

# **Dialogic® PowerMedia® XMS Release 4.0**

## **Release Notes**

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## Revision History

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This section summarizes the changes made in this and, if applicable, each previously published version of the Release Notes for PowerMedia XMS Release 4.0, which is a document that is planned to be periodically updated throughout the lifetime of the release.

Revision	Release Date	Notes
05-2751-011	July 2021	<p>Updates to support PowerMedia XMS Release 4.0 Service Update 10.</p> <p><a href="#">Release Issues:</a></p> <p>Added the following XMS Resolved Defects: XMS-14543, XMS-14517, XMS-14428, XMS-14205, XMS-14198, XMS-14189, XMS-14175, XMS-14150, XMS-14132, XMS-14120, XMS-14049, XMS-14042, XMS-13987.</p>
05-2751-010	November 2020	<p>Updates to support PowerMedia XMS Release 4.0 Service Update 9 (Build 28051).</p> <p><a href="#">Release Issues:</a></p> <p>Added the following XMS Resolved Defects: XMS-13841, XMS-13803, XMS-13669 and XMS-13639.</p>
05-2751-009	July 2020	<p>Updates to support PowerMedia XMS Release 4.0 Service Update 8 (Build 27507).</p> <p>A new Enghouse logo was added to the header along with a new Enghouse copyright section as per legal.</p> <p><a href="#">Release Features:</a></p> <ul style="list-style-type: none"><li>• Post-Release Developments - Added Port Configuration for XMS Monitoring subsystem</li></ul> <p><a href="#">Release Issues:</a></p> <p>Added the following XMS Resolved Defects: XMS-13417, XMS-13346, XMS-13342, XMS-13320, XMS-13291, XMS-13273, XMS-13272, XMS-13242, XMS-13222, XMS-13207, XMS-13202, XMS-13155, XMS-13125, XMS-13044, XMS-13022, XMS-12989, XMS-12976, XMS-12972, XMS-12921, XMS-12912, XMS-12894, XMS-12875, and XMS-12818</p>
05-2751-008	February 2020	<p>Updates to support PowerMedia XMS Release 4.0 Service Update 7 (Build 26157).</p> <p><a href="#">RPM Method:</a> Updated the section.</p> <p><a href="#">Post-Release Developments:</a></p>

Revision	Release Date	Notes
		<ul style="list-style-type: none"> <li>Added <a href="#">Support for MSML &lt;gain&gt; in MSML Dialog Package</a></li> </ul> <p><a href="#">Release Issues:</a></p> <ul style="list-style-type: none"> <li>Added <a href="#">Behavior Change for SDP Offer/Answer</a> in the <a href="#">Changes and Considerations</a> section.</li> <li>Added the following XMS Resolved Defects: XMS-12821, XMS-12817, XMS-12781, XMS-12771, XMS-12747, XMS-12744, XMS-12667, XMS-12657, XMS-12633, XMS-12586, XMS-12582, XMS-9833.</li> </ul>
05-2751-007	November 2019	<p>Updates to support PowerMedia XMS Release 4.0 Service Update 6 (Build 25430).</p> <p><a href="#">Release Issues:</a></p> <ul style="list-style-type: none"> <li>Added the following XMS Resolved Defects: XMS-9904, XMS-11953, XMS-11998, XMS-12036, XMS-12129, XMS-12488.</li> <li>Added the following XMS Known Issues: XMS-12560.</li> </ul>
05-2751-006	October 2019	<p>Updates to support PowerMedia XMS Release 4.0 Service Update 5 (Build 25050).</p> <p><a href="#">Release Issues:</a></p> <ul style="list-style-type: none"> <li>Added the following XMS Resolved Defects: XMS-12343.</li> </ul>
05-2751-005	October 2019	<p>Updates to support PowerMedia XMS Release 4.0 Service Update 4 (Build 25014).</p> <p><a href="#">Post-Release Developments:</a></p> <ul style="list-style-type: none"> <li>Added <a href="#">Fax Page Quality Thresholds</a>.</li> <li>Added <a href="#">MRB Support for SNMPv3</a>.</li> </ul> <p><a href="#">Release Issues:</a></p> <ul style="list-style-type: none"> <li>Added the following XMS Resolved Defects: XMS-11588, XMS-11601, XMS-11657, XMS-11757, XMS-11838, XMS-11849, XMS-11952, XMS-12004, XMS-12027, XMS-12039, XMS-12090, XMS-12101, XMS-12119, XMS-12135, XMS-12138, XMS-12178, XMS-12260.</li> </ul>
05-2751-004	June 2019	<p>Updates to support PowerMedia XMS Release 4.0 Service Update 3 (Build 23887).</p>

Revision	Release Date	Notes
		<p><b>Related Documentation:</b> Updated the section.</p> <p><b>Release Features:</b></p> <ul style="list-style-type: none"> <li>• Added MSML &lt;gain&gt; Attributes tgtlvl and maxgain.</li> <li>• Added Configuration of Codec Profile through RESTful Management API.</li> </ul> <p><b>Licensing:</b> Updated the License Types section.</p> <p><b>Post-Release Developments:</b></p> <ul style="list-style-type: none"> <li>• Added Local License Server.</li> </ul> <p><b>Release Issues:</b></p> <ul style="list-style-type: none"> <li>• Added Behavior Change for Primitive Termination Cause in MSML in the Changes and Considerations section.</li> <li>• Added the following XMS Resolved Defects: XMS-10775, XMS-10776, XMS-10865, XMS-10966, XMS-11154, XMS-11209, XMS-11210, XMS-11219, XMS-11263, XMS-11345, XMS-11366, XMS-11436, XMS-11460, XMS-11490, XMS-11491, XMS-11503, XMS-11645.</li> </ul>
05-2751-003	April 2019	<p>Updates to support PowerMedia XMS Release 4.0 Service Update 2 (Build 23418).</p> <p><b>Post-Release Developments:</b></p> <ul style="list-style-type: none"> <li>• Added MS Enabled SIP Timer.</li> </ul> <p><b>Release Issues:</b></p> <ul style="list-style-type: none"> <li>• Added the following XMS Resolved Defects: XMS-10855, XMS-10887, XMS-10916, XMS-10941, XMS-10967, XMS-11169, XMS-11170, XMS-11193, XMS-11194, XMS-11238, XMS-11250, XMS-11251.</li> </ul>
05-2751-002	March 2019	<p>Updates to support PowerMedia XMS Release 4.0 Service Update 1 (Build 23143).</p> <p><b>Post-Release Developments:</b></p> <ul style="list-style-type: none"> <li>• Added PowerMedia XMS Release 4.0 Service Update.</li> </ul> <p><b>Release Issues:</b></p> <ul style="list-style-type: none"> <li>• Added the following XMS Resolved Defects: XMS-10962, XMS-11135, XMS-11137, XMS-11164.</li> </ul>

<b>Revision</b>	<b>Release Date</b>	<b>Notes</b>
05-2751-001	March 2019	Initial release of this document.
Last modified: January 2020		

Refer to [www.dialogic.com](http://www.dialogic.com) for product updates and for information about support policies, warranty information, and service offerings.

# 1. Welcome

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These release notes address new features and issues associated with the Dialogic® PowerMedia® Extended Media Server (also referred to herein as "PowerMedia XMS" or "XMS") Release 4.0. This is a document that is planned to be periodically updated throughout the lifetime of the release.

The release notes are organized into the following sections (click the section name to jump to the corresponding section):

- [Overview](#): This section provides an overview of this release.
- [Related Documentation](#): This section provides information about the documentation that supports this release.
- [System Requirements](#): This section describes the system requirements for this release.
- [Release Features](#): This section describes the new features and functionality in this release.
- [Controlled Introduction Features](#): This section describes the new controlled introduction features and functionality in this release.
- [Installation](#): This section provides installation information that is useful for getting started with this release.
- [Upgrading](#): This section provides upgrading information that is useful for getting started with this release.
- [Configuration](#): This section provides configuration information that is useful for getting started with this release.
- [Licensing](#): This section provides licensing information that is useful for getting started with this release.
- [Logging](#): This section provides logging information that is useful for getting started with this release.
- [Post-Release Developments](#): This section describes significant changes to this release subsequent to the general availability release date.
- [Release Issues](#): This section lists the issues that may affect this release.

## 2. Overview

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Dialogic® PowerMedia® Extended Media Server (also referred to herein as "PowerMedia XMS" or "XMS") is a highly scalable, software-only media server that enables standards-based, real-time multimedia communications solutions for IMS, MRF, Enterprise, and WebRTC applications on premise or in the cloud. Built on 20+ years of software media processing experience, PowerMedia XMS is trusted by world-class service providers and large enterprises to power millions of rich media sessions.

With an extensive list of successful implementations that include MRF for VoLTE, carrier hosted contact centers, enterprise communications, voice messaging, and "mission critical" next-generation 911 services, PowerMedia XMS has proven to be a key building block to new and innovative applications. When deployed with the [Dialogic® PowerMedia™ Media Resource Broker](#) (also referred to herein as "PowerMedia MRB" or "MRB") software component for high availability and redundancy, PowerMedia XMS scales to meet growing service-provider and business requirements.

### PowerMedia XMS

PowerMedia XMS is a powerful next-generation software-only media server or software Media Resource Function (MRF) IMS network element that enables standards-based, real-time multimedia communications solutions for SIP and WebRTC for mobile and broadband environments. PowerMedia XMS enables high density real-time multimedia communication functions including inbound and outbound session/call control, audio/video play and record, transcoding, transrating, transizing of video streams, multimedia conference mixing, content streaming, and a wide range of advanced supporting functions for communication sessions.

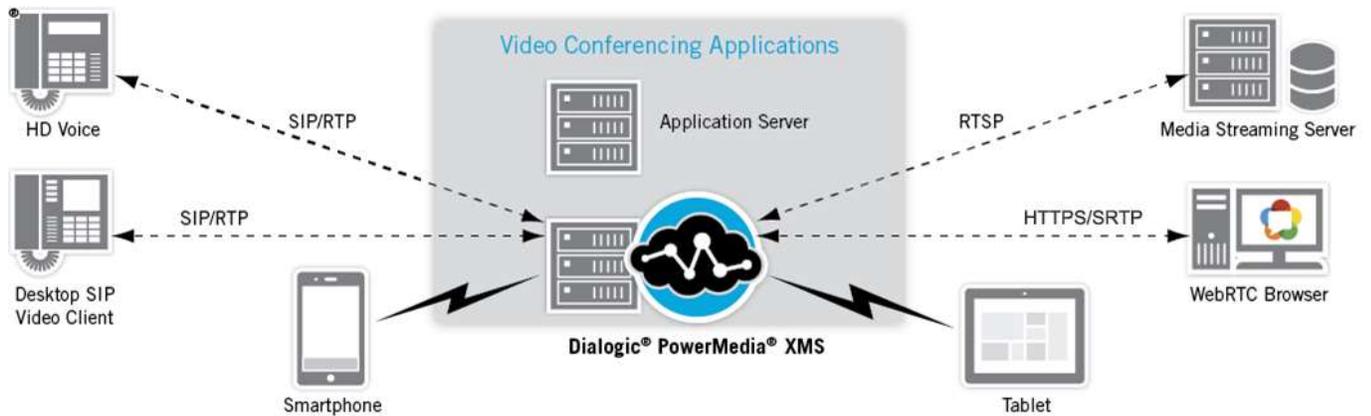
PowerMedia XMS is controlled by the business logic of applications deployed on SIP application servers and web application servers. PowerMedia XMS offers multiple media control protocols that can be used in a variety of network infrastructures. For example, a SIP application server (AS) can drive PowerMedia XMS using the MSML control interface or use the VoiceXML (VXML) browser in PowerMedia XMS to execute VXML scripts and invoke MRCP or Amazon Polly speech services, like ASR and TTS. For Web 2.0 and cloud development, a web application written in an appropriate language can control PowerMedia XMS using the HTTP RESTful Media interface. Similarly, the JSR 309 Connector for PowerMedia XMS can enable Java EE developers to control real-time applications from converged application servers.

PowerMedia XMS supports multimedia audio and video, using a variety of codecs. It also provides support for handling RTP media, security (via DTLS/SRTP), and ICE negotiation from WebRTC media sources. Please refer to specific media control protocol documentation for the more detail media server feature coverage/support.

PowerMedia XMS provides powerful and user-friendly OA&M functionality and can be managed remotely through a web-based operator console and the HTTP RESTful Management Interface.

A wide variety of SIP endpoints can be handled by PowerMedia XMS, resulting in the delivery of rich full-duplex audio and video media streams to a variety of fixed and mobile devices. With the additional support for WebRTC media, PowerMedia XMS provides the power to mix diverse streams and enable connectivity between legacy networks, endpoints, and WebRTC.

The following figure illustrates an example of a video conferencing delivery platform for a PowerMedia XMS-based multimedia conferencing solution:



## PowerMedia MRB

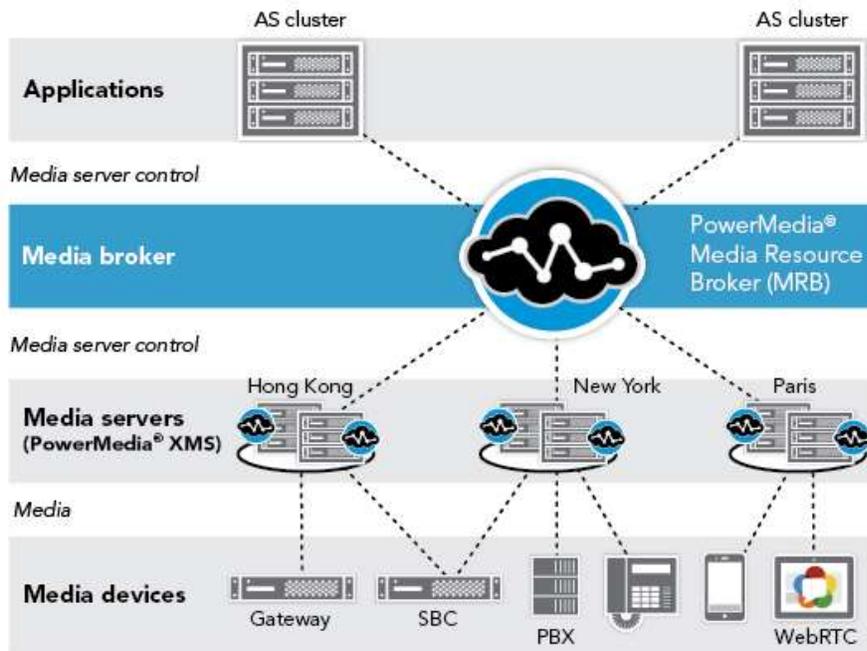
The PowerMedia MRB software component provides capability for clustering of the PowerMedia XMS instances to support higher density and scalability network requirements. It is designed to handle large transaction rates and can effectively and efficiently load balance the traffic among available PowerMedia XMS instances (MRFs) including those instances located in different geographic regions.

The PowerMedia MRB is a standardized network element, defined by RFC 6917, that manages media resource availability and reliability, providing improved utilization and reliability of deployed media resources in the network. As defined in MRB specifications, the PowerMedia MRB performs critical media resource management functions, including:

- Balancing requests from multiple application servers or app server clusters.
- Efficiently utilizing and allocating the Media Resource Function (MRF) and Media Server (MS) resource pools.
- Providing a monitoring mechanism for media server status and capabilities.
- Supporting media control payloads such as MSML, JSR 309, NETANN, and RESTful.

The PowerMedia MRB is implemented to be a stateful load balancer and actively monitors and tracks capacity and availability of individual PowerMedia XMS instances. Since the PowerMedia MRB is stateful, it can also support real-time call preservation of conference calls and bridged calls. In case of failure, the PowerMedia MRB can dynamically restore established media sessions to an alternate PowerMedia XMS instance, providing continuity of service.

The following figure illustrates the role of the PowerMedia MRB to manage PowerMedia XMS resources among various geographic sites:



## Related Information

See the following for additional information:

- PowerMedia XMS product page at <http://www.dialogic.com/xms>.
- PowerMedia XMS datasheet at <http://www.dialogic.com/~media/products/docs/media-server-software/12888-powermedia-xms-ds.pdf>.
- PowerMedia MRB datasheet at <http://www.dialogic.com/~media/products/docs/media-server-software/14160-powermediamrb-ds.pdf>.
- PowerMedia XMS Release 4.0 documentation at <http://www.dialogic.com/manuals/xms/xms4-0>.
- Dialogic Service Center at <http://www.dialogic.com/support>.

### 3. Related Documentation

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This section provides information about the documentation that supports the PowerMedia XMS Release 4.0.

The following documents are available for the PowerMedia XMS Release 4.0 at <http://www.dialogic.com/manuals/xms/xms4-0>:

Document	Description
<b>PowerMedia XMS</b>	
<i>Dialogic® PowerMedia® XMS Release 4.0 Release Notes</i>	Addresses new features and issues associated with PowerMedia XMS Release 4.0.
<i>Dialogic® PowerMedia™ XMS Quick Start Guide</i>	Describes how to install software, access the WebGUI for configuration management, and run the verification demo.
<i>Dialogic® PowerMedia™ XMS Installation and Configuration Guide</i>	Provides instructions for installing, configuring, administering, and maintaining PowerMedia XMS.
<i>Dialogic® PowerMedia™ XMS WebRTC Demo Guide</i>	Provides instructions for running WebRTC demos with PowerMedia XMS.
<i>Dialogic® PowerMedia™ XMS Basic Network Media Services with SIP User's Guide</i>	Provides detailed information about configuring Basic Network Media Services with SIP, focusing on Network Announcement (NETANN).
<i>Dialogic® PowerMedia™ XMS Message Session Relay Protocol Feature Guide</i>	Describes the Message Session Relay Protocol (MSRP), which is a session-oriented instant messaging protocol used to provide peer-to-peer file transfer, photo sharing, or chat services.

Document	Description
<i>Dialogic® PowerMedia™ XMS MSML Media Server Software User's Guide</i>	Provides guidelines for using the Media Sessions Markup Language (MSML) software. The MSML media server software enables a remote client, also known as an Application Server (AS), to control media resources on a media server (MS). The connection between the AS and MS is established using the SIP protocol, thereafter media control commands/responses (in the form of MSML control syntax) are exchanged in SIP messages, such as the INFO message or the 200 OK response.
<i>Dialogic® PowerMedia™ XMS RESTful API User's Guide</i>	Provides information for application developers using RESTful API over http transport to control media and call control resources of PowerMedia XMS.
<i>Dialogic® PowerMedia™ XMS RESTful Management API User's Guide</i>	Provides an alternative method of performing PowerMedia XMS system management tasks in an automated or distributed manner.
<i>Dialogic® PowerMedia™ XMS Variable Content Announcements Feature Guide</i>	Describes how to use variable content announcements for multiple languages in PowerMedia XMS.
<i>Dialogic® PowerMedia™ XMS VoiceXML Reference Guide</i>	Contains an alphabetical reference of supported VoiceXML elements and provides information about application properties, SSML support, session variables, and application variables.
<i>Dialogic® PowerMedia™ XMS WebRTC JavaScript API User's Guide</i>	Provides information on functionality to support connecting to and performing media operations on Web Real-Time Communication (WebRTC) compliant devices or endpoints (for example, browsers) with PowerMedia XMS.
<i>Dialogic® PowerMedia™ XMS Diagnostics Guide</i>	Provides information on gathering diagnostics to troubleshoot PowerMedia XMS issues.
<b>PowerMedia MRB</b>	
<i>Dialogic® PowerMedia™ Media Resource Broker (MRB) Quick Start Guide</i>	Describes how to install software and configure the PowerMedia MRB to initiate a working test setup.

Document	Description
<i>Dialogic® PowerMedia™ Media Resource Broker (MRB) Installation and Configuration Guide</i>	Provides instructions for installing and configuring the PowerMedia MRB.
<i>Dialogic® PowerMedia™ Media Resource Broker (MRB) Technology Guide</i>	Provides an overview of the PowerMedia MRB and its capabilities.
<b>JSR 309 Connector</b>	
<i>Dialogic® PowerMedia™ XMS JSR 309 Connector Software Installation and Configuration Guide</i>	<p>Provides the JSR 309 Connector installation and configuration information for the supported platforms.</p> <ul style="list-style-type: none"> <li>• Oracle Communications Converged Application Server (version 7)</li> <li>• TeleStax JBoss Application Server</li> </ul>
<i>Dialogic® PowerMedia™ XMS JSR 309 Connector Software Developer's Guide</i>	Describes any extensions added to the JSR 309 Connector (based on JSR 309 specification) in addition to which methods/parameters are supported.
<b>Application Notes</b>	
<i>Dialogic® PowerMedia™ XMS Application Note: Optimizing VMware Host Hardware and Virtual Machine to Reduce Latency</i>	Provides instructions on optimizing VMware ESXi, server settings, and Virtual Machine (VM) guest machines to reduce latency prior to installing PowerMedia XMS.
<i>Dialogic® PowerMedia™ XMS Application Note: Running PowerMedia XMS on Amazon Web Services</i>	Provides instructions on running PowerMedia XMS on Amazon Web Services (AWS) Elastic Compute Cloud (EC2) and Virtual Private Cloud (VPC).
<i>Dialogic® PowerMedia™ MRB Application Note: Running PowerMedia XMS on Amazon Web Services</i>	Provides instructions on running PowerMedia MRB on Amazon Web Services (AWS) Elastic Compute Cloud (EC2).
<i>Dialogic® PowerMedia® XMS Application Note: Hardening PowerMedia XMS Software Security</i>	Offers a set of recommendations from Dialogic that provide security hardening associated with the PowerMedia XMS.

## 4. System Requirements

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This section describes the system requirements for the PowerMedia XMS Release 4.0. The **minimum** and **recommended** system requirements are as follows:

Item	Requirement
Hardware	Intel Architecture-based server
Operating System	64-bit variants of the following operating systems are supported: <ul style="list-style-type: none"><li>• CentOS 7.x and 6.4 (or later)</li><li>• Red Hat Enterprise Linux (RHEL) 7.x and 6.4 (or later)</li><li>• Oracle Linux 6.4</li><li>• Oracle Linux 7.2 with Unbreakable Enterprise Kernel (UEK) Release 4</li></ul> <b>Note:</b> 32-bit operating systems are not supported.
Processor	<b>Minimum:</b> Intel Xeon E3-1220 <b>Recommended:</b> Intel multi-core Xeon Architecture-based server
Network Adapter	Single Port 1 Gigabit Server Adapter
Memory	<b>Minimum:</b> 8 GB UDIMM RAM <b>Recommended:</b> 16-32 GB DIMM RAM for medium to large workloads
Storage	<b>Minimum:</b> <ul style="list-style-type: none"><li>• <b>Capacity:</b> 40 GB HDD</li><li>• <b>IOPS:</b> At least 300</li><li>• <b>Throughput:</b> At least 2 MB/s sustained random 4 KB write</li></ul>
Refer to "Reference Configurations" in the <i>Dialogic® PowerMedia™ XMS Installation and Configuration Guide</i> for information on reference configurations that represent common application scenarios that utilize the PowerMedia XMS media server.	

## Supported Virtual Machines

The supported virtual machines (VM) are as follows:

- VMware ESXi 5.x and ESXi 6.x
- Kernel Virtual Machine (KVM)
- Oracle VM
- XenServer VM

The minimum virtual machine (VM) requirements are as follows:

- Processor: 2 vCPU
- Memory: 8 GB UDIMM RAM
- HDD: 40 GB HDD

**Note:** Virtualization systems chosen for PowerMedia XMS should be configured for enterprise or private virtual environments that permit customization of virtual machine (VM) settings and hypervisor performance tuning. Virtual environments running PowerMedia XMS must not over commit the CPU on the host platform to facilitate the real-time low-latency scheduling demands required for high quality media processing. Density capacity in virtual environments may vary and is generally a factor of the host platform capacity and the number of concurrent VMs running on that host.

Refer to the *Dialogic® PowerMedia™ XMS Application Note: Optimizing VMware Host Hardware and Virtual Machine to Reduce Latency* or the tuning guide for your hypervisor of choice (i.e., VMware) for more information.

## Cloud Environments

The qualified cloud environments include the following:

- Amazon Web Services (AWS)

**Note:** Refer to the *Dialogic® PowerMedia™ XMS Application Note: Running PowerMedia XMS on Amazon Web Services* for more information.

Support for Rackspace is available as a controlled introduction for Proof of Concept (PoC), development activities, and trials. For more information, refer to the following white paper:

- *Dialogic® PowerMedia™ XMS and the Rackspace Managed Cloud* at <http://www.dialogic.com/~media/products/media-server-software/download/xms-demos/Rackspace-XMS-Verification.pdf>.

## 5. Release Features

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This section describes the features and functionality supported in the PowerMedia XMS Release 4.0.

For more information, refer to the documents listed in the [Related Documentation](#) section.

### PowerMedia XMS Release 4.0

The following key new features and functionality are offered in the PowerMedia XMS Release 4.0:

#### Port Configuration for XMS Monitoring subsystem

PowerMedia XMS provides the ability to configure IP Ports used for the XMS monitoring subsystem. With this feature, administrators can configure the IP ports used for the XMS Metric database (influxDB) and XMS Graphing engine (Grafana). This system configuration item is provided for customers that may need to change the XMS default ports of the monitoring subsystem that might conflict with other applications that are installed on the same XMS system. Configuration of the IP Ports for the XMS Monitoring subsystem can be found on the Monitor -> Options tab.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

#### Previously Released Features

##### Cloud Licensing Deployment

PowerMedia XMS Release 4.0 introduces cloud licensing deployment options through a revised product licensing mechanism. The new licensing mechanism provides a cloud-based network-wide licensing scheme to the PowerMedia XMS/MRB solution, in addition to a node-locked license mechanism. With this product enhancement, PowerMedia XMS features are entitled to a product license code that can be shared among one or more PowerMedia XMS instances to provide a dynamic pool of media server resources.

In this release, the PowerMedia XMS product licensing facilitates deployment in dynamically changing cloud environments. The licensing is ideal for cloud and NFV deployments where PowerMedia XMS instances can be instantiated or terminated repeatedly to meet dynamic scaling considerations. This is especially powerful when fronted by a pair of PowerMedia MRBs to manage load balancing, failover and high availability of the cluster of PowerMedia XMS. This capability enables customers to quickly deliver, provision and modify services over time, while utilizing the same XMS network-wide license for their pool of PowerMedia XMS instances.

In this release, the PowerMedia XMS product licensing mechanism changes from the product specific node-locked (Node ID) license file to a cloud license model or a node-locked license model, enabled through a product license code. The product license code is installed on the product with product entitlements stored in the cloud. One product license code can be used to enable a single product instance or multiple product instances, depending on the needs of the customer.

The licensing scheme is flexible and can support many different customer configurations, including the same license codes used to host all sites, one license code for each site or one license code per each PowerMedia XMS instance. The network-wide licensing aspect of this release allows customers to dynamically share resources between instances, bring up and

down variable sized instances, and instantiate new virtual machine instances that all use the same license code. Since the entitlements are stored in the cloud, new features and capabilities can be added quickly and easily to expand service capacity on demand.

**Note:** PowerMedia XMS Release 3.x licenses must be upgraded to the new licensing. Customers who have currently valid support agreements with Dialogic can upgrade their license from PowerMedia XMS Release 3.x to PowerMedia XMS Release 4.0. Licenses can be upgraded by contacting your authorized Dialogic distributor.

## Cloud Licensing

The PowerMedia XMS Release 4.0 default license is a cloud-enabled deployment where feature entitlements are stored in the cloud and the user is provided a license code installable on each PowerMedia XMS instance. The feature resources of the cloud license can be shared among each of the PowerMedia XMS instances that are activated to that license code. Each PowerMedia XMS instance can be configured separately to pull from the shared pool the proper number of feature resources required by that instance. With shareable resources, multiple PowerMedia XMS instances can utilize the same license code and be transferred quickly to another server after the instance returns the feature resources to the pool. The cloud licensing is ideal for public or private cloud environments.

## Amazon Polly and Speech Profiles

PowerMedia XMS Release 4.0 adds support for Amazon Polly for Text-to-Speech (TTS) capabilities and speech profiles for dynamic selection of Text-to-Speech voices. Amazon Polly (<http://aws.amazon.com/polly>) is an Amazon Web Service (AWS) that turns text into lifelike speech to build speech-enabled products using dozens of languages and voices. PowerMedia XMS now leverages the languages and voices supported by Amazon Polly to be used to build speech-enabled prompts and telephony applications with existing PowerMedia XMS APIs.

In this release, PowerMedia XMS also adds support for speech profiles so that applications can dynamically select the voice and provider source that they would like to use for Text-to-Speech on a call-by-call basis. Customers can build dynamic speech-enabled applications across a variety of languages including variable language announcements that can be created programmatically. Amazon Polly and speech profiles are supported in PowerMedia XMS API: MSML, RESTful, and VXML.

**Note:** AWS limits the number of Amazon Polly transactions per second. Verify the limits imposed by AWS at <http://docs.aws.amazon.com/polly/latest/dg/limits.html>.

For more information on configuration of AWS account and speech profiles, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

For the MSML API, refer to the *Dialogic® PowerMedia™ XMS MSML Media Server Software User's Guide* for more information.

For the RESTful API, refer to the *Dialogic® PowerMedia™ XMS RESTful API User's Guide* for more information.

For the VXML API, refer to the *Dialogic® PowerMedia™ XMS VoiceXML Reference Guide* for more information.

## SIP TLS Support

PowerMedia XMS Release 4.0 adds support for SIP Transport Layer Security (TLS), a security mechanism for SIP call control that operates on the transport layer. SIP TLS is the method used to secure the SIP signaling exchange using an authentication procedure between trusted SIP endpoints. SIP TLS is an added security measure in PowerMedia XMS Release 4.0 that utilizes the secure storage to store certificates and provide secure signaling with trusted SIP endpoints, including between the PowerMedia XMS and PowerMedia MRB. Through the PowerMedia XMS configuration, users can enable TLS for SIP call control and configure the certificate or certificate chain used for authentication. PowerMedia XMS also supports the SIPS URI scheme as defined by RFC 5360 and SIPS URI call routing rules can be enabled in the **Routes** page through the WebGUI.

For more information on enabling SIP TLS and secure storage for certificates, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## DTMF Digit Masking

PowerMedia XMS Release 4.0 supports the ability to mask DTMF digits that are recorded to the diagnostic log files. The ability to mask DTMF digits is important for security practices because DTMF digits can often carry personal information such as credit card info, social security numbers or private pin codes. It is a requirement with the General Data Protection Regulation (GDPR) and PCI industry to limit collection of personal user information. Users can now configure PowerMedia XMS to mask DTMF digits to conceal the DTMFs from being exposed in log files. When this configuration item is selected, PowerMedia XMS will print a generic `\*` in place of all DTMFs, effectively removing all written record of DTMFs captured by the system. The configuration setting is available on the **System > Diagnostics** page through the WebGUI.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## HTTP Client Authentication

PowerMedia XMS Release 4.0 provides HTTP client authentication by allowing users to enable HTTP client certificates. HTTP client certificates are used to identify the client and authenticates the client to the server for the server to verify the client's identity and has permission to retrieve data. With this capability, users can enable HTTPS protocol to secure transfer of data and additionally enable HTTP certificates to authenticate PowerMedia XMS as a client to the HTTP server. This is an added layer of security that may not be required in all circumstances or deployments, now available to enable in PowerMedia XMS to provide a higher level of security with HTTP authentication.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## Transient Recordings

PowerMedia XMS Release 4.0 introduces support for transient recordings, which are recordings that are associated with the call session and are deleted from the system when the session ends. To enable the transient nature of the recording, an application records to the <media\_path/transient> folder. Files are recorded internally to the transient location and deleted when the session connection or conference that initiated the recording is terminated. This feature can be used by applications as a mechanism to remove a caller's Personally Identifiable Information (PII), such as user name recordings and other personal recordings from the system automatically. The transient record is supported by PowerMedia XMS applications, including MSML, RESTful, and VXML use the transient file location in the record functions.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## Configuration of RESTful API Username/Password

PowerMedia XMS Release 4.0 has been updated to support configuration of username and password for the RESTful Management API and RESTful Media API through the WebGUI. The username and password for these interfaces are now stored in the PowerMedia XMS secure storage. This capability allows users to secure both RESTful interfaces with a custom-defined username and password and provide a higher level of security and authentication for the RESTful interfaces.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## Start/Stop Services Individually

PowerMedia XMS Release 4.0 adds support for individually starting and stopping system services. Users can now start and stop optional services without requiring a full system restart. This new functionality allows customers to start up only the services they need and start optional services as they become required. For example, the SNMP service, disabled by default, can be started independently of overall system startup. The new functionality also enhances system management by allowing restart of individual services to aid in troubleshooting or to restart a service in the event of an alarm condition on the service.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## Provision for Dedicated SIP Control Channels

PowerMedia XMS Release 4.0 has been updated to support dedicated SIP control channels without the need to over-provision PowerMedia XMS ports. The dedicated control leg is a media-less SIP connection that then can be used to establish multiple conferences and send API commands. The PowerMedia XMS system will reserve an overhead of media-less SIP channels for use as control legs, so applications can use dedicated control legs without consuming call license resources.

**Note:** The total number of SIP signaling resources can be used by the application with or without media up to the license limits.

## Native Record H.264 to .mkv Files

PowerMedia XMS Release 4.0 has been updated with the capability to record native H.264 video to the Matroska (.mkv) file container. In this release, PowerMedia XMS now supports the ability to record H.264, in addition to VP8, natively to the MKV container without transcoding. This capability allows applications to record WebRTC multimedia streams (H.264/Opus) as they are transmitted by the endpoint and reduces the amount of CPU required to record individual caller multimedia streams, especially at higher resolutions.

## Additional H.264 Video SDP Configuration

PowerMedia XMS Release 4.0 adds support for additional configuration of H.264 video SDP parameters. In this release, the H.264 video codec configuration adds support for **Profile Level Id** and **Sprop Parameter Sets** configuration parameters. These parameters are used to configure PowerMedia XMS to answer an H.264 video call with restricted H.264 codec settings. These H.264 parameters are often used to increase interoperability with mobile or WebRTC endpoints that require constrained video streams.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## NETANN Global Configuration - Disable DTMF Clamping

In PowerMedia XMS Release 4.0, a new global NETANN (Network Announcements) configuration parameter has been exposed to disable DTMF clamping in NETANN conferences. By disabling DTMF clamping, NETANN conferences will pass through DTMF digits to remote endpoints joined to the conference. This capability can be useful for applications that use NETANN to join parties and expect DTMF digits to pass through the system to remote DTMF detectors. The new NETANN parameter is a global configuration item, with the default setting as DTMF clamping enabled and can be disabled through the WebGUI.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## Increased SDP Size Handling

PowerMedia XMS Release 4.0 has been updated to support larger SDP sizes, up to 12 KB. The increased SDP size handling is important for calls with large SDP payloads, especially WebRTC negotiations that advertise many candidates. In this release, the larger SDP sizes are supported dynamically without configuration.

## Increased SIP INFO (MIME Buffer) Handling

PowerMedia XMS Release 4.0 has been updated to support larger SIP INFO MIME buffer sizes, up to 60 KB. Some MSML applications can require large SIP INFO payloads, especially to communicate many commands in a single script. Configuration of the SIP INFO MIME buffer is now supported through SIP configuration through the WebGUI. The MIME buffer can be configured from 12 KB to 60 KB to accommodate very large scripts.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## **MSML <gain> Attributes tgtlvl and maxgain**

PowerMedia XMS Release 4.0 adds support for the MSML<gain> attributes tgtlvl and maxgain for Automated Gain Control (AGC) settings in conferences that were previously configurable on a global level. MSML applications can use these attributes to provide low level control over the AGC gain levels on a conference by conference basis. The MSML <gain> tgtlvl attribute is used to set the desired target level for AGC, while the MSML <gain> maxgain attribute is used to set that the AGC may apply to the conference.

For more information, refer to the *Dialogic® PowerMedia™ XMS MSML Media Server Software User's Guide*.

## **Configuration of Codec Profile through RESTful Management API**

In PowerMedia XMS Release 4.0, configuration of the PowerMedia XMS codec profile is now supported through the RESTful Management API. Users can take advantage of the RESTful Management API to programmatically set the codec profile used to specify ordering of codecs for outbound calls or null SDP answers. Applications can now set unique codec profile during runtime for the PowerMedia XMS to use on a call-by-call basis.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## **PowerMedia MRB Enhancements**

### **MRB High Capacity**

In PowerMedia XMS Release 4.0, the PowerMedia MRB has been enhanced to support up to 50 PowerMedia XMS instances to manage up to 100,000 total media sessions in a PowerMedia XMS media server cluster. The PowerMedia MRB has been enhanced to register and monitor up to 50 PowerMedia XMS instances and broker all the sessions supported by each PowerMedia XMS instance. By optimizing the communication between the PowerMedia MRB and the PowerMedia XMS MRB adaptor, the PowerMedia MRB efficiently collects and monitors the resource information from each of the PowerMedia XMS instances so that it is ready to route calls to available PowerMedia XMS instances in the PowerMedia XMS cluster. PowerMedia XMS is limited to a max of 2000 ports per instance, but as this value is increased the PowerMedia MRB can also scale the entire PowerMedia software media server solution.

Additionally, the PowerMedia MRB has been optimized to support high throughput media resource brokering up to 4000 calls per second (cps) across the PowerMedia XMS cluster of media servers. Applications that require resource routing and media server management for high scale environments but have limited need for advanced features such as call preservation or monitoring of API scripts can achieve high performance throughput with a single pair of PowerMedia MRBs. The high throughput mode can be useful for IVR applications and conference applications where the conference information is known in advance and application scenarios can be re-created in event of call failure. The PowerMedia MRB optimized SIP routing and media server management will connect and route calls quickly to the available media server resources and continue to offer high availability and management for media server failover steering. To help support high throughput environments, the PowerMedia MRB also provides additional SIP MRB headers to help route calls efficiently to the proper media server instances.

For more information, refer to the *Dialogic® PowerMedia™ Media Resource Broker (MRB) Technology Guide*.

## **SIP Notification of Resource Moved**

In PowerMedia XMS Release 4.0, the PowerMedia MRB adds support for a new SIP notification event to indicate a SIP call has been moved to a different media server. The SIP "resource\_moved" event can be used by SIP applications to take appropriate actions after a media server has failed and re-established calls to a new media server. The SIP notification event parallels the RESTful API "resource\_moved" event but is delivered as a SIP INFO message on each SIP call leg, to provide a SIP protocol indication as might be required by a MSML application. The application can use the event as a trigger to re-establish any media operations, such as when conferences and joined calls are moved on media server failover.

For more information, refer to the *Dialogic® PowerMedia™ Media Resource Broker (MRB) Technology Guide*.

## **Failover of DTMF Listeners**

In PowerMedia XMS Release 4.0, the PowerMedia MRB adds support for re-establishing DTMF listeners on call legs that are in a conference. Often applications use digit collection APIs established on the call or conference legs to handle DTMF events to take actions on the call or within the conference, such as to play a prompt or mute a line. When the PowerMedia MRB handles a media server failover, it monitors the PowerMedia XMS API in order to move conference calls or joined calls to provide call continuity. The PowerMedia MRB monitors conference APIs and scripts to determine if DTMF listeners have been established on the call or conference legs and re-establish them on the moved conference. The new call leg or conference will be ready to detect the same DTMFs and take the same actions as initially programmed in the original conference without additional action from the application on a moved resource event. There are some limitations imposed on mid-call playcollect operations.

For more information, refer to the *Dialogic® PowerMedia™ Media Resource Broker (MRB) Technology Guide*.

## **Preserve SIP Request URI**

In PowerMedia XMS Release 4.0, the PowerMedia MRB adds a configuration option to preserve the SIP Request URI (User Request Indicator) through the PowerMedia MRB. When this configuration item is enabled, the PowerMedia MRB will preserve the SIP Request URI from SIP ingress to SIP egress. By preserving the SIP Request URI, RESTful applications can utilize PowerMedia XMS routing rules on the **Routes** page through the WebGUI to steer calls to destination applications via the SIP URI.

For more information, refer to the *Dialogic® PowerMedia™ Media Resource Broker (MRB) Install and Config Guide*.

## **SIP (MSML) Control Channel Reuse**

In PowerMedia XMS Release 4.0, the PowerMedia MRB has been updated to support applications that utilize a dedicated SIP control channel for control of multiple conference instances. Some applications find it beneficial to use a single conference control channel while others utilize a control channel per conference. An API like MSML supports either mode where an application uses a dedicated control channel, a control channel per conference, or sends conference commands through one of the party legs. In this release, the PowerMedia MRB has been updated to recognize SIP control channel that handles multiple simultaneous ongoing conferences among the many PowerMedia XMS media servers it manages. No configuration is necessary to enable the functionality.

## TCP Upgrade for Large SIP Messages

In PowerMedia XMS Release 4.0, the PowerMedia MRB was upgraded with the ability to convert SIP messages from UDP to TCP when the packet size is greater than the maximum datagram MTU size. This functionality is designated by RFC 3261 to provide a TCP fallback for large SIP messages, and can be used when large MSML messages payloads exceed the MTU size are handled by the PowerMedia MRB solution.

## Previously Released Features

The following features were originally released in prior PowerMedia XMS releases in a Service Update or as Controlled Introduction (CI) and now generally available in PowerMedia XMS Release 4.0:

### MSML MOML Event Configuration (suppress moml.exit)

*This feature was originally released in PowerMedia XMS Release 3.5 SU5.*

PowerMedia XMS includes a **MOML Events** configuration parameter on the **MSML > MSML Advanced Configuration** page through the WebGUI that controls the behavior of MOML events in PowerMedia XMS. The option provides a compatibility mode for applications to disable MOML events if the application does not expect the RFC 5707 required MOML events. When this configuration is disabled, MOML events such as moml.exit will be suppressed and instead the exit shadow variables will be moved to the associated msml.dialog.exit event. The default configuration is enabled to comply with RFC 5707.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

### Auto-Save Undelivered Recording

*This feature was originally released in PowerMedia XMS Release 3.5 SU2.*

PowerMedia XMS automatically saves an undelivered HTTP recording in MSML, RESTful, and VXML. When there is a failure during an HTTP record operation (such as for a server problem), PowerMedia XMS will retry the PUT operation and if unsuccessful a second time, automatically save the recording locally for the application to recover. The application will receive an indication with file path to the undelivered recording. The undelivered recording can also be viewed and managed, with the ability to download the file on the **Media** page through the WebGUI.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

### Manual Mode for Service Startup

*This feature was originally released in PowerMedia XMS Release 3.5 SU2.*

PowerMedia XMS includes the ability to enable a manual service startup mode for post installation configuration. When the manual service startup mode is enabled, the system allows for configuration prior to full service startup.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## **Independent SIP and Media NAT Configuration**

*This feature was originally released in PowerMedia XMS Release 3.5 SU2.*

PowerMedia XMS includes the capability to specify the NAT address for SIP signaling separately from media. It allows an administrator ability to separate media and signaling interfaces in NATed environments to cover a greater number of cloud-centric deployment configurations.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## **Previous Releases**

### **PowerMedia XMS Release 3.5**

For notable features and functionality included in PowerMedia XMS Release 3.5, refer to the *Dialogic® PowerMedia® XMS Release 3.5 Release Notes* at:

[http://www.dialogic.com/webhelp/XMS/3.5/XMS\\_ReleaseNotes.pdf](http://www.dialogic.com/webhelp/XMS/3.5/XMS_ReleaseNotes.pdf)

### **PowerMedia XMS Release 3.4**

For notable features and functionality included in PowerMedia XMS Release 3.4, refer to the *Dialogic® PowerMedia® XMS Release 3.4 Release Notes* at:

[http://www.dialogic.com/webhelp/XMS/3.4/XMS\\_ReleaseNotes.pdf](http://www.dialogic.com/webhelp/XMS/3.4/XMS_ReleaseNotes.pdf)

### **PowerMedia XMS Release 3.3**

For notable features and functionality included in PowerMedia XMS Release 3.3, refer to the *Dialogic® PowerMedia® XMS Release 3.3 Release Notes* at:

[http://www.dialogic.com/webhelp/XMS/3.3/XMS\\_ReleaseNotes.pdf](http://www.dialogic.com/webhelp/XMS/3.3/XMS_ReleaseNotes.pdf)

## 6. Controlled Introduction Features

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In addition to general availability of new features and functionality, PowerMedia XMS Release 4.0 also includes functionality in a controlled introduction (CI). These are features that are under development or have a limited scope before being made generally available. These features are available for approved customers that are looking to perform Proof of Concept (PoC) with the listed functionality. CI features have not completed Dialogic's Quality Assurance ("QA") testing and are not recommended for production deployments without approval from Dialogic. Customers interested in these features should contact their Dialogic Sales Representative or Technical Support Service Engineer for further information on usage.

The following features are offered in the PowerMedia XMS Release 4.0 as controlled introduction:

### Remote Logging

PowerMedia XMS Release 4.0 has been enhanced with remote logging capabilities. In this release, users have the capability to configure PowerMedia XMS system diagnostics logging to a remote server. By using remote logging users can take advantage of external logging, indexing, and search services to aid in management and troubleshooting tasks.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

### MRCP Session Idle Timeout

PowerMedia XMS Release 4.0 adds a new configuration parameter to control the MRCP Session Idle Timeout. This configuration item controls the amount of time an MRCP resource is reserved after first use of an MRCP resource for speak or recognize functionality. The use of this parameter can help optimize the use of MRCP resource licenses by releasing the resource after an idle period.

The default setting for the **MRCP Session Idle Timeout** configuration parameter is "End of Call", where the MRCP resource and underlying session will be reserved for that channel until the call is terminated. The parameter may also be set to "Disabled" to release the MRCP resource immediately after each TTS (speak) or ASR (recognize) operation or expire in a configured number of seconds (1-300) of inactivity. The **MRCP Session Idle Timeout** configuration parameter is supported in the MSML and VXML API, configurable through the appropriate WebGUI configuration pages.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

### Selective Forwarding Unit (SFU)

PowerMedia XMS Release 4.0 supports a Selective Forwarding Unit (SFU) video conferencing approach for certain customer Proof of Concept (PoC) scenarios. With the SFU video conference, a video stream from each participant is routed (without transcoding) to the other participants in multimedia conference. The PowerMedia XMS SFU uses Dialogic patented and patent-pending technology to maintain video quality.

The SFU video conference can be used with similar video endpoints, such as WebRTC browsers, to route video between endpoints rather than processing video streams independently as is the case with a traditional Multipoint Control Unit (MCU) video conferencing. This tradeoff can be helpful to reduce CPU utilization and increase capacity when it is known all video endpoints in the video conference are compatible.

In this release, PowerMedia XMS provides SFU video conferencing to WebRTC and SIP endpoints by supporting a single input stream per client and a VAS (Voice Activated Switching) style output, where each client sees video based on an active talker algorithm. The SFU video conference is a conference mode that can be selected upon conference creation. Once selected, video streams are routed between endpoints rather than using video transcoding to process the stream into a common format. The SFU video conference uses RTCP feedback messages to provide high quality video with the client and to handle packet loss in poor network environments. In the SFU video conference, audio is still mixed as it is in a traditional audio or video conference.

For the MSML API, refer to the *Dialogic® PowerMedia™ XMS MSML Media Server Software User's Guide* for more information.

For the RESTful API, refer to the *Dialogic® PowerMedia™ XMS RESTful API User's Guide* for more information.

## **Google Chrome Interoperability Considerations When Using SFU**

If no video is being sent into a Selective Forwarding Unit (SFU) conference and any Google Chrome clients are connected to PowerMedia XMS with `video=recvonly`, those Google Chrome clients will not render the audio that they receive. Additional information can be found at <http://bugs.chromium.org/p/chromium/issues/detail?id=403710>.

## **Primary Video Source for SFU**

PowerMedia XMS Release 4.0 provides an API (`dlg:sfu_video_source` for MSML and `primary_video_source` for RESTful) that allows setting the video to be sent to each party in a Selective Forwarding Unit (SFU) conference. This feature is available at the user level and conference level, and possible selections include "loudest speaker" (default) and all conference parties. This API is available in `join` and `modifystream` for MSML and in `add_party/update_party` and `update_conference` for RESTful.

For the MSML API, refer to the *Dialogic® PowerMedia™ XMS MSML Media Server Software User's Guide* for more information.

For the RESTful API, refer to the *Dialogic® PowerMedia™ XMS RESTful API User's Guide* for more information.

## **Video Encoder Sharing Support**

PowerMedia XMS Release 4.0 supports video encoder sharing. Video encoder sharing includes Dialogic patented video technology that provides enhanced performance for video conferencing and video mixing applications. Video encoder sharing works by reducing the CPU cycles required to perform the most CPU intensive video function: video encoding. In video conferencing applications, such as for WebRTC video conferencing between browsers, the video conference output can be encoded once and shared among multiple users.

The video encoder sharing technology provides the capability to encode once for multiple video conference participants and perform, via Dialogic patented technology, dynamic bitrate adaptation to each endpoint independently.

This feature increases the number of supported sessions while treating the network conditions to each party uniquely, which promotes better video quality at each endpoint. This feature, combined with centralized video mixing, also provides reduced bandwidth over point-to-point video sharing between WebRTC browsers.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## **CVO Support**

PowerMedia XMS Release 4.0 supports SDP negotiation and handling of video orientation of client video when signaled using Coordination of Video Orientation (CVO) parameters as defined by 3GPP TS 26.114. The CVO parameters are used by endpoints, especially mobile video devices, to signal the video orientation of the video stream that is being transmitted so orientation can be adjusted (via rotation) on the receive end. PowerMedia XMS supports 2-bit CVO indications from video endpoints and intelligently utilizes these parameters during video processing depending on the use case. PowerMedia XMS supports the CVO bits in transcoded and native joined calls, video conferences, and during play and record. When CVO is used in transcoding cases, PowerMedia XMS will rotate the video stream (if needed) to result in the proper video orientation for the endpoint and situation. When CVO is used in native (non-transcoded) connections, such as native join or SFU, PowerMedia XMS will forward and signal to the remote endpoint the proper video orientation of the video.

## **VP9 Video Codec**

PowerMedia XMS Release 4.0 supports VP9 video codec for WebRTC endpoints. XMS enables full decoding and encoding of VP9-based video sessions between Google Chrome and other VP9 endpoints, as well as transcoding to non-VP9 endpoints. VP9 is an open source and royalty free video codec developed by Google. VP9 offers compression enhancements over its precursor VP8. By adding support for VP9, PowerMedia XMS software facilitates broad interoperability between video formats and systems.

## **CDR Remote Database**

PowerMedia XMS Release 4.0 supports the ability to utilize a remote database for CDR storage. This allows users to configure separate CDR storage from the default PowerMedia XMS local storage normally used for CDR storage. A remote database can also be beneficial for database replication, redundancy, and high data availability to provide a level of fault tolerance against the loss of a single database server.

## 7. Installation

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There are two installation methods available:

- [ISO Method](#)
- [RPM Method](#) (used for a CentOS or RHEL installation)

### ISO Method

#### Operating System Requirement:

- Community ENTerprise Operating System (CentOS) 7.x

The ISO installation method is a complete system installation that includes the CentOS, OS optimizations, and PowerMedia XMS software. The ISO can be installed from a DVD drive to a physical or virtual machine.

For more information, refer to the *Dialogic® PowerMedia™ XMS Quick Start Guide* and *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

**Note:** The ISO image is provided for ***development and trial purposes only*** and is not considered security hardened. Users who want to have individual control over the specific operating system package versions and latest security updates should opt to install the RPM-based distribution option. Only the RPM-based distribution is supported for production systems.

### RPM Method

Before running the RPM installation method, the following packages, available from the OS distributor, must first be installed:

- perl-core
- perl-Crypt-OpenSSL-Random
- perl-JSON
- openssl version 1.0.1e or higher
- httpd-2.2.15-60.el6.centos.4.x86\_64 or higher

**Note:** If using CentOS 6.x, please ensure that the installed version (2.2.15) and release (60.el6.centos.4) of httpd is *httpd-2.2.15-60.el6.centos.4.x86\_64* or higher.

**Note:** The WebGUI requires a minimum version of TLS 1.2. If using CentOS 6.x, please ensure that the installed version of httpd is *httpd-2.2.15-60.el6.centos.4.x86\_64* or higher. If the CentOS 6.x httpd package is not updated, the XMS installation logs will indicate that "httpd may fail to start" and the WebGUI will be unresponsive. The failure message will also appear in */var/log/messages* when trying to start httpd or reboot the system.

**Note:** If using VXML and CentOS/RHEL 7.x, please ensure that the installed version of js is *js-1.8.5-20.el7.x86\_64* or higher.

The stand-alone RPM installation method is used for installation on top of a pre-existing CentOS or RHEL installation. The RPM installation will install the PowerMedia XMS software and prerequisite packages required to run PowerMedia XMS. The RPM installation will also make OS adjustments for real-time audio and video processing required for optimal performance.

For more information, refer to the *Dialogic® PowerMedia™ XMS Quick Start Guide* and *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

## 8. Upgrading

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The **System > Upgrade** page through the WebGUI provides the option to upgrade the system by uploading a system upgrade package.

Perform the following steps to upgrade the system:

1. Select the **System** menu.
2. Click the **Upgrade** page.
3. Click **Browse** from the **Upload System Upgrade Package** section to access a system upgrade package file (.tgz) that has been downloaded.
4. Once you select the system upgrade package file, click **Upload**. After the upload completes, the system upgrade package file will be listed in the **System Upgrade Package** section.
5. Locate the appropriate system upgrade package file and click **Upgrade**.

**Note:** The PowerMedia XMS Release 4.0 installation script can only upgrade systems running PowerMedia XMS Release 3.0 or higher. Users of PowerMedia XMS Release 2.x must uninstall it first before installing PowerMedia XMS Release 4.0.

**Note:** If upgrading from PowerMedia XMS Release 3.0 Service Update 1, you must use the command line upgrade process. There is a known defect in the PowerMedia XMS Release 3.0 Service Update 1 WebGUI upgrade process. If you have already attempted to upgrade using the WebGUI, you can remove and reinstall PowerMedia XMS using the command line installation. Refer to "RPM Installation and Script Options" in the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide* for information on how to upgrade your system using the command line upgrade script.

**Note:** If there is already a system upgrade package file listed in the **System Upgrade Package** section, you can click **Upgrade** on the appropriate system upgrade package file.

**Note:** PowerMedia XMS configuration settings are preserved when upgrading the PowerMedia XMS system. Direct user modifications to PowerMedia XMS files may be overwritten with upgraded versions.

## 9. Configuration

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There are two configuration methods available:

- [PowerMedia XMS Admin Console](#)
- [RESTful Management API](#)

### **PowerMedia XMS Admin Console**

The PowerMedia XMS Admin Console ("Console" or "WebGUI") is a secure web-based GUI used to manage PowerMedia XMS. The WebGUI can be reached using a web browser and the PowerMedia XMS IP address.

For more information, refer to the *Dialogic® PowerMedia™ XMS Quick Start Guide* and *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

### **RESTful Management API**

The RESTful Management API is an alternate way of configuring and performing system management tasks for PowerMedia XMS. The RESTful Management API is a remote API carried over HTTP transport that allows the option to incorporate configuration elements into an application or web interface in a more automated or distributed manner.

For more information, refer to the *Dialogic® PowerMedia™ XMS RESTful Management API User's Guide*.

# 10. Licensing

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## License Types

### Verification License

PowerMedia XMS comes with a 1-port verification license to verify connectivity and check single port media and signaling activation. The 1-port verification license is enabled by default when no other PowerMedia XMS license is active. The verification license enables 1 Basic Audio port.

### Trial License (4-port/45-day)

PowerMedia XMS software can be requested by filling out a form through the Dialogic website at <http://www.dialogic.com/xms/xms-download>.

PowerMedia XMS software comes with access to a 4-port license for a 45-day limited trial. The PowerMedia XMS trial license can be activated by clicking the **Trial License** button on the **License Manager** page through the WebGUI. The user must fill in the form details to activate the trial license.

The trial license includes the following PowerMedia XMS features:

- 4 Basic Audio, 4 HD Voice (No AMR-WB), 4 Advanced Video, 4 LBR, 4 High Resolution Video, 4 MRCP Speech Server, and 4 MSRP.

**Note:** The trial license will allow use of all other HD Voice codecs (such as G.722, Opus, and EVS) but not AMR-WB, even though it is enabled with an HD Voice License.

This trial license is not intended to provide access to all product capability.

**Note:** A trial license can only be activated once per individual computer. If the individual computer was previously activated with a trial or regular license code, it does not qualify for a trial license.

### Evaluation and Production Licenses

PowerMedia XMS production licenses, evaluation licenses for larger session installations or subscriptions can be obtained through your authorized Dialogic distributor or by contacting Dialogic Inside Sales ([insidesales@dialogic.com](mailto:insidesales@dialogic.com)).

The following licensing capabilities are supported in this release:

- **Cloud Licensing:** PowerMedia XMS feature entitlements are stored in the cloud and the user is provided a product license code installable on each PowerMedia XMS instance. The feature resources of the cloud license can be shared among each of the PowerMedia XMS instances that are activated to that product license code.
- **License Server Licensing:** PowerMedia XMS feature entitlements are stored in the cloud and transferred to a local license server using a product license code. The local license server is enabled with its own master license code and distributes PowerMedia XMS features to share among local PowerMedia XMS instances.
- **Node-Locked Licensing:** PowerMedia XMS feature entitlements are provided through a product license code installable on the PowerMedia XMS instance.

## **Applicable Third-Party License Information**

This software uses third party software libraries from the FFmpeg project (<http://www.ffmpeg.org>) licensed under the LGPLv2.1, and source code for these libraries can be downloaded from: <http://www.dialogic.com/xms/xms-swcomponents>.

## 11. Logging

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In PowerMedia XMS, the default logging level is set to WARN. For production-level traffic or high-density testing, it is recommended to set the logging level to ERROR because the ERROR setting provides the lightest logging levels. To set the logging level, go to the **System > Diagnostics** page through the WebGUI.

The DEBUG setting provides the most intensive logging levels. When running PowerMedia XMS diagnostics logging at increased logging levels (i.e., DEBUG), there is additional CPU and hard drive access loading. The loading is dependent on the channel density of the system and also the level of logging that has been enabled. If system performance issues are encountered, users may need to reduce the channel load or reduce some of the debugging prints.

## 12. Post-Release Developments

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This section describes significant changes subsequent to the general availability release.

### PowerMedia XMS Release 4.0 Service Update

This Service Update for PowerMedia XMS Release 4.0 is now available. Service Updates provide fixes to known problems, and may also introduce new functionality. It is intended that new versions of the Service Update will be released periodically.

For information about installing this release, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

### Support for MSML <gain> in MSML Dialog Package

PowerMedia XMS Release 4.0 Service Update 7 adds support for MSML <gain> for volume control on a media play. This capability adds support for volume control of a file being played by controlling the volume through dtmf digits. This addition is specific to the "MSML Dialog Transform Package" for support of <gain> element to adjust the gain of a media stream by a specific amount while playing a file.

For more information, refer to the *Dialogic® PowerMedia™ XMS MSML Media Server Software User's Guide*.

### Fax Page Quality Thresholds

PowerMedia XMS Release 4.0 Service Update 4 adds support for fax page quality thresholds to provide application with configurable setting to determine fax success criteria based on page quality. Under some conditions, fax pages may be received with only a percentage of successful line data. This feature allows applications to customize the criteria by which it accepts a fax with bad lines as successful or failed fax, depending on the application tolerance and requirements. This release adds support for new PowerMedia XMS fax parameters, `total_lines`, `consecutive_bad_lines`, and `bad_lines` as shadow variables to the MSML API. The fax page quality thresholds have been added to the fax configuration page to allow the user to set the default preference quality levels for these parameters.

For more information, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide* and *Dialogic® PowerMedia™ XMS MSML Media Server Software User's Guide*.

### MRB Support for SNMPv3

PowerMedia XMS Release 4.0 Service Update 4 includes an updated PowerMedia MRB with support for SNMPv3. The addition of SNMPv3 adds support for updated security configuration settings that ensures that SNMP messages are encrypted to the designated recipients providing an additional layer of security for system managers. The PowerMedia MRB allows users to specify up to 10 trap destinations that can be a combination of new SNMPv3 trap destinations or SNMPv2c trap destinations. The new SNMPv3 trap destinations can be secured with a unique security, authentication and privacy configuration per destination providing flexibility in network configuration.

For more information, refer to the *Dialogic® PowerMedia™ Media Resource Broker (MRB) Installation and Configuration Guide*.

## Local License Server

PowerMedia XMS Release 4.0 Service Update 3 supports a local license server deployment in a controlled introduction for customers that must restrict network access to private networks. PowerMedia XMS feature entitlements are stored in the cloud and transferred to the local license server using an online or offline method. The local license server then distributes the PowerMedia XMS features to share among the local PowerMedia XMS instances. As with cloud licensing, multiple PowerMedia XMS instances can utilize the same license code to share same feature resources among instances or spin up/down new instances.

**Note:** As a controlled introduction, customers interested in this functionality should contact their Dialogic Sales Representative or Technical Support Service Engineer for further information on usage.

## MS Enabled SIP Timer

PowerMedia XMS Release 4.0 Service Update 2 includes a behavioral update to the PowerMedia XMS SIP Session Timer functionality to align with RFC 4028; enabling support for a MS Enabled SIP Timer. As of this release, PowerMedia XMS (in the role of UAS) will act as the refresher when the client (UAC) does not include "Supported:timer" and "Session-Expires" headers in the inbound SIP INVITE. This product change aligns with the RFC 4028, Table 2 (first line), which defines the SIP Session Timer behavior of the UAS under various scenarios. This enhancement enables a PowerMedia XMS SIP timer to clear SIP sessions and media that may have been abandoned and are no longer responding to SIP messages.

## 13. Release Issues

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This section lists the issues that may affect the PowerMedia XMS Release 4.0.

PowerMedia XMS Release 4.0 includes the applicable resolved issues from the following releases:

- PowerMedia XMS Release 3.5 Service Update 19 ([Release Notes](#))
- PowerMedia XMS Release 3.4 Service Update 7 ([Release Notes](#))
- PowerMedia XMS Release 3.3 Service Update 1 ([Release Notes](#))
- PowerMedia XMS Release 3.2 Service Update 9 ([Release Notes](#))

### Limitations

PowerMedia XMS Release 4.0 has the following limitations:

- The RPM installation method can automatically install prerequisite operating system packages. If installing PowerMedia XMS on an existing system, it is recommended to have the yum package manager configured to use the online repository or a repository consisting of a locally mounted DVD or ISO of the operating system version being installed on.
- When upgrading a previous PowerMedia XMS installation and using the RESTful programming interface, verify the route entries in the **Routes** page through the WebGUI after the upgrade completes.
- When using the web upgrade method for PowerMedia XMS, ensure your system has net-snmp (x86\_64), net-snmp-libs (x86\_64), and net-snmp-libs (i686) installed before the upgrade, or have yum enabled with the standard repository that matches your OS (the prerequisite packages will be installed automatically).

**Note:** When using the command line upgrade method for PowerMedia XMS, appropriate messages will be displayed instructing the user to install those packages if yum is not configured.

- When using JSR 309 and recording a party that is joined to a conference, the video freezes. JSR 309 has DEFAULT\_BEEP enabled by default, which causes this PowerMedia XMS behavior. To overcome this limitation, set DEFAULT\_BEEP to FALSE before starting the recording.
- The PowerMedia MRB does not support MRCP in RESTful.

### Selective Forward Unit (SFU)

When using SFU, all of the clients connected to SFU conference must:

- Support GNACK and PLI (i.e., WebRTC clients such as Google Chrome and Mozilla Firefox).
- Support VP8 and negotiate the VP8 codec.
- Use the same video codec (currently restricted to VP8).
- Use the same video resolution.

The following precautions should be taken:

- Avoid setting layout options, as any video layout options are not supported as of this release. When using MSML, the layout must be specified as "auto".
- Video transcoding is not supported while using SFU. Features requiring video transcoding may have undesirable effects. These features include but are not limited to:
  - Conference background image and color, and borders.
  - Text and image overlay.
  - Video layouts and root sizes.
  - SIP re-INVITEs which change the video coder.

## Changes and Considerations

PowerMedia XMS Release 4.0 has the following changes and considerations:

### GNU Bourne Again Shell (Bash) Vulnerability

A vulnerability "Shellshock" has been reported in the GNU Bourne Again Shell (Bash), the common command-line shell used in most Linux/UNIX operating systems (OS). The flaw could allow an attacker to remotely execute shell commands by attaching malicious code in environment variables used by the OS. Patches have been released to fix this vulnerability for affected OS versions. As of the publication date of this document, the current solution does not completely resolve the vulnerability. It is recommended that the user install existing patches and pay attention for updated patches.

PowerMedia XMS makes use of the bash shell in several components. For ISO installations, it is recommended that the user log into the PowerMedia XMS command line and update the bash package with the following command line:

```
# yum update bash
```

For PowerMedia XMS RPM installations, the user should check the version of bash package installed and apply any patches if required. Additional information about Shellshock can be found at <http://www.us-cert.gov/ncas/alerts/TA14-268A>.

### Provision for Dedicated SIP Control Channels

PowerMedia XMS supports dedicated SIP control channels without need to over-provision PowerMedia XMS ports. The dedicated control leg is a media-less SIP connection that then can be used to establish multiple conferences and send API commands. The PowerMedia XMS system will reserve an overhead of media-less SIP channels for use as control legs, so applications can use dedicated control legs without consuming call license resources.

**Note:** The total number of SIP signaling resources can be used by the application with or without media up to the license limits.

## Behavior Change for Primitive Termination Cause in MSML

PowerMedia XMS Release 4.0 Service Update 3 includes a behavior change for primitive termination cause in MSML.

The old behavior:

If a primitive is terminated and another terminate event is received before the "msml.dialog.exit" event is sent, the termination cause (i.e., the "{primitive}.end" shadow variable) will be overwritten by the last terminate event cause.

The new behavior:

If a primitive is terminated and another terminate event is received before the "msml.dialog.exit" event is sent, the termination cause (i.e., the "{primitive}.end" shadow variable) will store only the first terminate event cause.

## Behavior Change for SDP Offer/Answer

PowerMedia XMS Release 4.0 Service Update 7 includes a behavior change for SDP offer/answer. The RFC 3264 indicates that an answer SDP (or offer SDP in the case of a re-INVITE) cannot have less m= lines than the offer SDP (or the previously negotiated amount on a session in the case of a re-INVITE).

The old behavior:

If the PowerMedia XMS offered an SDP with 3 m= lines but the answer only included 2 m= lines, PowerMedia XMS will answer the call.

The new behavior:

If the PowerMedia XMS offered an SDP with 3 m= lines but the answer only included 2 m= lines, PowerMedia XMS will now reject the call.

If an active session (call) on the PowerMedia XMS currently has 3 m= lines during a re-INVITE transaction on this session and then PowerMedia XMS receives an offer or answer SDP that only includes 2 m= lines, PowerMedia XMS will now reject the call.

## Issues Table

The table in this section list issues that affect the [PowerMedia XMS](#). The issues are sorted by issue type. The following information is provided for each issue:

- **Issue Type** – This classifies the type of release issue based on its effect on users and its disposition:
  - **Known** – A minor issue. This category includes interoperability issues and compatibility issues. Known issues are still open but may or may not be fixed in the future.
  - **Known (permanent)** – A known issue or limitation that is not intended to be fixed in the future.
  - **Resolved** – An issue that was resolved (usually either fixed or documented) in this release.
- **Defect No.** – A unique identification number that is used to track each issue reported.
- **SU No.** – For defects that were resolved in a Service Update, the Service Update number is shown.
- **Product or Component** – The product or component to which the issue relates; for example, an API.
- **Description** – A summary description of the issue. For non-resolved issues, a workaround is included when available.

**Note:** The <sup>CI</sup> superscript represents a controlled introduction (CI) feature or functionality.

## PowerMedia XMS

Issue Type	Defect No.	SU No.	Product or Component	Description
Resolved	XMS-14543	10	XMS	An issue that caused an MSML conference party join request to time out with a 408 SIP response was resolved.
Resolved	XMS-14517	10	XMS	An issue that caused SIP INVITE to be rejected with 400 "Sip Parser Error" for certain SIP "Identity" header formats was addressed.
Resolved	XMS-14428	10	XMS	An issue was resolved where an INFO request to record was not processed when it was sent immediately after ACK (with SDP).
Resolved	XMS-14205	10	XMS	An issue was fixed where an MRCP resource was not released, which prevented the completion event from being sent.
Resolved	XMS-14198	10	XMS	The server request timer and UDP retransmission counter processing were fixed, thereby preventing the AS and MRCP call leg from getting stuck when no response is received.
Resolved	XMS-14189	10	XMS	XMS no longer responds to a client reinvite (with a null SDP) with an illegal payload type for its media.
Resolved	XMS-14175	10	XMS	An issue was addressed so that the cloud license port setting is now preserved during the upgrade process.
Resolved	XMS-14150	10	XMS	An issue that caused a random MRB failover has been resolved.
Resolved	XMS-14132	10	XMS	XMS download diagnostics' sosreport generation no longer creates a crash report when "include system diagnostics" is selected.

Issue Type	Defect No.	SU No.	Product or Component	Description
Resolved	XMS-14120	10	XMS	Audio playing from the RTSP server can now be heard.
Resolved	XMS-14049	10	XMS	A signaling and MRCP resource leak that caused XMS to reject an incoming OPTIONS ping or INVITE with a "486 Busy Here" response was fixed.
Resolved	XMS-14042	10	XMS	An issue that caused the XMS 3.5 cdrserver to go into the "Failed" state and no longer gather CDR entries has been fixed.
Resolved	XMS-13987	10	XMS	The XMS graph no longer displays the wrong unit for Network Performance "byte_sent per sec" and "byte_rcv per sec".
Resolved	XMS-13841	9	XMS	When users log in to SSO to modify the configuration or service state, they will no longer get logged out or receive a response error: 500.
Resolved	XMS-13803	9	XMS	When accessing the <b>Monitor&gt;Graph</b> feature, an issue was corrected where when selecting Time Interval (5 minutes), the graph did not display the accurate counter value data in the summary page.
Resolved	XMS-13669	9	XMS	An issue was fixed where the CDR service did not correctly track disconnected calls when the XMS services restarted after a graceful shutdown.
Resolved	XMS-13639	9	XMS	An issue was resolved where sending a PDF fax on an XMS system (with ghostscript version 9.25) converted the PDF to a TIFF file with an unsupported page width.

<b>Issue Type</b>	<b>Defect No.</b>	<b>SU No.</b>	<b>Product or Component</b>	<b>Description</b>
Resolved	XMS-13534	8	XMS	When cpa was enabled, the call state progressed incorrectly and dialing couldn't occur; therefore, an issue was fixed where the state was changed to PROGRESSING or RINGING instead of nothing. The cpa can now manage the delay from ANSWERED to CONNECTED state.
Resolved	XMS-13417	8	XMS	To correct a 903 invalid XML error, support was added for the same_ms_as attribute in the MRB on a conference POST as well as a call POST.
Resolved	XMS-13346	8	XMS	A "501 Not Implemented" error was corrected by addressing an issue when handling preconditions.
Resolved	XMS-13342	8	XMS	A FireFox WebRTC connect freeze issue was fixed by addressing an issue in the logs and modifying the audio attribute.
Resolved	XMS-13320	8	XMS	An error message displays now if a file is not accessible in GET and PUT requests for an XMS report transfer request if a destination folder doesn't exist.
Resolved	XMS-13291	8	WebUI	A security issue was resolved so that deleted or disabled users can no longer log in or perform any actions.
Resolved	XMS-13273	8	http	An httpclient crash bug was resolved so that Google Cloud Platform hosted files play correctly.
Resolved	XMS-13272	8	XMS	An issue was resolved so that SIP INFO messages with type: application/dtmf-relay are received properly.

<b>Issue Type</b>	<b>Defect No.</b>	<b>SU No.</b>	<b>Product or Component</b>	<b>Description</b>
Resolved	XMS-13242	8	XMS	An issue was fixed where saving the codec profile caused an error: "Failed to set configuration data, Reason: Service return error status: 400" while saving codec profile".
Resolved	XMS-13222	8	XMS	A MRCP Server issue was resolved that caused SIP and ASR/TTS sessions to get stuck.
Resolved	XMS-13207	8	VXML	An intermittent VXML dialog hang issue was fixed which occurred during the PREPARE_DIALOG stage where there were no available streams.
Resolved	XMS-13202	8	XMS	A bug was fixed where the xmsprof.sh shell script ran during user login. This script has since been deprecated.
Resolved	XMS-13155	8	XMS	Issues were resolved with the CLD metrics file rotation.
Resolved	XMS-13125	8	MSML	A MRCP Server bug was corrected to address a memory issue.
Resolved	XMS-13044	8	XMS	An appmanager issue was corrected to prevent crashes during tests.
Resolved	XMS-13022	8	Video	XMS streams low resolution video to some devices.
Resolved	XMS-12989	8	MRCP	MRCP client crash when attempting to send BYE on closed connection.
Resolved	XMS-12976	8	XMS	A flickering issue was resolved as well as the (Monitor -> Call Groups) now appears correctly in the WEB UI.
Resolved	XMS-12972	8	XMS	A bug was fixed so now the signaling session works when using "xmserver.session.sip.active" when returning data from the xmserver.

<b>Issue Type</b>	<b>Defect No.</b>	<b>SU No.</b>	<b>Product or Component</b>	<b>Description</b>
Resolved	XMS-12921	8	XMS	An issue was resolved by converting the mrpc close session call from synchronous to asynchronous to prevent a "408 Request Timeout" when using INVITE request with the appmanager to get a response from the MSML service.
Resolved	XMS-12912	8	HMP	A bug was fixed so there is no longer a 2-4 second video delay in the Agent and User side view.
Resolved	XMS-12894	8	Licensing	The HMP devicemapper was activated successfully as a default to the verification license though the Nalperion license so that a list of devices can be built.
Resolved	XMS-12875	8	CDR	A CDR service crash issue was resolved.
Resolved	XMS-12821	8	XMS	XMS process failure causes impaired audio following media server migration.
Resolved	XMS-12818	8	HMP	A SSP crash issue was resolved for SMS 3.5.21019 SU8.
Resolved	XMS-12817	7	Fax	XMS faxservice crash due to invalid fax page width.
Resolved	XMS-12781	7	VXML	VXML logging does not take effect after being enabled.
Resolved	XMS-12771	7	MRCP	MRCP client crash causes XMS to become unresponsive.
Resolved	XMS-12747	7	MRB	MRB modifies the Supported header, causing XMS to reject INVITE messages.
Resolved	XMS-12744	7	MRB	MRB delays sending hang up message to XMS.
Resolved	XMS-12667	7	MRB	MRB sometimes reorders events to application.

<b>Issue Type</b>	<b>Defect No.</b>	<b>SU No.</b>	<b>Product or Component</b>	<b>Description</b>
Resolved	XMS-12657	7	XMS	XMS rejects calls due to licensing timeout.
Resolved	XMS-12633	7	MRCP	MRCP client does reload configuration after configuration change.
Resolved	XMS-12586	7	XMS	XMS responds with unsupported H.264 packetization mode.
Resolved	XMS-12582	7	SNMP	"High Threshold Configuration" parameter is missing for MSRP protocol.
Resolved	XMS-9833	7	WebGUI	Addressed security vulnerability in XMS WebGUI.
Resolved	XMS-11998	6	HMP	PRACK is not included in the SIP Allow header.
Resolved	XMS-12488	6	HTTP Client	When attempting to play a cached file, there are ERROR and WARN prints.
Resolved	XMS-12036	6	MRB	RESTful API is unresponsive when an app or a browser requests the number of active calls.
Resolved	XMS-9904	6	MSRP	The msrpservice binary fails with segmentation fault.
Resolved	XMS-11953	6	Nodecontroller	The xmserver service fails to start after changing telephony payload type via RESTful Management API.
Resolved	XMS-12129	6	SNMP	SNMP MIB views are removed in the local file after updating SNMP fields in WebGUI.

Issue Type	Defect No.	SU No.	Product or Component	Description
Known	XMS-12560	6	WebGUI	The <b>Remote Logging Server Sample Configuration</b> and <b>Remote PostgreSQL CDR Database Schema</b> files fail to download due to a "Bad Certificate" on the <b>Downloads</b> page of the WebGUI.  A possible workaround is to try a different browser or computer.
Resolved	XMS-12343	5	Nodecontroller	Addressed formatting issue in RESTful Management API.
Resolved	XMS-11838	4	Appmanager	When PRACK with SDP and BYE arrives almost at the same time, the incoming call with precondition gets stuck forever.
Resolved	XMS-12027	4	HMP	XMS fails with segmentation fault while encoding AMRWB audio in ssp_x86Linux_boot process.
Resolved	XMS-12138	4	MRB	MRB changes RESTful appid in the incoming event_data call event.
Resolved	XMS-12119	4	MRB	MRB goes into failover state due to memory leak.
Resolved	XMS-12101	4	MRB	XMS shows as being unavailable in MRB with "break in RTP was false alarm" error.
Resolved	XMS-12039	4	MRB	MRB is reporting incorrect active session count in response to a RESTful API to GET the total active resources within the media cluster.
Resolved	XMS-12260	4	SNMP	Unable to set the <b>License Server Unreachable Grace Period</b> field on the <b>SNMP &gt; High Threshold Configuration</b> page of the WebGUI.
Resolved	XMS-11601	4	Third Party	The telegraf service fails with segmentation fault.

Issue Type	Defect No.	SU No.	Product or Component	Description
Resolved	XMS-12004	4	Video	The video quality is degraded with lower than expected bandwidth setting in XMS response.
Resolved	XMS-11588	4	Video	Experiencing one-way video during load testing. SIP client and WebRTC client are bridged together.
Resolved	XMS-12135	4	VXML	VXML crash is observed after rebooting the system.
Resolved	XMS-11952	4	VXML	When VXML pre-fetch is disabled, there is SIP signaling session leak.
Resolved	XMS-11757	4	WebGUI	Setting the <b>Send 180 Response</b> field on the <b>Protocol &gt; SIP</b> page of the WebGUI causes incorrect services to start.
Resolved	XMS-12178	4	XMS	XMS is ignoring the configured session timer value when sending 200 OK response to INVITE message.
Resolved	XMS-12090	4	XMS	If the xmserver process fails in split mode, there is an issue with garbled or silent audio.
Resolved	XMS-11849	4	XMS	When the end client disconnects the call during play, xmrest does not send hangup event.
Resolved	XMS-11657	4	XMS	XMS does not report eventhandler status=active after MRB failover.
Resolved	XMS-11491	3	Installation	Request for install script patch that does not check the version of NSS.
Resolved	XMS-11490	3	MRB	The RESTful API is unresponsive during load testing.
Resolved	XMS-11436	3	MRB	The MRB configuration for <b>Preserve Request URI</b> does not stay enabled after MRB cluster reboot.

<b>Issue Type</b>	<b>Defect No.</b>	<b>SU No.</b>	<b>Product or Component</b>	<b>Description</b>
Resolved	XMS-11366	3	MRB	MRB creates new application subscription ID after failover occurs twice.
Resolved	XMS-11219	3	MRB	Request for configurable option to suppress the Reason header on BYE message.
Resolved	XMS-11210	3	MRB	When XMS is restarted one after the other, MRB drops the event handler subscription to the application.
Resolved	XMS-11154	3	MRB	RESTful through MRB is getting blocked by CORS (Cross Origin Resource Sharing) policy.
Resolved	XMS-10966	3	MRB	MRB removes SIP header from incoming INVITE.
Resolved	XMS-11263	3	MSML	The <confid> and <dialogid> elements are not returned as child elements of <result>.
Resolved	XMS-11645	3	RESTful	The "code" and "description" attribute values in <error> responses will contain additional possible values not previously returned. Applications that depend on specific values of these attributes should be validated for correct operation with this version of XMS.
Resolved	XMS-11460	3	RESTful	The xmsrest service crashes during load testing.
Resolved	XMS-11503	3	VXML	The vxmlinterpreter process is showing high CPU usage during load testing.
Resolved	XMS-11345	3	XMS	Request for lighttpd 1.4.53 support.
Resolved	XMS-11209	3	XMS	After the occurrence of "491 Pending Request", XMS returns full SDP set for answer SDP to the client's refresh.

Issue Type	Defect No.	SU No.	Product or Component	Description
Resolved	XMS-10865	3	XMS	Some reason codes cause XMS to fail on call hangup, but no errors are returned.
Resolved	XMS-10776	3	XMS	After a failover, calls are stuck even though they are moved to the other XMS and session timers have expired.
Resolved	XMS-10775	3	XMS	After a failover, calls are stuck even though they are moved to another XMS and session timers have expired.
Resolved	XMS-10967	2	HMP	There is occasionally frozen video in an SFU conference when one or more participants do not send video.
Resolved	XMS-11251	2	Nodecontroller	The faxservice status shows "STARTING", although it failed to start because of race condition between SR140 driver load completion and faxservice start call.
Resolved	XMS-11250	2	MSML	When requesting to process play with barge and faxdetect, then faxdetect would terminate upon digit arrival.
Resolved	XMS-10855	2	SR140 Software	Following a yum -update, XMS fails to install the Brooktrout driver module with several errors including "FATAL: modpost: GPL-incompatible module boston.ko uses GPL-only symbol 'sev_enable_key'". Newer versions of the Linux kernel added a GPL symbol into a specific header which will force prevent non-GPL modules from loading.
Resolved	XMS-10887	2	WebGUI	When setting the IP on the <b>Network &gt; Interface Configuration</b> page of the WebGUI, there is a 503 error.

Issue Type	Defect No.	SU No.	Product or Component	Description
Resolved	XMS-11238	2	XMS	Optional service wsapiserver in failed state. The service is now disabled by default.
Resolved	XMS-11194	2	XMS	Double digit returned with event against each incoming RFC2833 digit in custom mode with IN-BAND and RFC2833 both enabled.
Resolved	XMS-11193	2	XMS	When the <b>DTMF Reception Modes</b> field is set to Default and offer/answer has negotiated IN-BAND, the DTMF event is being suppressed.
Resolved	XMS-11170	2	XMS	When graceful shutdown starts, xmserver reports no coders are available and answers calls with no audio when X-Call-Group is set.
Resolved	XMS-11169	2	XMS	All the media sent to private address of XMS deployed in EC2 after re-INVITE. As the result, DTMF digits do not reach to XMS.
Resolved	XMS-10941	2	XMS	Incorrect timing in recorded native WebM file when video starts much later than audio.
Resolved	XMS-10916	2	XMS	Occasional crash in H264 native recording when Safari sent padding packets.
Resolved	XMS-11137	1	Licensing	It is possible for the cloud license activation to time out, resulting in a failed activation attempt. Subsequent attempts will eventually pass.
Resolved	XMS-11164	1	Nodecontroller	Nodecontroller requires a valid internet connection to start properly.

Issue Type	Defect No.	SU No.	Product or Component	Description
Resolved	XMS-11135	1	WebGUI	When changing to the <b>Services</b> page in the WebGUI, the page is stuck prompting the user to "Please wait: while refreshing the page..." permanently. A page refresh will clear the condition.
Resolved	XMS-10962	1	WebGUI	If a user reboots the XMS via the WebGUI, the user will be blocked from logging back in until the browser page is refreshed.
Known	XMS-10868		Fax	If a fax session is gracefully stopped via <dialogend>, the XMS will return a msml.dialog.exit with the dialog.exit.status and dialog.exit.description of "410" and "[fax]: 13 fax-begin-failed: error".
Known	XMS-10867		Fax	The global unique session identifier is not printed correctly in the fax service logs.
Known	XMS-8448		Installation	<p>XMS requires Opus 1.1.3 version or higher. The XMS installation script installs the Opus 1.1.3 package if it is not already present, or it will attempt to update the existing Opus package if the version is less than 1.1.3.</p> <p>If the OS has an older Opus version already installed and additional packages have been installed that depend on the Opus package, the XMS installation will not be able to remove the Opus package in order to install the updated version. If this situation occurs, the installation script will print a message instructing the user to remove the old Opus package and its dependencies manually before trying the XMS installation again.</p>

Issue Type	Defect No.	SU No.	Product or Component	Description
Known	XMS-10875		Licensing	When going through the node-locked activation process, the XMS will accept a cloud license code and generate an offline activation code that, if used on the Dialogic Licensing Web Portal, will successfully generate a key. This key will not activate on the XMS, and it will not give indication why the process fails.
Known	XMS-11083		MRB	The "Conference Clean Up" functionality does not include RESTful conferences.
Known	XMS-11058		MRB	The MRB WebGUI <b>Manage MRB Cluster</b> page may display some warning messages twice when the networking configuration has not yet been set up.
Known	XMS-11046		MRB	When creating an event handler, if the final response received (from forking the request to all MS) is an error response, the state for that event handler is not stored correctly. This means future requests on that resource will not be handled correctly.
Known	XMS-11042		MRB	If the MRB fails to create a RESTful event handler on XMS but the same event handler is created on another XMS successfully, the MRB may not mark the failed XMS in the failed state.
Known	XMS-11017		MRB	If incoming messages are handled for a call after a previous message failed to send due to full UDP buffers but before the retransmission timer has fired to resend the previously failed message, the CSeqs could become out of order. This results in a "CSeq Too Small SIP" error response to the retransmitted message.

Issue Type	Defect No.	SU No.	Product or Component	Description
Known	XMS-11014		MRB	The SNMP MIB is missing an entry for the admin.mrb.config.preserverequest uri trap which is mapped to the object id ".1.3.6.1.4.1.36400.3.0.52".
Known	XMS-10833		MRB	When on the MRB WebGUI login page, an exception may occur resulting in "HTTP 500 Server Error". A page refresh will clear the condition.
Known	XMS-9882		MRB	When performing a configuration import, further verification of the admin address is required before completing the import. If the admin address differs between the imported configuration and the run-time installation address, it is possible to cause configuration issues such as inability for the primary MRB to properly connect to the secondary MRB.
Known	XMS-9814		MRB	In some cases, if a third XMS is added with a bad IP address then subsequently deleted, the MRB may still try to move calls to that XMS resulting in failed call attempts.
Known	XMS-9753		MRB	If a RESTful bridge call fails to move because a client fails to respond to a re-INVITE, the move call statistics will incorrectly show 1 total call and 2 failed moves.

Issue Type	Defect No.	SU No.	Product or Component	Description
Known	XMS-9147		MRB	If failover occurs on a control leg that is managing multiple conferences and one of those conferences fails to move (i.e., the MSML <createconference> fails on the new XMS), the move call statistics incorrectly shows the control channel as 1 call that failed to move even though control channels are not reported on in the call statistics. Additionally, while the participant calls fail to move, the number of failed participant calls are not updated.
Known	XMS-6094		MRB	On MRB failover, an error message may be displayed in the MRB WebGUI. A page refresh will resolve the issue.
Known	XMS-9959		Nodecontroller	The JSON payload in the RESTful Management API for configuring the logging settings is different between the HTTP PUT and HTTP GET/200 OK response. The HTTP PUT requires all the services to be specified under the "Services" object yet the response places everything under the "servicesLogLevel" object.
Known	XMS-10951		VXML	If the VXML service is stopped while a call is actively being processed by the VXML interpreter, the vxml.resource.connection.active counter remains allocated until a full XMS restart is issued.
Known	XMS-11103		XMS	When both RFC2833 and IN-BAND are chosen for the <b>DTMF Reception Modes</b> field and RFC2833 DTMF is received by XMS, the digit will be detected twice throughout XMS. For example, a single DTMF "#" would be reported back to the application as "##".

Issue Type	Defect No.	SU No.	Product or Component	Description
Known	XMS-11073		XMS	The graceful shutdown does not consider calls connected via RTCWEB when deciding when it is safe to start the shutdown. If the only remaining calls on the system are RTCWEB calls, XMS will begin shutdown and terminate those calls.
Known	XMS-10794		XMS	In some cases, it is possible for a recording to capture a small amount of DTMF signal (up to 20ms) even though DTMF clamping is enabled for that recording.
Known	XMS-8933		XMS	A crash may be seen when stopping XMS services in the xmserver component that points to an issue in the dx_close() API.
Known	XMS-7231		XMS	The ssp_x86Linux_boot process may print "Replay attack check failed" into <i>/var/log/messages</i> for scenarios where two SRTP calls are joined through the XMS.
Known (permanent)	XMS-7764		HMP	The multitrack record feature does not record to both tracks when using the same direction for both tracks.

Issue Type	Defect No.	SU No.	Product or Component	Description
Known (permanent)	XMS-2863		HTTP	<p>When using both HTTPS and lighttpd under high stress, XMS performance is negatively impacted. The factors that cause this are as follows:</p> <ul style="list-style-type: none"> <li>• The lighttpd can cause performance issues when handling HTTPS transactions.</li> <li>• XMS uses libcurl, which has code that blocks during HTTPS transactions.</li> </ul> <p>The performance penalty of using both HTTPS and lighttpd grows under the constant load. This causes the XMS to perform negatively in various ways. For example, delays in fetching prompts and lost media transactions have been observed.</p> <p>During Dialogic testing, these issues were not observed when using Apache, so consider using alternative HTTP servers for high volume deployments.</p>
Known (permanent)	XMS-3028		Installation (ISO)	<p>In some cases, text and image overlays for conferencing captions are not visible in video conferences after installing XMS on CentOS 7.</p> <p>To resolve the issue, open a terminal session on the XMS system, update the following packages, and restart the system:</p> <pre>yum update glib2</pre> <pre>yum update gdk-pixbuf2</pre>
Known (permanent)	XMS-2830		Installation (ISO)	<pre>Newer servers require OS install boot media to be UEFI bootable.</pre>
Known (permanent)	MRB-378		MRB	<p>If the MSML join command is sent to a media server prior to receiving an ACK and P-MRB headers are not used, the MSML join command does not function properly in non-proxy mode.</p>

Issue Type	Defect No.	SU No.	Product or Component	Description
Known (permanent)	IPY00102868		MSML	Simultaneous play and record with record beep is not possible because both play and record cannot transmit to the same connection.
Known (permanent)	IPY00102674		MSML	When playing audio and video, both files must reside on either local (file://) or server (http://).
Known (permanent)	IPY00102025		MSML	MSML returns an error when using the <var> element with "duration" type and "yrs" subtype.
Known (permanent)	XMS-2579		MSML	MSML legacy does not accept session IDs and session versions longer than 9223372036854775807, which causes re-INVITEs to be ignored.
Known (permanent)	XMS-7907		Nodecontroller	If the user switches from a purchase license that has AMR-WB back to the verification license (that does not), the AMR-WB codec incorrectly remains enabled on the <b>Codecs</b> page. This will result in failed call attempts if the endpoint lists AMR-WB as the preferred codec.  <b>Note:</b> When switching back to the verification license, remember to disable AMR-WB.
Known (permanent)	XMS-2999		SR140 Software	When using driver modules that are not supplied by Red Hat, the following message is found after rebooting XMS: "kernel: boston: module verification failed: signature and/or required key missing - tainting kernel". However, the message is not an indication of an issue.
Known (permanent)	XMS-7652		WebGUI	On the <b>Graph</b> page, the stars next to each dashboard name cannot be selected and the filter for starred dashboards has no effect.

Issue Type	Defect No.	SU No.	Product or Component	Description
Known (permanent)	XMS-7650		WebGUI	When using Edge, the <b>Refreshing every</b> field does not show a drop-down list option.
Known (permanent)	XMS-7650		WebGUI	When using Edge, the "Refreshing every" drop-down list is missing the selection button.
Known (permanent)	XMS-7647		WebGUI	When using Edge, timestamps on the <b>Graph</b> page are badly formatted and may be difficult to read.
Known (permanent)	XMS-2885		WebGUI	Changing user settings (i.e., user passwords, polling times in options menu) can make user credentials temporarily invalid. Refreshing the page in the browser resolves the issue.
Known (permanent)	XMS-10754		XMS	If the hard drive of the XMS server becomes full, the licensing subsystem might not be able to fully write its status to disk and subsequent license verifications might fail and cause the system license to revert to the verification license (1-channel).
Known (permanent)	XMS-10720		XMS	If <i>dhclient</i> versions earlier than <i>dhclient-4.2.5-60</i> are installed, XMS may fail to start certain RTP sessions. When this failure occurs, an error that contains "ssp_x86Linux_boot: rtpSocketGet: bind returned an error" will appear in <i>/var/log/messages</i> . This is due to an issue in <i>dhclient</i> that is resolved in <i>dhclient 4.2.5-60</i> or higher.  To resolve the issue, open a terminal session on the XMS system and update <i>dhclient</i> :  yum update dhclient

Issue Type	Defect No.	SU No.	Product or Component	Description
Known (permanent)	XMS-7686		XMS	<p>EVS AMR-WB IO in compact header mode is not supported. AMR-NB or AMR-WB in bandwidth efficient mode is not supported.</p> <p>Do not use native record when the call is established using one of these coders; the record will either fail or become corrupted if native is used.</p>
Known (permanent)	IPY00117889		XMS	<p>When the creation of a call fails because the destination URI is invalid, the call failure response is not reported and the resources remain in the USE state. If a resource leak is discovered, verify that the destination URI is correct.</p>
Known (permanent)	XMS-6660		XMS	<p>Media files cannot have spaces.</p>
Known (permanent)	XMS-3232		XMS	<p>The API supports both 8 kHz and 16 kHz for the sampling rate of Opus recordings, but XMS internally uses the sampling rate of 16 kHz for generating Opus audio streams.</p>