



## **Cisco WAE 6.3.12 System Requirements**

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# Cisco WAE 6.3.12 System Requirements

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WAE requirements vary, depending on which components are installed together. This document provides general guidelines and minimum requirements for individual components installed on a single server unless otherwise specified.

## WAE Live

### System Requirements

	Hardware			Supported Software
	CPU	Memory	Hard Drive	
Minimum	2+ GHz 4-Core	16 GB	1 TB	CentOS 6.9
Recommended	2+ GHz 8-Core	32 GB	1-2 TB, ssd preferred	CentOS 6.9

Notes:

- Only English Linux is supported.
- Other CentOS and Red Hat Enterprise Linux distributions should work, but are not officially supported.

### WAE Live Datastore Sizing Example

	Interfaces	LSPs	Nodes	Demands	
# objects	1512	16081	500	29426	
Properties	20	10	10	10	
Property avg unit size(bytes)	16	16	16	16	
Sample per hour	6	6	6	1	

					Total
GB/day	0.06	0.35	0.01	0.11	<b>0.53</b>
GB/month	1.95	10.35	0.32	3.16	<b>15.78</b>
GB/year	23.36	124.22	3.86	37.88	<b>189.33</b>

## Kernel Parameters

Kernel Parameter	Value
SHMALL	4294967296
SHMMAX	4398046511104
SHMMNI	4096
SEMMNS	32000
SEMMSL	250
SEMOPM	32
Maximum number of file descriptors	65535

## WAE Planning Server

Supported Operating System	Supported Software	Hardware		
		CPU	Memory*	Hard Drive
Linux-x86_64	RHEL/CentOS 6.9	Intel or AMD 2+ GHz, 8+ Core	32 GB Suggested: 64 GB	1 TB

\*Increase 1 GB of memory for each additional core used.

Notes:

- Only English Linux is supported.
- Other CentOS and Red Hat Enterprise Linux distributions should work, but are not officially supported.

## WAE Automation Server

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Supported Operating System	Supported Software	Hardware		
		CPU	Memory*	Hard Drive
Linux-x86_64	RHEL/CentOS 6.9	Intel or AMD 2+ GHz, 8+ Core	32 GB Suggested: 64 GB	1 TB

\*Increase 1 GB of memory for each additional core used.

Notes:

- Only English Linux is supported.
- Other CentOS and Red Hat Enterprise Linux distributions should work, but are not officially supported.

## NetFlow Collection

### NetFlow Collection - (Exclusive) Memory sizes per server

Centralized NetFlow (Server where the snapshot resides)	
Collector Server	32 GB
flow_get	4 GB
<b>TOTAL</b>	<b>36 GB</b>

Notes:

- One flow collection server is required per 100 Mbps of flow export bandwidth.
- Only English Linux is supported.
- Qualified on CentOS 6.9.
- Flow collection requires Linux Kernel 2.6.32 or greater.
- The memory requirement listed above per collection server instance is based on the assumption of an approximate figure of 100 Mbit/s of NetFlow traffic.

## WAE Design

### System Requirements

- A standalone WAE Design system does not require the use of WAE Collector.
- WAE Design is a 64-bit installation on all supported operating systems.
- A Perl installation is required for some WAE features. Please refer to the Package section for details.
- A Python installation is required for some WAE features. Please refer to the Package section for details.

Operating System	Software Version	Hardware	
		CPU	Memory
Linux-x86_64	RHEL/CentOS 6.9	Intel or AMD 2+ GHz	8 GB Suggested: 16 GB

Windows (64-bit)	Windows 2008 *, 7.0*, 10	Intel or AMD 2+ GHz	8 GB Suggested: 16 GB
macOS x86_64	10.8.5 to 10.13	Intel or AMD 2+ GHz	8 GB Suggested: 16 GB

\* Recommended

Notes:

- Only English Linux is supported.
- Other CentOS and Red Hat Enterprise Linux distributions should work, but are not officially supported.

## WAE Web Browsers

Web Browser	Version
Google Chrome	62
Firefox	52
Internet Explorer	11

## Network Service Orchestration (NSO) Requirements

Software / Driver	Version
IOS-XR NED	ncs-3.4-cisco-iosxr-3.9.0.7_ee8d73f
JunOS NED	ncs-3.4-juniper-junos-3.0.16
Network Services Orchestrator	3.4
Traffic-Eng	Contact your Cisco representative

## Software Packages

### Perl

Operating System	Product	Package
Linux-x86_64	WAE Planning with flow collection	5.10.1
	WAE Planning with WAE Design Archive	
	Stand-alone WAE Design	
Windows (64-bit)	Stand-alone WAE Design	5.12.3
macOS x86_64	Stand-alone WAE Design	5.12.3-5.18.2

## Python

Operating System	Product	Package
Linux-x86_64	WAE	2.6.x
Windows (64-bit)	Stand-alone WAE Design	2.7.x
macOS x86_64	Stand-alone WAE Design	2.6.x

## Font Packages

Package	Description
bitstream-vera-fonts	Bitstream Vera fonts
ghostscript-fonts	Ghostscript fonts
libXft	X font library
xorg-x11-fonts-Type1	<a href="#">X.org</a> Type1 fonts

## RPM Package Dependencies

Package	WAE Service
ansible1.9 (ansible1.9-1.9.6-2.el6.1.noarch.rpm)  Note: If Ansible 2.0+ exists on the system, it must be uninstalled prior to installation.	wae-platsvcs  wae-dlc
bc 1.06.95	wae-dlc
cyrus-sasl-lib 2.1.23	wae-core  wae-dlc
db4 4.7.25	wae-core  wae-dlc
e2fsprogs-libs 1.41.12	wae-dlc
ed 1.1	wae-dlc
expat 2.0.1	wae-core  wae-dlc
fontconfig 2.8.0	wae-core  wae-dlc

freetype 2.3.11	wae-core wae-dlc
gettext 0.17	wae-ni
ghostscript-fonts 5.50	wae-core wae-dlc
glibc 2.12	wae-core wae-dlc
gzip 1.3.12	wae-dlc
jdk 1.7.0_60	wae-appenginecore wae-core wae-db wae-demo wae-designapiserver wae-dlc wae-messaging wae-ni wae-osc wae-platsvcs
keyutils-libs 14	wae-core wae-dlc
krb5-libs 1.10.3	wae-core wae-dlc
libaio 0.3.107	wae-dlc
libdrm 2.4.65	wae-core wae-dlc
libgcc 4.4.7	wae-dlc
libICE 1.0.6	wae-core wae-dlc
libselinux 2.0.94	wae-core wae-dlc
libselinux-python 2.0.94	wae-platsvcs
libsepol 2.0.41	wae-core wae-dlc



libSM 1.2.1	wae-core wae-dlc
libstdc++ 4.4.7	wae-core, wae-dlc
libX11 1.6.4	wae-core wae-dlc
libXau 1.0.6	wae-core wae-dlc
libXdmcp 1.1.1	wae-core wae-dlc
libXext 1.3.3	wae-core wae-dlc
libXft 2.3.2	wae-core wae-dlc
libXrender 0.9.10	wae-core wae-dlc
libXxf86vm 1.1.3	wae-core wae-dlc
Isol 4.82	wae-platsvcs wae-svcs-server
mesa-libGL 11.0.7	wae-core wae-dlc
ncurses 5.7	wae-dlc
net-snmp 5.5	wae-demo
net-snmp-utils 5.5	wae-demo
ntp 4.2.6	wae-core
openldap 2.4.40	wae-dlc
pam 1.1.1	wae-dlc
python 2.6.6	wae-db wae-demo wae-dlc wae-platsvcs

python-argparse 1.2.1	wae-platsvcs
redhat-lsb 4.0.7	wae-dlc
rsync 3.0.6	wae-platsvcs
screen 4.0.3	wae-dlc
sshpas 1.06	wae-platsvcs
xorg-x11-fonts-Type1 7.2	wae-core wae-dlc
zlib 1.2.3	wae-core wae-dlc

## Ports

### Planning Server Ports

Port	Protocol	Description	Use by Service
9088	TCP/UDP	MLD SQL Interface	wae-mls
9089	TCP/UDP	MLD SQL Interface (Encrypted)	wae-mls
123	UDP	Network Time Protocol	wae-ni
1199	TCP	Remote Method Invocation (RMI) registry port	wae-ni
2181	TCP	Centralized service for configuration management	wae-ni
5006	TCP	Debug	wae-ni
8086	TCP	Representational State Transfer (ReST) interface (Port for accessing northbound WAE NI server)	wae-ni
8102	TCP	Console SSH port	wae-ni
8182	TCP	Web console	wae-ni
8185	TCP	RESTCONF port	wae-ni
9092 - 9094	TCP	Message broker	wae-ni
44445	TCP	Remote Method Invocation (RMI) server port	wae-ni
61617	TCP	Java Message Service (JMS) (Port that WAE NI server uses to receive plan files)	wae-ni
1790	TCP	Border Gateway Protocol	wae-ni
2812	TCP	Service monitoring communication port	wae-svcs-client
7070	TCP	Log agent communication port	wae-svcs-client

5601	TCP	Analytics and search dashboard communication port	wae-svcs-server
8843	TCP	Hypertext Transfer Protocol Secure	wae-svcs-server
9200 9300	TCP	Search server communication port	wae-svcs-server
25826	TCP	Log manager communication port	wae-svcs-server
8005	TCP	Collector sever shutdown port	wae-web-server
8009	TCP	AJP connector for Collector server	wae-web-server
8080	TCP	Hypertext Transfer Protocol	wae-web-server
8443	TCP	Hypertext Transfer Protocol Secure	wae-web-server
9090	TCP	Java Management Extension (JMX) monitoring port	wae-web-server
8282	TCP	Hypertext Transfer Protocol	wae-system-server
8243	TCP	Hypertext Transfer Protocol Secure	wae-system-server
8020	TCP	AJP connector	wae-system-server
8006	TCP	Server shutdown port	wae-system-server

## Automation Server Ports

Port	Protocol	Description	Use by Service
1499	TCP	Remote Method Invocation (RMI) registry port	wae-appenginecore
8104	TCP	Console SSH port	wae-appenginecore
8186	TCP	Web console	wae-appenginecore
44447	TCP	Remote Method Invocation (RMI) server port	wae-appenginecore
123	UDP	Network Time Protocol	wae-core
1299	TCP	Remote Method Invocation (RMI) registry port	wae-core
2022	TCP	Network Configuration Protocol (NETCONF)	wae-core
5007	TCP	Debug	wae-core
5701-5720	TCP	Communication between memory cache member and client	wae-core
7776	TCP	Jetty engine port	wae-core
7777	TCP	Representational State Transfer (ReST) interface	wae-core
8103	TCP	Console SSH port	wae-core
8183	TCP	Web console	wae-core
9898	TCP	Thrift interface	wae-core

44446	TCP	Remote Method Invocation (RMI) server port	wae-core
56017	TCP	Communication between memory cache members	wae-core
7000	TCP	Intra-node port non-TLS port	wae-db
7001	TCP	Intra-node TLS port	wae-db
7199	TCP	Java Management Extension (JMX) monitoring port	wae-db
9042	TCP	Query Language Native Transport port	wae-db
9160	TCP	Thrift interface	wae-db
8008	TCP	Web console	wae-demo
27017	TCP	Database web status	wae-demo
28017	TCP	Database daemon and database shard	wae-demo
1599	TCP	Remote Method Invocation (RMI) registry port	wae-designapiserver
8105	TCP	Console SSH port	wae-designapiserver
8187	TCP	Web console	wae-designapiserver
44448	TCP	Remote Method Invocation (RMI) server port	wae-designapiserver
8161	TCP	Web console	wae-messaging
11099	TCP	Java Management Extension (JMX) monitoring port	wae-messaging
61610	TCP	Java Message Service (JMS) New I/O (NIO)	wae-messaging
61614	TCP	Java Message Service (JMS) web socket	wae-messaging
61615	TCP	Java Message Service (JMS) message queue transport	wae-messaging
61616	TCP	Java Message Service (JMS) openwire transport	wae-messaging
1790	TCP	Border Gateway Protocol	wae-osc
4189	TCP	Path Computation Element Communication Protocol (PCEP)	wae-osc
8101	TCP	Console SSH port	wae-osc
8181	TCP	Web console	wae-osc
44444	TCP	Remote Method Invocation (RMI) server port	wae-osc
2812	TCP	Service monitoring communication port	wae-svcs-client
7070	TCP	Log agent communication port	wae-svcs-client