GB
```

Considering the Impact of Open File and Process Limits on Memory Requirements

When determining the memory requirements for a production environment, you should also take into account other operating system settings, including the number of file descriptors

(open files) allowed per process and the number of processes required for each product or service that is targeted to a Managed Server.

For information about the recommended minimum open file and process limits for Oracle Fusion Middleware, see Setting the Open File Limit and Number of Processes Settings on UNIX Systems.

Temporary Disk Space Requirements

The installation program uses a temporary directory into which it extracts the files that are needed to install the software on the target system. During the installation process, your temporary directory must contain sufficient space to accommodate the compressed Java Run-time Environment (JRE) bundled with the installation program and an uncompressed copy of the JRE that is expanded into the temporary directory. The extracted files are deleted from the temporary directory after the installation process. The files in the temporary directory require approximately 2.5 times the space that is ultimately required for the installation.

By default, the installation program uses the following temporary directories:

- Windows platforms—directory referenced by the `TMP` system variable
- UNIX platforms—system-dependent temporary directory

> **Note:**
>
> If you do not have enough temporary space to run the installation program, you are prompted to specify an alternate directory or exit the installation program.

To make sure that you have adequate temporary space, you may want to allocate an alternate directory for this purpose by doing one of the following (depending on your operating system:

- On Windows operating systems, set the `TMP` system variable to a directory of your choice.
- Run the installation program from the command line and include the `-Djava.io.tmpdir=`*`tmpdirpath`* option, replacing *`tmpdirpath`* with the full path of the directory you want to designate as a temporary storage area for the installation program.

  While running the Oracle WebLogic Server installer for Windows, run the following command:

  ```
  java -Djava.io.tmpdir=C:\Temp -jar fmw_14.1.1.0.0_wls.jar
  ```

Product-Specific Memory and Disk Space Requirements

This section provides memory and disk space requirements for specific Oracle Fusion Middleware products:

- Oracle Universal Installer Requirements
- Oracle WebLogic Server and Coherence Disk Space Requirements

Oracle Universal Installer Requirements

This section contains prerequisite information for the Oracle Universal Installer (OUI). The requirements in this section must be met in order for the installer to start.

- Startup Requirements

- Modifying the SHMMAX Parameter on Linux Operating Systems

Startup Requirements

The items in Table 1-2 are verified as the installer is being started:

Table 1-2 Oracle Universal Installer Startup Requirements

Category	Accepted or Minimum Values
Platforms	For a complete list of supported platforms, refer to Oracle Fusion Middleware Supported System Configurations page, as described in Using This Document with the Certification Matrix and Product Installation Guides.
CPU Speed	At least 300MHz.
Monitor	At least 256 colors (this is a requirement for the graphical mode installer only).
Swap Space	At least 512MB.
JDK	See Java Development Kit (JDK) Requirements for more information about JDK verification on your system.
Temp Space	At least 300MB.

> **Note:**
>
> The temporary space noted here is in addition to the temporary space required for installer extraction as mentioned in Temporary Disk Space Requirements.

Modifying the SHMMAX Parameter on Linux Operating Systems

If you are running Oracle Universal Installer on a certified Linux operating system, you must modify the value of the SHMMAX kernel parameter to avoid seeing errors generated by the Oracle Universal Installer.

> **Note:**
>
> The following examples are for Linux operating systems. Consult your operating system documentation to determine the commands to be used on your system.

To set the SHMMAX kernel parameter:

1. Change the value of SHMMAX to 4294967295 by including the following line in `/etc/sysctl.conf`:

   ```
   kernel.shmmax = 4294967295
   ```

2. Activate the new SHMMAX setting by running the command:

```
/sbin/sysctl -p
```

3. Start the Oracle Universal Installer and install your software.

Oracle WebLogic Server and Coherence Disk Space Requirements

A Oracle WebLogic Server and Coherence installation using the Oracle WebLogic Server generic installer requires approximately 1.1 GB of disk space. The amount may vary by operating system. Installation size may be reduced by using the Oracle WebLogic Server lite, quick, or slim installers, or by using Coherence-only installers.

Network Requirements

Typically, the computer on which you want to install Oracle WebLogic Server and Coherence is connected to the network.

This section describes how to install Oracle Database on computers that do not meet the typical scenario. It describes the following cases:

- Guidelines for a Correct Format of Entries in the /etc/hosts File
- Understanding IPv6 and Oracle Weblogic Server and Coherence
- Configuration Requirements for Installing on a Non-Networked Computer

Guidelines for a Correct Format of Entries in the /etc/hosts File

To ensure that both forward lookup (find the IP address given the hostname) and reverse lookup (finding the hostname given the IP address) return the same results, make sure your `/etc/hosts` file is formatted correctly using the following guidelines:

- The host name may contain only alphanumeric characters, hyphen, and period. The name must begin with an alphabetic character and end with an alphanumeric character.
- Host names should be specified as fully qualified host names (host name with the appended domain name).
- Lines cannot start with a blank space or tab character, but fields may be separated by any number of space or tab characters.
- Comments are allowed and designated by a pound sign (#) preceding the comment text.
- Trailing blank and tab characters are allowed.
- Blank line entries are allowed.
- Only one host entry per line is allowed.

For example: `11.111.11.11 server.example.com server`

Understanding IPv6 and Oracle Weblogic Server and Coherence

Oracle Weblogic Server and Coherence support Internet Protocol Version 4 (IPv4) and Internet Protocol Version 6 (IPv6.) Among other features, IPv6 supports a larger address space (128 bits) than IPv4 (32 bits), providing an exponential increase in the number of computers that can be addressable on the Web.

An IPv6 address is expressed as 8 groups of 4 hexadecimal digits. For example:

```
2001:0db8:85a3:08d3:1319:8a2e:0370:7334
```

Configuration Requirements for Installing on a Non-Networked Computer

You can install your Oracle Fusion Middleware product on a non-networked computer, such as a laptop. Because a non-networked computer has no access to other computers, you have to install all the components that you need on the computer.

System Requirements for UNIX Operating Systems

This section contains system requirement information for UNIX operating systems.

In some cases, a particular platform may be de-supported for use with Oracle WebLogic Server and Coherence. While this particular platform's requirements may remain in this document for legacy purposes, it would no longer be listed in the certification information and would no longer be considered a certified platform.

See, Using This Document with the Certification Matrix and Product Installation Guides.

All packages listed are minimum versions.

The following topics are covered in this section:

- General UNIX Operating System Requirements
- Linux Operating System Requirements
- Solaris Operating System Requirements
- HP-UX Operating System Requirements
- IBM AIX Operating System Requirements
- IBM Linux on System Z Operating System Requirements

General UNIX Operating System Requirements

This section contains the following topics:

- Enabling Unicode Support
- Setting the Open File Limit and Number of Processes Settings on UNIX Systems

Enabling Unicode Support

Your operating system configuration can influence the behavior of characters supported by Oracle WebLogic Server and Coherence.

On UNIX operating systems, Oracle highly recommends that you enable Unicode support by setting the `LANG` and `LC_ALL` environment variables to a locale with the UTF-8 character set. This enables the operating system to process any character in Unicode. Table 1-3 describes these environment variables.

Table 1-3 Language Environment Variables on UNIX Operating Systems

Variable	Description
`LANG`	This environment variable sets the installation default locale. For example: `setenv LANG en_US.UTF-8`

Table 1-3 (Cont.) Language Environment Variables on UNIX Operating Systems

Variable	Description
LC_ALL	This environment variable overrides the value of the LANG environment variable and the values of any other LC_* environment variables. For example: setenv LC_ALL en_US.UTF-8

To check your current locale settings, use the `locale` command on your system. Below is an example:

```
locale
LANG=en_US.UTF-8
LC_CTYPE=en_US.UTF-8
LC_NUMERIC=en_US.UTF-8
LC_TIME=en_US.UTF-8
LC_COLLATE=en_US.UTF-8
LC_MONETARY=en_US.UTF-8
LC_MESSAGES=
LC_PAPER="POSIX"
LC_NAME="POSIX"
LC_ADDRESS="POSIX"
LC_TELEPHONE="POSIX"
LC_MEASUREMENT="POSIX"
LC_IDENTIFICATION="POSIX"
LC_ALL=
```

In a design-time environment, if you are using Oracle JDeveloper, select **Tools -> Preferences -> Environment -> Encoding -> UTF-8** to enable Unicode support.

Setting the Open File Limit and Number of Processes Settings on UNIX Systems

> **Note:**
>
> The following examples are for Linux operating systems. Consult your operating system documentation to determine the commands to be used on your system.

For more information, see the following topics:

- Viewing the Number of Currently Open Files
- Setting the Operating System Open File and Processes Limit

Viewing the Number of Currently Open Files

You can see how many files are open with the following command:

```
/usr/sbin/lsof | wc -l
```

To check your open file limits, use the commands below.

C shell:

```
limit descriptors
```

Bash:

```
ulimit -n
```

Setting the Operating System Open File and Processes Limit

To change the Open File Limit:

1. Log in as `root` and edit the following file:

   ```
   /etc/security/limits.conf
   ```

2. Add the following lines to the `limits.conf` file.

   ```
   * soft  nofile  4096
   * hard  nofile  65536
   * soft  nproc   2047
   * hard  nproc   16384
   ```

   The `nofiles` values represent the open file limit; the `nproc` values represent the number of processes limit.

3. Save the changes, close the `limits.conf` file.
4. If you are running Oracle Enterprise Linux 6 or Red Hat Linux 6, locate the following operating system configuration file:

   ```
   /etc/security/limits.d/90-nproc.conf
   ```

5. Make sure the same values are added to the `90-nproc.conf` file; otherwise, the values in the `90-nproc.conf` file can override the values in the `limits.conf` file.
6. Reboot the host computer.

Linux Operating System Requirements

Table 1-4 lists the platform, operating system, package, and patch information for Linux operating systems that are either currently supported or were supported in a previous release.

Use the following links to go directly to the row of your choice:

- x86-64 Oracle Linux 9 (UL0+) and Red Hat Linux 9 (UL0+)
- x86-64 Oracle Linux 8 (UL0+) and Red Hat Linux 8 (UL0+)
- x86-64 Oracle Linux 7 (UL0+) and Red Hat Linux 7 (UL0+)
- x86-64 Oracle Linux 6 (Update 6) and Red Hat Linux 6 (Update 6)
- x86-64 SUSE 15 (SP1+)
- x86-64 SUSE 12 (SP1+)
- x86-64 SUSE 11 (SP3+)

Table 1-4 Minimum Requirements for the Linux Operating System

Processor	Operating System Version	Required Packages	Required Kernel Version
x86-64	Oracle Linux 9 (UL0+) and Red Hat Linux 9 (UL0+)	binutils-2.35.2-17.0.1.el9 gcc-11.2.1-9.4.0.2.el9 gcc-c++-11.2.1-9.4.0.2.el9 glibc-2.34-28.0.1.el9_0.2.x86_64 glibc-devel-2.34-28.0.1.el9_0.2.x86_64 ksh libaio-0.3.111-13.el9.x86_64 libcap-2.48-8.el9.x86_64 libgcc-11.2.1-9.4.0.2.el9.x86_64 libnsl-2.34-28.0.1.el9_0.2.x86_64 libstdc++-11.2.1-9.4.0.2.el9.x86_64 libstdc++-devel-11.2.1-9.4.0.2.el9.x86_64 make-4.3-7.el9.x86_64 motif-2.3.4-25.el9.x86_64 motif-devel-2.3.4-25.el9.x86_64 openssl-3.0.1-41.0.1.el9_0.x86_64 sysstat-12.5.4-3.el9.x86_64	See How to Obtain the Required Kernel Version for Linux Operating Systems.

Table 1-4 (Cont.) Minimum Requirements for the Linux Operating System

Processor	Operating System Version	Required Packages	Required Kernel Version
x86-64	Oracle Linux 8 (UL0+) and Red Hat Linux 8 (UL0+)	binutils-2.30-49.0.2.el8 gcc-8.2.1-3.5.0.1.el8 gcc-c++-8.2.1-3.5.0.1.el8 glibc-2.28-42.0.1.el8.x86_64 glibc-devel-2.28-42.0.1.el8.x86_64 libaio-0.3.110-12.el8.x86_64 libaio-devel-0.3.110-12.el8.x86_64 libgcc-8.2.1-3.5.0.1.el8.x86_64 libstdc++-8.2.1-3.5.0.1.el8.x86_64 libstdc++-devel-8.2.1-3.5.0.1.el8.x86_64 libnsl-2.28-42.0.1.el8.x86_64 sysstat-11.7.3-2.el8.x86_64 motif-2.3.4-16.el8.x86_64 motif-devel-2.3.4-16.el8.x86_64 redhat-lsb-4.1-47.el8.x86_64 redhat-lsb-core-4.1-47.el8.x86_64 openssl-1.1.1-8.0.1.el8 make-4.2.1-9.el8	See How to Obtain the Required Kernel Version for Linux Operating Systems.

Table 1-4 (Cont.) Minimum Requirements for the Linux Operating System

Processor	Operating System Version	Required Packages	Required Kernel Version
X86-64	Oracle Linux 7 (UL0+) and Red Hat Linux 7 (UL0+)	**Required Packages for Oracle Linux 7 (UL0+)**: binutils-2.23.52.0.1 compat-libstdc++-33-3.2.3.x86_64 gcc-4.8.2 gcc-c++-4.8.2 glibc-2.17.x86_64 glibc-devel-2.17.x86_64 libaio-0.3.109.x86_64 libaio-devel-0.3.109.x86_64 libgcc-4.8.2.x86_64 libstdc++-4.8.2.x86_64 libstdc++-devel-4.8.2.x86_64 dejavu-serif-fonts ksh make-3.82 sysstat-10.1.5 redhat-lsb-4.1-27.0.1.el7 for x86_64 redhat-lsb-core-4.1-27.0.1.el7 for x86_64 openssl-1.0.1e **Required Packages for Red Hat Linux 7 (UL0+)**: binutils-2.23.52.0.1 compat-libcap1-1.10 compat-libstdc++-33-3.2.3.x86_64 gcc-4.8.2 gcc-c++-4.8.2 glibc-2.17.x86_64 glibc-devel-2.17.x86_64 libaio-0.3.109.x86_64 libaio-devel-0.3.109.x86_64 libgcc-4.8.2.x86_64 libstdc++-4.8.2.x86_64 libstdc++-devel-4.8.2.x86_64 dejavu-serif-fonts ksh make-3.82	See How to Obtain the Required Kernel Version for Linux Operating Systems.

Table 1-4 (Cont.) Minimum Requirements for the Linux Operating System

Processor	Operating System Version	Required Packages	Required Kernel Version
		sysstat-10.1.5 redhat-lsb-4.1-27.el7.x86_64 redhat-lsb-core-4.1-27.el7.x86_64 openssl-1.0.1e	
x86-64	Oracle Linux 6 (Update 6+) Red Hat Linux 6 (Update 6+)	binutils-2.20.51.0.2-5.28.el6 compat-libcap1-1.10-1 compat-libstdc++-33-3.2.3-69.el6.x86_64 gcc-4.4.4-13.el6 gcc-c++-4.4.4-13.el6 glibc-2.12-1.7.el6.x86_64 libaio-0.3.107-10.el6 libaio-devel-0.3.107-10.el6 libgcc-4.4.4-13.el6 libstdc++-4.4.4-13.el6.x86_64 libstdc++-devel-4.4.4-13.el6 openmotif-2.2.3.x86_64 openmotif22-2.2.3.x86_64 sysstat-9.0.4-11.el6 redhat-lsb-4.0-7.el6 for x86_64 redhat-lsb-core-4.0-7.el6 for x86_64 openssl-1.0.1e	See How to Obtain the Required Kernel Version for Linux Operating Systems.

Table 1-4 (Cont.) Minimum Requirements for the Linux Operating System

Processor	Operating System Version	Required Packages	Required Kernel Version
x86-64	SUSE 15 (SP1+)	binutils-2.29.1-4.46.x86_64 gcc7-ada-7.3.1+r258812-2.15.x86_64 gcc-c++-7-1.563.x86_64 gcc-c++-32bit-7-1.563.x86_64 gcc-ada-7-1.563.x86_64 gcc-locale-7-1.563.x86_64 gcc-info-7-1.563.x86_64 gcc-7-1.563.x86_64 gcc7-c++-7.3.1+r258812-2.15.x86_64 gcc7-info-7.3.1+r258812-2.15.noarch gcc7-7.3.1+r258812-2.15.x86_64 gcc7-locale-7.3.1+r258812-2.15.x86_64 gcc7-c++-32bit-7.3.1+r258812-2.15.x86_64 gcc7-32bit-7.3.1+r258812-2.15.x86_64 gcc-32bit-7-1.563.x86_64 glibc-2.26-11.8.x86_64 linux-glibc-devel-4.15-1.47.noarch glibc-devel-2.26-11.8.x86_64 glibc-locale-2.26-11.8.x86_64 glibc-extra-2.26-11.8.x86_64 glibc-32bit-2.26-11.8.x86_64 glibc-devel-32bit-2.26-11.8.x86_64 mksh-56c-1.10.x86_64	4.12.14-23-default

Table 1-4 (Cont.) Minimum Requirements for the Linux Operating System

Processor	Operating System Version	Required Packages	Required Kernel Version
		libaio1-0.3.109-1.25.x86_64 libaio1-32bit-0.3.109-1.25.x86_64 libaio-devel-32bit-0.3.109-1.25.x86_64 libaio-devel-0.3.109-1.25.x86_64 libcap2-2.25-2.41.x86_64 libcap-ng0-0.7.9-1.42.x86_64 libcap2-32bit-2.25-2.41.x86_64 libstdc++6-7.3.1+r258812-2.15.x86_64 libstdc++6-devel-gcc7-7.3.1+r258812-2.15.x86_64 libstdc++6-32bit-7.3.1+r258812-2.15.x86_64 libstdc++6-devel-gcc7-32bit-7.3.1+r258812-2.15.x86_64 libstdc++6-locale-7.3.1+r258812-2.15.x86_64 libstdc++-devel-7-1.563.x86_64 libgcc_s1-7.3.1+r258812-2.15.x86_64 libgcc_s1-32bit-7.3.1+r258812-2.15.x86_64 make-4.2.1-5.48.x86_64 make-lang-4.2.1-5.48.noarch makedumpfile-1.6.3-5.6.x86_64 xorg-x11-7.6_1-1.22.noarch xorg-x11-server-1.19.6-6.19.x86_64 xorg-x11-fonts-7.6-3.9.noarch	

Table 1-4 (Cont.) Minimum Requirements for the Linux Operating System

Processor	Operating System Version	Required Packages	Required Kernel Version
		xorg-x11-driver-video-7.6_1-2.30.x86_64 xorg-x11-Xvnc-1.8.0-11.23.x86_64 xorg-x11-fonts-core-7.6-3.9.noarch xorg-x11-server-extra-1.19.6-6.19.x86_64 xorg-x11-essentials-7.6_1-1.22.noarch openssl-1.0.1e	
x86-64	SUSE 12 (SP1+)	binutils-2.24-2.165 gcc-4.8-6.189 gcc-c++-4.8-6.189 glibc-2.19-17.72 glibc-devel-2.19-17.72 mksh-50-2.13 libaio1-0.3.109-17.15 libaio-devel-0.3.109-17.15 libcap2-2.22-11.709 libstdc++6-4.8.3+r212056-6.3 libstdc++48-devel-4.8.3+r212056-6.3 libstdc++48-devel-32bit-4.8.3+r212056-6.3 libstdc++6-32bit-4.8.3+r212056-6.3 libgcc_s1-4.8.3+r212056-6.3 libgcc_s1-32bit-4.8.3+r212056-6.3 make-4.0-2.107 xorg-x11-libs-7.6-45.14 motif-2.3.4-4.15.x86_64 openssl-1.0.1e	3.12.28-4-default

Table 1-4 (Cont.) Minimum Requirements for the Linux Operating System

Processor	Operating System Version	Required Packages	Required Kernel Version
x86-64	SUSE 11 (SP3+)	binutils-2.19-11.28 gcc-4.3-62.198 gcc-c++-4.3-62.198 gcc-32bit-4.3 glibc-2.9-13.2 glibc-32bit-2.9-13.2 glibc-devel-2.9 glibc-devel-32bit-2.9-13.2 ksh-93t libaio-0.3.104-140.22 libaio-devel-0.3.104-140.22 libaio-32bit-0.3.104 libaio-devel-32bit-0.3.104 libgcc43-4.3.3_20081022 libstdc++43-4.3.3_20081022-11.18 libstdc++43-devel-4.3.3_20081022-11.18 libstdc++33-3.3.3 libstdc++33-32bit-3.3.3 libstdc++43-32bit-4.3.3_20081022 libstdc++43-devel-32bit-4.3.3_20081022 libstdc++-devel-4.3 make-3.81 openmotif-2.3.1-3.13 openmotif-devel-32bit-2.3.1-3.13 openmotif22-libs-32bit-2.2.4-138.17 openmotif-libs-2.3.1-3.13 openmotif-devel-2.3.1-3.13 openmotif-libs-32bit-2.3.1-3.13	3.0.76-0.11-default

Table 1-4 (Cont.) Minimum Requirements for the Linux Operating System

Processor	Operating System Version	Required Packages	Required Kernel Version

		`openmotif21-libs-32bit-2.1.30MLI4-143.2`
		`openmotif22-libs-2.2.4-138.17`
		`sysstat-8.1.5-7.8`
		`openssl-1.0.1e`	

> **Note:**
>
> If the processor for your Linux system is x86-64, then by default, all the x86–64 packages are installed.

How to Obtain the Required Kernel Version for Linux Operating Systems

For default kernel information, see the Shipped Kernels Chapter in the release notes mentioned below. The Red Hat Compatible kernel and the Unbreakable Enterprise kernel (default kernel) mentioned for x86–64 are supported.

To identify the required Kernel version for each supported version of Oracle Linux, refer to the following resources:

- Oracle Linux 8 Documentation Library
  - Oracle Linux 8: Release Notes for Oracle Linux 8
  - Oracle Linux 8: Release Notes for Oracle Linux 8 Update 1
- Oracle Linux 7 Documentation Library
  - Oracle Linux 7 (UL0) Release Notes
  - Oracle Linux 7 (UL1) Release Notes
  - Oracle Linux 7 (UL3) Release Notes
  - Oracle Linux 7 (UL4) Release Notes
- Oracle Linux 6 Documentation Library
  - Oracle Linux 6 (UL6) Release Notes
  - Oracle Linux 6 (UL7) Release Notes
  - Oracle Linux 6 (UL8) Release Notes
  - Oracle Linux 6 (UL9) Release Notes

For Oracle Linux 6 (UL5+) and Oracle Linux 7 (UL0+) Containers, refer to Table 1 on Supported Virtualization and Partitioning Technologies for Oracle Fusion Middleware on the Oracle Technology Network.

- Obtaining the openmotif Packages on SUSE 11 and Later Operating System

Obtaining the openmotif Packages on SUSE 11 and Later Operating System

The `openmotif` package is not included by default on SUSE 11, SUSE 12, and SUSE 15 operating systems.

If you need to obtain this package, you must go to the Novell website to obtain the package and then perform the installation using the instructions provided by Novell.

Solaris Operating System Requirements

Table 1-5 lists the platform, operating system, package, and patch information for Solaris operating systems that are either currently supported or were supported in a previous release.

> **Note:**
>
> The SRU 11.3.3.6.0 or later (mandatory patch) is required for the Solaris 11 Update 3 on SPARC or x86-64.

Table 1-5 Solaris Operating System Requirements

Processor	Operating System Version	Required Packages
Solaris x86-64	Oracle Solaris 11.2 Oracle Solaris 11.3 (SRU 11.3.3.6.0 or higher)	`SUNWlibC developer/assembler`

	Oracle Solaris 11.4	`consolidation/X/X-incorporation@11.4,5.11-11.4.0.0.1.14.0:2018`
		`consolidation/cde/cde-incorporation@11.4,5.11-11.4.0.0.1.14.0:2018`
		`system/library/c++-runtime@11.4,5.11-11.4.0.0.1.4.0:2018`
		`developer/assembler@11.4,5.11-11.4.0.0.1.4.0:2018`
		`x11/library/libxp@1.0.3,5.11-11.4.0.0.1.14.0:2018`

SPARC64	Oracle Solaris 11.2 Oracle Solaris 11.3 (SRU 11.3.3.6.0 or higher)	`SUNWlibC developer/assembler` `Motif package (SUNWmfrun) libXp.so package (example; x11/library/libxp@1.0.3,5.11-11.4.0.0.1.14.0:20180814T173418)`

Table 1-5 (Cont.) Solaris Operating System Requirements

Processor	Operating System Version	Required Packages

	Oracle Solaris 11.4	`consolidation/X/X-incorporation@11.4,5.11-11.4.0.0.1.14.0:2018`
		`consolidation/cde/cde-incorporation@11.4,5.11-11.4.0.0.1.14.0:2018`
		`system/library/c++-runtime@11.4,5.11-11.4.0.0.1.4.0:2018`
		`developer/assembler@11.4,5.11-11.4.0.0.1.4.0:2018`
		`x11/library/libxp@1.0.3,5.11-11.4.0.0.1.14.0:2018`

HP-UX Operating System Requirements

Table 1-6 lists the platform, operating system, package, and patch information for HP-UX operating systems that are either currently supported or were supported in a previous release.

> **Note:**
>
> On HP_UX systems, you can verify what Motif packages are installed on the machine using the following command:
>
> ```
> /usr/sbin/swlist -l fileset | grep -i motif
> ```

Table 1-6 HP-UX Operating System Requirements

Processor	Operating System Version	Required Packages	Required Operating System Patches

Itanium	HP-UX 11.31 (Update 7)	`B3394BA (version 2.1.0) Motif 2.1 (Version 2.1)`	`PHKL_36248`
			`PHKL_36249`
			`PHSS_37202`
			`PHSS_37501`
			`PHCO_38050`
			`PHSS_38139`

IBM AIX Operating System Requirements

Table 1-7 lists the platform, operating system, package, and patch information for IBM AIX operating systems that are either currently supported or were supported in a previous release.

Table 1-7 IBM AIX Operating System Requirements

Processor	Operating System Version	Required Packages
POWER	AIX 7.1 Technology Level 5 Service Pack 1 (7100-05-01-1731) or later, 64-bit kernel	bos.adt.base bos.adt.lib bos.adt.libm bos.perf.libperfstat bos.perf.perfstat bos.perf.proctools rsct.compat.clients.rte security.pkcs11.7.1.3.15 or later xlC.aix61.rte:13.1.0.1 or later xlC.rte:13.1.0.1 or later xlfrte.aix61-15.1.0.9 or later
POWER	AIX 7.2 Technology Level 2 Service Pack 1 (7200-02-01-1731) or later, 64-bit kernel	bos.adt.base 7.2.0.0 bos.adt.lib 7.2.0.0 bos.adt.libm 7.2.0.0 bos.perf.libperfstat 7.2.0.0 bos.perf.perfstat 7.2.0.0 bos.perf.proctools 7.2.0.0 xlC.aix61.rte:13.1.0.1 or later xlC.rte:13.1.0.1 or later xlfrte.aix61-15.1.0.9 or later
POWER	AIX 7.3 Technology Level 0 Service Pack 1 (7300-00-01-2148) or later, 64-bit kernel	bos.adt.base 7.3.0.0 bos.adt.lib 7.3.0.0 bos.adt.libm 7.3.0.0 bos.perf.libperfstat 7.3.0.0 bos.perf.perfstat 7.3.0.0 bos.perf.proctools 7.3.0.0 rsct.basic.rte 3.3.1.0 rsct.compat.clients.rte 3.3.1.0 xlC.aix61.rte 16.1.0.10 xlC.rte.16.1.0.10

IBM Linux on System Z Operating System Requirements

Table 1-8 lists the platform, operating system, package, and patch information for IBM Linux on System Z operating systems that are either currently supported or were supported in a previous release.

Table 1-8 IBM Linux on System Z Operating System Requirements

Processor	Operating System Version	Required Packages
System Z (S/390)	Red Hat Linux 7.1	binutils-2.23.52.0.1-30.el7.s390x libstdc++-4.8.3-9.el7.s390 libstdc++-4.8.3-9.el7.s390x compat-libcap1-1.10-7.el7.s390x gcc-4.8.3-9.el7.s390x gcc-c++-4.8.3-9.el7.s390x glibc-2.17-78.el7.s390 glibc-2.17-78.el7.s390x glibc-devel-2.17-78.el7.s390 glibc-devel-2.17-78.el7.s390x ksh-20120801-22.el7.s390x libaio-0.3.109-12.el7.s390 libaio-0.3.109-12.el7.s390x libaio-devel-0.3.109-12.el7.s390x libgcc-4.8.3-9.el7.s390 libgcc-4.8.3-9.el7.s390x libstdc++-4.8.3-9.el7.s390x libstdc++-devel-4.8.3-9.el7.s390x libXtst-1.2.2-2.1.el7.s390 libXtst-1.2.2-2.1.el7.s390x libXi-1.7.2-2.1.el7.s390 libXi-1.7.2-2.1.el7.s390x libXmu-1.1.1-5.1.el7.s390x libXaw-1.0.11-6.1.el7.s390x libXft-2.3.1-5.1.el7.s390x libXpm-3.5.10-5.1.el7.s390x make-3.82-21.el7.s390x

Table 1-8 (Cont.) IBM Linux on System Z Operating System Requirements

Processor	Operating System Version	Required Packages
System Z (S/390)	Red Hat Linux 6.6+	binutils-2.20.51.0.2-5.42.el6.s390x compat-libstdc++-33-3.2.3-69.el6.s390 compat-libstdc++-33-3.2.3-69.el6.s390x compat-libcap1-1.10-1.s390x gcc-4.4.7-11.el6.s390x gcc-c++-4.4.7-11.el6.s390x glibc-2.12-1.149.el6.s390 glibc-2.12-1.149.el6.s390x glibc-devel-2.12-1.149.el6.s390 glibc-devel-2.12-1.149.el6.s390x ksh-20120801-21.el6.s390x libaio-0.3.107-10.el6.s390 libaio-0.3.107-10.el6.s390x libaio-devel-0.3.107-10.el6.s390x libgcc-4.4.7-11.el6.s390 libgcc-4.4.7-11.el6.s390x libstdc++-4.4.7-11.el6.s390x libstdc++-devel-4.4.7-11.el6.s390x libXtst-1.2.2-2.1.el6.s390 libXtst-1.2.2-2.1.el6.s390x libXi-1.7.2-2.2.el6.s390 libXi-1.7.2-2.2.el6.s390x libXmu-1.1.1-2.el6.s390 libXaw-1.0.11-2.el6.s390 libXft-2.3.1-2.el6.s390 libXp-1.0.2-2.1.el6.s390 make-3.81-20.el6.s390x sysstat-9.0.4-27.el6.s390x

Table 1-8 (Cont.) IBM Linux on System Z Operating System Requirements

Processor	Operating System Version	Required Packages
System Z (S/390)	SUSE 11 (SP3+)	binutils-2.21.1-0.7.25 (s390x) gcc-4.3-62.198 (s390x) gcc-c++-4.3-62.198 (s390x) glibc-2.11.3-17.31.1 (s390x) glibc-32bit-2.11.3-17.31.1 (s390x) glibc-devel-2.11.3-17.31.1 (s390x) glibc-devel-32bit-2.11.3-17.31.1 (s390x) ksh-93u-0.6.1 (s390x) make-3.81-128.20 (s390x) libaio-0.3.109-0.1.46 (s390x) libaio-32bit-0.3.109-0.1.46 (s390x) libaio-devel-0.3.109-0.1.46 (s390x) libaio-devel-32bit-0.3.109-0.1.46 (s390x) libcap1-1.10-6.10 (s390x) libgcc46-4.6.1_20110701-0.13.9 (s390x) libstdc++33-3.3.3-11.9 (s390x) libstdc++33-32bit-3.3.3-11.9 (s390x) libstdc++43-devel-32bit-4.3.4_20091019-0.22.17 (s390x) libstdc++43-devel-4.3.4_20091019-0.22.17 (s390x) libstdc++46-32bit-4.6.1_20110701-0.13.9 (s390x) libstdc++46-4.6.1_20110701-0.13.9 (s390x) sysstat-8.1.5-7.32.1 (s390x) xorg-x11-libs-32bit-7.4-8.26.32.1 (s390x) xorg-x11-libs-7.4-8.26.32.1 (s390x)

Table 1-8 (Cont.) IBM Linux on System Z Operating System Requirements

Processor	Operating System Version	Required Packages
		xorg-x11-libX11-32bit-7.4-5.9.1 (s390x) xorg-x11-libX11-7.4-5.9.1 (s390x) xorg-x11-libXau-32bit-7.4-1.15 (s390x) xorg-x11-libXau-7.4-1.15 (s390x) xorg-x11-libxcb-7.4-1.20.34 (s390x) xorg-x11-libxcb-32bit-7.4-1.20.34 (s390x) xorg-x11-libXext-32bit-7.4-1.16.21 (s390x) xorg-x11-libXext-7.4-1.16.21 (s390x)
System Z (S/390)	SUSE 12 (SP1+)	binutils-2.25.0-13.1 (s390x) - 3.12.49-11-default gcc-4.8-6.189 (s390x) gcc-c++-4.8-6.189 (s390x) glibc-2.19-31.9 (s390x) glibc-devel-2.19-31.9 (s390x) mksh-50-2.13 (s390x) libaio1-0.3.109-17.15 (s390x) libaio-devel-0.3.109-17.15 (s390x) libcap2-2.22-11.709 (s390x) libstdc++6-32bit-5.2.1+r226025-4.1 (s390x) libstdc++6-5.2.1+r226025-4.1 (s390x) libstdc++48-devel-32bit-4.8.5-24.1 (s390x) libstdc++48-devel-4.8.5-24.1 (s390x) libgcc_s1-5.2.1+r226025-4.1 (s390x) libgcc_s1-32bit-5.2.1+r226025-4.1 (s390x) make-4.0-4.1 (s390x) xorg-x11-libs-7.6-45.14 (s390x)

Table 1-8 (Cont.) IBM Linux on System Z Operating System Requirements

Processor	Operating System Version	Required Packages
System Z	SUSE 15 (SP1+)	binutils-2.29.1-4.46.s390x libstdc++6-7.3.1+r258812-2.15.s390x libstdc++6-devel-gcc7-7.3.1+r258812-2.15.s390x libstdc++6-32bit-6.2.1+r239768-2.4.s390x libgcc_s1-32bit-6.2.1+r239768-2.4.s390x libgcc_s1-7.3.1+r258812-2.15.s390x gcc-7-1.563.s390x gcc-c++-7-1.563.s390x gcc7-c++-7.3.1+r258812-2.15.s390x gcc7-7.3.1+r258812-2.15.s390x glibc-extra-2.26-11.8.s390x glibc-locale-2.26-11.8.s390x linux-glibc-devel-4.15-1.47.noarch glibc-profile-2.26-11.8.s390x glibc-2.26-11.8.s390x glibc-i18ndata-2.26-11.8.noarch glibc-locale-32bit-2.26-8.21.s390x glibc-32bit-2.26-8.21.s390x glibc-devel-2.26-11.8.s390x mksh-56c-1.10.s390x libaio-devel-0.3.109-1.25.s390x libaio1-0.3.109-1.25.s390x libcap2-2.25-2.41.s390x libcap-ng-utils-0.7.9-1.42.s390x libcap1-1.97-1.15.s390x libcap2-32bit-2.22-13.1.s390x libcap-ng0-0.7.9-1.42.s390x make-4.2.1-5.48.s390x automake-1.15.1-2.145.noarch make-lang-4.2.1-5.48.noarch makedumpfile-1.6.3-5.6.s390x xorg-x11-Xvnc-1.8.0-11.23.s390x xorg-x11-fonts-7.6-29.45.noarch xorg-x11-7.6_1-14.17.noarch xorg-x11-fonts-core-7.6-29.45.noarch xorg-x11-

Table 1-8 (Cont.) IBM Linux on System Z Operating System Requirements

Processor	Operating System Version	Required Packages

		`server-extra-7.6_1.18.3-71.1.s390x`
		`xorg-x11-server-7.6_1.18.3-71.1.s390x`
		`xorg-x11-essentials-7.6_1-14.17.noarch`
		`xorg-x11-libs-7.6.1-1.16.noarch`

Windows Operating Systems Requirements

This section contains the following information regarding Microsoft Windows operating systems:

- Certified Windows Operating Systems
- Disabling Anti-Virus Software

Certified Windows Operating Systems

Refer to the certification document for 14*c* (14.1.1.0.0) on the Oracle Fusion Middleware Supported System Configurations page for the latest information on certified Windows operating systems.

Disabling Anti-Virus Software

If you encounter issues related to anti-virus software during Oracle Weblogic Server and Coherence installation, disable your anti-virus software for the entire duration of the installation. If the system is restarted before the installation is complete, ensure the anti-virus software was not restarted before continuing with the installation.

Anti-virus software can be re-enabled when the installation is complete.

Virtualization Requirements

Oracle WebLogic Server and Coherence that is certified on Linux, Windows, or Oracle Solaris as physical operating system is also certified and supported when running as virtual guest on Oracle VM as long as the respective operating system is supported by Oracle VM.

See Supported Virtualization and Partitioning Technologies for Oracle Fusion Middleware on the Oracle Technology Network.

Database Requirements

This sections lists the database requirements for the Fusion Middleware products.

This section contains the following topics:

- Finding a Certified Database

Finding a Certified Database

Refer to the certification document for 14*c* (14.1.1.0.0) on the Oracle Fusion Middleware Supported System Configurations page for the latest information on certified databases.