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## Version 10.5(x)

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<u>Component &amp; Capacity Point</u>	<u>Preloaded with Business Edition?</u>	<u>VM Configuration Requirements</u> <u>click to download OVA file for this version</u>	<u>Supported Hardware (Latest)</u>						<u>Support</u>		
		<u>vCPU</u> <u>vRAM</u> <u>vDisk</u> <u>vNIC</u>	<u>UCS Tested Reference Configurations</u>						<u>UCS T</u>		
			S is same as BE 6000 MD						<u>UCS or 3rd-party Refer</u>		
			S+ is same as BE 6000 HD						<u>Specs-based on Intel Xeon</u>		
			M includes BE 7000						<u>UCS T Refer</u>		
			<u>S</u>	<u>S+</u>	<u>M</u>	<u>L</u>	<u>XL</u>	<u>2XL</u>	<u>Full UC Perf.</u>	<u>UC Perf. CPU</u>	<u>S</u>

**CPU**

- **Co-residency support** = Full
- **Supported Versions of VMware vSphere ESXi** = (all components) 5.1, 5.5.
- **Click for "IOPS"**

Co-located Call Server + VXML Server <a href="#">See notes</a>	No	4	4 GB	1x 146 GB	1	No	No	Yes	Yes	Yes	Yes	Yes	No	No	O B20 TR B20 TR C2 TF
Reporting Server(Large) <a href="#">See notes</a>	No	4	4 GB	1x 72 GB	1	No	No	Yes	Yes	Yes	Yes	Yes	No	No	
Operations Console <a href="#">See notes</a>	No	2	2 GB	1x 40 GB	1	No	No	Yes	Yes	Yes	Yes	Yes	No	No	
Media Server <a href="#">See notes</a>	<a href="#">See notes</a>														

**Note:** Download the 10.0(1) version of the OVA template for 10.5(1) version, there is no separate OVA template available for 10.5(1) release.

**Version 10.0(x)**

[Click here for a Legend](#)

<b><u>Component &amp; Capacity Point</u></b>	<b><u>VM Configuration Requirements</u></b> <b><u>click to download OVA file for this version</u></b>				<b><u>Supported Hardware (Latest)</u></b>						<b><u>Support</u></b>				
	<b><u>Preloaded with Business Edition?</u></b>	<b><u>vCPU</u></b>	<b><u>vRAM</u></b>	<b><u>vDisk</u></b>	<b><u>vNIC</u></b>	<b><u>UCS Tested Reference Configurations</u></b> S is same as BE 6000 MD S+ is same as BE 6000 HD M includes BE 7000						<b><u>UCS or 3rd-party Specs-based on Intel Xeon</u></b>		<b><u>UCS T Refer Configur</u></b>	
						<b><u>S</u></b>	<b><u>S+</u></b>	<b><u>M</u></b>	<b><u>L</u></b>	<b><u>XL</u></b>	<b><u>2XL</u></b>	<b><u>Full UC Perf. CPU</u></b>	<b><u>Restricted UC Perf. CPU</u></b>	<b><u>S</u></b>	

- **Co-residency support** = Full
- **Supported Versions of VMware vSphere ESXi** = (all components) 5.0, 5.1.
- **Click for "IOPS"**

Co-located Call Server + VXML Server <a href="#">See notes</a>	No	4	4 GB	1x 146 GB	1	No	No	Yes	Yes	Yes	Yes	Yes	No	No	O B20 TR B20 TR C2 TF
Reporting Server(Large) <a href="#">See notes</a>	No	4	4 GB	1x 72 GB	1	No	No	Yes	Yes	Yes	Yes	Yes	No	No	

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Operations Console <a href="#">See notes</a>	No	2	2 GB	438 GB 1x 40 GB	1	No	No	Yes	Yes	Yes	Yes	Yes	No	No
Media Server <a href="#">See notes</a>	<a href="#">See notes</a>													

## Version 9.0(x)

[Click here for a Legend](#)

<u>Component &amp; Capacity Point</u>	<u>VM Configuration Requirements</u> <a href="#">click to download OVA file for this version</a>					<u>Supported Hardware (Latest)</u>									
	<u>Preloaded with Business Edition?</u>	<u>vCPU</u>	<u>vRAM</u>	<u>vDisk</u>	<u>vNIC</u>	<u>UCS Tested Reference Configurations</u> S is same as BE 6000 MD S+ is same as BE 6000 HD M includes BE 7000					<u>UCS or 3rd-party Specs on Intel Xeon</u>				
						<u>S</u>	<u>S+</u>	<u>M</u>	<u>L</u>	<u>XL</u>	<u>2XL</u>	<u>Full UC Perf.</u>	<u>CPU</u>	<u>UC</u>	

- **Co-residency support** = UC with UC only
- **Supported Versions of VMware vSphere ESXi** = (all components) 4.1, 5.0, 5.1.
- [Click for "IOPS"](#)

Co-located Call Server + VXML Server <a href="#">See notes</a>	No	4	4 GB	1x 146 GB	1	No	No	Yes	Yes	Yes	Yes	Only with FC SAN storage			
Reporting Server(Large) <a href="#">See notes</a>	No	4	4 GB	1x 72 GB 1x 438 GB	1	No	No	Yes	Yes	Yes	Yes	Only with FC SAN storage			
Operations Console <a href="#">See notes</a>	No	2	2 GB	1x 20 GB	1	No	No	Yes	Yes	Yes	Yes	Only with FC SAN storage			
Media Server <a href="#">See notes</a>	<a href="#">See notes</a>														

## Version 8.5(x)

[Click here for a Legend](#)

<u>Component &amp; Capacity Point</u>	<u>Preloaded with Business Edition?</u>	<u>VM Configuration Requirements</u> <u>click to download OVA file for this version</u>				<u>Supported Hardware (Latest)</u>						<u>Support</u>			
		<u>vCPU</u>	<u>vRAM</u>	<u>vDisk</u>	<u>vNIC</u>	<u>UCS Tested Reference Configurations</u> S is same as BE 6000 MD S+ is same as BE 6000 HD M includes BE 7000						<u>UCS or 3rd-party Specs-based on Intel Xeon</u>		<u>UCS T Refer</u>	<u>Configur</u>
						<u>S</u>	<u>S+</u>	<u>M</u>	<u>L</u>	<u>XL</u>	<u>2XL</u>	<u>Full UC Perf. CPU</u>	<u>Restricted UC Perf. CPU</u>	<u>S</u>	<u>M</u>

- **Co-residency support** = UC with UC only
- **Supported Versions of VMware vSphere ESXi** = (all components) 4.0U1+, 4.1, 5.0
- **Click for "IOPS"**

Co-located Call Server + VXML Server <a href="#">See notes</a>	No	4	4 GB	1x 146 GB	1	No	No	Yes	Yes	Yes	Yes	No	No	No	O
Reporting Server(Large) <a href="#">See notes</a>	No	4	4 GB	1x 72 GB 1x 438 GB	1	No	No	Yes	Yes	Yes	Yes	No	No	No	B2 TR B2 TR C2 TF
Operations Console <a href="#">See notes</a>	No	2	2 GB	1x 20 GB	1	No	No	Yes	Yes	Yes	Yes	No	No	No	

## Version 8.0(x)

[Click here for a Legend](#)

<u>Component &amp; Capacity Point</u>	<u>Preloaded with Business Edition?</u>	<u>VM Configuration Requirements</u> <u>click to download OVA file for this version</u>				<u>Supported Hardware (Latest)</u>						<u>Support</u>			
		<u>vCPU</u>	<u>vRAM</u>	<u>vDisk</u>	<u>vNIC</u>	<u>UCS Tested Reference Configurations</u> S is same as BE 6000 MD S+ is same as BE 6000 HD M includes BE 7000						<u>UCS or 3rd-party Specs-based on Intel Xeon</u>		<u>UCS Tes Referen</u>	<u>Configura</u>
						<u>S</u>	<u>S+</u>	<u>M</u>	<u>L</u>	<u>XL</u>	<u>2XL</u>	<u>Full UC Perf. CPU</u>	<u>Restricted UC Perf. CPU</u>	<u>S</u>	<u>M</u>

- **Co-residency support** = UC with UC only
- **Supported Versions of VMware vSphere ESXi** = (all components) 4.0U1+, 4.1 only
- **Click for "IOPS"**

Co-located Call Server + VXML Server <a href="#">See notes</a>	No	4	4 GB	1x 146 GB	1	No	No	No	No	Yes	Yes	No	No	No	On B200 TRC B200 TRC C210 TRC
Reporting Server(Large) <a href="#">See notes</a>	No	4	4 GB	1x 72 GB	1	No	No	No	No	Yes	Yes	No	No	No	
Operations Console <a href="#">See notes</a>	No	2	2 GB	1x 20 GB	1	No	No	No	No	Yes	Yes	No	No	No	

## Notes on Call+VXML Server VM configuration

The following deployments and Unified CVP components have not been qualified and are not supported in virtualization:

- ◇ H323 Call flow Deployment
- ◇ Distributed VXML Server and Call Server deployment where each server runs on a separate VM
- ◇ All in one lab deployment with small reporting server.

**Note: Unified CVP components are supported on the UCS platform only in a virtualized environment with ESXi server.**

Depending on design requirements, the Media Server component may either be hosted in this VM, or run in a separate VM (see [Notes on Media Server VM configuration](#) )

## Notes on Reporting Server VM configuration

- The creation of the virtual machine for the Reporting Server requires a large virtual disk size. Max disk size for a single VM to be 438GB for the large reporting server.
- Steps to configure the ESXi for CVP Reporting server to RAID10 found at [CVP Reporting Server Configuration](#).

## Notes on Operations Console VM configuration

None.

## Notes on Media Server VM configuration

The Media Server component may either run inside the Call+VXML Server VM or run in a separate VM.

If it runs in a separate VM, it can either use the same VM configuration as the Operations Console or be a customer-tailored VM configuration (since this is a 3rd-party VM).

## IOPS and Storage System Performance Requirements

### Windows 2003 R2 Server:

**IOPS Summary: (Unit in Number, Data are Blade-based)**

<b>CVP Server component</b>	<b>Average</b>	<b>MAX</b>	<b>95th Percentile</b>
Call Server/VXML Servers	380	1536	797
Reporting Server	692	3403	2024
Operation Server	NA (Insignificant)	NA	NA

### Windows 2008 R2 Server:

**The following IOPS metrics are measured in peak load conditions with failover:**

<b>CVP Server</b>	<b>Average</b>	<b>MAX</b>	<b>95th Percentile</b>
CS/VXML/Media Servers	50	1300	124
Reporting Server	329	1250	984
Operations Console	22	100	80

**The following IOPS metrics are measured in peak load conditions with no failover:**

<b>CVP Server</b>	<b>Average</b>	<b>MAX</b>	<b>95th Percentile</b>
CS/VXML/Media Servers	21	450	30
Reporting Server	40	930	56
Operations Console	22	100	80

- **Read/Write Ratio:**

**The following table provides Read/Write Ratio:**

<b>CVP Server</b>	<b>Average</b>	<b>MAX</b>	<b>95th Percentile</b>
CS/VXML/Media Servers	199/327	2249/1654	411/928

Reporting Server	3563/3000	14375/15390	10010/11506
Operations Console	22/21	107/94	67/79

## Performance Requirements

- ◇ CPU usage (average) should not exceed 60% for the ESXi Server and for each of the individual processors, and for each VM.
- ◇ Memory usage (average) should not exceed 80% for the ESXi Server and for each of the VMs.
- ◇ VM snapshots are not supported in production since they have significant impact on system performance.
- ◇ The SAN must be able to handle the following Unified CVP application disk I/O characteristics.
- ◇ Enable hyperthreading on all ESXi servers.

## Performance Numbers on UCS Platform

### HTTP Performance Metrics

- The following metrics are measured with full reporting

Call flow	Simultaneous Calls Supported	Calls Per Second
SIP Comprehensive	900	10
VXML Standalone	900	10
VXML Standalone with Req ICM Label (VXML Server on Tomcat)	900	10
VXML Standalone on WAS	900	10
VXML Standalone with Req ICM Label on WAS	900	10

### HTTPS Performance Metrics

- The following metrics are measured with full reporting

Call flow	Simultaneous Calls Supported	Calls Per Second
SIP Comprehensive	275	3
VXML Standalone	275	3
VXML Standalone on WAS	275	3

## Timekeeping Best Practices for Windows

You should follow the best practices outlined in the VMware Knowledge Base article [VMware KB:Timekeeping best practices for Windows](#)

- ESXi hosts and domain controllers should synchronize the time from the same NTP source.

- When Unified CVP virtual machines join the domain, they synchronize the time with the domain controller automatically using w32time.
- Be sure that **Time synchronization between the virtual machine and the host operating system** in the VMware Tools tool box GUI of the Windows Server 2003 guest operating system remains deselected; this checkbox is deselected by default.

## System Performance Monitoring Using Windows Perfmon Counters

You must comply with the best practices described in the section titled System Performance Monitoring in the Unified CVP SRND.

## Unified CVP-Specific VM Installation Information

### Migrating Unified CVP Installation from Physical to Virtual Server

Migration of Unified CVP from physical (MCS) server to any virtual server (UCS or non-UCS) server is not supported.

### UCS Network Configuration

**IMPORTANT:** For instructions on performing the network configuration needed to deploy Cisco Unified Customer Voice Portal (Unified CVP) on a virtualized platform, please see below.

**1) Network adapter setting modification on Reporting Server** -The customers must modify the "Number of Receive Buffers" setting on the Reporting server to maximize full reporting and call load on the virtualized platform. If this setting is not modified after installing the OS, messages will get backed up on the CallServer and Message Queues will fill up resulting in a sharp drop in cps rate.

- Set the "Number of Receive buffers" on the Reporting Server TCP settings to 4096 (max).

Instructions:

1. On Reporting server, click on Control Panel->Network Connection.
2. Right click on Network Connection.
3. Click on advanced tab.
4. Under property tab, select "Number of Receive Buffers".
5. In the Value pulldown, enter 4096.
6. Restart the Reporting Server.

**2)** The following table provides the transport protocols supported by different CVP versions on virtual and non-virtual (bare metal or MCS servers) deployments. The same transport protocol must be used on all call legs of the SIP comprehensive call flow deployments.

### SIP transport protocols supported across various deployments:

Type of Hardware	Releases prior to CVP 8.5(1) ES6	CVP 8.5(1) ES6 or later releases
------------------	-------------------------------------	-------------------------------------

UCS C Series Virtualized*	TCP	TCP & UDP**
UCS B Series Virtualized*	TCP	TCP UDP***
Non Virtualized (bare metal)	TCP & UDP	TCP & UDP

The session transport protocol can be set to tcp or udp in the POTS dialpeer. Any other combinations of the transport protocols other than the ones listed above can cause call setup failures or abnormally long call setup times under heavy load.

**Footnote:**

\* Check the [Docwiki supported Application](#) page for the Cisco UCS B-series and C-series hardware models supported by the Unified CVP.

\*\* To avoid CPU utilization spikes under load conditions, the time synchronization between virtual machine and the ESX server must be disabled. To disable it, install VMware Tools in the virtual machine, in the Windows task bar, double click on the VM icon, in VMware Tools Properties window, uncheck **Time synchronization between the virtual machine and the ESX Server** checkbox.

\*\*\* All the UCS servers listed on the [Unified Communications Virtualization Supported Applications](#) page support UDP on both VMWare ESXi 4.1 and ESXi 5.0.

**3) Cisco VLAN trunking to VMWare** For information on best practices for Cisco VLAN trunking to VMware, refer to the [VMware website](#)

## Steps for Installing Unified CVP Components on Virtual Machines

Follow the steps and references below to install or migrate the Unified CVP components on Virtual Machines.

1. Install, setup, and configure the UCS Hardware.
2. Configure the UCS Network. See reference at [UCS Network Configuration for Unified CCE](#).
3. Install and Boot VMWare ESXi. For UCS B series, refer to the [Cisco UCS B-Series Blade Servers VMware Installation Guide](#).
4. Create the Unified CVP Virtual Machines from the OVA template available.
5. Install Windows OS and Websphere Application Server (if using VXML Server with WAS) on the created Virtual Machines.
6. Install Unified CVP Software components on the configured Virtual Machines. See install reference for installing Unified CVP Components in the [CVP Install and Upgrade guide](#)

## Creating Virtual Machines from OVA VM Templates

Open Virtualization Format (OVF) is an open standard for packaging and distributing virtual appliances. Files in this format have an extension of .ova. The naming convention for the template is PRODUCT\_COMPONENT\_USER COUNT\_VERSION\_VMVER.ova

Follow the instructions in the Downloading OVA Templates section below to download the OVA templates from cisco.com to a local datastore that vSphere Client can access.

### Downloading OVA Templates

- ◇ Proceed to the [Cisco Download Page for CVP](#).
- ◇ To download a single OVA file, click the **Download File** button next to that file. To download multiple OVA files, click the **Add to Cart** button next to each file that you want to download, then click on the **Download Cart** link. A Download Cart page appears.
- ◇ Click the **Proceed with Download** button on this page. A Software License Agreement page appears.
- ◇ Read the Software License Agreement, then click the **Agree** button
- ◇ On the next page, click on either the **Download Manager** link (requires Java) or the **Non Java Download Option** link. A new browser window appears.
- ◇ If you selected Download Manager, a Select Location dialog box appears. Specify the location where you want to save the file, and click **Open** to save the file to your local machine.
- ◇ If you selected Non Java Download Option, click the **Download** link on the new browser window. Specify the location and save the file to your local machine.

#### Note:

### Creating Virtual Machines by Deploying the OVA Templates

In the vSphere client, perform the following steps to deploy the Virtual machines.

1. Highlight the host or cluster to which you wish the VM to be deployed.
2. Select **File > Deploy OVF Template**.
3. Click the **Deploy from File** radio button and specify the name and location of the file you downloaded in the previous section **or** click the **Deploy from URL** radio button and specify the complete URL in the field, then click **Next**.
4. Verify the details of the template, and click **Next**.
5. Give the VM you are about to create a name, and choose an inventory location on your host, then click **Next**.
6. Choose the datastore on which you would like the VM to reside - be sure there is sufficient free space to accommodate the new VM, then click **Next**.
7. Choose a virtual network for the VM, then click **Next**.
8. Verify the deployment settings, then click **Finish**.

#### Notes

- ◇ VM CPU affinity is not supported. You do not need to set CPU affinity for the VMs that are running Unified CVP applications on the VMware ESXi on UCS platform.
- ◇ You cannot change the computing resource configuration of your VM at any time.

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- ◇ Ensure you enable only one NIC.
- ◇ You can never go below the minimum VM computing resource requirements as defined in the OVA templates.
- ◇ It is required that hyperthreading be enabled by default when running CVP on ESXi. ESXi Server hyperthread is enabled by default and this setting should not be modified. Please ensure all VM's with CVP servers has hyperthreading enabled.

### **Remote Control of the Virtual Machines**

For administrative tasks, you can use either Windows Remote Desktop or the VMware Infrastructure Client for remote control.

### **Installing VMware Tools**

The VMware Tools must be installed on each of the VMs and all of the VMware Tools default settings should be used. Please refer to the [VMware documentation](#) for instructions on installing or upgrading VMware Tools on the VM with Windows operating system.