

Cisco Unity Express Virtual Software Support on Cisco 4000 Series Integrated Services Routers KVM Service Containers

The Cisco Unity Express Virtual software release adds support for installing Cisco Unity Express Virtual software on the Cisco 4000 Series Integrated Services Routers KVM Service Containers.

- Overview of OVA Installation Steps on KVM Service Container, on page 1
- Hardware Requirements for Cisco Unity Express Virtual KVMs on Cisco 4000 Series Integrated Services Routers, on page 2
- Install and Configure the Cisco Unity Express Virtual OVA on KVM Service Containers, on page 2
- Deactivate and Uninstall Cisco Unity Express Virtual from KVM Service Containers, on page 6
- Upgrade Cisco Unity Express Virtual 9.0.6 to 10.0, on page 7
- Example for Accessing and Configuring the Cisco Unity Express Virtual in Cisco 4000 Series Integrated Services Routers Service Container, on page 8

Overview of OVA Installation Steps on KVM Service Container

The following steps provide an overview of Cisco Unity Express Virtual software installation on the Kernel Virtual Machine Service Container.

- **Step 1** Download and copy the Cisco Unity Express Virtual software OVA file from the FTP server to Cisco 4000 Series Integrated Services Routers (Cisco 4000 Series ISR) hard disk or boot flash drive.
- **Step 2** Install, Configure, and Activate virtual service.
- **Step 3** Connect to the installed virtual service.

For more information on how to install and configure, see Install and Configure the Cisco Unity Express Virtual OVA on KVM Service Containers, on page 2.

If you want to re-install the OVA, you must first deactivate the installed virtual service and then uninstall the Cisco Unity Express Virtual. For more information on deactivating and uninstalling Cisco Unity Express Virtual, see Deactivate and Uninstall Cisco Unity Express Virtual from KVM Service Containers, on page 6.

Hardware Requirements for Cisco Unity Express Virtual KVMs on Cisco 4000 Series Integrated Services Routers

Cisco Unity Express Virtual Software requires Cisco 4000 Series Integrated Services Routers (Cisco 4000 Series ISR) configured with Kernel Virtual Machine Service Container.

Table 1: Kernel Virtual Machine Requirements for Cisco 4000 Series ISR Service Container, on page 2 provides the Kernel Virtual Machine recommendations on Cisco 4000 Series ISR Service Container.

Table 1: Kernel Virtual Machine Requirements for Cisco 4000 Series ISR Service Container

Mailboxes	CPU	RAM	Hard Disk	Flash	External Interface	Recording hours	Maximum Voice Ports
1-200	As per Cisco 4000 Series ISR platform	8 GB	Minimum 50 GB	8 GB	1 Gigabit Interface	120	20



Note The Cisco Unity Express Virtual uses hard disk with a maximum ceiling limit of 20 GB only. Hence, when you execute the **show version** CLI command on the Cisco Unity Express Virtual prompt, the hard disk capacity displays as 20 GB, even when your router hard disk capacity may be 50 GB or higher.

Note You need a minimum of 8 GB memory to configure the virtual-service commands while installing and configuring the Cisco Unity Express Virtual Software.

Note

The above-mentioned hardware requirements are applicable exclusively for installing and configuring Cisco Unity Express and its resources. However, you must provision additional memory in the router to configure other features like Cisco Unified CME.

Install and Configure the Cisco Unity Express Virtual OVA on KVM Service Containers

The Open Virtualization Archive (OVA) file contains a compressed, installable version of the virtual machine. To download the Cisco Unity Express Virtual server (OVA) file from the FTP server and then, install and configure the Cisco Unity Express Virtual virtual service use the following procedure.



Note

Note that the virtual service upgrade and installation procedures are the same for Cisco Unity Express Virtual. Ensure that you take backup of the system if you want to upgrade or re-install. For more information, see Manually Backing Up Files.

Before you begin

- Cisco Unity Express Virtual OVA file downloaded to your local drive or to a boot flash drive
- Command Line Interface to interact with the router
- SSH client to configure Cisco Unity Express Virtual

SUMMARY STEPS

- 1. telnet ip-address
- **2**. enable
- **3**. copy tftp {flash | harddisk}
- 4. virtual-service install name service-name package uri/package-location: .ova
- 5. show virtual-service list
- 6. configure terminal
- 7. interface VirtualPortGroup number
- **8**. **ip unnumbered** *type number*
- 9. virtual-service service-name
- 10. vnic gateway VirtualPortGroup instance-number
- **11.** guest ip address vm ip-address
- 12. end
- **13**. configure terminal
- **14.** ip route *vm-ip* / *subnet mask* / *VirtualPortGroup Interface*
- **15.** virtual-service service-name
- 16. activate
- **17.** virtual-service connect name *service-name* console

DETAILED STEPS

	Command or Action	Purpose
-	telnet ip-address	Log in to the router terminal using your telnet or ssh log
	Example:	in credentials.
	telnet 10.65.125.154	Enter your password if prompted.
Step 2	enable	Enters the privileged EXEC mode.
	Example:	
	Router> enable	

	Command or Action	Purpose	
Step 3	<pre>copy tftp {flash harddisk} Example: Router# copy tftp flash: Address or name of remote host [202.153.144.25]? Source filename [/tftp/labtest/CUE-Virtual-10-0-0-ISR4K.ova]? Destination filename [CUE-Virtual-10-0-0-ISR4K.ova]? Accessing tftp://202.153.144.25//tftp/labtest/CUE-Virtual-10-0-0-ISR4K.ova. Loading /tftp/labtest/CUE-Virtual-10-0-0-ISR4K.ova from /tftp/labtest/CUE-Virtual-10-0-0-ISR4K.ova (via GigabitEthernet0/0/0)!!!!! [OK 334479360 bytes] 334479360 bytes copied in 385.578 secs(867475 bytes/sec)]</pre>	Allows you to access the tftp file server and to copy the OVA package to a desired location on your local hard disk or a boot flash drive. Select the filename and press Enter to confirm the Destination filename.	
Step 4	<pre>virtual-service install name service-name package uri/package-location: .ova Example: Router# virtual-service install name cue package bootflash:CUE-Virtual-10-0-0-ISR4K.ova Installing package 'bootflash:/CUE-Virtual-10-0-0-ISR4K.ova' for virtual-service 'cue'. Once the install has finished, the VM may be activated. Use 'show virtual-service list' for progress.</pre>	Installs the virtual service. Note The command virtual-service name is case-sensitive. For example, if you configure virtual-service vCUE and virtual-service vcue, two different instances of Cisco Unity Express Virtual is created.	
Step 5	show virtual-service list Example: Router# show virtual-service list Virtual Service List: Name Status Package Name	Lists the service package name and the installation status.	
Step 6	configure terminal Example: Router# configure terminal	Enters the router configuration mode.	
Step 7	<pre>interface VirtualPortGroup number Example: Router(config)# interface VirtualPortGroup 1</pre>	To configure the installed service, you must first configure the VirtualPortGroup interfaces. Note You must configure two VirtualPortGroup interfaces. For example, Router(config) # interface VirtualPortGroup 1 Router(config) # interface VirtualPortGroup 2	

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	Command or Action	Purpose		
		The VirtualPortGroup forms a bridge and is configured a the default gateway between the installed VM and the hos router.		
Step 8	ip unnumbered <i>type number</i> Example:	 Enables IP processing on an interface without assigning an explicit IP address to that interface, where: type—Type of interface on which the router has an assigned IP address. number—Number of the interface and sub-interface on which the router has an assigned IP address. 		
	Router(config-if)# ip unnumbered GigabitEthernet 0/0/0			
		Note The unnumbered interface must be unique. It cannot be another unnumbered interface.		
Step 9	virtual-service service-name	Enters the virtual service in configuration mode.		
	<pre>Example: Router(config)# virtual-service cue</pre>	Note You need a minimum of 8 GB memory to configure the virtual-service commands.		
Step 10	vnic gateway VirtualPortGroup instance-number Example:	Associates the VirtualPortGroup interface with the virtua service.		
	Router(config-virt-serv)# vnic gateway VirtualPortGroup 1	Note VirtualPortGroup 1 is mapped to FastEthernet0 interface, and VirtualPortGroup 2 is mapped to FastEthernet1 interface of Cisco Unity Express Virtual. Hence, you must associate both the VirtualPortGroup interfaces with the virtual service in correct sequence for Cisco Unity Express Virtual 9.0.2 and later releases. For example,		
		virtual-service cue vnic gateway VirtualPortGroup 1 vnic gateway VirtualPortGroup 2		
Step 11	guest ip address vm ip-address	Allows you to specify ip address of the virtual machine.		
	Example:			
	<pre>Router(config-virt-serv-vnic)# guest ip address 10.65.125.155</pre>			
Step 12	end	Exits the virtual service configuration vnic mode.		
	Example:			
	Router(config-virt-serv-vnic)# end			
Step 13	configure terminal	Enters the router configuration mode.		
	Example:			
	Router# configure terminal			

	Command or Action	Purpose			
Step 14	ip route <i>vm-ip subnet mask VirtualPortGroup Interface</i> Example:		Allows you to add static IP route for the guest VM instance.		
	Router(config)# ip route 10.65.125.155 255.255.255.255 VirtualPortGroup1		tualPortGroup forms a bridge and a gateway the host router and the installed VM using this ip		
Step 15	virtual-service service-name	Enters the virtual-service configuration mode.			
	Example:				
	Router(config)# virtual-service cue				
Step 16	activate		Activates the virtual service.		
	Example:	Note	To view the service activation status, enter the show virtual-service list command after exiting from the virtual service configuration.		
	Router(config-virt-serv)# activate				
	<pre>% Activating virtual-service 'cue', this might take a few minutes. Use 'show virtual-service list' for progress.</pre>		nom the virtual service configuration.		
Step 17	virtual-service connect name service-name console		Allows you to connect to the virtual service. The		
	Example:		<i>service-name</i> is the same service name given in the		
	Router# virtual-service connect name cue console Connected to appliance. Exit using ^c^c^c	previous step.			

Deactivate and Uninstall Cisco Unity Express Virtual from KVM Service Containers

If you want to reinstall or uninstall the Cisco Unity Express Virtual virtual service from the KVM Service Container, you must to first deactivate the virtual service. To uninstall Cisco Unity Express virtual service, perform the following procedure:

SUMMARY STEPS

- 1. enable
- 2. configure terminal
- 3. virtual-service service-name
- 4. no activate
- 5. end
- 6. show virtual-service list
- 7. virtual-service uninstall name service-name
- 8. exit

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DETAILED STEPS

	Command or Action	Purpose		
Step 1	enable	Note We recommend you to unregister from smart		
	Example:	licensing server before uninstalling CUE.		
	Router# enable	Enters the privileged EXEC mode.		
Step 2	configure terminal	Enters the router configuration mode.		
	Example:			
	Router# configure terminal			
Step 3	virtual-service service-name	Enters the virtual-service configuration mode.		
	Example:			
	Router(config)# virtual-service cue			
Step 4	no activate	Deactivates the virtual service.		
	Example:			
	Router(config-virt-serv)# no activate			
Step 5	end	Exits the virtual service mode.		
	Example:			
	Router(config-virt-serv)# end			
Step 6	show virtual-service list	To view the service activation status, enter the show		
	Example:	virtual-service list command after exiting from the virtu service configuration.		
	Router# show virtual-service list			
	Virtual Service List: Name Status Package Name			
	cue Installed vCUE-10-0-0-ISR4K.ova			
Step 7	virtual-service uninstall name service-name	Enter this command to uninstall the virtual service.		
	Example:			
	Router# virtual-service uninstall name cue			
Step 8	exit	Exits the current mode.		
	Example:			
	Router# exit			

Upgrade Cisco Unity Express Virtual 9.0.6 to 10.0

Before you begin

• To upgrade the Cisco Unity Express Virtual from Release version 9.0.6 to 10.0, you must configure two virtual port group interfaces and associate both the interfaces to the virtual-service. For details on

configuration, see Install and Configure the Cisco Unity Express Virtual OVA on KVM Service Containers, on page 2.

- **Step 1** Log in to Cisco Unity Express Virtual.
- **Step 2** Deactivate the virtual service. For details on deactivating the virtual service, see Deactivate and Uninstall Cisco Unity Express Virtual from KVM Service Containers, on page 6.
- **Step 3** Use the **virtual-service upgrade** command in Privileged EXEC mode to upgrade the Cisco Unity Express Virtual from Release version 9.0.6 to 10.0.

Example:

Router# virtual-service upgrade name cue package bootflash:CUE-Virtual-10-0-0-ISR4K.ova

Example for Accessing and Configuring the Cisco Unity Express Virtual in Cisco 4000 Series Integrated Services Routers Service Container

When you access virtual-service for the first time, the system automatically launches the post installation configuration procedure, and asks you if you want to start configuration immediately.

Enter the appropriate response, **y** or **n**. If you enter **y**, the system asks you to confirm, then begin the interactive post installation configuration process.

If you enter **n**, the initial setup wizard is skipped, and you are prompted to enter the administrator user ID and password.

If you do not enter any input for two minutes, the initial setup wizard is skipped, and you are prompted to enter the IP address, netmask, and default gateway address.

The following is a sample configuration if \mathbf{y} is selected:

```
IMPORTANT::
IMPORTANT:: Welcome to Cisco Systems Service Engine
IMPORTANT:: post installation configuration tool.
IMPORTANT::
IMPORTANT:: This is a one time process which will guide
IMPORTANT:: you through initial setup of your Service Engine.
IMPORTANT :: Once run, this process will have configured
IMPORTANT:: the system for your location.
IMPORTANT::
IMPORTANT:: If you do not wish to continue, the system will be halted
IMPORTANT:: so it can be safely removed from the router.
IMPORTANT::
Do you wish to start configuration now (y,n)? y
Are you sure (y,n)? y
*****
* Service Engine IP configuration *
******
Please enter the IP address of your Module: 192.0.2.10
Please enter the netmask of your Module: 255.255.0.0
```

Please enter the default gateway for your Module: 192.0.2.20 The following IP configuration is set: IP : 192.0.2.10 NETMASK:255.255.0.0 GATEWAY: 255.255.0.0 Do you wish to use this configuration (y, n) [n]: y Enter Hostname (my-hostname, or enter to use Router): Enter Using Router as default Enter Domain Name (mydomain.com, or enter to use local domain): Enter Using localdoamin as default IMPORTANT:: DNS Configuration: TMPORTANT:: IMPORTANT:: This allows the entry of hostnames, for example foo.cisco.com, instead IMPORTANT:: of IP addresses like 1.123.45.678 for application configuration. In order IMPORTANT:: to set up DNS you must know the IP address of at least one of your IMPORTANT:: DNS Servers. Would you like to use DNS (y,n)?y Enter IP Address of the Primary DNS Server (IP address): 192.0.2.10 Found server 192.0.2.10 Enter IP Address of the Secondary DNS Server (other than Primary) (IP address, or enter to bypass): Enter Enter Fully Qualified Domain Name(FQDN: e.g. myhost.mydomain.com) or IP address of the Primary NTP server (FQDN or IP address, or enter for 192.0.2.10): demo.cisco.com Found server cantor.cisco.com Enter Fully Qualified Domain Name (FQDN: e.g. myhost.mydomain.com) or IP address of the Secondary NTP Server (FQDN or IP address, or enter to bypass): Enter Please identify a location so that time zone rules can be set correctly. Please select a continent or ocean. 1) Africa 4) Arctic Ocean 7) Australia 10) Pacific Ocean 2) Americas 5) Asia 8) Europe 3) Antarctica 6) Atlantic Ocean 9) Indian Ocean #? 2 Please select a country. 1) Anguilla 29) Honduras 2) Antigua & Barbuda 30) Jamaica 3) Argentina 31) Martinique 4) Aruba 32) Mexico 5) Bahamas 33) Montserrat 6) Barbados 32) Netherlands Antilles 7) Belize 34) Nicaragua 8) Bolivia 35) Panama 9) Brazil 36) Paraguay 10) Canada 37) Peru 11) Caribbean NL 38) Puerto Rico 12) Cayman Islands 39) St Barthelemy 13) Chile 40) St Kitts & Nevis 14) Colombia 41) St Lucia

15) Costa Rica 42) St Maarten (Dutch)

16) Cuba 43) St Martin (French) 17) Curacao 44) St Pierre & Miquelon 18) Dominica 45) St Vincent 19) Dominican Republic 46) Suriname 20) Ecuador 47) Trinidad & Tobago 21) El Salvador 48) Turks & Caicos Is 22) French Guiana 49) United States 23) Greenland 50) Uruguay 24) Grenada 51) Venezuela 25) Guadeloupe 52) Virgin Islands (UK) 26) Guatemala 53) Virgin Islands (US) 27) Guyana 28) Haiti #? 49 Please select one of the following time zone regions. 1) Eastern (most areas) 2) Eastern - MI (most areas) 3) Eastern - KY (Louisville area) 4) Eastern - KY (Wayne) 5) Eastern - IN (most areas) 6) Eastern - IN (Da, Du, K, Mn) 7) Eastern - IN (Pulaski) 8) Eastern - IN (Crawford) 9) Eastern - IN (Pike) 10) Eastern - IN (Switzerland) 11) Central (most areas) 12) Central - IN (Perry) 13) Central - IN (Starke) 14) Central - MI (Wisconsin border) 15) Central - ND (Oliver) 16) Central - ND (Morton rural) 17) Mountain (most areas) 18) Mountain - ID (south); OR (east) 19) Mountain Time - Navajo 20) MMST - Arizona (except navajo) 21) Pacific 22) Alaska (most areas) 23) Alaska - Juneau area 24) Alaska - Sitka area 25) Alaska - Annette Island 26) Alaska - Yakutat 27) Alaska (west) 28) Aleutian Islands 29) Hawaii #? 21 The following information has been given: United States Pacific Time Therefore TZ='America/Los Angeles' will be used. Is the above information OK? 1) Yes 2) No #? 1 Local time is now: Thu May 16 17:12:11 PDT 2019. Universal Time is now: Fri May 17 00:12:11 UTC 2019. No NTP servers configured. Would you like to manually adjust the system time (y,n)? n executing app post install Enter Call Agent 1) Cisco Unified Communications Manager (CUCM) 2) Cisco Unified Communications Manager Express (CUCME) -- default #? 2 Setting Call Agent to CUCME

executing app post install done postinstall2 - starting all the services Created symlink from /etc/systemd/system/multi-user.target.wants/tomcat.service to /usr/lib/systemd/system/tomcat.service. Created symlink from /etc/systemd/system/multi-user.target.wants/superthread.service to /usr/lib/systemd/system/superthread.service. Created symlink from /etc/systemd/system/multi-user.target.wants/wfengine.service to /usr/lib/systemd/system/wfengine.service. Created symlink from /etc/system/system/multi-user.target.wants/media ums.service to /usr/lib/systemd/system/media ums.service. Created symlink from /etc/systemd/system/multi-user.target.wants/smartagent.service to /usr/lib/systemd/system/smartagent.service. Created symlink from /etc/system/default.target.wants/monit.service to /usr/lib/systemd/system/monit.service. Created symlink from /etc/systemd/system/default.target.wants/monitEnableAll.service to /usr/lib/systemd/system/monitEnableAll.service. Removed symlink /etc/systemd/system/serial-getty@ttyS0.service. Created symlink from /etc/systemd/system/getty.target.wants/serial-getty@ttyS0.service to /usr/lib/systemd/system/serial-getty@.service. waiting for all services to come online ... 50 TMPORTANT:: IMPORTANT:: Administrator Account Creation IMPORTANT:: IMPORTANT:: Create an administrator account. IMPORTANT :: With this account, you can log in to the IMPORTANT:: Cisco Unity Express Virtual

IMPORTANT:: GUI and run the initialization wizard. IMPORTANT::

Enter administrator user ID: (user ID): test Enter password for test: (password): Confirm password for test by reentering it: (password):

SYSTEM ONLINE Router# show software versions Cisco Unity Express Virtual version (10.0.0) Components:

- CUE Voicemail Language Support version 10.0.0 - Netconf version 10.0.0

Router# show software packages

Installed Packages: - Installer (Installer application) (10.0) - Thirdparty (Service Engine Thirdparty Code) (10.0) - Infrastructure (Service Engine Infrastructure) (10.0) - Global (Global manifest) (10.0) - GPL Infrastructure (Service Engine GPL Infrastructure) (10.0) - Voice Mail (Voicemail application) (10.0) - Bootloader (Primary) (Service Engine Bootloader) (10.0) - Core (Service Engine OS Core) (10.0) - Auto Attendant (Service Engine Telephony Infrastructure) (10.0) Installed Plug-ins: - CUE Voicemail Language Support (Languages global pack) (10.0) Router-Module>

The following is a sample configuration if **n** is selected:

```
IMPORTANT::
IMPORTANT::
              Welcome to Cisco Systems Service Engine
IMPORTANT::
               post installation configuration tool.
IMPORTANT::
IMPORTANT:: This is a one time process which will guide
IMPORTANT :: you through initial setup of your Service Engine.
IMPORTANT :: Once run, this process will have configured
IMPORTANT:: the system for your location.
IMPORTANT::
IMPORTANT:: If you do not wish to continue, initial setup will be skipped
IMPORTANT:: and you need to manually configure the system
IMPORTANT::
Do you wish to start configuration now (y,n)? n
Autoconfig: Skipping post install...
executing app post_install
Skipping product specific post install... defaulting values
Setting Call Agent to CUCME
executing app post install done
Creating Postgres database .... done.
INIT: Switching to runlevel: 4
INIT: Sending processes the TERM signal
STARTED: ntp startup.sh
STARTED: LDAP startup.sh
STARTED: SQL startup.sh
STARTED: dwnldr startup.sh
STARTED: HTTP_startup.sh
STARTED: probe
STARTED: fndn udins wrapper
STARTED: superthread startup.sh
STARTED: /usr/wfavvid/run-wfengine.sh
STARTED: /usr/bin/launch ums.sh
STARTED: /bin/products/cue/nesla licensing.sh
Waiting 49 ...
IMPORTANT::
TMPORTANT::
                   Administrator Account Creation
TMPORTANT::
IMPORTANT :: Create an administrator account. With this account,
IMPORTANT:: you can log in to the Cisco Unity Express GUI and
IMPORTANT:: run the initialization wizard.
TMPORTANT::
Enter administrator user ID:
 (user ID): admin
Enter password for admin:
 (password):
Confirm password for admin by reentering it:
  (password):
(INIT) se-0-0-0#
(INIT) se-0-0-0#
INIT) se-0-0-0-0#
(INIT) se-0-0-0-0# conf t
Enter configuration commands, one per line. End with CNTL/Z.
(INIT) se-0-0-0(config) # inter
```

```
(INIT) se-0-0-0(config) # interface Fast
(INIT)se-0-0-0(config) # interface FastEthernet 0
(INIT) se-0-0-0(config-interface) # ip add
(INIT) se-0-0-0(config-interface) # ip address 192.0.2.35 255.255.0.0
(INIT)se-0-0-0(config-interface) # exit
(INIT) se-0-0-0(config) # def
(INIT)se-0-0-0(config)# default gat
(INIT)se-0-0-0(config)# ip de
(INIT)se-0-0-0(config) # ip default-gateway 192.0.2.36
(INIT) se-0-0-0(config) # end
SYSTEM ONLINE
se-0-0-0-0# conf t
Enter configuration commands, one per line. End with \ensuremath{\texttt{CNTL}/\texttt{Z}} .
se-0-0-0(config) # hostn
se-0-0-0(config) # hostname se-192.0.2.35
se-192-0-2-35(config) # end
se-192-0-2-35# wr
se-192-0-2-35#
```

Cisco Unity Express Virtual Software Support on Cisco 4000 Series Integrated Services Routers KVM Service Containers Example for Accessing and Configuring the Cisco Unity Express Virtual in Cisco 4000 Series Integrated Services Routers Service Container

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