

Oracle Agile Engineering Data Management

Prerequisites Guide

Release e6.2.1.0

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Oracle Agile Engineering Data Management/Prerequisites Guide for Agile, Release e6.2.1.0

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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
boldface	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.

Software Requirements

Detailed software requirements supported by the respective Agile e6.2.1.0 installation components (EDM Server, Oracle WebLogic Server, Oracle Database Server and Agile EDM Clients) can be found in the Release Notes - Platform Support document on the Oracle Technology Network (OTN) website at:
(<http://www.oracle.com/technetwork/documentation/agile-eseries-098047.htm>).

The most up-to-date Platform list can be found on My Oracle Support website under the tab "Certifications" (<https://support.oracle.com/>)

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.

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

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

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

For more information, please refer to the document *Hardware Sizing Guide for Agile e6.2.1.0*.

Required Software and Configurations

This chapter describes the software requirements and the necessary 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

Note: You are required to install Java 8 before starting any installation.

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

- ? Oracle Linux
- ? Oracle Solaris (SPARC)
- ? Windows

For the following operating systems you have to use Java 8 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.

Installation Type	Java 8 32bit/64bit	Runtime Environment (JRE)	Development Kit (JDK)
Agile e6.2.1.0 server	64bit	No	Yes
WebLogic Server	64bit	No	Yes
Java Client	? 32bit	Yes	No
	Java Client only		
	? additional 64bit		
	when using the Agile e6 AutoVue Integration		

Installation Type	Java 8 32bit/64bit	Runtime Environment (JRE)	Development Kit (JDK)
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)	? 32bit Java Client only ? additional 64bit when using the Agile e6 AutoVue Integration	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.

Note: The SAN must 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.

Office Suite

The Office Suite component of Agile e6.2.1.0 installation has the following requirements:

Common Requirements

Note: All Microsoft Office updates need to be installed.

- ? Windows Installer 3.1 (Already available if the corresponding service pack from the next chapter is installed)

- ? Microsoft Visual C++ 2010 Runtime Libraries (Refer to the next chapter for the exact version)
- ? Microsoft .NET Framework 4.0

Office Suite For Microsoft Office 2010

- ? Microsoft Office 2010 (32 bit)
 - Service Pack 2 for Microsoft Office 2010 (KB2687455) 32-Bit Edition
- ? Microsoft Office 2010 Primary Interop Assemblies (PIA)
- ? Latest Updates for Microsoft Office 2010

Office Suite For Microsoft Office 2013

- ? Microsoft Office 2013 (32 bit)
- ? Hotfix for Microsoft Office 2013 (KB2760502)
- ? Latest Updates for Microsoft Office 2013

Office Suite For Microsoft Office 2016

- ? Microsoft Office 2016 (32 bit)
- ? Latest Updates for Microsoft Office 2016

Office Suite For Microsoft Office 2019

- ? Microsoft Office 2019 (32 bit)
- ? Latest Updates for Microsoft Office 2019

Office Suite For Microsoft Office 365

- ? Microsoft Office 365 (32 bit & 64 bit)
- ? Latest Updates for Microsoft Office 365

Office Suite For Microsoft Office 2021

- ? Microsoft Office 2021 (32 bit & 64 bit)
- ? Latest Updates for Microsoft Office 2021

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 server:

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

Name	Description	UNIX OS
basename	Deliver portions of path names	All
cat	Concatenate and display files	All
chmod	Change the permissions mode of a file	All
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

Operating System Requirements and Configurations

The Agile e6.2.1.0 software has been certified under the following operating system configurations. The following sections describe the configurations supported on your platforms.

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

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 10 64-bit (client only)	
Windows 2012 R2 64-bit	
Windows Server 2016 Standard (64-bit)	
Windows Server 2019 Standard (64-bit) - supported since RUP7	

Microsoft Visual Studio 2010 C/C++ Runtime Libraries

The Agile e6.2.1.0 software requires a specific installed 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.

Installation Type	Microsoft Visual Studio 2010 C/C++ Runtime Libraries	Package Names
Agile e6.2.1.0 server	32 bit and 64 bit	vcredist_x86_vc10.exe vcredist_x64_vc10.exe
WebLogic server	64 bit	vcredist_x64_vc10.exe
Java Client	32 bit and 64 bit	vcredist_x86_vc10.exe vcredist_x64_vc10.exe

Execute the package, which can be found in the directory <installation_package_root>\tools\bin\Windows\, which will install the specific required Microsoft Visual Studio 2010 C/C++ runtime libraries.

Redistributable C++ 2015-2022

The Agile e6.2.1.0 RUP9 software requires the runtime library Redistributable C++ 2015-2022 or later

Installation Type	Redistributable C/C++ 2015-2022 Runtime Libraries	Package Names
Agile e6.2.1.0 server	32 bit and 64 bit	VC_redist.x86.exe
		VC_redist.x64.exe
Java Client	32 bit and 64 bit	VC_redist.x86.exe
		VC_redist.x64.exe

The runtime libraries can be found in the following directories for installing the required Redistributable C++ 2015-2022 runtime libraries.

- ? <RUP_Installation_Package>\rupinstaller\tools\Windows\<EP_MACH>\VC_redist.x64.exe
- ? <RUP_Installation_Package>\rupinstaller\tools\Windwos\<EP_MACH>\VC_redist.x86.exe

Note: The version that is bundled with the Agile e6.2.1.0 software should always be installed even if the Microsoft update is used to install updates for the runtime libraries in the future.

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
- ? Install or upgrade to libstdc++-8-1.ppc or later (required starting RUP9)

The runtime library libstdc++ is located in <PATH>.

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)

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

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

You do not need to configure kernel parameters on AIX systems. 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, you must:

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`.

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.base`
- ? `bos.adt.lib`
- ? `bos.adt.libm`
- ? `bos.perf.libperfstat`
- ? `bos.perf.perfstat`
- ? `bos.perf.proctools`
- ? `rsct.basic.rte`
- ? `rsct.compat.clients.rte`
- ? `xlC.aix61.rte` (version 12.1.0.1+)
- ? `xlC.rte` (version 12.1.0.1+)

HP-UX

Web References

- ? HP-UX Fixes: Please query HP official's website.
- ? HP Java Development Kit: Please download it from HP official web site.

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 must 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 table below lists the recommended configuration of the HP-UX kernel.

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

Parameter	Old	New	Description
ncallout	292	2084	Number of pending timeouts

Note: The values become effective after rebooting.

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 below listed 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
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

Parameter	Minimum Value
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 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.

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.

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	11.3

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

```
uname -srvp
```

The result for Solaris 11.3 should look similar to:

```
SunOS 5.11 11.3 sparc
```

Operating System Packages

The Agile e6.2.1.0 software requires the Sun Workshop Compilers Bundled libC (SUNWlibC) package to meet the C++ run environment requirements. Starting from the Agile e6.2.1.0 RUP9, install or upgrade to libstdc++.so.6 or later to meet the new 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 11.3 SPARC
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Assembled 06 October 2015
```

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

Oracle Linux

Generic Requirements

Oracle Linux 7 and 8 are both supported.

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

Product	Package	Version
Oracle Agile EDM	kernel	3.8.13-118.13.3.el7uek.x86_64 or later
	glibc	2.17-105.el7 or later
	libstdc++	4.8.5-4.el7 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:

```
/sbin/swapon --bytes
```

Note: During the Oracle Linux OS installation it is recommended to use the "Server with GUI" option because this provides the required libraries to use the GUI installer.

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 General

The following packages have to be installed for both the Server and Client:

Operating System Packages

- ? binutils.x86_64
- ? compat-libcap1.x86_64
- ? compat-libstdc++-33.x86_64
- ? gcc.x86_64
- ? gcc-c++.x86_64
- ? glibc.x86_64
- ? glibc-devel.x86_64
- ? ksh
- ? libaio.x86_64
- ? libaio-devel.x86_64
- ? libgcc.x86_64
- ? libstdc++.x86_64
- ? libstdc++-devel.x86_64
- ? libXi.x86_64
- ? libXtst.x86_64
- ? make.x86_64
- ? psmisc.x86_64
- ? sysstat.x86_64

Database Client

The following additional packages have to be installed:

Operating System Packages

- ? compat-libstdc++-33.i686
- ? glibc.i686
- ? glibc-devel.i686
- ? libgcc.i686
- ? libstdc++.i686
- ? libstdc++-devel.i686
- ? libaio.i686
- ? libaio-devel.i686
- ? libXi.i686
- ? libXtst.i686

Database Server

No additional packages are required.

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, 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	
shmall	40 percent of the size of physical memory in pages	/proc/sys/kernel/shmall
	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.	
shmmax	Half the size of physical memory in bytes.	/proc/sys/kernel/shmmax
	See My Oracle Support Note 567506.1 for additional information about configuring shmmax.	
shmmni	4096	/proc/sys/kernel/shmmni
file-max	6815744	/proc/sys/fs/file-max
aio-max-nr	1048576	/proc/sys/fs/aio-max-nr
	Note: This value limits concurrent outstanding requests and should be set to avoid I/O subsystem failures.	
ip_local_port_range	Minimum: 9000 Maximum: 65500	/proc/sys/net/ipv4/ip_local_port_range
	For more information about setting UDP and TCP Kernel Parameters Manually, refer to Database Installation Guide (https://docs.oracle.com/en/database/oracle/oracle-database/index.html)	
rmem_default	262144	/proc/sys/net/core/rmem_default
rmem_max	4194304	/proc/sys/net/core/rmem_max

Parameter	Minimum Value	File
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, the software owner must 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
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 are 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 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 e6.2.1.0 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

The following need to be installed.

Operating System Packages

The following packages have to be installed:

- ? binutils.x86_64
- ? compat-libcap1.x86_64
- ? compat-libstdc++-33.x86_64
- ? compat-libstdc++-33.i686
- ? gcc.x86_64
- ? gcc-c++.x86_64
- ? glibc.x86_64
- ? glibc.i686
- ? glibc-devel.i686
- ? ksh
- ? libaio.x86_64
- ? libaio-devel.x86_64
- ? libgcc.x86_64
- ? libgcc.i686
- ? libstdc++.x86_64
- ? libstdc++.i686
- ? libstdc++-devel.x86_64
- ? libXext.i686
- ? libXtst.i686
- ? make
- ? motif.x86_64
- ? ocfs2-tools
- ? sysstat.x86_64

Agile e6 Server Requirements

The following need to be available:

Operation System Packages

The following packages have to be installed:

- ⌘ redhat-lsb-core 4.1-27.0.1.el7 or later
- ⌘ llibXrender 0.9.8-2.1.el7 or later
- ⌘ libcurl 7.29.0-25.0.1.el7 or later
- ⌘ libaio 0.3.109-13.el7 or later

