

# **Oracle Agile Engineering Data Management**

Prerequisites Guide

Release e6.2.0.0

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Primary Author: Petra Metz

Contributing Author:

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# Preface

Agile PLM is a comprehensive enterprise PLM solution for managing your product value chain.

## Audience

This document is intended for administrators and users of the Agile PLM products.

## 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.

## Related Documents

Oracle's Agile PLM documentation set includes Adobe® Acrobat PDF files. The Oracle Technology Network (OTN) website  
<http://www.oracle.com/technetwork/documentation/agile-085940.html> contains the latest versions of the Agile PLM PDF files. You can view or download these manuals from the Web site, or you can ask your Agile administrator if there is an Agile PLM Documentation folder available on your network from which you can access the Agile PLM documentation (PDF) files.

## Conventions

The following text conventions are used in this document:

Convention	Meaning
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

Convention	Meaning
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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# Configuration Support Overview

This chapter summarizes the hardware and software configurations supported by the following Agile e6.2.0.0 installation components:

- EDM server
- Oracle WebLogic server
- Oracle database server
- Java Client, and Web Client

## EDM Server, Oracle WebLogic Server, and Oracle Database Server Support

The following list shows the platform / operating system configurations supported by the EDM server, Oracle WebLogic server, and Oracle database server:

- IBM AIX 7.1 (Power PC 5 or higher)
- HP UX 11i v3 (11.31) (Itanium 2)
- Oracle Solaris 11.2 (UltraSPARC IIIi or higher)
- Oracle Linux 6 Update 5
- Windows 2012 Server R2 (64bit)

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**Caution:** The EDM server requires a locally installed 32bit version of the Oracle database client for connections to the Oracle database server.

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**Note:** We support Oracle WebLogic 12c (12.1.3) and the Oracle Database 12c (12.1.0.2)

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## Client Support

The following table shows the hardware and software configurations supported by the Agile e6.2.0.0 clients, as well as the web browsers supported for the Web Client for each configuration.

All supported clients run against the entire supported server platforms described above.

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**Note:** More information about the different clients can be found in the Architecture Guide and the Online Help.

For information about the database client patch version can be found in *Oracle Agile Engineering Data Management, Server Installation Guide on Windows and UNIX for Agile*, chapter "Installing Oracle Database Client."

The Agile e6 documentation can be found on the Oracle Technology Network (OTN) website (<http://www.oracle.com/technetwork/documentation/agile-eseries-098047.html>).

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Platform/Operating System		Agile e6.2.0.0 Client		
		Java Client / Web Client	Web Client	Office Suite
■	Windows 7 (64bit)	Yes	Internet Explorer 9 or 10	Microsoft Office / Visio 2010 / 2013
	Windows 8.1 Update 1		Firefox ESR 38	Note: Only the 32Bit version of Microsoft Office / Visio 2010 / 2013
	Windows Server 2012 R2			
Note: Always 64bit				



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## Hardware Requirements

To improve the performance and fault tolerance of your database, it is recommended that you allocate disk space to many smaller drives, rather than a few large drives. A configuration with at least two disk drives is recommended.

### Minimum Network Connectivity and Bandwidth

- TCP/IP and UDP/IP connections between server, client, Oracle WebLogic server and Oracle database server(s).
- Network bandwidth for clients via WAN: One exclusive ISDN channel (64 Kbit - without file transfer) is good for 2-4 working clients.
- Add bandwidth for sharing documents via WAN connections.
- 1 GB or higher LAN connection between Oracle WebLogic server, Oracle database server and EDM server.

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**Note:** At least a TCP/IP loopback device is required.

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### Minimum Memory Requirements

The following recommendations are supplemental to the amount of RAM required for other applications and the operating system:

- Client machines: 1 GB
- EDM server machine: 2 GB (without Oracle database server and WebLogic)
  - Up to 70 MB per connect
- Oracle database server machine: 1GB (3GB if on the same machine where the EDM server is running)
  - 6 MB per connected user, plus 400 MB for database services
- Oracle WebLogic server: 4 GB
- Swap space should be a minimum of three times the amount of RAM. On systems with large amounts of memory (more than 1 GB), this can be reduced to two times the amount of RAM.

### Minimum CPU Requirements for Windows

- Intel Pentium 2 GHz equivalent or better.

## Minimum Disk Space

Oracle WebLogic server (software only)	Windows	up to 3 GB
	Unix	600 MB up to 2 GB
Oracle Database 12c server (software only):	Windows	up to 6 GB
	Unix	up to 9.2 GB
Oracle 12c client:	Windows	up to 1.57 GB
	UNIX	up to 4.7 GB
EDM server		1 GB
Java Client installation on Windows machine		40MB
Office Suite		10 MB

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**Note:** It is strongly recommended not to install the software on a network file system (NFS) to avoid possible performance issues.

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For further information please refer to the document Hardware Sizing Guide for Agile e6.2.0.0.

## Required Software and Configurations

### Regional Settings Support

Agile e6 supports the following regional settings on the client side:

Regional Setting	Details	Example
English US	Short date	M/d/yyyy
	Long date	dddd; MMMM dd, yyyy
	Short time	h:mm tt
	Long time	h:mm:ss tt
	Decimal symbol	.
	Digit grouping sign	,
English UK	Short date:	dd/MM/yyyy
	Long date	dd MMMM yyyy
	Short time	HH:mm
	Long time	HH:mm:ss
	Decimal symbol	.
	Digit grouping sign	,
German	Short date:	dd.MM.yyyy
	Long date	dddd, d. MMMM yyyy
	Short time	HH:mm
	Long time	HH:mm:ss
	Decimal symbol	,
	Digit grouping sign	.
German Swiss	Short date:	dd.MM.yyyy
	Long date	dddd, d. MMMM yyyy
	Short time	HH:mm
	Long time	HH:mm:ss
	Decimal symbol	.
	Digit grouping sign	,

Regional Setting	Details	Example
French	Short date:	dd/MM/yyyy
	Long date	dddd d MMMM yyyy
	Short time	HH:mm
	Long time	HH:mm:ss
	Decimal symbol	,
	Digit grouping sign	(blank)
French Swiss	Short date:	dd.MM.yyyy
	Long date	dddd d MMMM yyyy
	Short time	HH:mm
	Long time	HH:mm:ss
	Decimal symbol	.
	Digit grouping sign	,

## Java

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**Note:** You are required to install Java 7 before starting any installation. You are also required to install Java 8 for certain components as listed in the table below.

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You can download the latest version of the Java SE Development Kit 7/8 or Java SE Runtime Environment 7/8 for the following operating systems from the Oracle Technology Network (<http://www.oracle.com/technetwork/java/javase/downloads/index.html>).

- Oracle Linux
- Oracle Solaris
- Windows

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**Note:** For the Java Client installation, Java 8 is required.

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For the following operating systems you have to use Java 7 which is provided by the operating system vendor:

- IBM AIX
- HP-UX

The following tables specifies the Java system requirements for the different Agile e6 components.

**Java 7**

	<b>Java 7</b>	<b>Runtime Environment</b>	<b>Development Kit</b>
<b>Installation Type</b>	<b>32bit/64bit</b>	<b>(JRE)</b>	<b>(JDK)</b>
Agile e6.2.0.0 server	32bit	No	Yes
WebLogic Server	64bit	No	Yes

**Java 8**

	<b>Java 8</b>	<b>Runtime Environment</b>	<b>Development Kit</b>
<b>Installation Type</b>	<b>32bit/64bit</b>	<b>(JRE)</b>	<b>(JDK)</b>
Java Client	<ul style="list-style-type: none"> <li>■ 32bit Java Client only</li> <li>■ additional 64bit when using the Agile e6 AutoVue Integration</li> </ul>	Yes	No
Agile e6 AutoVue Integration	64bit	Yes	No
Note: The Agile e6 AutoVue Integration is installed automatically with the Agile e6 GUI installer when installing the Java Client.			
WebStart (on the client operating system)	<ul style="list-style-type: none"> <li>■ 32bit Java Client only</li> <li>■ additional 64bit when using the Agile e6 AutoVue Integration</li> </ul>	Yes	No

**Digital Signature**

- An official signature, certified by an authorized certification authority, is needed. Please refer to:
  - <http://www.verisign.com> (for US)
  - <http://www.trustcenter.de> (for Germany)
- The X509v3 and PKCS12 standard for certificates and private keys is supported.

**FileServer**

- For Windows the File Server system must be based on NTFS. FAT is not supported.

- The electronic vault must be created on a local hard disk or on a SAN drive which has redundant connections.

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**Note:** The SAN should be configured not to share the connection between the File Server and applications like a database that generates a lot of I/O traffic on that connection.

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## Office Suite

The Office Suite component of Agile e6.2.0.0 installation has the following requirements:

### Common Requirements

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**Note:** All Microsoft Office updates need to be installed.

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- Windows Installer 3.1 (Already available if the corresponding service pack from the next chapter is installed)
- Microsoft Visual C++ 2010 Runtime Libraries (please refer to the next chapter for the exact version)
- Microsoft .NET Framework 4.0

### For Microsoft Office Suite 2010

- Microsoft Office 2010
- Microsoft Office 2010 Primary Interop Assemblies (PIA)

### For Microsoft Office Suite 2013

- Hotfix for Office 2013 (KB2760502)
- Microsoft Office 2013
- Microsoft Office 2013 Primary Interop Assemblies (PIA)

## Programs on UNIX

The UNIX scripts require the following commands to be available in the path of the user while installing and running the EDM sever:

Name	Description	UNIX OS
/bin/sh	Bourne Shell	All
/bin/csh	C Shell	All
/bin/ps or /usr/bin/ps	Report process status	All
awk	Pattern scanning and processing language	All
basename	Deliver portions of path names	All
cat	Concatenate and display files	All
chmod	Change the permissions mode of a file	All

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<b>Name</b>	<b>Description</b>	<b>UNIX OS</b>
dirname	Deliver portions of path names	All
ls	List contents of directory	All
lsb_release	Get the release version	Oracle Linux
sed	Stream editor	All
uname	Print name of the current system	All
touch	Change file access and modification times	All

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## Operating System Requirements and Configurations

The Agile e6.2.0.0 software has been certified under the following operating system configurations. The following sections describe the configurations supported on your platforms.

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**Note:** The EDM product only supports IPv4 addresses. Network connections with IPv6 are not supported.

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### Windows

The minimum service packs for the supported Windows operating systems are as follows:

Windows Version	Service Pack
Windows 7 64-bit (client only)	SP1
Windows 8.1 64-bit (client only)	Update 1
Windows Server 2012 R2 64Bit	

### Microsoft Visual Studio 2010 C/C++ Runtime Libraries

The Agile e6.2.0.0 software requires a specific installed 32bit runtime library (10.0.40219.325) which always has to be installed even if there is already a newer version of the runtime library installed.

Execute the <installation\_package\_root>\tools\bin\Windows\vcredist\_x86\_vc10.exe file which will install the specific required Microsoft Visual Studio 2010 C/C++ runtime libraries.

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**Note:** The version that is bundled with the Agile e6.2.0.0 software should always be installed even if the Microsoft update is used to install updates for the runtime libraries in the future.

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### IBM AIX

## Web References

- IBM fixes: <http://www.ibm.com/support/fixcentral/main/System+p/AIX>
- IBM Java Runtime Environment:  
<http://www.ibm.com/developerworks/java/jdk/aix/service.html>

## Generic Requirements

The supported OS version for the IBM workstation is AIX 7.1 and the minimum technology level for the supported AIX operating system is as follows:

AIX Version	Technology Level
7.1	1 (with SP4)

To determine the full operating system version enter the following command into a command shell:

```
oslevel -s
bos.perf.libperfstat bos.perf.proctools xlc.aix61.rte gpfs.base
7100-01-04-1216
```

The result for AIX 7.1 TL 1 SP4 should look like:

The following file sets must be installed:

- bos.adt.base
- bos.adt.libm
- xlc.aix61.rte: 11.1.0.4 or later

To determine which operating system file sets are installed, enter the following command into a command shell:

```
lslpp -l [fileset_name]
lslpp -l
```

Or, enter the following command to list all the file sets:

## Database Requirements

### Operating System Packages

The following additional operating system file sets are required:

- bos.adt.base
- bos.adt.lib
- bos.perf.libperfstat
- bos.perf.perfstat
- bos.perf.proctools
- resct.compat.clients.rte
- xlc.aix61.rte (version 10.1.0.0)
- xlc.rte version 10.1.0.0)

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**Note:** GPFS is required only if you want to use a cluster file system for Oracle cluster ware or database files.

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To determine whether the required file sets are installed and committed, enter a command into a command shell as follows:

```
lslpp -l bos.adt.base bos.adt.lib bos.adt.libm bos.perf.perfstat \
```

If you are using the minimum operating system TL level for AIX 7.1 listed above, then install all AIX 7.1 Authorized Problem Analysis Reports (APARs) for AIX 7.1 TL 0 SP1, and the following AIX fixes:

- IV16737  
Java won't instantiate if prot\_none used for shared mmap region
- IV21116  
System hangs or crashes when app uses shared sytab capability
- IV21235  
System crash due to freed socket when socketpair() call used
- IV28925  
Shlap process fails when shared symbol table feature is used
- IV34869  
Thread\_cputime() returns incorrect values
- IV35057  
Loading 5.3 tls enabled libs by 5.2 apps caused core dump in 32b
- IV39136  
Link fails with undocumented compiler flag and thread-local stg
- IV41415  
Runtime linking failed to bind the bss symbol exported from main
- IV45072  
A special-purpose linker flag works incorrectly
- IV45073  
Add ability to reorder toc symbols in limited circumstances

To determine whether an APAR is installed, enter the command into a command shell:

```
/usr/sbin/instfix -i -k "IV16737"
```

The following compiler is required

- IBM XL C/C++ Enterprise Edition for AIX, V9.0 April 2008 PTF

To determine the supported kernel mode, enter a command similar to the following:

```
/usr/bin/getconf KERNEL_BITMODE
```

The output of this command is 64. If you do not see the expected output, then you cannot install the software on this system.

## Configuring the Shell Limits

On AIX systems you do not need to configure kernel parameters. However, Oracle recommends that you set shell limits and system configuration parameters.

Shell Limit	Recommended Value
Soft FILE size	-1 (Unlimited)
Soft CPU time	-1 (Unlimited) (This is the default value)
Soft DATA segment	-1 (Unlimited)
Soft STACK size	-1 (Unlimited)
Soft Real Memory site	-1 (Unlimited)
Processes (per user)	-1 (Unlimited) This limit is available only in AIX 6.1 or later

To display the current value specified for these shell limits, and to change them if necessary, perform the following steps:

1. Enter the following command into a command shell:  
smit chuser
2. In the User NAME field, enter the user name of the Oracle software owner, for example oracle.
3. Scroll down the list and verify that the value shown for the soft limits listed in the previous table is -1.

If necessary, edit the existing value. To edit the values, you can use smit utility. However, to set the value of Soft Real Memory size, you must edit the file /etc/security/limits.

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**Note:** If you have permissions to run smit utility, then you automatically have the permissions to edit the limits file.

---

4. When you have finished making changes, press F10 to exit.

## Configuring the System Configuration Parameters

Verify that the kernel parameters shown below are set to values greater than or equal to the minimum value shown.

- maxuproc 16384
- ncargs 128

To verify the values of both parameters, enter the following command

```
smit chgsys
```

Verify the values shown for Maximum number of PROCESSES and ARG/ENV list size in 4K byte blocks and if necessary, edit the values.

## WebLogic Requirements

## Operating System Packages

The following additional operating system file sets are required:

- bos.adt.lib
- bos.perf.libperfstat
- bos.perf.perfstat
- bos.perf.proctools
- rsct.basic.rte
- rsct.compat.clients.rte
- xlc.rte (version 10.1.0.0)

## HP-UX

### Web References

- HP-UX Fixes: <http://itrc.hp.com/>
- HP Java Development Kit: <http://www.hp.com/go/java>

### Generic Requirements

The supported OS version for the Itanium 2 architecture is 11i v3 (11.31) and the minimum quality pack for the supported HP-UX operating system is as follows:

HP-UX Version	Quality Pack	
	Base	Application
11iv3 (11.31)	September 2012	September 2012

To determine the full operating system version enter the following command into a command shell:

```
uname -r
B11.31
```

The result for HP-UX 11iv3 should look like:

The installed base and application patches can be tested with the following command:

```
swlist -l bundle | grep QPK
QPKAPPS B.11.31.1209.383 Applications Patches for HP-UX 11i v3, September 2012
QPKBASE B.11.31.1209.383 Base Quality Pack Bundle for HP-UX 11i v3, September
2012
```

The output should be:

### Recommended HP-UX Kernel Settings

The HP-UX 11i default value for maximum threads per process is 64. It is recommended that you use the maximum kernel setting for the max\_thread\_proc and maxusers parameters.

---

**Note:** Setting maxusers to a higher value increases other machine-wide limits, such as nkthread (max number of kernel threads).

---

The following table shows the recommended configuration of the HP-UX kernel.

Parameter	Old	New	Description
max_thread_proc	64	1024	Maximum threads per process
maxfiles	60	256	Soft file limit per process
maxusers	32	256	Influences other parameters
nkthread	499	3635	Number of threads total on the system
nproc	276	2068	Maximum number of processes
ncallout	292	2084	Number of pending timeouts

---

**Note:** The values become effective after rebooting.

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## Database Requirements

### Operating System Patches

- PHCO\_43503 - 11.31 diskowner (1M) cumulative patch
- PHKL\_38038 - 11.31 VM cumulative patch
- PHKL\_38938 - 11.31 SCSI cumulative I/O patch
- PHKL\_40941 - 11.31 scheduler cumulative patch
- PHSS\_36354 - 11.31 assembler patch
- PHSS\_37042 - 11.31 hppac (packed decimal)
- PHSS\_37959 - Libcl patch for alternate stack issue fix (QXCR1000818011)
- PHSS\_39094 - 11.31 linker + fdp cumulative patch
- PHSS\_39100 - 11.31 Math Library Cumulative Patch
- PHSS\_39102 Integrity Unwind Library
- PHSS\_38141 - 11.31 aC++ Runtime

### Kernel Parameters

Verify that the following kernel parameters are set either to the formula or to values greater than, or equal to the recommended value shown:

Parameter	Minimum Value
ksi_alloc_max	32768
executable_stack	0
maxfiles	1024

Parameter	Minimum Value
Maxfiles_lim	63488
max_thread_proc	1024
maxdsiz	1073741824 (1 GB)
maxdsiz_64bit	2147483648 (2 GB)
maxssiz	134217728 (128 MB)
maxssiz_64bit	1073741824 (1 GB)
maxuprc	3686
msgmap	4096
msgmni	4096
msgseg	32767
msgtql	4096
ncsize	35840
nfile	63488
nflocks	4096
ninode	34816
nkthread	7184
nproc	4096
semmni	4096
semmns	8192
semmnu	4092
semvmx	32767
shmmax	The size of physical memory, or 1073741824 (0X40000000), whichever is greater. Note: To avoid performance degradation, the value should be greater than or equal to the size of the available memory.
shmmni	4096
shmseg	512
vps_ceiling	64

To display the current value or formula specified for these kernel parameters, and to change them if necessary:

- To start the kcweb application, enter the following command into a command shell:  
`/usr/sbin/kcweb -F`
- Check the value or formula specified for each of these parameters and, if necessary, modify that value or formula.
- If necessary, refer to the kcweb online help for more information about completing this step.

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**Note:** If the current value for any parameter is higher than the value listed in this table, then do not change the value of that parameter.

If you modify the value of a parameter that is not dynamic, then you must restart the system.

MSGMAP and NCALLOUT are obsolete in HP\_UX 11.31. You need not specify values for these parameters.

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## WebLogic Requirements

### Operating System Packages

- B3394BA (version 2.1.0)

### Operating System Patches

- PHKL\_36248
- PHKL\_36249
- PHSS\_37202
- PHSS\_37501
- PHCO\_38050
- PHSS\_38139

## Oracle Solaris (SPARC)

### Web References

- Oracle Solaris:  
<http://www.oracle.com/technetwork/server-storage/solaris11/downloads/index.html>
- Oracle Java Development Kit:  
<http://www.oracle.com/technetwork/java/index.html>

### Generic Requirements

The supported OS version for Oracle servers (SPARC) is Solaris 11 and the minimum release level for the supported Solaris operating system is as follows:

Solaris Version	Required Release
11	11.2

To determine the full operating system version enter the following command into a command shell:

```
uname -srvp
```



The result for Solaris 11.2 should look like:

```
SunOS 5.11 11.2 sparc
```

## Operating System Packages

In addition, you will need the Sun Workshop Compilers Bundled libC (SUNWlibC) package to meet the C++ runtime environment requirements.

You also require the package: developer/assembler

To get the status of the above package enter the following command into a command shell:

```
pkg info system/library/c++-runtime
```

The exact version of Solaris 11 can be found in /etc/release:

```
cat /etc/release
```

The output should be:

```
Oracle Solaris 11.2 SPARC
Copyright (c) 1983, 2014, Oracle and/or its affiliates. All rights reserved.
Assembled 23 June 2014
```

---

---

**Note:** No special kernel parameters, packages, or patches are required at the time of this release for Oracle Solaris 11.

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## Oracle Linux

### Generic Requirements

The patch set for the supported Oracle Linux operating system is as follows:

Oracle Linux	Required Update
6	-5

The minimum package levels for the supported Linux operating system are:

Product	Package	Version
Oracle Agile EDM	kernel	3.8.13-26.2.1.el6uek.x86_64 or later
	glibc	2.12-1.132.el6 or later
	libstdc++	4.4.7-4.el6 or later

The installed versions of rpm packages can be tested with the following command:

```
rpm -q -a | grep <package-name>
```

To determine the amount of RAM memory installed on your system, enter the following command:

```
cat /proc/meminfo | grep MemTotal
```

To determine the bytes of swap space currently configured on your system, enter the following command and multiply the BLOCKS column by 512:

```
/sbin/swapon -s
```

## Database Requirements

To determine whether the required packages are installed, enter a command into a command shell similar to the following:

```
rpm -q <package_name>
```

If a package is not installed, then install it from the Linux distribution media or download the required package version from the Linux vendor's website.

### Database Client

The following packages (or later versions) have to be installed:

#### Operating System Packages

- compat-libstdc++-33-3.2.3-69.el6 (i686)
- glibc-2.12-1.7.el6 (i686)
- glibc-develglibc-devel-2.12-1.7.el6 (i686)
- libgcc-4.4.4-13.el6 (i686)
- libstdc++-4.4.4-13.el6 (i686)
- libstdc++-devel-4.4.4-13.el6 (i686)
- libaio-0.3.107-10.el6 (i686)
- libaio-devel-0.3.107-10.el6 (i686)
- libXext-1.1 (i686)
- libXtst-1.0.99.2 (i686)
- libX11-1.3 (i686)
- libXau-1.0.5 (i686)
- libxcb-1.5 (i686)
- libXi-1.3 (i686)

### Database Server

The following packages (or later versions) have to be installed:

#### Operating System Packages

- binutils-2.20.51.0.2-5.11.el6 (x86\_64)
- compat-libcap1-1.10-1 (x86\_64)
- compat-libstdc++-33-3.2.3-69.el6 (x86\_64)
- gcc-4.4.4-13.el6 (x86\_64)
- gcc-c++-4.4.4-13.el6 (x86\_64)

- glibc-2.12-1.7.el6 (x86\_64)
- glibc-devel-2.12-1.7.el6 (x86\_64)
- ksh <== any version of ksh is acceptable
- libaio-0.3.107-10.el6 (x86\_64)
- libaio-devel-0.3.107-10.el6 (x86\_64)
- libgcc-4.4.4-13.el6 (x86\_64)
- libstdc++-4.4.4-13.el6 (x86\_64)
- libstdc++-devel-4.4.4-13.el6 (x86\_64)
- libX11-1.3 (x86\_64)
- libXau-1.0.5 (x86\_64)
- libxcb-1.5 (x86\_64)
- libXext-1.1 (x86\_64)
- libXi-1.3 (x86\_64)
- libXtst-1.0.99.2 (x86\_64)
- make-3.81-19.el6
- sysstat-9.0.4-11.el6 (x86\_64)

### Kernel Parameters

During the Oracle Database installation, you can generate and run the fixup script to check and set the kernel parameter values required for successful installation of the database. This script updates required kernel packages, if necessary, to minimum values.

---

**Note:** If you cannot use the fixup script, then review the following table to set the values manually.

---



---

**Note:** The kernel parameter and shell limit values in this section are minimum values only. For production database systems, Oracle recommends that you tune these values to optimize the performance of the system. Refer to your operating system documentation for more information about tuning kernel parameters.

---

The procedure following the table describes how to verify and set the values.

Parameter	Minimum Value	File
semmsl	250	/proc/sys/kernel/sem
semmns	32000	
semopm	100	
semmni	128	

Parameter	Minimum Value	File
shmall	40 percent of the size of physical memory in pages  Note: If the server supports multiple databases, or uses a large SGA, then set this parameter to a value that is equal to the total amount of shared memory, in 4K pages, that the system can use at one time.	/proc/sys/kernel/shmall
shmmax	Half the size of physical memory in bytes.  See My Oracle Support Note 567506.1 for additional information about configuring shmmax.	/proc/sys/kernel/shmmax
shmmni	4096	/proc/sys/kernel/shmmni
file-max	6815744	/proc/sys/fs/file-max
aio-max-nr	1048576  Note: This value limits concurrent outstanding requests and should be set to avoid I/O subsystem failures.	/proc/sys/fs/aio-max-nr
ip_local_port_range	Minimum: 9000 Maximum: 65500  Note: See message URL <a href="http://docs.oracle.com/cd/E16655_01/install.121/e17720/app_manual.htm#CIHGEGJJSettingUDPandTCP">http://docs.oracle.com/cd/E16655_01/install.121/e17720/app_manual.htm#CIHGEGJJSettingUDPandTCP</a> Kernel Parameters Manually	/proc/sys/net/ipv4/ip_local_port_range
rmem_default	262144	/proc/sys/net/core/rmem_default
rmem_max	4194304	/proc/sys/net/core/rmem_max
wmem_default	262144	/proc/sys/net/core/wmem_default
wmem_max	1048576	/proc/sys/net/core/wmem_max

---

**Note:** If the current value for any parameter is higher than the value listed in this table, do not change the value of that parameter!

---

To view the current value specified for these kernel parameters, and to change them if necessary, follow these steps:

1. To view the current values of the kernel parameters, enter the commands similar to the following into a command shell:

---

**Note:** Make a note of the current values and identify any values that you must change.

---

Parameter	Command	Description
semmsl, semmns, semopm and semmni	# /sbin/sysctl -a   grep sem	This command displays the value of the semaphore parameters in the order listed.
shmall, shmmax and shmmni	# /sbin/sysctl -a   grep shm	This command displays details of the shared memory segment sizes.
file-max	# /sbin/sysctl -a   grep file-max	This command displays the maximum number of file handles.
ip_local_port_range	# /sbin/sysctl -a   grep ip_local_port_range	This command displays a range of port numbers.
rmem_default	# /sbin/sysctl -a   grep rmem_default	-
rmem_max	# /sbin/sysctl -a   grep rmem_max	-
wmem_default	# /sbin/sysctl -a   grep wmem_default	-
wmem_max	# /sbin/sysctl -a   grep wmem_max	-
aio-max-nr	# /sbin/sysctl -a   grep aio-max-nr	-

2. If the value of any kernel parameter is different from the recommended value, then complete the following steps:

Use any text editor, create or edit the /etc/sysctl.conf file, and add or edit lines similar to the following:

---

**Note:** Include lines only for the kernel parameter values to change. For the semaphore parameters (kernel.sem), you must define all four the four values. However, if any of the current values are larger than the minimum value, then specify the larger value.

---

```
fs.aio-max-nr = 1048576
fs.file-max = 6815744
kernel.shmall = 2097152
kernel.shmmax = 536870912
kernel.shmmni = 4096
kernel.sem = 250 32000 100 128
net.ipv4.ip_local_port_range = 9000 65500
net.core.rmem_default = 262144
net.core.rmem_max = 4194304
net.core.wmem_default = 262144
net.core.wmem_max = 1048586
```

---

**Note:** By specifying the values in the /etc/sysctl.conf file, they persist when you reboot the system.

---

3. Enter the following command to change the current values of the kernel parameters:

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

4. Review the output from this command to verify that the values are correct. If the values are incorrect, edit the `/etc/sysctl.conf` file, then enter this command again.
5. To confirm that the values are set correctly, enter the command:  

```
/sbin/sysctl -a
```
6. After updating the values of the kernel parameters in the `/etc/sysctl.conf` file, either restart the computer, or run the command `sysctl -p` to make the changes in the `/etc/sysctl.conf` file available in the active kernel memory.

### Setting UDP and TCP Kernel Parameters Manually

If you do not use a fixup script or CVU to set ephemeral ports, then set TCP/IP ephemeral port range parameters to provide enough ephemeral ports for the anticipated server workload. Ensure that the lower range is set to at least 9000 or higher, to avoid Well Known ports, and to avoid ports in the Registered Ports range commonly used by Oracle and other server ports. Set the port range high enough to avoid reserved ports for any applications you may intend to use. If the lower value of the range you have is greater than 9000, and the range is large enough for your anticipated workload, then you can ignore Oracle Universal Installer warnings regarding the ephemeral port range.

For example, with IPv4, use the following command to check your current range for ephemeral ports:

```
$ cat /proc/sys/net/ipv4/ip_local_port_range
32768 61000
```

In the preceding example, the lowest port (32768) and the highest port (61000) are set to the default range.

If necessary, update the UDP and TCP ephemeral port range to a range high enough for anticipated system workloads, and to ensure that the ephemeral port range starts at 9000 and above. For example:

```
# echo 9000 65500 > /proc/sys/net/ipv4/ip_local_port_range
```

Oracle recommends that you make these settings permanent. For example, as root, use a text editor to open `/etc/sysctl.conf`, and add or change to the following: `net.ipv4.ip_local_port_range = 9000 65500`, and then restart the network (`# /etc/rc.d/init.d/network restart`).

Refer to your Linux distribution system administration documentation for detailed information about how to automate this ephemeral port range alteration on system restarts

See also Setting TCP Network Protocol Buffer for Direct NFS Client if you use Direct NFS Client.

### Setting the Shell Limits for the Oracle User

For each installation software owner check the resource limits for installation, using the following recommended ranges:

Resource Shell Limit	Resource	Soft Limit (KB)	Hard Limit (KB)
Open file descriptors	nofile	at least 1024	at least 65536
Number of processes available to a single user	nproc	at least 2047	at least 16384

Resource Shell Limit	Resource	Soft Limit (KB)	Hard Limit (KB)
Size of the stack segment of the process	stack	at least 10240	at least 10240, and at most 32768

To check resource limits:

1. Log in as an installation owner:
2. Check the soft and hard limits for the file descriptor setting. Ensure that the result is in the recommended range. For example:

```
$ ulimit -Sn
4096
$ ulimit -Hn
65536
```

3. Check the soft and hard limits for the number of processes available to a user. Ensure that the result is in the recommended range. For example:

```
$ ulimit -Su
2047
$ ulimit -Hu
16384
```

4. Check the soft limit for the stack setting. Ensure that the result is in the recommended range. For example:

```
$ ulimit -Ss
10240
$ ulimit -Hs
32768
```

5. Repeat this procedure for each Oracle software installation owner.

If necessary, update the resource limits in the `/etc/security/limits.conf` configuration file for the installation owner. However, note that the configuration file is distribution specific. Contact your system administrator for distribution specific configuration file information.

---

**Note:** If the oracle users are logged in, then changes in the `limits.conf` file do not take effect until you log these users out and log them back in. You must do this before you use these accounts for installation.

---

## Using MEMORY\_TARGET by 12c Installation on Oracle Linux

Increase the size of `/dev/shm` mountpoint - to be bigger than the value of the initialization parameters `MEMORY_TARGET` and `MEMORY_MAX_TARGET`. Refer to the Hardware Sizing Guide for Agile e6.2.0.0 document for the value of the initialization parameters `MEMORY_TARGET` and `MEMORY_MAX_TARGET`.

For instance, if the value of `MEMORY_MAX_TARGET` is 8GB, increase the size of `/dev/shm` mountpoint with the following command:

```
mount -t tmpfs shmfs -o size=8g /dev/shm
```

Also, to make this change persistent for a system restarts, add an entry in the file `/etc/fstab` similar to the following:

```
shmfs /dev/shm tmpfs size=8g 0
```

When AMM (Automatic Memory Management) is enabled, by setting the initialization parameters `MEMORY_TARGET` and `MEMORY_MAX_TARGET`, it uses `/dev/shm` on Linux. If `MEMORY_MAX_TARGET` is set over `/dev/shm` size, you may get the following error message:

ORA-00845: MEMORY\_TARGET not supported on this system!

A solution is to increase the `/dev/shm` mountpoint size.

## WebLogic Requirements

### Operating System Packages

The following packages (or later versions) have to be installed:

- `binutils-2.20.51.0.2-5.28.el6`
- `compat-libcap1-1.10-1`
- `compat-libstdc++-33-3.2.3-69.el6` for `x86_64`
- `compat-libstdc++-33-3.2.3-69.el6` for `i686`
- `gcc-4.4.4-13.el6`
- `gcc-c++-4.4.4-13.el6`
- `glibc-2.12-1.7.el6` for `x86_64`
- `glibc-2.12-1.7.el6` for `i686`
- `glibc-devel-2.12-1.7.el6` for `i686`
- `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` for `x86_64`
- `libstdc++-4.4.4-13.el6` for `i686`
- `libstdc++-devel-4.4.4-13.el6`
- `libXext-1.3.1-2.el6` for `i686`
- `libXtst-1.2.1-2.el6` for `i686`
- `openmotif-2.2.3` for `x86_64`
- `openmotif22-2.2.3` for `x86_64`
- `sysstat-9.0.4-11.el6`
- `xorg-x11-utils-7.5-6.el6` for `x86_64`

## Agile e6 Server Requirements

### Operation System Packages

The following packages (or later versions) have to be installed:

- `redhat-lsb-core-4.0-7.0.1.el6` (`x86_64`)



- libXrender-0.9.7-2.el6 (i686)
- libcurl-7.19.7-37.el6\_4 (i686)
- libaio-0.3.107-10.el6 (i686)

