

VRF Support

Virtual Route Forwarding (VRF) divides a physical router into multiple logical routers, each having its own set of interfaces and routing and forwarding tables. VRF support in voice networks can be used to split Cisco Unified Communications Manager Express (Cisco Unified CME) into multiple virtual systems for SIP and SCCP endpoints and TAPI-based client applications and softphones on your PC.

- Prerequisites for Configuring VRF Support, on page 1
- Restrictions for Configuring VRF Support, on page 3
- Information About VRF Support, on page 4
- Configure VRF Support, on page 5
- Configuration Examples for Configuring VRF Support, on page 13
- Feature Information for VRF Support, on page 20

Prerequisites for Configuring VRF Support

- For Multi-VRF support on SIP phones, Cisco Unified CME version has to be 10.5 and later.
- For Multi-VRF support on SCCP phones, Cisco Unified CME 7.0(1) or a later version must be configured on the Cisco router.
- VRF-Aware H.323 and SIP must be configured on the Cisco Unified CME router, including the following:
  - Up to five VRFs must be configured on the Cisco Unified CME router by using the **ip vrf** command. For configuration information, see VRF-Aware H.323 and SIP for Voice Gateways.
  - One of the groups must be designated as a global voice VRF (SIP Trunk) by using the**voice vrf** command. For configuration information, see VRF-Aware H.323 and SIP for Voice Gateways.

    Example:

```
voice vrf voice-vrf
ip vrf data-vrf1
 rd 801:1
 route-target export 801:1
 route-target import 1000:1
!
ip vrf data-vrf2
 rd 802:1
 route-target export 802:1
 route-target import 1000:1
!
```

```
ip vrf voice-vrf
 rd 1000:1
 route-target export 1000:1
 route-target import 801:1
 route-target import 802:1
!
```

- Interfaces on the router must be configured for the VRFs by using the **ip vrf forwarding** command.



Note Only global voice VRF is supported for SIP trunk.

Example:

```
interface GigabitEthernet0/0.301
 encapsulation dot1Q 301
 ip vrf forwarding data-vrf1
 ip address 10.1.10.1 255.255.255.0
!
interface GigabitEthernet0/0.302
 encapsulation dot1Q 302
 ip vrf forwarding data-vrf1
 ip address 10.2.10.1 255.255.255.0
!
interface GigabitEthernet0/0.303
 encapsulation dot1Q 303
 ip vrf forwarding voice-vrf
 ip address 10.3.10.1 255.255.255.0
```

- VRFs must be mapped to IP addresses using DHCP. For configuration information, see DHCP Service.

  Example:

```
!<=== no ip dhcp command required only if "ip vrf forward" is specified under ip dhcp
no ip dhcp use vrf connected pool===>
!<=== Associate subnets with VRFs. Overlapping IP addresses are NOT supported.===>
ip dhcp pool vcme1
   network 10.1.10.0 255.255.255.0
   default-router 10.1.10.1
   option 150 ip 10.1.10.1
   class vcme1
      address range 10.1.10.10 10.1.10.250
!
ip dhcp pool vcme2
   network 10.2.10.0 255.255.255.0
   default-router 10.2.10.1
   option 150 ip 10.2.10.1
   class vcme2
      address range 10.2.10.10 10.2.10.250
```

  For more configuration examples, see Example for Mapping IP Address Ranges to VRF Using DHCP, on page 13.

- Dial peers for H323 and SIP trucks must be routed through the global voice VRF.



Note Dial peers are global resources belonging to the voice VRF and shared with and accessible from any VRF. There is no need to configure a dial peer for each individual VRF.

Restrictions for Configuring VRF Support

- Multi-VRF is not supported on Cisco 4000 Series Integrated Services Routers for Unified CME.
- For SIP phones in Cisco Unified CME: SIP proxy and registrar must be in the same VRF.
- IP-address overlap between VRFs is not supported.
- Cross-VRF video is not supported.
- The following call types are not supported for a voice VRF:
  - IP-to-IP gateway and gatekeeper configured on the same router.
  - IP-to-IP gateway with a VRF configured on one call leg and not on another call leg.
  - IP-to-IP gateway with one VRF configured for the H.323 call leg and a different VRF configured for the SIP call leg.
  - For H.323 calls, only TCP is supported. H.323 UDP signaling is not supported. SIP calls support both TCP and UDP signaling.
- The following features are not supported by on a VRF:
  - Call-fallback and RSVP features.
  - H.323 Annex E calls.
  - AAA and DNS components in voice-capable access routers. These routers communicate with AAA and DNS using the default routing table.
- If a global voice VRF is not configured, signaling and media packets are sent using the default routing table.
- Only the global voice VRF is supported for SIP trunk.
- Cisco Unity Express on the Cisco Unified CME router must belong to the global voice VRF.
- For Unified SIP CME, secondary source-address can’t be configured under a VRF group. Hence, redundancy isn’t supported under a VRF group.

Note Telnet is used to access Cisco Unity Express on the global voice VRF because the Service-Engine Service-Engine 1/0 session command is for non-VRF aware Cisco Unified CME only. To access the Cisco Unity Express module for defining voice-mail users on global voice VRF, telnet through the global voice VRF. For example: telnet 10.10.10.5 2066 /vrf vrf. For more information, see the *"Installing Cisco Unity Express Software"* chapter in the appropriate Cisco Unity Express Administrator Guide for Cisco Unified CME.

Information About VRF Support

VRF-Aware Cisco Unified CME

VRF implementations enable you to consolidate voice communication into one logically-partitioned network to separate voice and data communication on a converged multimedia network.

VRF-Aware Cisco Unified CME for SCCP Phones

In Cisco Unified CME 7.0(1) and later versions, VRF in voice networks can be used to share a Cisco Unified CME among multiple closed-users groups with different requirements. The actual call processing rules can be applied by voice on a per VRF basis. A virtual Cisco Unified CME on each VRF is a collection of phones in VRF groups that register in Cisco Unified CME through the VRF. All SCCP and SIP phones connected to Cisco Unified CME register through the global voice VRF. TAPI-based client applications and softphones on a PC must register through a data VRF and can communicate with phones on the voice VRF.

VRF Support on Cisco Unified CME provides the following enhancements to the VRF-Aware H.323 and SIP for Voice Gateways feature:

- Line side support for up to 5 VRFs.
- Interworks with the global voice VRF on an H323 or SIP Trunk.
- Line side VRF can be a global voice VRF.
- VRFs are assigned on a per-phone level.
- Support for cross-VRF shared-lines.

For configuration information, see Configure VRF Support, on page 5.

Multi-VRF Support on Cisco Unified CME for SIP Phones

The Multi-VRF support on Cisco Unified CME for SIP Phones, provides the following enhancements:

- Up to five VRF groups can be configured on SIP line side under voice register global.
- Under voice register pool, we can configure a VRF group to which the phone is associated with.
- All SIP signaling and media traffic between CME and the phones would be routed on the specified VRF.

Configure VRF Support

Create VRF Groups for SCCP Phones

To configure up to five VRF groups for users and phones in Cisco Unified CME, perform the following steps for each group to be configured.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **telephony-service**
4. **group** *group-tag* [**vrf** vrf*name*]
5. **ip source-address** *ip-address* [**port** *port*]
6. **url** {**authentication** | **directories** | **idle** | **information** | **messages** | **proxy-server** | **services**} *url*
7. **service phone webAccess 0**
8. **end**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**telephony-service** **Example:** `Router(config)# telephony-service`	Enters telephony-service configuration mode.
Step 4	**group** *group-tag* [**vrf** vrf*name*] **Example:** `Router(config-telephony)# group 1`	Creates a VRF group for Cisco Unified CME users and phones. • *group-tag*—Unique identifier for VRF group being configured. Range: 1 to 5. • (Optional) **vrf** *vrfname*—Name of previously configured VRF to which this group is associated.

	Command or Action	Purpose
		• By default, VRF groups are associated with a global voice VRF unless otherwise specified by using the **vrf***vrfname* keyword and argument combination.
Step 5	**ip source-address** *ip-address* [**port** *port*] **Example:** `Router(conf-tele-group)# ip source-address 10.1.10.1 port 2000`	Associates VRF group with Cisco Unified CME. • *ip address* and **port** through which Cisco Unified IP phones communicate with Cisco Unified CME.
Step 6	**url** {**authentication** | **directories** |**idle** | **information** | **messages** | **proxy-server** |**services**} *url* **Example:** `Router(conf-tele-group)# url directories http://10.1.10.1/localdirectory`	Provisions uniform resource locators (URLs) for Cisco Unified IP phones connected to Cisco Unified CME.
Step 7	**service phone webAccess 0** **Example:** `Router(conf-tele-group)# service phone webAccess 0`	Enables webAccess for IP phones. This is required for 9.x firmware, since the web server is disabled by default. 8.x firmware and lower had the web server enabled by default.
Step 8	**end** **Example:** `Router(conf-tele-group)# end`	Returns to privileged EXEC mode.

Examples

The following partial output from the **show running-config** commands shows how to define three VRF groups for Cisco Unified CME. Group 1 is on the global voice VRF and the other two groups are on data VRFs.

```
telephony-service
 sdspfarm conference mute-on # mute-off #
 sdspfarm units 4
 sdspfarm transcode sessions 10
 sdspfarm tag 1 xcode101
 sdspfarm tag 2 conf103
 group  1
  ip source-address 10.1.10.1 port 2000
  url directories http://10.1.10.1/localdirectory
 !
 group  2 vrf data-vrf1
  ip source-address 10.2.10.1 port 2000
 !
 group  3 vrf data-vrf2
  ip source-address 10.3.10.1 port 2000
```

Create VRF Groups for SIP Phones

In Cisco Unified CME 10.5 release the VRF support for SIP phones is added. Up to five VRF groups can be configured on SIP line side under voice register global. Under voice register pool, we can configure VRF group to which the phone is associated with. To configure VRF support, perform the following steps:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice register global**
4. **group** *group-tag* [**vrf** *vrfname*]
5. **source-address** *ip-address*
6. **url** {**authentication** | **directory** | **service**} *url*
7. **exit**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**voice register global** **Example:** `Router(config)# voice register global`	Enters voice register global configuration mode.
Step 4	**group** *group-tag* [**vrf** *vrfname*] **Example:** `Router(config-register-global)# group 1`	Creates a VRF group for Cisco Unified CME users and phones. • *group-tag*—Unique identifier for VRF group being configured. Range: 1 to 5. • (Optional) **vrf** *vrfname*—Name of previously configured VRF to which this group is associated. • By default, this group is not associated with any VRF unless otherwise specified by using the **vrf** *vrfname* keyword and argument combination. • Defines unique identifiers group between 1 to 5, which can then be applied on individual pools. **Note**

	Command or Action	Purpose
		Use the shutdown command to temporarily shutdown the group without effecting the other groups. Use the no form of the command to enable the group. • The default behavior is no shut.
Step 5	**source-address** *ip-address* **Example:** `Router(config-voice-register-group)# source-address 10.1.10.1`	Associates VRF group with Cisco Unified CME. • *ip address* through which Cisco Unified IP phones communicate with Cisco Unified CME.
Step 6	**url** {**authentication** | **directory** | **service**} *url* **Example:** `Router(config-voice-register-group)# url directory http://10.1.10.1/localdirectory`	Provisions uniform resource locators (URLs) for Cisco Unified IP phones connected to Cisco Unified CME.
Step 7	**exit** **Example:** `Router(config-voice-register-group)# exit`	Exits to privileged EXEC mode.

Examples

The following sample output displays how to configure SIP CME support for VRF by provisioning its source address under a group:

```
voice register global or
voice register dn
or
voice register pool
 mode  cme
 max-dn 100
 max-pool 100

 group 1 vrf voice-vrf1
  source-address 8.0.0.1
```

Add Cisco Unified CME SCCP Phones to a VRF Group

To add an SCCP Cisco Unified IP phone, TAPI-based client, or softphone in Cisco Unified CME to a VRF group, perform the following steps for each phone to be added.

Restriction

- All SCCP phones in Cisco Unified CME must register through the global voice VRF and must be added to the VRF group on the global voice VRF only.
- Analog phones connected to FXS ports on a IOS gateway must register through the global voice VRF and must be added to the VRF group on the global voice VRF only.
- TAPI-based client applications and softphones on a PC must register through the data VRF and must be added to a VRF group on a data VRF only.
- VRF groups do not support identical IP addresses or shared lines.

Before you begin

- All ephone configurations to be included in a VRF group must be already configured in Cisco Unified CME. For configuration information, see Configure Phones to Make Basic Call.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ephone** *phone-tag*
4. **description** *string*
5. **mac-address** [*mac-address*]
6. **group phone** *group-tag* [**tapi** *group-tag*]
7. **end**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**ephone** *phone-tag* **Example:** `Router(config)# ephone 11`	Enters ephone configuration mode for a Cisco Unified IP phone.
Step 4	**description** *string* **Example:**	(Optional) Includes descriptive text about the interface.

	Command or Action	Purpose
	`Router(config-ephone)# description cme-2801 srst`	
Step 5	**mac-address** [*mac-address*] **Example:** `Router(config-ephone)# mac-address 0012.8055.d2EE`	Associates the MAC address of a Cisco Unified IP phone with an ephone configuration.
Step 6	**group phone** *group-tag* [**tapi** *group-tag*] **Example:** `Router(config-ephone)# group phone 1`	Adds a phone, TAPI-based client, or softphone to a VRF group. • *group-tag*—Unique identifier for VRF group that was previously configured by using the **group** command in telephony-service configuration mode. Range: 1 to 5. • This command can also be configured in ephone-template configuration mode and applied to one or more phones. The ephone configuration has priority over the ephone-template configuration.
Step 7	**end** **Example:** `Router(config-ephone)# end`	Returns to privileged EXEC mode.

Examples

The following example shows how to add phones to VRF groups. Phones 1 and 3 are in VRF group 1 on the global voice VRF. Phone 1 TAPI client and softphone 3 are in group 1 on the data-vrf2. Phone 3 TAPI client and softphone 4 are in group 3 on data-vrf 2.

```
telephony-service
 sdspfarm conference mute-on # mute-off #
 sdspfarm units 4
 sdspfarm transcode sessions 10
 sdspfarm tag 1 xcode101
 sdspfarm tag 2 conf103
 group  1 vrf voice-vrf
  ip source-address 10.1.10.1 port 2000
  url directories http://10.1.10.1/localdirectory
 !
 group  2 vrf data-vrf1
  ip source-address 10.2.10.1 port 2000
 !
group  3 vrf data-vrf2
  ip source-address 10.3.10.1 port 2000
 !
.
.
ephone-template 1
 group phone 1 tapi 2
ephone-template 2
 group phone 2
...
ephone 1
 ephone-template 1
```

```
ephone 2
 ephone-template 2
ephone 3
 group phone 1 tapi 3
ephone 4
 group phone 3
ephone  201
 group phone 1
 type anl
```

Add Cisco Unified CME SIP Phones to a VRF Group

To add an SIP Cisco Unified IP phone, or softphone in Cisco Unified CME to a VRF group, perform the following steps for each phone to be added.

Before you begin

- All voice register pool configurations to be included in a VRF group must be already configured in Cisco Unified CME. For configuration information, see Configure Phones to Make Basic Call.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice register pool** *pool-tag*
4. **id mac** [*mac-address*]
5. **group** *group-tag*
6. **end**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**voice register pool** *pool-tag* **Example:** `Router(config-register-pool)# group`	Enters voice reigster pool configuration mode for a Cisco Unified IP phone.

	Command or Action	Purpose
Step 4	**id mac** [*mac-address*] **Example:** `Router(config-regoster-pool)# id mac 0012.8055.d2EE`	Associates the MAC address of a Cisco Unified IP phone with an voice register pool configuration.
Step 5	**group** *group-tag* **Example:** `Router(config-register pool)# group 1`	Adds a phone, or softphone to a VRF group. • *group-tag*—Unique identifier for VRF group that was previously configured by using the **group** command in voice register global configuration mode. Range: 1 to 5.
Step 6	**end** **Example:** `Router(config-register-pool)# end`	Returns to privileged EXEC mode.

Examples

The following example shows how to add SIP phones to VRF groups.

```
voice register global
   mode  cme
   max-dn 100
   max-pool 100
   authenticate realm ccmsipline
   voicemail 24001
   phone-mode phone-only
   tftp-path flash:
   create profile sync 0000443960010126
   conference hardware
   group 1 vrf voice-vrf1
    source-address 8.0.0.1
   !
   group 2 vrf data-vrf1
    url authentication http://7.0.0.1/CCMCIP/authenticate.asp
    source-address 7.0.0.1
   !
   group 3 vrf data-vrf1
    source-address 10.104.45.142
   !
   group 4 vrf voice-vrf1
    source-address 9.42.29.101
   !
  !
  voice register pool  1
   id mac A40C.C395.7B5C
   session-transport tcp
   type 9971
   number 1 dn 1
   group 1
   template 1
   dtmf-relay rtp-nte
   username 14001 password 14001
   codec g711ulaw
   paging-dn 99
  !
```

Configuration Examples for Configuring VRF Support

Example for Mapping IP Address Ranges to VRF Using DHCP

Note Duplicate IP addresses, with or without specifying a VRF, are not supported in Cisco Unified CME 7.0(1).

There are three ways to assign DHCP addresses: global address allocation; VRF pool; or individual host

With a global address allocation scheme, you must use the **no ip dhcp use vrf connected** command.

```
no ip dhcp use vrf connected
!
ip dhcp pool vcme1
   network 209.165.201.10 255.255.255.224
   option 150 ip 209.165.201.9
   default-router 209.165.201.9
   class vcme1
      address range 209.165.201.1 209.165.201.30
!
```

The following example shows how to assign addresses from VRF pool vcme1.

```
ip dhcp use vrf connected
!
ip dhcp pool vcme1
   vrf data-vrf1
   network 209.165.201.10 255.255.255.224
   option 150 ip 209.165.201.9
   default-router 209.165.201.9
   class vcme1
      address range 209.165.201.1 209.165.201.30
!
```

The following example show how to assign an address by an individual host. You must replace the first two hexadecimal digits of a host MAC address with **01**.

```
ip dhcp pool phone3
   host 209.165.201.15 255.255.255.224
   client-identifier 0100.0ed7.4ce6.3d
   default-router 209.165.201.11
   option 150 ip 209.165.201.11
!
```

Example for Configuring VRF-Aware Hardware Conferencing

Hardware Conferencing with Internal DSP Farm

- The internal DSPFarm must be registered through a local loopback interface.
- The loopback allows Cisco Unified CME to access the media path in global routing table.

The boldface commands in the following configuration example show that the signaling and media paths are accessed through the global routing table and the loopback interface is in default routing table.

```
interface Loopback5
   ip address 12.5.10.1 255.255.255.255
 !
 sccp local Loopback5
 sccp ccm 12.5.10.1 identifier 2 version 4.1
 sccp
 !
 sccp ccm group 2
  bind interface Loopback5
  associate ccm 2 priority 1
  associate profile 103 register conf103
  associate profile 101 register xcode101
 !
 telephony-service
  sdspfarm conference mute-on # mute-off #
  sdspfarm units 4
  sdspfarm transcode sessions 10
  sdspfarm tag 1 xcode101
  sdspfarm tag 2 conf103
  group  1 vrf vrf1
  ip source-address 10.1.10.1 port 2000
 !
  group  2 vrf vrf2
   ip source-address 10.2.10.1 port 2000
 !
 group  3 vrf vrf3
   ip source-address 10.3.10.1 port 2000
 !
 group  4 vrf vrf4
   ip source-address 10.4.10.1 port 2000
 !
  group  5
   ip source-address 12.5.10.1 port 2000
 !
 conference hardware
 max-ephones 240
 max-dn 480
 voicemail 7710
 max-conferences 8 gain -6
```

Hardware Conferencing with External DSP Farm

- Configure DSP farm as usual on a Cisco router.
- The external DSP farm must be registered to Cisco Unified CME through the interface or subinterface assigned to the global voice VRF. Make sure the connection path is coming in through the voice VRF.
- The router on which the external DSP farm is configured does not have to be VRF-aware.

For information about configuring DSP Farms, see Configure Transcoding Resources.

Example for Configuring Cisco Unity Express on Global Voice VRF

```
voice vrf vrf2
 ip vrf data-vrf2
```

```
     rd 100:2
     route-target export 100:2
     route-target import 100:2
    !
    Interface loop back 0
    ip vrf forwarding data-vrf2
    Ip address 21.10.10.2
    !<==The following config puts CUE in the voice vrf. Service-engine interface and
service-module must have an IP address.===>
    !
    interface Service-Engine1/0
     ip vrf forwarding voice-vrf3 ip address 21.10.10.5 255.255.255.0
     service-module ip address 21.10.10.6 255.255.255.0
     service-module ip default-gateway 21.10.10.2!
     ip route 21.10.10.6 255.255.255.255 Service-Engine1/0
    …
    line 66
    no activation-character
```

Hardware Conferencing with Internal DSP Farm

- The internal DSPFarm must be registered through a local loopback interface.
- The loopback allows Cisco Unified CME to access the media path in global routing table.

The boldface commands in the following configuration example show that the signaling and media paths are accessed through the global routing table and the loopback interface is in default routing table.

```
    interface Loopback5
     ip address 12.5.10.1 255.255.255.255
    !
    sccp local Loopback5
    sccp ccm 12.5.10.1 identifier 2 version 4.1
    sccp
    !
    sccp ccm group 2
     bind interface Loopback5
     associate ccm 2 priority 1
     associate profile 103 register conf103
     associate profile 101 register xcode101
    !
    telephony-service
     sdspfarm conference mute-on # mute-off #
     sdspfarm units 4
     sdspfarm transcode sessions 10
     sdspfarm tag 1 xcode101
     sdspfarm tag 2 conf103
     group  1 vrf vrf1
      ip source-address 10.1.10.1 port 2000
    !
     group  2 vrf vrf2
      ip source-address 10.2.10.1 port 2000
    !
    group  3 vrf vrf3
      ip source-address 10.3.10.1 port 2000
    !
    group  4 vrf vrf4
      ip source-address 10.4.10.1 port 2000
    !
     group  5
     ip source-address 12.5.10.1 port 2000
    !
```

```
 conference hardware
 max-ephones 240
 max-dn 480
 voicemail 7710
 max-conferences 8 gain -6
```

Hardware Conferencing with External DSP Farm

- Configure DSP farm as usual on a Cisco router.
- The external DSP farm must be registered to Cisco Unified CME through the interface or subinterface assigned to the global voice VRF. Make sure the connection path is coming in through the voice VRF.
- The router on which the external DSP farm is configured does not have to be VRF-aware.

For information about configuring DSP Farms, see Configure Transcoding Resources.

Example for Configuring Multi- VRF Support for Cisco Unified CME SIP Phones

The following sample output displays CME configuration which enables the user to accept registrations from multiple VRFs.

```
voice register global
 mode  cme
 max-dn 100
 max-pool 100
 authenticate realm ccmsipline
 voicemail 24001
 phone-mode phone-only
 tftp-path flash:
 create profile sync 0000443960010126
 conference hardware
 group 1 vrf voice-vrf1
  source-address 8.0.0.1
 !
 group 2 vrf data-vrf1
  url authentication http://7.0.0.1/CCMCIP/authenticate.asp
  source-address 7.0.0.1
 !
 group 3 vrf data-vrf1
  source-address 10.104.45.142
 !
 group 4 vrf voice-vrf1
  source-address 9.42.29.101
 !
!
voice register dn  1
 number 14001
 name voicevrf-ph1
!
voice register dn  2
 number 14002
 allow watch
 name datavrf-ph1
!
voice register dn  3
 number 14003
 allow watch
 name voicevrf-ph2
!
```

```
voice register dn  4
 voice-hunt-groups login
 number 14004
 name Jabber-Win
!
voice register dn  5
 number 14005
 name Jabber-Android
!
voice register dn  6
 number 14006
 allow watch
 mobility
 snr 24001 delay 5 timeout 50
!
voice register dn  7
 number 14007
 name voicevrf-7841
!
voice register dn  8
 number 14008
 name jabbed-android-2
!
voice register dn  10
 number 14010
 allow watch
 name intervrf-shared-line
 shared-line max-calls 8
!
voice register dn  11
 number 14011
 shared-line
!
voice register dn  12
 number 15002
 name em-logged-in
!
voice register dn  21
 number 1101
 name CME1-Phone1
!
voice register dn  22
 number 1102
 name CME1-Phone2
!
voice register template  1
 softkeys idle  Newcall Pickup Redial Cfwdall DND
 softkeys ringIn  Answer DND iDivert
 softkeys connected  Endcall Hold Mobility iDivert Park
!
voice register pool  1
 id mac A40C.C395.7B5C
 session-transport tcp
 type 9971
 number 1 dn 1
 group 1
 template 1
 dtmf-relay rtp-nte
 username 14001 password 14001
 codec g711ulaw
 paging-dn 99
!
voice register pool  2
 fastdial 1 14003 name voice-vrf1-ph1
```

```
 id mac ACA0.16FC.9742
 type 9971
 number 1 dn 2
 number 2 dn 10
 group 2
 template 1
 presence call-list
 dtmf-relay rtp-nte
 codec g711ulaw
 paging-dn 99
 blf-speed-dial 1 13001 label "13001"
 blf-speed-dial 2 14006 label "14006"
!
voice register pool  3
 fastdial 1 14002 name datavrf,ph1
 id mac 2893.FEA3.2557
 type 9951
 number 1 dn 3
 number 2 dn 10
 group 1
 template 1
 dtmf-relay rtp-nte
 username 14003 password 14003
 codec g711ulaw
 blf-speed-dial 1 14002 label "14002"
 blf-speed-dial 2 14006 label "14006"
 blf-speed-dial 3 13001 label "13001"
!
voice register pool  4
 id device-id-name arunsrin
 type Jabber-CSF-Client
 number 1 dn 4
 group 3
 dtmf-relay rtp-nte
 username arunsrin password cisco
 codec g711ulaw
!
voice register pool  5
 registration-timer max 720 min 660
 id mac 980C.821B.26CD
 session-transport tcp
 type Jabber-Android
 number 1 dn 5
 group 3
 dtmf-relay rtp-nte
 username frodo password cisco
 codec g711ulaw
!
voice register pool  6
 busy-trigger-per-button 40
 id mac 6C41.6A36.900D
 type 7821
 number 1 dn 6
 group 1
 template 1
 presence call-list
 dtmf-relay rtp-nte
 codec g711ulaw
 paging-dn 99
!
voice register pool  7
 busy-trigger-per-button 40
 id mac 6C41.6A36.9110
 session-transport tcp
```

```
 type 7841
 number 1 dn 7
 group 2
 dtmf-relay rtp-nte
 codec g711ulaw
 paging-dn 99
!
voice register pool  8
 registration-timer max 720 min 660
 id mac 980C.821A.5D28
 session-transport tcp
 type Jabber-Android
 number 1 dn 8
 group 3
 dtmf-relay rtp-nte
 username pippin password cisco
 codec g711ulaw
!
voice register pool  21
 id mac 1000.1000.1101
 type 7970
 number 1 dn 21
 group 4
 username 1101 password 1101
 codec g711ulaw
!
voice register pool  22
 id mac 1000.1000.1102
 type 7970
 number 1 dn 21
 group 4
 username 1102 password 1102
 codec g711ulaw
!
voice hunt-group 1 parallel
 phone-display
 final 13002
 list 14001,14002,14003
 timeout 3
 pilot 14999
!
!
voice hunt-group 2 parallel
 final 14001
 list 14004,*,14002
 timeout 5
 pilot 14998
 name test-vhg
!
!
voice logout-profile 1
 pin 1234
 user 14002 password 14002
 number 14002 type normal
 speed-dial 1 13002 label "ephone2"
!
voice user-profile 1
 user me password me
 number 15002 type normal
!
!
!
voice translation-rule 217351
 rule 1 /^24/ /9924\1/
```

```
!
!
voice translation-profile 217351
```

Feature Information for VRF Support

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to https://cfnng.cisco.com/. An account on Cisco.com is not required.

Table 1: Feature Information for Virtual Route Forwarding

Feature Name	Cisco Unified CME Version	Feature Information
VRF Support in Cisco Unified CME	7.0(1)	VRF supports Cisco Unified CME, conferencing, transcoding, and RSVP components. VRF also allows soft phones in data VRF resources to communicate with phones in a VRF voice gateway.