For more information on troubleshooting Cisco Intercompany Media Engine, click here.

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Verifying Connectivity

The Cisco Unified Communications Manager server and the Cisco Intercompany Media Engine (Cisco IME) server communicate using the Validation Access Protocol (VAP). Without the communication between the servers, Cisco Unified Communications Manager cannot learn Cisco IME routes, and users cannot make Cisco IME calls. To determine if the VAP connection exists, you must verify that the Cisco Unified Communications Manager server registers with the Cisco IME server and that the Cisco Unified Communications Manager server has published Vservices with the Cisco IME server.

See the following sections:

- Registration Status
- Vservice Publication
- DID Publication

Registration Status

You can monitor the status of the connection between the Cisco Unified Communications Manager server and the Cisco IME server using one of the following methods. After you verify the registration status, you can continue to verify connectivity between the Cisco Unified Communications Manager server and the Cisco IME server by verifying that the Cisco Unified Communications Manager server has published the Cisco IME service (or Vservice) to the Cisco IME server. as described in Vservice Publication.

From the CLI

From the Cisco Intercompany Media Engine CLI, enter the following command:

```
show ime vapstatus summary
```

This command displays the registration status for the client specified by port number. Make sure that the Registration Status equals *Registered* and the Client IP ADDR equals the IP address of the Cisco Unified Communications Manager server.

The following example shows the output of the show ime vapstatus summary command in which the Cisco Unified Communications Manager registered with the Cisco IME server:

```
admin:show ime vapstatus summary
VAP Client Connection Details
```

```
Registration Status ..... Registered
Client IP ADDR..... 10.94.150.96
Client Handle ..... 1
Packets Sent ..... 106
Packets Rcvd ..... 106
VAPServer Name ..... vapuser
Missed Keep Alive Count .. 0
Connection Up Time ..... 3 hours 7 min 0 sec
```

From RTMT

Access the Cisco Unified Communications Manager server using RTMT, and choose the following menu and counter:

System > Performance > Open Performance Monitoring > IME Client Instance > VAPStatus

If a connection between the Cisco IME server and Cisco Unified Communications Manager server exists, the counter should equal 1 (healthy). The valid values equal: 0=unknown; 1=healthy; 2=unhealthy.

Note: This counter monitors connections to primary and secondary Cisco IME servers.

Vservice Publication

Once you have verified the registration status of the Cisco Unified Communications Manager server to the Cisco IME server, you can continue to verify the connectivity between servers by verifying that the Cisco Unified Communications Manager server has published the Cisco IME service (or Vservice) to the Cisco IME server.

Cisco Unified Communications Manager publishes the Vservice after you check the Activated check box in the Intercompany Media Service Configuration window (**Advanced Features > Intercompany Media Services > Service**.)

Published Vservices indicate that an active service exists on the Cisco Unified Communications Manager and that it has connectivity into the Cisco IME server.

To verify Vservice publication, enter the **show ime vservice details** command on the Cisco Intercompany Media Engine command line.

The following example shows the output of the command in which Cisco Unified Communications Manager has published a Vservice. The VServiceProfiles field matches the Cisco IME service name that you entered in the Intercompany Media Service Configuration window.

```
admin: show ime vservice details
VServiceProfiles: Vservice12-ccm18
VServiceId = 3834353762636435
overlay = intercompanymedianetwork
domain = cisco.com
DiDCount (max) = 100
SIPURI =
sip:d954c46b-51b4-ea2d-cda4-8a20134279f6@cisco.com:5082;maddr=10.94.150.96;transport=tcp
```

DID Publication

After you confirm connectivity between the Cisco Unified Communications Manager and the Cisco IME servers, you can verify that the Cisco IME server has published the enrolled patterns or DIDs to the IME distributed cache. Use the following methods to verify DID publication:

From the CLI

From the Cisco Intercompany Media Engine CLI, enter the following command:

utils ime fetch did *E.164 number*

The command output shows whether the Cisco IME server published DIDs to the IME distributed cache and which node owns the number.

Cisco IME RTMT

Access the Cisco Unified Communications Manager server using RTMT, and choose the following menu and counter:

System > Performance > Open Performance Monitoring > IME Client Instance > PublishedRoutes

This counter indicates the total number of DIDs published successfully into the IME distributed cache across all Cisco IME client instances.

Verifying Configuration

In order for the Cisco Intercompany Media Engine feature to work, certain values on the Cisco Intercompany Media Engine server and the Cisco Unified Communications Manager must match. If you experience connectivity issues, make sure that the IP address, port, application user, and security modes match on both servers.

Use the following procedure:

Procedure

1. Verify IP address, port, application user, and security modes on both servers. On the Cisco Unified Communications Manager server, display the Intercompany Media Engine Server Connection Configuration window (**Advanced Features > Intercompany Media Services > Server Connections**). Note the values in the IP Address, Port, and Server Security Mode fields.
2. On the Cisco Intercompany Media Engine server command line, enter **show ime vapserver all** to display the port number and authentication mode, and compare the values to those that you entered in Cisco Unified Communications Manager Administration.
3. On the Cisco Intercompany Media Engine server command line, enter **show ime vapcredentials all** to display the port number and authentication mode, and compare the values to those that you entered in Cisco Unified Communications Manager Administration.

4. Make sure that you activated the Cisco IME service. In Cisco Unified Communications Manager Administration, display the Intercompany Media Service Configuration window (**Advanced Features > Intercompany Media Services > Service**), and make sure that the Activated check box is checked.

VCR Upload and Validation Confirmation

After you start making PSTN calls, the Cisco Unified Communications Managers on the originating and terminating sides of the calls send voice call records (VCRs) to their respective Cisco IME server. The Cisco Intercompany Media Engine server on the originating side of the call initiates validation. To determine whether VCRs are uploaded and validation occurs, use the following procedure. If validations are not occurring, you need to troubleshoot the communication between Cisco Unified Communications Manager and Cisco Intercompany Media Engine servers as well as the IME distributed cache status. **Procedure**

1. To view the list of VCRs pushed from orientating and terminating Cisco Unified Communications Manager servers, enter **show ime voicerecord details** on the Cisco IME command line.
2. Once you confirm that the Cisco IME server receives originating and terminating VCRs, you can check the results of validation for calls originating at your Cisco Unified Communications Manager by entering **show ime validation details** on the Cisco IME command line. The command results show the called number and the time validated.
3. If the Cisco IME server receives and validates VCRs, the Cisco Unified Communications Manager should learn routes. To view learned routes in Cisco Unified Communications Manager Administration, choose **Advanced Features > Intercompany Media Services > Learned Route**.

The following table shows the validation results possible from the show ime validation details command:

Validation Result	Meaning
Route Sent	Validation was successful and route was sent to Cisco Unified Communications Manager. If the route is not being used, issues exist on the Cisco Unified Communications Manager.
Validation Failed in Authentication	Validation failed due to start time or stop time mismatch on originating and terminating sides. Check the Cisco Unified Communications Manager servers, and make sure that they have correct time. Cisco requires that the Cisco Unified Communications Manager servers use NTP servers to keep accurate time.
Validation Failed in Domain Check	Validation failed because the originating side domain is either in an untrusted Cisco IME trust group or not in the a Cisco IME trust group of the vservice on the terminating side. On Cisco Unified Communications Manager, check the configuration for the Cisco IME trust groups.
Terminal Server Aborted	This result can occur for one of the following reasons: • No VCR record exists for the calling and called DN for method A. • More than 1 VCR record exists with same called DN for method B that in the timestamp range. • The sRP connection to the terminal server timed out. • The TLS Connection reached threshold on the terminating side.

	• The Rounding factor is greater than the allowed maximum rounding factor on the terminating side. Of these, the most common reason is that the VCR record was not found. Use CLI command "show ime voicerecord details" to determine if a VCR record was created for this call. If not, check the Cisco Unified Communications Manager configuration. If there is VCR record on the terminal side for the call, the likely problem is that the sRP connection timed out. Check the acl rules on the ASA on the terminating side to verify that validation port 8470 is open. Check that no critical alarm exist for port 8470 on terminal server. Check that terminating server is active.
DID Not Found in DHT	Terminal side DID (called number) is not found in the IME Distributed Cache ring. This result may occur because the terminating DID is not on a system that has a Cisco IME server. If the terminating DID does belong to a customer that has a Cisco IME server, it may be that this particular DID has not yet been published by its Cisco Unified Communications Manager. To test whether a DID is published, use the CLI command "utils ime fetch did +XXXXXXXXXXX" where +XXXXXXXXXX is the +E.164 version of the dialed number.
Fetch Failed Validation	The IME Distributed Cache ring is RED on the originating side, or Fetch timed out. Check for network issues in the ring.
Route Discarded	The validation was successful and learned route was put into a pending bucket. However, a subsequent validation failed and this learned route was discarded. (No action is required. The next time this number is called, validation will likely be successful.)
In Pending Bucket	The validation was successful but the validation parameter Bucket Entropy is greater than this validation's entropy. Therefore, the learned route is put into pending bucket. After more validations happen and bucket entropy is satisfied, the learned routes will be sent to the Cisco Unified Communications Manager.
Ping Failed	Ping failed to reach terminal Cisco IME server. Check for network issues.
Validation Skipped due to Rate Limit	Validation was not done, because too many validations were happening in the Cisco IME server at that time. Either the terminating side Cisco IME server exceeded the read buffer depth or the originating side Cisco IME reached the maximum rate for validation. (No action to required. The system was busy when last validation happened. The next time this number gets called, validation will likely be successful.)
VService or Overlay Unavaiable Validation	On the originating side, the vservice associated with the calling DN is not enabled or overlay is not available at the time of validation. Use the CLI command "show ime vservice details" to determine which vservices are active. If there no active vservices exist, or some are missing, check the configuration between the Cisco IME server and the Cisco Unified Communications Manager server.

Verifying Peer Status and Health

You can verify the status of the Cisco IME server on the IME distributed cache by entering **show ime dht summary** on the Cisco IME command line. The DHT Health field shows the status of the server in the Peer ID field. Green indicates a functional status.

Peer ID = **514dd001c7553593ebefee2b076ad9d4**
DHT Health..... = **GREEN**
BootStrap: 5619e12c7a647e1d3364c8a46c9e58f7
Last Contact (sec)..... = 48
Current Sequence..... = 1250036323
Num. Tokens Received..... = 3
Delay from BootStrap..... = 1
Peer Count Distance..... = 5

If the peer ID status does not display as green, verify that you installed Cisco IME certificates correctly and check the Cisco IME ports and the Cisco IME-enabled ASA.

You may also need to use the show ime addressing command to verify that you set the public IP address correctly.