

## Using SQmediator® with Cisco® SPA and MPP Series IP Phones

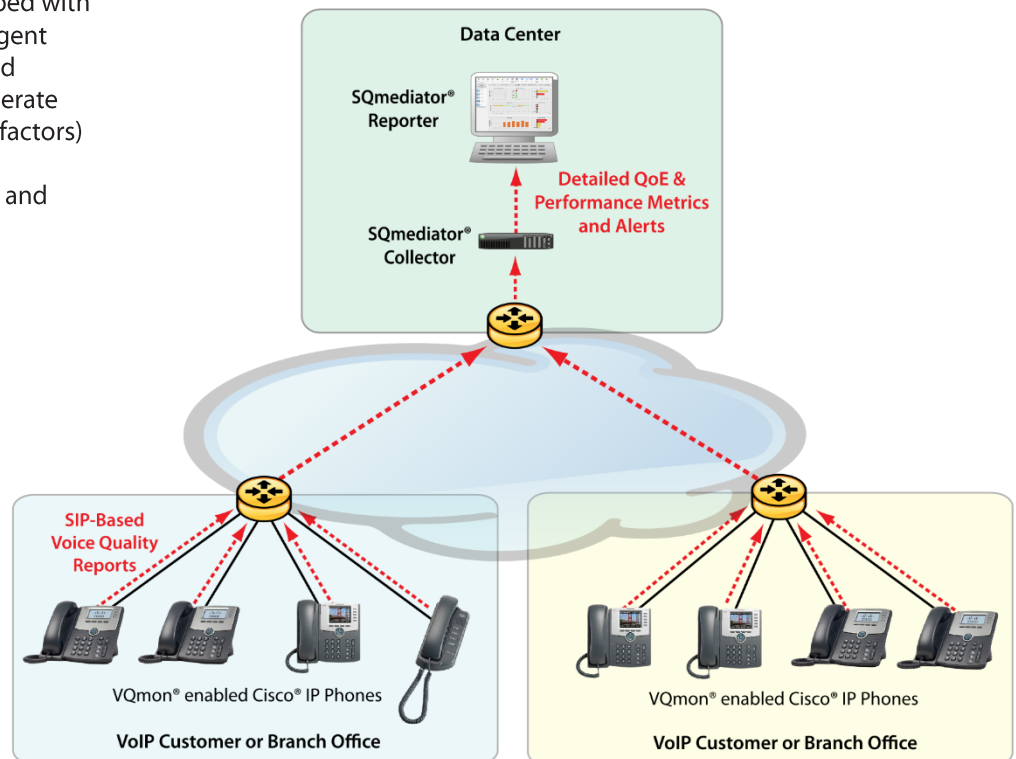
Voice over IP (VoIP) quality is highly sensitive to IP network problems such as packet loss, jitter and delay, which are often transient and difficult to troubleshoot. To manage VoIP performance effectively, it is crucial to understand not just which calls are being impaired, but also the root causes of impairments and how to prevent them.

Telchemy SQmediator® enables system administrators to non-intrusively monitor call quality and proactively diagnose the root cause of performance problems. SQmediator collects Quality of Experience (QoE) and diagnostic metrics directly from Cisco SPA Series IP phones, providing a real-time view of the quality of every call as experienced by end users.

Select models of Cisco IP phones are equipped with Telchemy's integrated VQmon® reporting agent software. At the end of a call or at configured intervals during calls, these phones can generate RFC6035 reports with QoE scores (MOS & R-factors) and an extensive set of diagnostic metrics describing levels of packet loss, jitter, delay, and other key impairment factors.

SQmediator collects, correlates, analyzes, and displays QoE metrics sent by Cisco phones and other devices that are capable of generating RFC6035 SIP quality reports. By obtaining performance measurements directly from each handset, SQmediator provides a highly accurate view of call quality as perceived by the end user and enables network managers to remotely detect and troubleshoot many types of impairments in real time.

The figure at right depicts a sample application of SQmediator and Cisco IP phones used to monitor the performance of IP telephone services.



*Example Application of SQmediator and Cisco IP Phones in a Service Provider or Enterprise VoIP Network*

### Solution Components

**SQmediator** – requires an Oracle or PostgreSQL relational database for use by the following system components:

- **SQmediator Collector**, a collector application that receives the quality reports sent by Cisco phones, correlates and stores them in the system database as call records.
- **SQmediator Reporter**, a management application with a dashboard interface that enables multiple concurrent users to retrieve and view call records and performance data. In single-server versions of SQmediator, the Reporter and Collector are installed on the same host. In multi-server versions, each system component is installed on a separate host, and the system can be scaled by adding additional Collectors and/or Reporters.

**Cisco IP Phones** - the following Cisco products are currently supported for use with SQmediator:

- Cisco Small Business SPA3XX Series / SPA5XX Series IP Phones
- Cisco MPP Series IP Phones

## Configuration

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### Configuring Cisco SPA and MPP Series IP Phones

The following is an overview of the requirements for configuring voice quality monitoring on supported Cisco phones. For detailed instructions, refer to the Administration Guide for your Cisco product model.

To operate with SQmediator, the Cisco phones must be configured to forward their voice quality reports (via SIP PUBLISH) to the SQmediator Collector. This is commonly done by editing the XML configuration file that is downloaded to the phones from a provisioning server. Following are the basic steps required to configure a Cisco phone using the web-based configuration utility:

1. Log into the utility.
2. Navigate to **Admin Login > advanced > Voice > SIP**.
3. Under **RTP Parameters**, in the **RTCP Tx Interval** field, enter the interval in seconds for sending RTCP reports (**1-255**). The SIP PUBLISH message sent to the Collector at the end of the call combines quality metrics derived from RTCP XR reports and SIP information from the call. By default, RTCP reporting is disabled (a value of **0**). Note that if a call terminates before the first RTCP XR packet is sent, the SIP PUBLISH message will use default values for some RTCP XR parameters.
4. Navigate to **Admin Login > advanced > Voice > Ext\_n**.
5. Under **SIP Settings**, in the **Voice Quality Report Address** field, enter the IP address or FQDN for the SQmediatorCollector.
6. If multiple extensions are in use, repeat steps 4 and 5 to configure each phone extension.

### Configuring SQmediator

Detailed instructions for installing and configuring SQmediator are provided in the Installation Guide provided with the SQmediator software installation package. The basic steps are as follows:

1. Install a database (Oracle 11g/12c, or PostgreSQL 9.6-10.x) to be used by SQmediator.
2. Install the SQmediator Collector and configure it using the menu-driven Collector configuration tool.
3. Install the SQmediator Reporter and configure it using the menu-driven Reporter configuration tool.
4. Start the Collector and Reporter, log into the Reporter using a web browser, and enter the Telchemy-issued license key to activate the platform.

## References

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- *Cisco SPA and MPP IP Phone Administration Guides*
- *SQmediator Installation Guide*
- [RFC 6035: Session Initiation Protocol Event Package for Voice Quality Reporting](#)
- [RFC 3611: RTP Control Protocol Extended Reports \(RTCP XR\)](#)
- [RFC 3903: Session Initiation Protocol \(SIP\) Extension for Event State Publication](#)



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