



CHAPTER 11

Cisco Intercompany Media Engine Performance Objects and Counters

This section provides information on Cisco Intercompany Media Engine objects and counters. Both the Cisco Unified Communications Manager server and the Cisco Intercompany Media Engine server contain a unique set of objects and counters. You may need counters from both servers to monitor the performance of the Cisco Intercompany Media Engine product.

To access performance objects and counters, log in to RTMT on the appropriate server, and choose **System > Performance > Open Performance Monitoring**. For more information on working with performance counters and objects, refer to the *Cisco Unified Real-Time Monitoring Tool Administration Guide*.

This section contains the following information:

Cisco Intercompany Media Engine Server Objects

- [IME Configuration Manager, page 11-2](#)
- [IME Server, page 11-2](#)
- [IME Server System Performance, page 11-4](#)

Cisco Unified Communications Manager Server Objects

- [IME Client, page 11-5](#)
- [IME Client Instance, page 11-7](#)

Additional Information

[Related Topics, page 11-7](#)

IME Configuration Manager

The IME Configuration Manager object provides information about the IME distributed cache certificate. [Table 11-1](#) contains information on the Cisco IME configuration counters.

Table 11-1 IME Configuration Manager

Counters	Counter Description
DaysUntilCertExpiry	This counter indicates the number of days that remain until the IME distributed cache certificate expires. You must replace the certificate before it expires. When the value of this counter falls below 14, an alert gets generated once every day until the value exceeds 14.

IME Server

The IME Server object provides information about the Cisco IME server. [Table 11-2](#) contains information on the Cisco IME Server counters.

Table 11-2 IME Server

Counters	Counter Description
BlockedValidationOrigTLSLimit	This counter indicates the total number of blocked validations that occurred because the TLSValidationThreshold was reached.
BlockedValidationTermTLSLimit	This counter indicates the total number of blocked validations that occurred because the TLSValidationThreshold was reached.
ClientsRegistered	This counter indicates the number of Cisco IME clients that are currently connected to the Cisco IME server.
IMEDistributedCacheHealth	The counter indicates the health of the IME distributed cache. The following values may display: <ul style="list-style-type: none"> 0 (red)—Warns that the IME distributed cache is not functioning properly; for example, the Cisco IME cannot resolve issues after the network has been partitioned. In this case, validation attempts might fail. For example, the Cisco IME service is not connected to the network and is unable to reach the bootstrap servers. An alert gets generated once every hour until the value changes from red status. 1 (yellow)—Indicates that the Cisco IME network is experiencing minor issues, such as connectivity between bootstrap servers or other Cisco IME network issues. (Check the Cisco IME alarms to determine network issues.) 2 (green)—Indicates that the Cisco IME is functioning normally and is considered healthy.

Table 11-2 IME Server (continued)

Counters	Counter Description
IMEDistributedCacheNodeCount	The counter is an integer that indicates an approximation of the total number of nodes in the IME distributed cache. Since each physical Cisco IME server hosts multiple nodes, this counter does not directly indicate the number of physical Cisco IME servers that participate in the IME distributed cache. This counter can provide an indication of the health of the IME distributed cache; for example, a problem may exist with the IME distributed cache if an expected value displays on one day (for example, 300), but then on the next day, the value drops dramatically (for example, to 10 or 2).
IMEDistributedCacheQuota	Indicates the number of individual DIDs that can be written into the IME Distributed Cache, by Cisco Unified CMs attached to this IME server. This number is determined by the overall configuration of the IME Distributed Cache, and the IME license installed on the IME server.
IMEDistributedCacheQuotaUsed	Indicates the total number of unique DID numbers that have been configured, to be published via enrolled patterns for Intercompany Media Services, by Cisco Unified CMs currently attached to this IME server.
IMEDistributedCacheReads	This counter indicates the total number of reads that the Cisco IME server has attempted into the IME distributed cache. This number serves as an indicator of whether the Cisco IME server is functional; that is, whether the server is interacting with other nodes.
IMEDistributedCacheStoredData	This counter indicates the amount of IME distributed cache storage, measured in bytes, that this Cisco IME server provides.
IMEDistributedCacheStores	This counter indicates the total number of stores (published numbers) that the Cisco IME server has attempted into the IME distributed cache. This number serves as an indicator of whether the Cisco IME server is functional.
InternetBandwidthRecv	This counter measures the amount of downlink Internet bandwidth, in Kbits/s, that the Cisco IME server is consuming.
InternetBandwidthSend	This counter measures the amount of uplink Internet bandwidth that the Cisco IME server in Kbits/s is consuming.
TerminatingVCRs	This counter indicates the total Cisco IME voice call records (VCRs) that are stored on the Cisco IME server after receiving calls. You can use these records for validating learned routes.
ValidationAttempts	This counter indicates the total number of attempts that the Cisco IME server has made at performing a validation because the dialed number was found in the Cisco IME network. This counter provides an overall indication of system usage.
ValidationsAwaitingConfirmation	This counter indicates the total number of destination phone numbers that have been validated, but that are awaiting further calls to improve the security of the system. If you use a higher level of security for learning new routes, the Cisco IME server requires multiple successful validations for a route before that route is available for calls over IP. This counter tracks the number of successful validations that have not resulted in available IP routes.

Table 11-2 IME Server (continued)

Counters	Counter Description
ValidationsPending	<p>This counter, which is an integer, indicates the number of scheduled validation attempts to retrieve a learned route. This value indicates the backlog of work for the Cisco IME service on the Cisco IME server.</p> <p>An alert gets generated when the value rises either above the high watermark or falls below the low watermark. After the high watermark is reached, an alert gets sent immediately and then once an hour until the value falls below the high watermark. When the high watermark is reached, the Cisco IME service cannot clear the backlog of work prior to the expiration of data; this situation causes records to drop, and validation may not occur. To reduce the workload, add more Cisco IME servers that can share the workload.</p>
ValidationsBlocked	<p>This counter indicates the number of times that the Cisco IME service rejected a validation attempt because the calling party was not trusted; that is, the party was on a blacklist or not on a whitelist. This value provides an indication of the number of cases where a VoIP calls cannot happen in the future because of the blocked validation.</p>

IME Server System Performance

The Cisco IME System Performance object provides information about performance on the Cisco IME server. [Table 11-3](#) contains information on the Cisco IME server system performance counters.

Table 11-3 IME Server System Performance

Counters	Counter Description
QueueSignalsPresent 1-High	<p>This counter indicates the number of high-priority signals in the queue on the Cisco IME server. High-priority signals include timeout events, internal KeepAlive messages, internal process creation, and so on. A large number of high-priority events causes degraded performance of the Cisco IME service and results in slower or failed validations. Use this counter in conjunction with the QueueSignalsProcessed 1-High counter to determine the processing delay on the Cisco IME server.</p>
QueueSignalsPresent 2-Normal	<p>This counter indicates the number of normal-priority signals in the queue on the Cisco IME server. Normal-priority signals include call validations, IME distributed cache operations such as stores and reads, and so on. A large number of normal-priority events causes degraded performance of the Cisco IME service and may result in slower or failed validations or disruption to IME distributed cache connectivity. Use this counter in conjunction with the QueueSignalsProcessed 2-Normal counter to determine the processing delay on the Cisco IME server.</p> <p>Since high-priority signal must complete before normal priority signals begin to process, check the high-priority counters to accurately understand why a delay occurs.</p>

Table 11-3 *IME Server System Performance (continued)*

Counters	Counter Description
QueueSignalsPresent 3-Low	This counter indicates the number of low-priority signals in the queue on the Cisco IME server. Low-priority signals include IME distributed cache signaling and other events. A large number of signals in this queue may disrupt IME distributed cache connectivity or other events.
QueueSignalsPresent 4-Lowest	This counter indicates the number of lowest-priority signals in the queue on the Cisco IME server. A large number of signals in this queue may disrupt IME distributed cache connectivity and other events.
QueueSignalsProcessed 1-High	This counter indicates the number of high-priority signals that the Cisco IME service processes for each one-second interval. Use this counter in conjunction with the QueueSignalsPresent 1-High counter to determine the processing delay for this queue.
QueueSignalsProcessed 2-Normal	This counter indicates the number of normal-priority signals that the Cisco IME service processes for each one-second interval. Use this counter in conjunction with the QueueSignalsPresent 1-High counter to determine the processing delay for this queue. High-priority signals are processed before normal-priority signals.
QueueSignalsProcessed 3-Low	This counter indicates the number of low-priority signals that the Cisco IME service processes for each one-second interval. Use this counter in conjunction with the QueueSignalsPresent 3-Low counter to determine the processing delay for this queue.
QueueSignalsProcessed 4-Lowest	This counter indicates the number of lowest-priority signals that the Cisco IME service processes for each one-second interval. Use this counter in conjunction with the QueueSignalsPresent 4-Lowest counter to determine the processing delay for this queue.
QueueSignalsProcessed Total	This counter provides a total of all queue signals that the Cisco IME service processes for each one-second period for all queue levels: high, normal, low, and lowest.

IME Client

The IME Client object provides information about the Cisco IME client on the Cisco Unified Communications Manager server. [Table 11-4](#) contains information on the Cisco IME client counters.

Table 11-4 *Cisco IME Client*

Counters	Counter Description
CallsAccepted	This counter indicates the number of Cisco IME calls that the Cisco Unified Communications Manager received successfully and that the called party answered, resulting in an IP call.
CallsAttempted	This counter indicates the number of calls that the Cisco Unified Communications Manager received through Cisco IME. This number includes accepted calls, failed calls, and busy, no-answer calls. The counter increments each time that Cisco Unified Communications Manager receives a call through Cisco IME.

Table 11-4 Cisco IME Client (continued)

Counters	Counter Description
CallsReceived	This counter indicates the number of calls that Cisco Unified Communications Manager receives through Cisco IME. This number includes accepted calls, failed calls, and busy, no-answer calls. The counter increments on call initiation.
CallsSetup	This counter indicates the number of Cisco IME calls that Cisco Unified Communications Manager placed successfully and that the remote party answered, resulting in an IP call.
DomainsUnique	This counter indicates the number of unique domain names of peer enterprises that the Cisco IME client discovered. The counter serves as an indicator of overall system usage.
FallbackCallsFailed	This counter indicates the total number of failed fallback attempts.
FallbackCallsSuccessful	This counter indicates the total number of Cisco IME calls that have fallen back to the PSTN mid-call due to a quality problem. The counter includes calls initiated and calls received by this Cisco Unified Communications Manager.
IMESetupsFailed	This counter indicates the total number of call attempts for which a Cisco IME route was available but that were set up through the PSTN due to a failure to connect to the target over the IP network.
RoutesLearned	This counter indicates the total number of distinct phone numbers that the Cisco IME has learned and that are present as routes in the Cisco Unified Communications Manager routing tables. If this number grows too large, the server may exceed the per-cluster limit, and you may need to add additional servers to your cluster.
RoutesPublished	This counter indicates the total number of DID's that were published successfully into the IME distributed cache across all Cisco IME client instances. The counter provides a dynamic measurement that gives you an indication of your own provisioned usage and a sense of how successful the system has been in storing the DID's in the network.
RoutesRejected	This counter indicates the number of learned routes that were rejected because the administrator blacklisted the number or domain. This counter provides an indication of the number of cases where a VoIP call cannot happen in the future because of the blocked validation.
VCRUploadRequests	This counter indicates the number of voice call record (VCR) upload requests that the Cisco Unified Communications Manager has sent to the Cisco IME server to be stored in the IME distributed cache.

IME Client Instance

The IME Client Instance object provides information about the Cisco IME client instance on the Cisco Unified Communications Manager server. [Table 11-5](#) contains information on the Cisco IME client instance counters.

Table 11-5 *IME Client*

Counters	Counter Description
IMEServiceStatus	<p>This counter indicates the overall health of the connection to the Cisco IME services for a particular Cisco IME client instance (Cisco Unified Communications Manager). The following values may display for the counter:</p> <ul style="list-style-type: none"> • 0—Indicates an unknown state (which may mean that the Cisco IME service is not active). If the value specifies 0, an alert gets generated once per hour while the connection remains in the unknown state. • 1—Indicates a healthy state; that is, the Cisco IME service is active, and the Cisco Unified Communications Manager has successfully established a connection to its primary and backup servers for the Cisco IME client instance, if configured. • 2—Indicates an unhealthy state; that is, the Cisco IME service is active, but the Cisco Unified Communications Manager has not successfully established a connection to its primary and backup servers for the Cisco IME client instance, if configured.

Related Topics

- [Cisco IME Configuration in Cisco Unified Communications Manager Administration](#), page 3-1
- [Using RTMT with Cisco Intercompany Media Engine](#), page 7-1
- *Cisco Unified Real-Time Monitoring Tool Administration Guide*

