

# Cisco Intelligent Automation for Cloud Compatibility & Requirements Matrix

Release 4.3.2

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**Cisco Systems, Inc.**  
[www.cisco.com](http://www.cisco.com)

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*Cisco Intelligent Automation for Cloud 4.3.2 Compatibility & RequirementsMatrix*  
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KEY	
4	NEW for this release
4	Fully supported
32	Partially supported
0	Not supported
*	Minimum for current release

		Cisco Intelligent Automation for Cloud Releases							
		4.3.2	4.3.1	4.3	4.2	4.1.1	4.1	4.0.0	3.1.1
Component	Version Information								
Operating System for Cisco Prime Service Catalog	CentOS 5.6 64-bit (English)	0	0	0	0	0	0	0	4
	CentOS 5.7 64-bit (English)	0	0	0	0	0	4	4	4
	CentOS 5.8 64-bit (English)	0	0	0	0	4	4	4	0
	CentOS 6.5 64-bit (English)	4	4	4	4	4	0	0	0
	MS Windows Server 2008 R2 64-bit (English) SP1	0	0	0	4	4	4	4	4
	MS Windows Server 2012 R2 64-bit (PSC 11.0 and 11.1)	4	4	4	0	0	0	0	0
	Red Hat Enterprise Linux 5.6 64-bit (English)	4	4	0	0	4	4	4	4
	Ubuntu12	4	4	0	0	0	0	0	0
	Red Hat Enterprise Linux 7	4	4	4	4	0	0	0	0
Web Server for Cisco Prime Service Catalog	Microsoft IIS 8.5 (PSC 11.0 and 11.1 only)	4	4	4	0	0	0	0	0
	Microsoft IIS 7.5	0	0	0	4	4	4	4	4
	Apache 2.2.3 <sup>1</sup>	0	0	0	0	0	2	2	4
	Apache 2.4.6	4	4	4	0	0	4	4	0
	Apache 2.4.7 (2.4.x)	0	0	0	4	4	0	0	0
	IBM HTTP Server (IHS) 7.0.0.xx	0	0	0	0	4	4	4	4
<b>Cisco Process Orchestrator</b>									
Cisco Process Orchestrator	2.3.5	0	0	0	0	0	0	0	4
	3.0.0 Patch 5	0	0	0	0	0	0	4	0
	3.0.2 Patch + Hotfix 10	0	0	0	0	0	4	0	0
	3.1	0	0	0	0	4	0	0	0
	3.1.1, bit 3.1.0	0	0	0	4	0	0	0	0
	3.2	0	0	4	0	0	0	0	0
	3.2.1	0	4						
	3.2.2	4							
Application Server for Cisco Process Orchestrator	Microsoft .NET Framework 4.0	0	0	0	0	0	4	4	4
	Microsoft .NET Framework 4.5	0	0	0	4	4	4	4	0
	Microsoft .NET Framework 4.5.1	4	4	4	4	4	4	4	0
Operating System for Cisco Process Orchestrator	MS Windows Server 2012 / 2012 R2 64-bit (English)	4	4	4	4	4	4	4	0
	MS Windows Server 2008 R2 64-bit (English)	4	4	4	4	4	4	4	4
Java Runtime (JRE) for Cisco Process Orchestrator	Oracle Java SE 6 (JRE 1.6)			0	0	0	0	0	4
	Oracle Java SE 7 (JRE 1.7)		4	4	4	4	4	4	0
	Oracle Java SE 8 (JRE 1.8)	4	0	0	0	0	0	0	0
System Database for Process Orchestrator	Microsoft SQL Server 2008 Standard Edition or Enterprise Edition (English). Process Orchestrator additionally supports failover clustering.	0	0	0	0	0	4	4	4
	Microsoft SQL Server 2012 Standard Edition or Enterprise Edition (English). Process Orchestrator additionally supports failover clustering.	4	4	4	4	4	0	0	0
	Microsoft SQL Server 2014 Standard Edition or Enterprise Edition (English). Process Orchestrator additionally supports failover clustering.	4	0	0	0	0	0	0	0
	Oracle Database 11g R2 Enterprise Edition (Process Orchestrator can only run on Oracle Real Application Clusters " RAC" 11g R2.)	4	4	4	4	4	4	4	4
	Oracle Client 12C 64bit required on the Process Orchestrator server for RAC support	4	4	4	4	4	0	0	0
Web Server for Process Orchestrator	Microsoft IIS 6.0			0	4	4	4	4	4
	Microsoft IIS 7.0	4	4	4	4	4	4	4	4
	Microsoft IIS 7.5	4	4	4	4	4	4	4	4
	Microsoft IIS 8.0 (Windows Server 2012)	4	4	4	4	4	4	4	0

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Cisco Intelligent Automation for Cloud Releases

		4.3.2	4.3.1	4.3	4.2	4.1.1	4.1	4.0.0	3.1.1
Component	Version Information								
<b>Cisco Unified Computing System (UCS)</b>									
Cisco UCS Director	3.4.0.1	0	0	0	0	0	0	4	0
	4.1.0.0	0	0	0	0	0	0	4	0
	4.1.0.4	0	0	0	0	0	4	0	0
	5.1	0	0	0	0	4	0	0	0
	5.2	0	0	0	4	0	0	0	0
	5.3	0	0	4	0	0	0	0	0
	5.4	4	4	0	0	0	0	0	0
	5.4.0.2	4	0	0	0	0	0	0	0
Cisco UCS Manager	2.0	4	4	4	4	4	4	4	4
	2.1	4	4	4	4	4	4	4	0
	2.1 (3a)	4	4	4	4	4	0	0	0
	2.5(1a)	4	4	4	4	0	0	0	0
	3.0	4	4	4	0	0	0	0	0
Cisco UCS Models	B series	4	4	4	4	4	4	4	4
	C Series (when connected to USC Manager)	4	4	4	4	4	4	4	0
<b>Message Queueing</b>									
Advance Message Queueing Protocol (AMQP)	0-9-1	4	4	4	4	4	4	4	0
<b>Network Discovery</b>									
Cisco Virtual Security Gateway	2.1.1	0	0	0	0	0	4	4	0
	2.1.2*	0	0	0	4	4	0	0	0
	2.1.2c	0	0	0	4	0	0	0	0
Network Discovery	Cisco ASA 1000v 8.7.1	0	0	0	0	0	4	4	0
	Cisco CSR 1000v XE 3.1.4.1.S	4	4	4	4	0	0	0	0
	Cisco CSR 1000v XE 3.12	0	0	0	0	0	4	4	0
	Cisco CSR 1000v XE 3.13*	4	4	4	4	4	0	0	0
	Cisco Nexus 1000v 4.3(1)SV2(2.2)	0	0	0	0	0	4	4	0
	Cisco Nexus 1000v 5.2(1)SV3(1.3)	4	4	4	4	4	0	0	0
	Cisco ASR 1000	4	4	4	4	4	4	4	0
	Cisco ASR 9000	4	4	4	4	4	4	4	0
	Cisco Nexus 7000	4	4	4	4	4	4	4	0
Cisco Nexus 5000	4	4	4	4	4	4	0	0	
<b>VMWare</b>									
VMware vSphere/vCenter	4.1 (English)	0	0	4	4	4	4	4	4
	5.0 (English)	0	0	4	4	4	4	4	4
	5.0 Update 1	0	0	4	4	4	4	4	4
	5.1 (English)	4	4	4	4	4	4	4	0
	5.5 (English)	4	4	4	4	4	4	0	0
	6.0 (English)	4	4	4	4	4	0	0	0
VMware vCloud Director	5.1 (API v5.1)	4	4	4	4	4	4	4	0
	5.5 (API v5.1)	4	4	4	4	0	0	0	0
VMware vCenter Server Deploying Virtual Machines <sup>2</sup>	VMware ESXi 4.1	0	0	4	4	4	4	4	4
	VMware ESXi 5.0	4	4	4	4	4	4	4	4
	VMware ESXi 5.0 Update 1	4	4	4	4	4	4	4	4
	VMware ESXi 5.1	4	4	4	4	4	4	4	4
	VMware ESXi 5.5	4	4	4	4	4	4	0	0
VMware vCenter Server Provisioning	VMware ESXi 4.1 (on 4.1 Clusters)	2	2	2	2	2	2	2	2
	VMware ESXi 5.1	2	2	2	2	2	2	2	0
VMware PowerCLI Powershell Plugin (32-bit version only)	VMware vSphere PowerCLI 5.1 (English)	4	4	4	4	4	4	4	4
	VMware vSphere PowerCLI 5.5 (English)	4	4	4	4	4	4	4	0

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Component	Version Information								
<b>LDAP</b>									
LDAP Server	Microsoft Active Directory 2003 (English)	0	0	4	4	4	4	4	4
	Microsoft Active Directory 2008 (English)	4	4	4	4	4	4	4	4
	Microsoft Active Directory 2012 (English)	4	4	4	4	4	4	4	4
<b>OpenStack</b>									
OpenStack	Essex on Ubuntu 12.04 (Nova)	0	0	0	0	0	4	4	0
	OpenStack Havana	0	0	0	0	4	4	0	0
	OpenStack IceHouse	0	0	0	4	4	4	0	0
	OpenStack Juno	0	0	4	4	0	0	0	0
	OpenStack Kilo	0	0	4	0	0	0	0	0
	OpenStack Liberty	4	4						
	GBP driver, v. 2.3.8	4	4	4	0	0	0	0	0
<b>Service Assurance</b>									
Prime Performance Manager (PPM)	1.5	0	0	0	0	4	4	0	0
	1.6	0	0	0	4	0	0	0	0
	1.7 (only supports OpenStack Kilo)	2	2	4	0	0	0	0	0
IAC Assurance Control (for Appliance)	1.3.7	0	4	4	4	0	0	0	0
<b>Web Browser (Service Portal Module)</b>									
Browsers	Microsoft Internet Explorer (IE) 11	4	4	4	4	0	0	0	0
	Microsoft Internet Explorer (IE) 10	0	0	0	4	4	4	3	2
	Mozilla Firefox 28 (or later)	0	0	0	4	4	0	0	0
	Mozilla Firefox 38 (or later)	4	4	4	0	0	0	0	0
	Google Chrome 33 (or later)	0	0	0	4	4	4	4	0
	Google Chrome 43 (or later)	4	4	4	0	0	0	0	0
	Safari 7.0.x ( Mac OS only)	0	0	0	4	4	4	2	0
	Safari 8.0.x ( Mac OS only)	4	4	4	0	0	0	0	0

<sup>1</sup> Virtual appliance only

<sup>2</sup> You can only add a VDC if the datacenter has a cluster. Cisco IAC does not support data centers with one host (no cluster). Therefore, when you register a compute POD with connection to Vcenter datacenter, that datacenter must have one or more clusters.

Note: For other possible combinations that have not been verified as supported your Cisco IAC solution, please refer to the configuration guides and compatibility matrices for the Cisco product in question, such as Cisco Prime Service Catalog and Cisco Process Orchestrator.

## Cisco Intelligent Automation for Cloud 4.3.2 Minimum Hardware Requirements

Platform Element	Component	Client	Server
Cisco Process Orchestrator Server <sup>3</sup>	CPU	2.8 GHz or higher core (Dual core systems recommended)	64-bit 2.8 GHz or higher core (Quad core systems recommended)
	Memory	2 GB minimum (4 GB or higher recommended)	2 GB minimum (8 GB or higher recommended)  8 GB of RAM (if Microsoft SQL Server is installed on same machine as Process Orchestrator)  It is recommended that the database reside on a separate server.
	Disk Space	1 GB dedicated to Process Orchestrator (2 GB or higher recommended)	1 GB of available hard disk space dedicated to Process Orchestrator (2 GB or higher recommended) <sup>4</sup>
Cisco Prime Service Catalog <sup>6</sup>	CPU	–	Intel Core 2 Dual processor or equivalent
	Memory	–	8 GB RAM
	Disk Space	–	40 GB free hard disk space
Cisco Prime Service Catalog Database	CPU	–	Intel Core 2 Dual processor or equivalent
	Memory	–	8 GB RAM
	Disk Space	–	50 GB free hard disk space <sup>5</sup>

<sup>3</sup> For complete installation prerequisites, see the latest *Process Orchestrator Installation and Administration Guide* on Cisco.com.

<sup>4</sup> For disk space sizing formula, see the latest *Process Orchestrator Installation and Administration Guide* on Cisco.com.

<sup>5</sup> Disk space requirement is dependent on the projected size of your Service Portal databases over time, to account for the growth in user data, service definitional data, transactional data, and reporting data.

<sup>6</sup> For more information on wildfly cluster environment, see the latest *Prime Service Catalog installation Guide* on Cisco.com.

## Cisco Intelligent Automation for Cloud 4.3.2 Minimum Software Requirements

Component	Server	Requirements <sup>7</sup>
Application Server Operating System	Cisco Process Orchestrator	Microsoft Windows Server, installed with US English regional language, date and currency settings
	Cisco Prime Service Catalog	Microsoft Windows Server, installed with US English regional language, date and currency settings  Red Hat Enterprise Linux
Application Server Framework	Cisco Process Orchestrator	.NET Framework VMware vSphere PowerCLI
	Cisco Prime Service Catalog	WildFly
Application Software	Cisco Process Orchestrator	Process Orchestrator
	Cisco Prime Service Catalog	Cisco Prime Service Catalog Cisco Prime Service Catalog patch (if required) REX adapter
LDAP Server <sup>8</sup>	Cisco Process Orchestrator	Microsoft Active Directory
	Cisco Prime Service Catalog	Microsoft Active Directory IBM Tivoli Directory Server Sun Java System Directory Server
	<b>NOTE:</b> For Cisco Prime Service Catalog, you must create the six user groups in the directory: Cloud Provider Technical Administrator, Field Extender, Organization Technical Administrator, Solutions Team, Virtual Server Owner, and Virtual and Physical Server Owner. These user groups will serve as containers for identifying user role assignments. The user groups must be named according to the role name in Cisco Prime Service Catalog. Consult the documentation that comes with your directory software for instructions on setting up user groups.	
Web Server	Cisco Process Orchestrator	Microsoft Internet Information Services (IIS)
	Cisco Prime Service Catalog	Microsoft Internet Information Services (IIS)
Database	Cisco Process Orchestrator	Microsoft SQL Server Oracle Database Enterprise Edition
	Cisco Prime Service Catalog	Microsoft SQL Server Oracle Database Enterprise Edition
Web Browser	Cisco Process Orchestrator	Microsoft Internet Explorer Mozilla Firefox
	Cisco Prime Service Catalog	Microsoft Internet Explorer Mozilla Firefox
Virtualization	Amazon EC2	
	Hypervisor <sup>9</sup>	VMware ESXi
	Hypervisor Manager	VMware vCenter/vSphere
	vCenter	
	vCloudDirector	
	OpenStack	
	UCS Director	
Physical Server Provisioning	Cisco UCS Manager	Cisco UCS blades
Network Discovery, Enterprise Message Bus, Image Repository	Cisco IAC Management Appliance	Operating system is provided in appliance (see matrix above)

<sup>7</sup> See the Cisco IAC Compatibility Matrix tab at the front of this document for the supported versions.

<sup>8</sup> LDAP Server requirements only apply if you are using a directory service to import user and organization information.

<sup>9</sup> For specific ESXi/vCenter compatibility, refer to interoperability guidelines on VMware.com. In addition, UCS Director v5.1 is required for Hyper-V support in Cisco IAC 4.3.2

## Cisco Intelligent Automation for Cloud 4.3.2 Default Ports and Protocols

Adapter	Port	Protocol
<b>IAC Platform Elements (Non-PO Targets)</b>		
PPM	4440	HTTPS
AMQP	15672	HTTP/HTTPS
–	80/443 (if HTTPS is supported)	HTTP/HTTPS
–	8080/443 (if HTTPS is supported)	HTTP/HTTPS
–	8088/443 (if HTTPS is supported)	HTTP/HTTPS
–	8089/443 (if HTTPS is supported)	HTTP/HTTPS
–	80/443 (if HTTPS is supported)	HTTP/HTTPS
–	5672	AMQP
–	1443	TCP
–	1521	TNS
–	61527 / 61526	HTTP/HTTPS (SOAP)
–	2081	HTTP/HTTPS
–	61525	HTTP <sup>10</sup>
–	61525	HTTP
–	80/HTTP for SP web client <sup>11</sup>	80/HTTP for SP web client
<b>PO Targets for Outbound Connections to IAC Platform Elements</b>		
Windows	135 (initially, then any random port.) <sup>12</sup>	WMI, Microsoft RPC, Net API, DCOM
Prime Service Catalog	6080, 8080/443 (if HTTPS is supported)	HTTP/HTTPS
Web	6080/443 (if HTTPS is supported)	HTTP/HTTPS
Web	8080/443 (if HTTPS is supported)	HTTP/HTTPS
Web	61527/ 61526	HTTP/HTTPS
AMQP	5672	AMQP
Server Provisioner	802	HTTP (no HTTPS)
Web	80/443 (if HTTPS is supported)	HTTP/HTTPS
<b>PO Targets for Outbound Connections to Other Elements of the Cloud Environment</b>		
SNMP	162	SNMP
Terminal	22	SSH
Web	8774	HTTP/HTTPS
Web	5000	HTTP/HTTPS
VMware Virtual Center	80/443 (if HTTPS is supported)	HTTP/HTTPS
Cisco UCS Manager	80/443 (if HTTPS is supported)	HTTP/HTTPS
Windows	135 initially (then any random port) <sup>13</sup>	WMI, Microsoft RPC, Net API, DCOM
<b>Other Connections from the Cloud Environment Back to IAC</b>		
AMQP	5672 / 5671 for SSL	AMQP <sup>14</sup>

**Note:** Cisco Process Orchestrator requires going to need Port access to at minimum the Admin or PublicURL of Keystone/identity and the AdminURL of Nova, Neutron, Cinder, and Ceilometer. These ports and others are reflected here. (CAIC does not use Swift/Object Storage with OS). For more information, refer to:

<http://docs.openstack.org/trunk/config-reference/content/firewalls-default-ports.html>

<sup>11</sup> Using WSHttpBinding - <http://www.codeproject.com/Articles/36396/Difference-between-BasicHttpBinding-and-WsHttpBind>

<sup>12</sup> Locally SP may use the following when bare-metal provisioning a client: 21/FTP; 67/BOOTP; 111 TFTP; 139/NetBios; 445/SMB; 4011 BINL

<sup>13</sup> Older windows OS's such as 2000, XP, and 2003 use a low port in the range 1025-5000. Later OS's use a high port in the range 1024-65535

<sup>14</sup> There will be messages coming from the target environment to this queue.

## Cisco Intelligent Automation for Cloud 4.3.2 Limitations and Scalability

Entity	Limitations	Notes
Cisco Process Orchestrator Server	Local HA	Multiple application servers with database cluster; a platform element which is associated to all PODs (at a site)
Concurrent users	200 concurrent users	Based on minimum hardware requirements
VMware vCenter Server	Zero or more instances	Not Linked Mode
Cisco Service Catalog	One	
Cisco UCS Manager	Zero or more instances	Only one may be associated to a Compute POD
Cisco Prime IPAMs	Zero or more instances	
Cisco UCS Director	Zero or one instances	One may service multiple Network PODs
Cisco Nexus 1000v	Zero or more instances	Where networks will be added from Nexus 1000v networks must be pre-provisioned if no Nexus 1000v is registered.
Cisco APIC	Zero or more instances	Only required for APIC plugin-enabled OpenStack deployment