



# **Dialogic® PowerMedia™ XMS**

## **Installation and Configuration Guide**

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## Revision History

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Revision	Release Date	Notes
05-2704-007 (Updated)	April 2016	Removed WebRTC support.
05-2704-007	January 2014	<b>System:</b> Added new Diagnostics page. <b>Routing:</b> Updated with details on regular expressions. <b>Media:</b> Updated with details on absolute paths.
05-2704-006	October 2013	Updates to support PowerMedia XMS Release 2.1. <b>Installing PowerMedia XMS:</b> Added new sections for WebRTC. <b>System:</b> Updated Services and Account Manager pages. <b>VXML:</b> Added new parameters. <b>MSML:</b> Updated parameters.
05-2704-005	March 2013	<b>System:</b> Updated with details on Time page. <b>VXML:</b> Updated with clarification that VXML is audio-only.
05-2704-004	February 2013	Updates to support PowerMedia XMS Release 2.0. <b>Configuring PowerMedia XMS:</b> Added new MRCP Client, VXML, RESTful API, and HTTP Client menus. Removed the Diagnostics menu. <b>System:</b> Added new Upgrade and NFS Mount Points pages. <b>MRCP Client:</b> Added new section. <b>HTTP Client:</b> Added new section. <b>VXML:</b> Added new section. <b>MSML:</b> Added new configuration parameters. <b>RESTful API:</b> Added new section. <b>Troubleshooting PowerMedia XMS:</b> Updated with log file details for troubleshooting. <b>XMSTool RESTful Utility:</b> Updated download instructions in the Starting XMSTool section. Removed start command from the Demo/Simple Mode section. Updated the Basic Operation and Commands and Additional XMSTool Commands sections.

Revision	Release Date	Notes
05-2704-003	August 2012	<p><a href="#">RPM Method</a>: Added information about the perl-core package.</p> <p><a href="#">XMSTool RESTful Utility</a>: Updated the Starting XMSTool and Demo/Simple Mode sections.</p>
05-2704-002	July 2012	<p>Updates to support PowerMedia XMS Release 1.1. This is a 64-bit only release.</p> <p><a href="#">RPM Method</a>: Added new section.</p> <p><a href="#">Configuring PowerMedia XMS</a>: Added new Time and Backup/Restore pages to Systems menu. Added new Network menu. Renamed the Interface menu to Protocol.</p> <p><a href="#">XMSTool RESTful Utility</a>: Added new section.</p>
05-2704-001	March 2012	Initial release of this document.
Last modified: April 2016		

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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This Installation and Configuration Guide provides information about installing, configuring, administering, and maintaining the Dialogic® PowerMedia™ Extended Media Server (also referred to herein as "PowerMedia XMS" or "XMS").

## Related Information

See the following for additional information:

- PowerMedia XMS 2.1 documentation at <http://www.dialogic.com/manuals/xms/xms2.1.aspx>.

## 2. PowerMedia XMS Installation

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### Installing PowerMedia XMS

This section provides the steps required to successfully install PowerMedia XMS.

The following instructions pertain to the PowerMedia XMS download package, labeled as *PowerMedia-2.1.xxxx-x86\_64.iso* and *dialogic\_xms\_2.1.xxxx.tgz* where "xxxx" indicates the version number.

There are two installation methods available:

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

**Note:** WebRTC functionality is no longer supported on XMS 2.1 due to fundamental changes in the newer versions of Chrome and Firefox. For any further WebRTC work, use XMS 3.0 or later.

### System Requirements

Regardless of the installation method used, the **minimum** and **recommended** system requirements are as follows:

Item	Requirement
Hardware	Intel Architecture-based server
Operating System	<b>Note:</b> 32-bit operating systems are not supported. Community ENTERprise Operating System (CentOS) 6.4 or higher (provided with the <a href="#">ISO Method</a> installation) Red Hat Enterprise Linux (RHEL) 6.4 or higher <b>Note:</b> The <i>perl-core-5.10.1-xxxxx.x86_64.rpm</i> is required if using the <a href="#">RPM Method</a> installation.
Processor	<b>Minimum:</b> Intel Xeon E5420 Quad-Core (2.50 GHz, 1333 MHz FSB, 80W) for low density systems running less than 500 channels <b>Recommended:</b> Intel Xeon X5650 Dual Hex-Core (2.66 GHz, 1333 MHz FSB) or better for performance systems or Intel Xeon E5-2665 Dual Octal-Core (2.40 GHz, 1333 MHz, 20 MB Cache), 2 Intel QPI (8 GT/s) or better for performance systems
Ethernet	Single or Dual NIC 1000Base-TX (RJ-45)
Memory	<b>Minimum:</b> 8 GB RAM <b>Recommended:</b> 16 GB RAM or higher

Item	Requirement
Storage	<b>Minimum:</b> 250 GB HDD <b>Recommended:</b> 2 TB HDD for advanced logging
<b>Note:</b> The recommended server configuration is applicable for higher density audio solutions of 1500 or greater sessions, video transcoding solutions, or solutions utilizing virtualization.	

## Recommended Server Configuration

PowerMedia XMS is supported on bare metal Intel processor-based servers or within virtual environments, such as an OpenStack KVM, VMware ESXi, and Xen.

## Available Application Technologies

A number of application technologies are available. The [Routing](#) page from PowerMedia XMS Admin Console illustrates how different applications like NETANN, VoiceXML, and RESTful, are engaged with PowerMedia XMS based on the content of SIP URI.

## Supported Web Browsers

### Browser Support for PowerMedia XMS Admin Console

The following web browsers are supported:

- Mozilla Firefox
- Google Chrome
- Microsoft Internet Explorer
- Apple Safari

## SIP Softphone

A SIP softphone should also be available for system verification of audio and video media and make SIP calls into the demo applications.

See the *Dialogic® PowerMedia™ XMS Quick Start Guide* for information about setting up PowerMedia XMS and installing suitable SIP softphones.

**Note:** For best results, a headset should be used on both phones and browser. If echo cancellation is available for the microphone device, it should be turned on. This can be done in the Windows sound mixer.

### Bria SIP Softphone

Testing has been conducted on Bria 3. Here are the settings for testing:

- Resolution on the Bria (**Softphone > Preferences > Devices > Other Devices**) can be set to either Standard (approximately CIF) or to High resolution (approximately VGA).
- Set video codec (**Softphone > Preferences > Video Codecs**) to H.264 or VP8.
- DTMF (used for the conference demo) must be delivered as SIP INFO messages for compatibility with browser DTMF. Bria setting found under **Softphone > Preferences > Calls > DTMF**.

## Linphone SIP Softphone

Linphone is a free, open source SIP softphone that works with PowerMedia XMS. For best results, you should also download and install the open source H.264 video codec rather than use the default H.263 that comes with Linphone.

Once you have installed Linphone and the H.264 codec, very little configuration is necessary, as a SIP registrar will not be used for verification and initial testing. Default settings should suffice for a simple LAN-based test setup. Only audio and video codecs need to be set.

Codec configuration is accomplished as follows:

1. Click **Linphone > Preferences > Codecs > Audio codecs**.
2. Disable all audio codecs except PCMU.
3. Click **Linphone > Preferences > Codecs > Video codecs**.
4. Disable all video codecs except H264.
5. Click **Done**. The Linphone is now ready to use.

## ISO Method

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.

This installation requires the following steps which will be described in detail below:

1. Download a single .ISO file which contains CentOS and all required PowerMedia XMS software at <http://www.dialogic.com/products/media-server-software/xms>.
2. Use the .ISO image to create the PowerMedia XMS installation DVD.
3. Ensure the target system on which PowerMedia XMS will be installed is connected to your network.
4. Boot the target PowerMedia XMS system from the installation DVD. The DVD will install CentOS operating system and required software.

**Caution:** The PowerMedia XMS installation will reformat the system hard drive.

5. Perform licensing and configuration.

## Getting and Preparing the .ISO File

CentOS is an Enterprise-class Linux Distribution source that provides a simple method for quickly and easily setting up a PowerMedia XMS. Proceed as follows:

1. Download a single .ISO file which contains CentOS and PowerMedia XMS packages. Go to <http://www.dialogic.com/products/media-server-software/xms> for information about downloading the .ISO file.
2. Using a DVD drive that has write capabilities, along with the appropriate DVD burning software, burn the .ISO image onto a bootable DVD.

**Note:** A bootable DVD must be created from the downloaded ISO file rather than simply copying the file to the DVD.

## Installing the Operating System from the DVD

**Caution:** This installation will erase all data on the system and reformat your hard drive.

Once the bootable DVD is created, proceed as follows:

1. Insert the bootable DVD in the system drive on which the installation will be done and boot the system from the DVD.
2. Press **Enter** at the boot prompt.

**Note:** Do not use any other boot options or the automatic installation will not take place.

The installation requires little interaction. The main task is setting up the IP characteristics for the PowerMedia XMS. The IP characteristics are set at the start of the installation using a text-based setup tool and are handled as follows:

- The default setting is to set up an Ethernet interface (eth0) to receive its addresses via DHCP. With this option, it is necessary that PowerMedia XMS be installed in an environment that provides a networked DHCP server to provide it with an IP address.
- Eth0 may also be given a static IP address. This option is preferable when setting up a server. Set the IP address, Netmask and Gateway, as well as the DNS server address if desired.

Once the IP characteristics are complete, the remainder of the installation is "hands off". Once the CentOS install reaches the final screen, click **Reboot** to complete the installation process.

**Note:** Be sure to remove the installation DVD before the final reboot is done.

## RPM Method

The stand-alone RPM installation method is used for installing PowerMedia XMS on existing Linux installations. Instead of an .ISO file, the RPM distribution of PowerMedia XMS uses a gzipped tar file (.tgz). The .tgz file is extracted to a directory on the machine where the PowerMedia XMS will be installed. The PowerMedia XMS installation script is run from that directory.

The *perl-core-5.10.1-xxxxx.x86\_64.rpm* package is required on the system before running the PowerMedia XMS installation script. The perl-core package is a standard package that is part of the RHEL/CentOS distribution and is normally automatically installed on virtually all systems when the operating system is installed using one or more of the RHEL/CentOS predefined package groups.

However, in the case where you manually select each individual package in a RHEL/CentOS operating system installation (for example, when using a kick start file), you must ensure that the *perl-core-5.10.1-xxxxx.x86\_64.rpm* is included in the list of packages. It can be installed on an RHEL or CentOS system using "yum install perl-core".

The PowerMedia XMS installation script automatically installs any prerequisite operating system packages (other than perl-core) required by the PowerMedia XMS installation script if the yum utility is used and configured to access either the operating system installation DVD or online package repositories such as RHN. If yum is not available on the system, the PowerMedia XMS installation script will print to the installation log (default: *xms\_install.log*). That log contains a list of prerequisite operating system packages required to be manually installed by the user before re-running the PowerMedia XMS installation script.

**Note:** The default PowerMedia XMS configuration uses the following ports:

**tcp:** 22, 80, 81, 443, 5060, 1080, 15001

**udp:** 5060, 49152-53152, 57344-57840

Ensure that your PowerMedia XMS system firewall is configured accordingly.

## RPM Installation and Script Options

Proceed as follows to complete the RPM installation method:

1. Extract the gzipped tar file to a directory of your choice. The chosen directory will contain a subdirectory named *dialogic\_xms\_trunk.xxxx* where "xxxx" indicates the release trunk number.
2. Run *xms\_install.pl* with the desired options from the subdirectory above.

The options available are:

- [cfg-xxx Options](#)
- [Mode Options](#)
- [General Options](#)

### cfg-xxx Options

These are platform configuration options. They include:

<code>--cfg-selinux</code>	Disable selinux (default: ask)
<code>--cfg-hosts</code>	Configure /etc/hosts file (default: ask)
<code>--cfg-prereq</code>	Automatically install prerequisite OS packages (default: ask)
<code>--cfg-https</code>	Backup and replace https settings (default: ask)

For example, to install PowerMedia XMS and automatically configure the /etc/hosts file, use:

```
xms_install.pl -i --cfg-hosts
```

The `-cfg-xxx` options can be negated with `nocfg-xxxx`. For example, if the script is to ignore the /etc/hosts file, use:

```
xms_install.pl -i --nocfg-hosts
```

### Mode Options

<code>-i</code> or <code>--install</code>	Install XMS if no previous version exists (default)
<code>-u</code> or <code>--update</code>	Update XMS without affecting current configuration
<code>-r</code> or <code>--remove</code>	Remove XMS
<code>-t</code> or <code>--test</code>	Test system and report status without installing anything

### General Options

<code>-y</code> or <code>--yes</code>	Answer yes to all questions
<code>-h</code> or <code>--help:</code>	Display this message and exit
<code>-d</code> or <code>--distdir DIR</code>	Directory where the XMS distribution is located
<code>-l</code> or <code>--log</code> or <code>--nolog</code>	Log (or not) results to a file (default: enabled)
<code>-f</code> or <code>--logfile FILE</code>	Use FILE as the log filename (default: xms_install.log)
<code>-v</code> or <code>--verbose</code>	Print detailed progress information (-vv very verbose)
<code>-q</code> or <code>--quiet</code>	Do not write anything to standard output (implies -y)

**Note:** The `--quiet` option implies a yes answer to all questions unless `--nocfg-xxxx` is added to the command.

If errors occur, review the log file for error and warning information. A log file (default: *xms\_install.log*) is generated automatically unless `--nolog` is specified.

When the installation script completes, use your browser to log in to the PowerMedia XMS Console (refer to [Login to the Console](#)).

## 3. PowerMedia XMS Admin Console

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### Using PowerMedia XMS Admin Console

The PowerMedia XMS Admin Console (also referred to herein as "Console") is a secure web-based GUI used to manage PowerMedia XMS. The [Console](#) can be reached using a web browser and the PowerMedia XMS IP address.

If DHCP is used to provide the PowerMedia XMS IP address, it will be necessary to access the system to determine the address assigned to it. Shell access to the system may be done either by the terminal used during installation or by secure shell (ssh) access. The "root" user's default password is "powermedia". If you wish to change the password, do so before proceeding.

**Note:** For stand-alone RPM installations, password modification is not necessary as the installation script does not change the password to "powermedia" as it does with the .ISO install.

### CentOS HTTPS Setup for Console Use

Secure HTTP is used to communicate between the administrator's browser and the PowerMedia XMS Admin Console's interface. HTTPS usually requires a [security certificate](#) linked to the provider's domain and signed by a trusted third party.

With PowerMedia XMS, it is not possible to provide a certificate tied to any one domain because the PowerMedia XMS is intended to be installed in many different situations by different administrators. For this reason, a "self-signed" (non-verified) certificate is shipped with PowerMedia XMS. The procedure for creating and installing non-verified certificate on CentOS can be found at <http://wiki.centos.org/HowTos/Https>. The web browser used to access the Console will detect the use of this self-signed certificate and flag it as a security exception.

Access the Console directly using HTTPS by adding the IP address in browser's address space. For example, `https://<ip_address_of_eth0>`.

**Note:** If HTTP is used the query will be redirected to HTTPS on port 443.

Accessing the console will trigger a security exception. Handling the security exception depends on the web browser being used. Refer to the following table for instructions when using one of the four most common browsers.

Browser	Security Exception	Action	Comment
Mozilla Firefox	Connection is not trusted	Understand the Risks/Add Exception/Confirm Security Exception	Security exception remains permanently in effect
Google Chrome	Site's security certificate is not trusted	Proceed Anyway	Security exception will be seen again on starting Chrome

Browser	Security Exception	Action	Comment
Microsoft Internet Explorer	Problem with website's security certificate	Continue	Security exception will be seen again on starting new Internet Explorer window
Apple Safari	Cannot verify identity of the website	Continue	Security exception will be seen again on starting Safari

Recurring security exceptions can be overcome on Chrome, Internet Explorer, and Safari. First, add mapping in the "hosts" file:

```
xms.localhost          <xms_server_ip_address>
```

Next, add the xms.localhost certificate into the Trusted Root Certification Authorities store. Hosts may be found on Linux systems under */etc*, and on Windows systems under *C:\windows\system32\drivers\etc*. This differs depending on the web browser in use.

- Chrome**  
 Crossed-out lock and https symbols will be seen when the Console screen is accessed. Click on the **Lock Symbol > Certificate Information > Details > CopytoFile** and work through the Certificate Export Wizard to save the xms.localhost certificate. It can then be imported into Chrome. Use **Tools > Options > Under the Hood > HTTPS-SSL Manage Certificates > Trusted Root Certification Authorities** to import.
- Internet Explorer**  
 A Certificate Error will be seen next to the URL entry. Install the xms.localhost certificate using **Certificate Error > View Certificates > General Tab > Install Certificate** and work through the Certificate Import Wizard. The xms.localhost certificate will end up in the Trusted Root Certification Authorities store.
- Safari**  
 A pop-up warning will be seen on accessing the Console. Install the xms.localhost certificate using **Show Certificate > Install Certificate** and work through the Certificate Import Wizard. The xms.localhost certificate will end up in the Trusted Root Certification Authorities store.

## Guidelines for Installing a Permanent Security Certificate

A permanent, publicly accessible PowerMedia XMS should use a valid certificate from a trusted certificate authority. A large number of vendors provide security certificates. Use the following guidelines when installing a certificate from your preferred vendor:

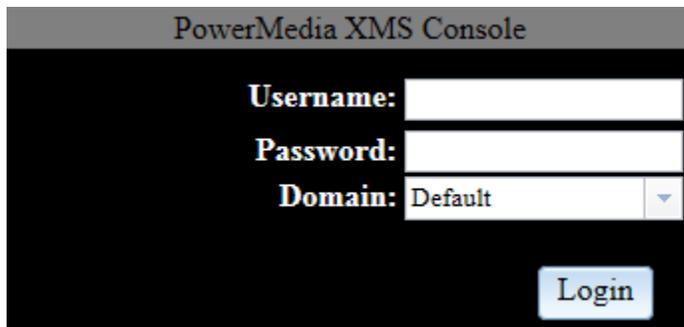
- Upon installation, the fully qualified domain name of the PowerMedia XMS is `xms.localhost`. The self-signed certificate supplied with PowerMedia XMS uses this name. Therefore, change the server name/domain.
- The web server used for the Console is Apache, version 2.2.15. There is also a `lighttpd` server on the system, but it is used for the RESTful interface to PowerMedia XMS and can be ignored.
- Secure HTTPS access is provided by `mod_ssl`, the OpenSSL interface to Apache.
- The configuration file for the SSL Virtual Host is `/etc/httpd/conf.d/ssl.conf`. Entries to modify when a purchased certificate is activated include:
  - `SSLCertificateFile`
  - `SSLCertificateKeyFile`
  - `SSLCertificateChainFile`

## Login to the Console

Proceed as follows to connect to the Console.

1. Launch your web browser. In the address field, enter the IP address in URL format. For example, `https://<xms_ip_address>`.

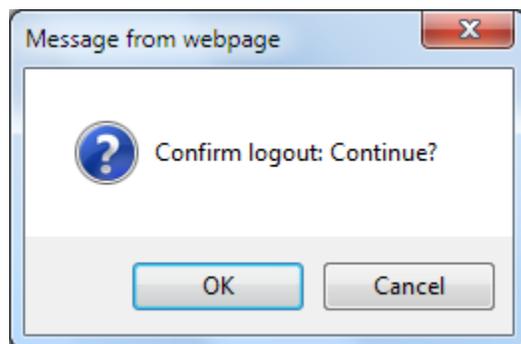
The Login page appears.



2. Enter "superadmin" for the **Username** field and "admin" for the **Password** field. The superadmin user allows access to all configuration functions available on the Console.
3. Click **Login**. After user information is authenticated, you are logged on to the initial **General** page of the **Systems** menu.
4. The Console is designed as follows:
  - The page title at the top.
  - A side-bar menu used for navigation.
  - One or more tabs at the top that contain more information for each side-bar menu item.
  - A display area for viewing and changing data.

The option to log out appears on each screen in the upper right-hand corner.

1. Click **logout**. Depending on your browser, a popup similar to the following appears to confirm logout.



2. Click **Cancel** to return to the Console.
3. Click **OK** to close the Console session and return to the Console's Login page.

## 4. PowerMedia XMS Configuration

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### Configuring PowerMedia XMS

PowerMedia XMS configuration and operation is done through the Console. This section provides details about the Console's functionality.

**Note:** The functionality displayed on the side-bar menu will differ between the two operation modes, Native (default) and MSML (legacy).

The side-bar menu contains the following choices:

- [System](#)
- [Network](#)
- [License](#)
- [MSML](#)
- [MRCP Client](#)
- [HTTP Client](#)
- [VXML](#)
- [RESTful API](#)
- [Protocol](#)
- [Codecs](#)
- [Routing](#)
- [Tones](#)
- [Media](#)
- [Options](#)
- [Downloads](#)

### System

The **System** menu provides system information about the PowerMedia XMS you have logged into.

The following pages are accessible via tabs that provide additional options:

- [General](#)
- [Services](#)
- [Mode](#) (visible only to superadmin)
- [Time](#)
- [Backup/Restore](#)
- [Upgrade](#)
- [NFS Mount Points](#)
- [Maintenance](#)
- [Account Manager](#)
- [Diagnostics](#)

## General

When you log in, the **General** page of the **System** menu is displayed. On this page, PowerMedia XMS operation can be verified.

General	Services	Mode	Time	Backup/Restore	Upgrade	NFS Mount Points	Maintenance	Account Manager
<b>XMS</b>								
release	trunk.5616							
mode	native							
state	RUNNING							
<b>System</b>								
os release	CentOS release 6.4 (Final)							
os version	Linux 2.6.32-358.el6.x86_64							
uptime	15 days 3 hours 4 minutes 37 seconds							
cpu load	T1=0.02 , T5=0.07 , T15=0.02							
memory	total:3922688 KB used:1958636 KB							
disk	total:7877776 KB used:6749288 KB							
license mac	52:54:00:6f:56:f4							
<b>System Time</b>								
time	Tue Oct 22 14:44:52 2013							
zone	America/Montreal							

The following information is provided:

Item	Description
XMS	Displays release name, mode, and state of the PowerMedia XMS.
System	Displays the operating system release and version, and provides the uptime, CPU load, memory, and disk space used. It also displays the MAC address used for licensing.
System Time	Displays the current time and time zone.

## Services

The option to stop or start services is available from the **Services** page of the **System** menu. You can also view which services are currently running.

To stop services, click **Stop**. The **Overall Status** will change from running to waiting to stop services. Services are stopped when the column changes to stopped.

To start services, click **Restart**.

Verify that all services have started.

General **Services** Mode Time Backup/Restore Upgrade NFS Mount Points Maintenance Account Manager

Overall Status: **RUNNING**

Graceful Shutdown Timeout (seconds):

Mandatory Services:

Service Name	Description	Status
hmp	Media processing services.	RUNNING
broker	Message routing services.	RUNNING
xmsserver	Signalling and Media services.	RUNNING
appmanager	Application interface.	RUNNING

Optional Services:

Service Name	Description	On Start Enabled	Status
httpclient	HTTP Client.	yes	RUNNING
mrcpclient	MRCP Client.	yes	RUNNING
rtcweb	RtcWeb Signalling server.	yes	RUNNING
xmsrest	RESTful API for call control and media control.	yes	RUNNING
netann	NETANN Process.	yes	RUNNING
vxml	VXML Process.	yes	RUNNING
msml	MSML server	yes	RUNNING
verification	System/Application verification server	yes	RUNNING

### Mode

The **Mode** page of the **System** menu displays the operation mode of the PowerMedia XMS, which defaults to **Native** mode.

**Note:** The **Mode** page is present only when logged in as superadmin.

There are two operational modes:

- **Native** is default and recommended mode used for application control.
- **MSML** is legacy mode used for legacy MSML application control.

General Services **Mode** Time Backup/Restore Upgrade NFS Mount Points Maintenance Account Manager

Media Server Operation Mode

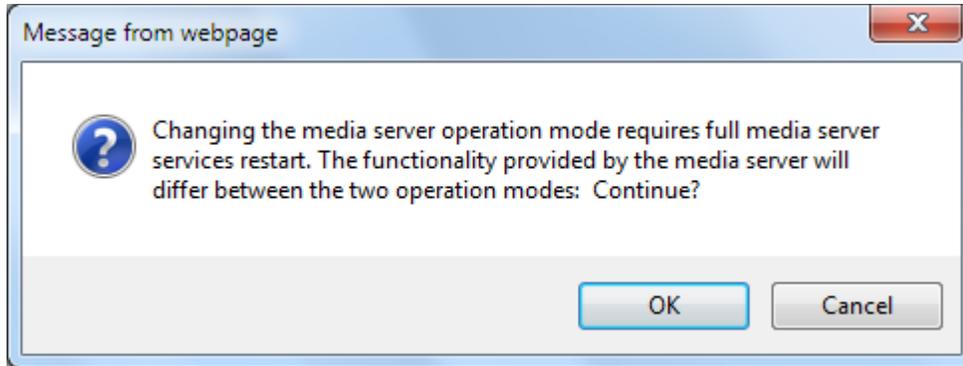
Native  
 MSML

**IMPORTANT:**

Changing the media server operation mode requires full media server services restart. The functionality provided by the media server will differ between the two operation modes.

To switch between modes:

1. Select the **Mode** page.
2. Click the desired radio button, **Native** (default) or **MSML** (legacy).
3. Click **Apply**. The following popup appears:



4. Click **OK** to continue or **Cancel** to return to the **Mode** page.

**Note:** Once OK is clicked, PowerMedia XMS will stop and restart automatically.

## Time

The **Time** page of the **System** menu displays the System's current date and time, time zone, and allows an administrator to change date and time parameters.

General Services Mode **Time** Backup/Restore Upgrade NFS Mount Points Maintenance Account Manager

Current date and time: Tue Oct 22 14:49:14 2013

Synchronize date and time over the network

**New NTP Server**

**NTP Servers**

Server Address	iburst	MAX Poll	MIN Poll	Action
0.centos.pool.ntp.org	false	10	6	<input type="button" value="Delete"/>
1.centos.pool.ntp.org	false	10	6	<input type="button" value="Delete"/>
2.centos.pool.ntp.org	false	10	6	<input type="button" value="Delete"/>
192.168.103.225	false	10	6	<input type="button" value="Delete"/>

*Note: Double click on the cell to edit*

Time Zone:

System clock uses UTC

The following information is provided:

Item	Description
Synchronize date and time over with the network	Keep the system’s date and time synced using Network Time Protocol (NTP). Otherwise, allow the date/time to be manually set.
Server Address	Name or IP address of NTP server.
iburst	When the server is unreachable and at each poll interval, send a burst of eight packets instead of the usual one. This is designed to speed the initial synchronization acquisition.
MAX Poll	Maximum poll interval for NTP messages, in seconds, to the power of two.
MIN Poll	Minimum poll interval for NTP messages, in seconds, to the power of two.
System clock uses UTC	Keep the system’s hardware clock in UTC/GMT or local time.

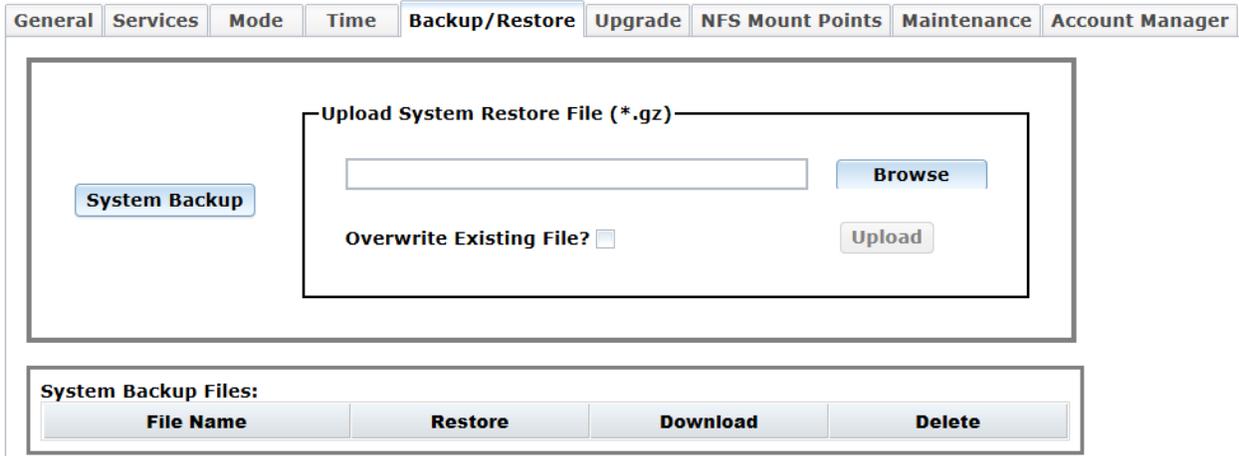
If the **Synchronize date and time over with the network** option is not selected, the date and time may be set manually to the desired value. Otherwise, it provides the option to add or delete NTP servers. NTP servers may be added, deleted, or edited. To edit the NTP servers, double-click on the cell to make changes.

The system’s **Time Zone** may be changed using the drop-down menu, and the system’s hardware clock mode (UTC/GMT or local time) may be selected.

**Note:** System services must be stopped before any changes made on this screen are applied.

### Backup/Restore

The **Backup/Restore** page of the **System** menu provides the option to perform system backup or restore configurations.



## System Backup

Perform the following steps to create a system backup:

1. Click **System Backup** to create a system backup file.
2. Once created, the system backup file will be listed in the **System Backup Files** section.

## Restore Backup

Perform the following steps to restore a system backup:

1. Click **Browse** from the **Upload System Restore File** section to access a system backup file that has been downloaded.
2. Once you select the system back file, click **Upload**. After the upload completes, the system backup file will be listed in the **System Backup Files** section.
3. Locate the appropriate system back file and click **Restore**.

**Note:** If there is already a system backup file listed in the **System Backup Files** section, you can click **Restore** on the appropriate system backup file.

## Upgrade

The **Upgrade** page of the **System** menu provides the option to upgrade the system by uploading a system upgrade package.

General
Services
Mode
Time
Backup/Restore
Upgrade
NFS Mount Points
Maintenance
Account Manager

**Upload System Upgrade Package (\*.tgz)**

Browse

Overwrite Existing File?

Upload

**System Upgrade Package:**

File Name	Upgrade	Delete
dialogic_xms_trunk.5006.tgz	<span style="border: 1px solid #ccc; padding: 2px 5px;">Upgrade</span>	<span style="border: 1px solid #ccc; padding: 2px 5px;">Delete</span>
dialogic_xms_trunk.5071.tgz	<span style="border: 1px solid #ccc; padding: 2px 5px;">Upgrade</span>	<span style="border: 1px solid #ccc; padding: 2px 5px;">Delete</span>
dialogic_xms_trunk.5090.tgz	<span style="border: 1px solid #ccc; padding: 2px 5px;">Upgrade</span>	<span style="border: 1px solid #ccc; padding: 2px 5px;">Delete</span>
dialogic_xms_trunk.5117.tgz	<span style="border: 1px solid #ccc; padding: 2px 5px;">Upgrade</span>	<span style="border: 1px solid #ccc; padding: 2px 5px;">Delete</span>

**Upgrade Status:**

Upgrade to version=5117 successful

[View Upgrade log](#)

### System Upgrade

Perform the following steps to upgrade the system:

1. Click **Browse** from the **Upload System Upgrade Package** section to access a system upgrade package file (.tgz) that has been downloaded.
2. 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.
3. Locate the appropriate system upgrade package file and click **Upgrade**.

**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.

### NFS Mount Points

The **NFS Mount Points** page of the **System** menu allows Network File System (NFS) version 4 file systems, offered by external servers, to be mounted on PowerMedia XMS. Resources used by PowerMedia XMS, such as media files or VXML scripts, may be kept on an external file server, but may be needed by for handling calls. NFS mount will allow for this.

The NFS server must be correctly configured to allow mounting of its file system on the PowerMedia XMS NFS client. This is outside the scope of this document.

General Services Mode Time Backup/Restore Upgrade **NFS Mount Points** Maintenance Account Manager

**New NFS Mount Point:**

Server Share Location	<input type="text"/>
Mount Point	<input type="text"/>
Mount Options	defaults

**NFS Mount Points List**

	Server Share location	Mount Point	Options	Status
<input type="button" value="Delete"/>				<input type="button" value="Apply"/>

## Adding a Mount Point

Multiple mounts may be defined. Each is individually added, and will then be displayed in the **NFS Mount Points List** section.

1. Enter the **Server Share Location**. Typically, this will consist of the IP address of the server, followed by a colon, followed by a location in the exported file system. For example, if the NFS server exports `/var/lib/media/en-US`, the **Server Share Location** `192.168.1.100:/` will mount the contents of the en-US directory at the given **Mount Point**.
2. Change the default **Mount Options** ("defaults") if desired. See the MOUNT OPTIONS section of the `nfs (5)` man page for other possible settings.
3. Enter the **Mount Point**. This will be a directory in the PowerMedia XMS file system. A typical example would be `/mnt`. The **Mount Point** must already exist in the PowerMedia XMS file system or the mount operation will time out. It may be necessary to manually add mount points by logging into PowerMedia XMS using ssh.
4. Click **Add** to execute the mount operation. The mounted file system is activated.

## Deleting a Mount Point

Mounted file systems are deleted by checking off the file system row in the **NFS Mount Points List** section and clicking **Delete**. The file system will be unmounted and the row will be deleted from the list.

## Maintenance

The **Maintenance** page of the **System** menu page provides the option to reboot or shut down the PowerMedia XMS.

General Services Mode Time Backup/Restore Upgrade NFS Mount Points Maintenance Account Manager

Server

Reboot  
 Shutdown

**WARNING:**  
The server shutdown and reboot will happen immediately and all current calls will be lost.

Apply

To reboot, click the **Reboot** radio button, and then click **Apply**.

To shut down, click the **Shutdown** radio button, and then click **Apply**.

**Note:** Once you click **Apply**, the reboot or shut down action occurs immediately and all current calls are lost.

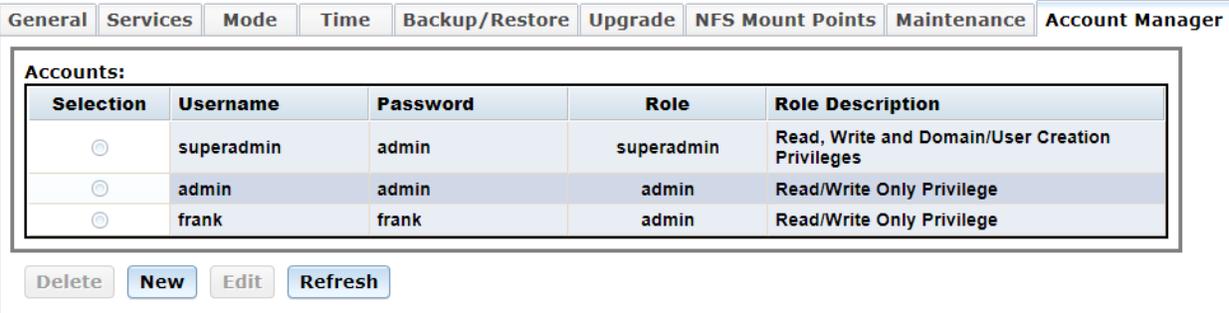
### Account Manager

The **Account Manager** page of the **System** menu provides options to manage accounts.

The PowerMedia XMS supports two access levels (roles):

- superadmin – able to change the configuration of the PowerMedia XMS and execute administrative tasks. The role description includes read, write, and domain/user creation privileges.
- admin – able to monitor the PowerMedia XMS, but cannot change configurations or execute administrative tasks. The role description includes read/write only privilege.

Functions that are available to "superadmin" and "admin" are noted as such.

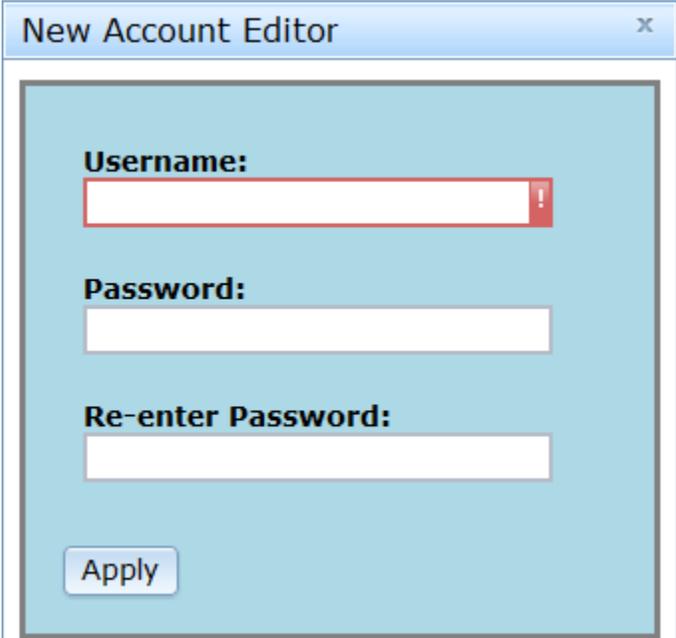


### Create a New User

Follow the instructions below to create a new user and then log in using the new accounts username and password. Up to 20 new user accounts can be created.

The account being created will have configure and provisioning permissions but will not have administrative permissions.

1. Click **New**. The **New Account Editor** dialog box will appear.



2. Enter a Username and Password in the corresponding **Username** and **Password** fields. The account being set up is a user account and not an administrative account.

3. Click **Apply** and the object and the new user will get created under the admin icon in the configuration tree.
4. Once the account has been created, log on to the newly created account.
5. Log off by clicking on **logout** in the upper right-hand corner of the page.

## Diagnostics

The **Diagnostics** page of the **System** menu page provides the option to set the logging level for the PowerMedia XMS.

The screenshot shows a navigation bar with tabs: General, Services, Mode, Time, Backup/Restore, Upgrade, NFS Mount Points, Maintenance, Account Manager, and Diagnostics. The Diagnostics tab is active. Below the navigation bar, there is a section titled "Logging:". Underneath, there is a label "Media Server Logging Level" followed by a dropdown menu currently set to "WARNING". At the bottom of this section is an "Apply" button.

When troubleshooting issues, additional information can be obtained in the logs by setting the logging level to "DEBUG". By default, the logging level is set to "WARNING".

## Network

From the **Network** menu, you can view and change the **Interface Configuration** and the **DNS Configuration**.

**Note:** This **Network** menu applies to system network settings, while the **Protocol** menu applies to PowerMedia XMS network settings.

### Interface Configuration

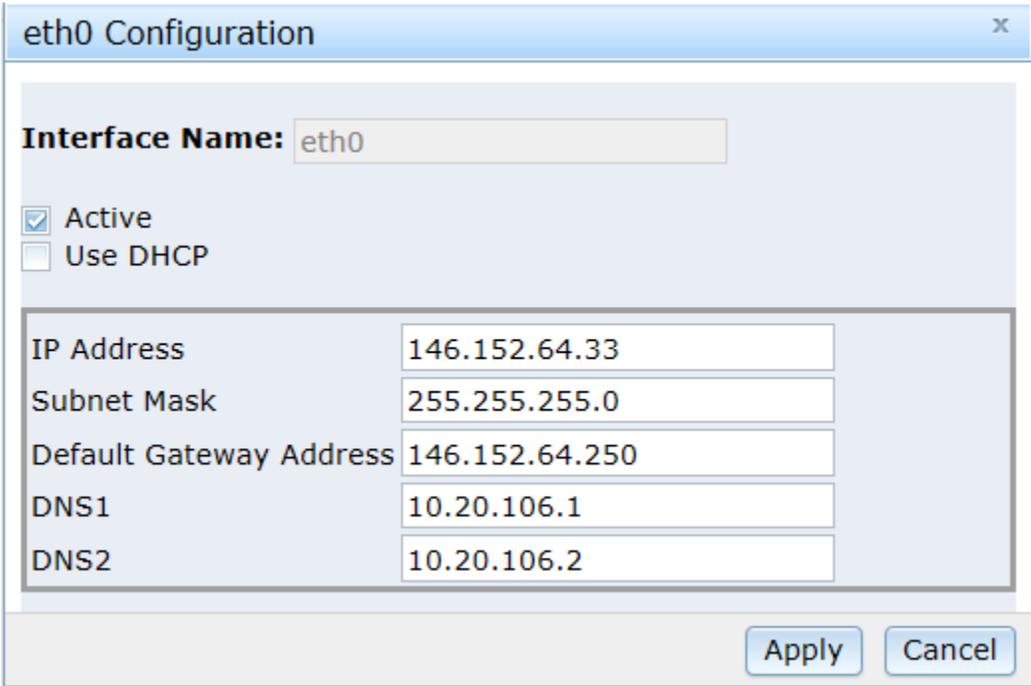
The **Interface Configuration** page is used to configure the IPV4 network device. The table displays the number of network devices and their IPV4 configuration in the system.

The screenshot shows two tabs: "Interface Configuration" (selected) and "DNS Configuration". Below the tabs is a table with the following data:

Interface Name	IPV4 Address	Mac Address	Status	Action
eth0	146.152.64.33	bc:30:5b:e5:ed:24	active	DISABLE
eth1		bc:30:5b:e5:ed:25	inactive	ENABLE

**Changing network settings may disconnect your XMS admin session. Be prepared to log in again !!!**

Click **Interface Name** to display the **Active** network device configuration dialog box.



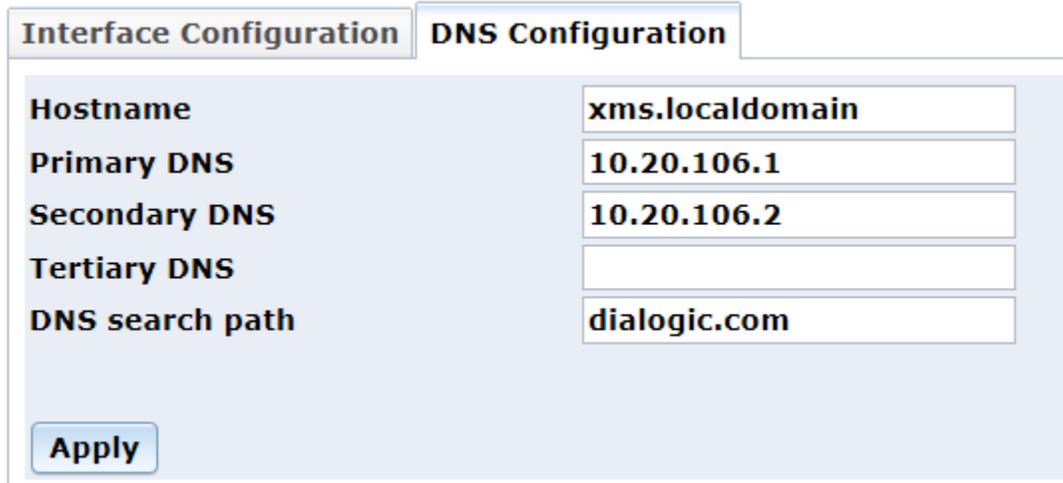
The dialog box titled "eth0 Configuration" contains the following fields and controls:

- Interface Name:** eth0
- Active
- Use DHCP
- IP Address:** 146.152.64.33
- Subnet Mask:** 255.255.255.0
- Default Gateway Address:** 146.152.64.250
- DNS1:** 10.20.106.1
- DNS2:** 10.20.106.2
- Buttons:** Apply, Cancel

If the **Use DHCP** check box is not checked, the static IPV4 configuration is provided. Click **Apply** to save changes.

### DNS Configuration

The DNS client is configured using the **DNS Configuration** page.



The DNS Configuration page has two tabs: "Interface Configuration" and "DNS Configuration". The "DNS Configuration" tab is active and shows the following fields:

- Hostname:** xms.localdomain
- Primary DNS:** 10.20.106.1
- Secondary DNS:** 10.20.106.2
- Tertiary DNS:** (empty field)
- DNS search path:** dialogic.com
- Button:** Apply

Proceed as follows to configure the **DNS Configuration** parameters:

1. In the **Hostname** field, enter the name of the host machine.
2. In the **Primary DNS** field, enter the Primary DNS server IP address.
3. In the **Secondary DNS** field, enter the Secondary DNS server IP address.
4. In the **Tertiary DNS** field, enter the Tertiary DNS server IP address.
5. In the **DNS search path** field, enter the search path for DNS servers.
6. Click **Apply** to save changes.

## License

From the **License** menu, you can view the **License Manager** page.

The **License Manager** page provides the options to view available licenses, browse for new licenses, and add, activate or delete licenses. The primary method of activation is interactive through use of the Console. To activate your license, you must have access to the license file from the License Certificate or via an email from Dialogic.

**Note:** The PowerMedia XMS comes with a two-port audio/video license to get started. The license name is *verification.lic*. When another license is enabled, the Verification License automatically becomes inactive.

The **License Features** section of the **License Manager** page provides a view of license features and the number of active licenses in use. The **Licenses** section provides a list of licenses available on PowerMedia XMS. To toggle between disabling and enabling the license, click the check box to the left of the license name to select a license, and then click **ENABLE** or **DISABLE** in the **Action** column.

**Note:** Mixing verification, trial, and permanent licenses are not allowed, however, multiple purchased licenses can be active at the same time.

License Manager

**Licensed Features:**

Feature	Active Licenses
amr_audio_codec	2
basic_audio	2
hd_audio_codec	2
high_resolution_video	2
lbr_audio_codec	2
mrsp_speech	2
video	2

Add License (\*.lic)

Overwrite Existing File?

**Licenses:**

Selection	License Name	Type	Expires	Status	Action
<input type="checkbox"/>	verification.lic	Verification	permanent	active	<input type="button" value="DISABLE"/>

### Add a License

Perform the following steps in the **Add License** section to add a license:

- 1. Click **Browse** to access available licenses that have been downloaded to the PowerMedia XMS on which your web browser is running.
- 2. Once you select the license, click **Upload**.
- 3. Restart services using the **System > Services** page to apply changes to the licensing.

### Delete a License

Perform the following steps in the **Licenses** section to delete a license:

- 1. Click in the check box to the left of the license you wish to delete.
- 2. Once you select the license, click **Delete**.
- 3. Restart services using the **System > Services** page to apply changes to the licensing.

### MSML

The MSML interface uses SIP INFO messages to send MSML script payloads. The **MSML** menu contains tabbed pages, **MSML Configuration** and **MSML Advanced Configuration**.

### MSML Configuration

<b>MSML Configuration</b>		<b>MSML Advanced Configuration</b>	
<b>MSML (RFC5707) Protocol General:</b>			
MSML Version:	1.1		
Content Type:	xml		
Encoding:	utf-8		
Schema Validation:	<input type="checkbox"/>		
<b>Media Parameters:</b>			
HTTP Caching:	<input type="checkbox"/>		
<b>Conferencing Parameters:</b>			
Enable AGC By Default:	<input type="checkbox"/>		
<b>Apply</b>			

Proceed as follows to configure the **MSML Configuration** parameters:

Parameter	Description	Valid Values
<b>MSML (RFC5707) Protocol General</b>		
MSML Version	Specifies the MSML version used by the media server.	Use the drop-down list to select the value. Valid values are: <ul style="list-style-type: none"> <li>• 1.0</li> <li>• 1.1 (default)</li> </ul>
Content Type	Specifies the MSML control package content type.	Use the drop-down list to select the value. Valid values are: <ul style="list-style-type: none"> <li>• xml (default)</li> <li>• msml-xml</li> </ul>
Encoding	Specifies XML encoding.	Use the drop-down list to select the value. Valid values are: <ul style="list-style-type: none"> <li>• utf_8 (default)</li> <li>• us_ascii</li> </ul>
Schema Validation	Controls activation of the XML validation of the media control message body. Validation is performed based on the <i>msml.xsd</i> XML schema definition file.  <b>Note:</b> This parameter is MIPS intensive and is recommended during application development and troubleshooting, and not for normal operation.	Click the check box to enable or disable.  Schema Validation is disabled by default.  <b>Note:</b> Due to a limitation in the Xerces schema validation library included in the supported Linux distributions, the schema for MSML speech and namespace extensions (xml:lang) remain disabled as they require fetching of external (http://) files. To avoid validation failures, ensure that the schema validation is disabled.
<b>Media Parameters</b>		
HTTP Caching	Controls a caching mechanism to improve performance when servicing network and remote file operations.	Click the check box to enable or disable.  HTTP Caching is disabled by default (does not perform caching; all network requests result in remote access).
<b>Conferencing Parameters</b>		
Enable AGC By Default	Enables automatic gain control.	Click the check box to enable or disable AGC by default.  The default value is disable.

Click **Apply** to save changes.

**Note:** The system services must be restarted for the changes to take effect.

## MSML Advanced Configuration

MSML Configuration		MSML Advanced Configuration	
<b>Special Modes:</b>			
Clear Digit Buffer:	<input type="checkbox"/>		
DTMF Start Timer:	<input type="checkbox"/>		
DTMF Detection Mode:		RFC2833	▼
Advanced Digit Pattern:	<input type="checkbox"/>		

Proceed as follows to configure the **MSML Advanced Configuration** parameters:

1. To enable **Clear Digit Buffer**, click the check box.
2. To enable **DTMF Start Timer**, click the check box.
3. In the **DTMF Detection Mode** field, use the drop-down list to select the value. Valid values are: RFC2833, IN-BAND, or OUT-OF-BAND.
4. To enable **Advanced Digit Pattern**, click the check box.
5. Click **Apply** to save changes.

**Note:** The system services must be restarted for the changes to take effect.

## MRCP Client

The Media Resource Control Protocol (MRCP), accessible only through VXML, is used by PowerMedia XMS as an interface to Automatic Speech Recognition (ASR) and Text-to-Speech (TTS) systems. MRCP provides an easy way to build voice user interfaces, allowing a grammar to be built for speech input and providing a way to easily translate text into voice prompts without reading and recording them.

The **MRCP Client** menu from the Console is used to configure the PowerMedia XMS client side of the MRCP server.

## Global Configuration

The **Global Configuration** page is used to configure the MRCP Client.

Global Configuration	Speech Server Configuration
<b>MRCP Client IP Address</b>	<input type="text" value="0.0.0.0"/>
<b>Keep Alive Interval</b>	<input type="text" value="10000"/>
<b>Keep Alive Count</b>	<input type="text" value="3"/>
<b>Socket Connection Backoff</b>	<input type="text" value="3000"/>
<b>Maximum Sessions Count</b>	<input type="text" value="100"/>
<b>UDP Retransmit Timer (msecs)</b>	<input type="text"/>
<b>UDP Retransmit Count</b>	<input type="text"/>
<b>Server Recovery Delay (minutes)</b>	<input type="text"/>
<b>Log Level (1-5, where 5 represents the highest verbosity)</b>	<input type="text" value="1"/> <input type="button" value="v"/>
<input type="button" value="Apply"/>	

Proceed as follows to configure the **Global Configuration** parameters:

1. In the **MRCP Client IP Address** field, enter the local IP Address to be used for the MRCP Client.
2. In the **Keep Alive Interval** field, enter the keep alive interval for connection with speech server.
3. In the **Keep Alive Count** field, enter the keep alive count for connection with speech server.
4. In the **Socket Connection Backoff** field, enter the socket connection backoff - delay before TCP reconnection.
5. In the **Maximum Sessions Count** field, enter the maximum number of MRCP sessions supported.

**Note:** If the MRCP server contracted by the MRCP client uses both ASR and TTS, then the **Maximum Sessions Count** field on the client screen has to be set to two times the number of desired active sessions. This is because ASR and TTS each consume a session, even in the same call.

6. In the **UDP Retransmit Timer (msecs)** field, enter the retransmission timer in msec when using UDP for the transport of the MRCP signaling.
7. In the **UDP Retransmit Count** field, enter the maximum number of retransmissions when using UDP for the transport of the MRCP signaling before a request is considered failed.
8. In the **Server Recovery Delay (minutes)** field, enter the delay in minutes before a failed speech server is attempted again.
9. In the **Log Level** field, enter the number of verbosity for the log level (1-5, where 5 represents the highest verbosity).
10. Click **Apply** to save changes.

### Speech Server Configuration

The **Speech Server Configuration** page is used to configure the speech server.

Global Configuration | **Speech Server Configuration**

Speech Server Id	Status	Action
new_server	Enable	Delete
sample	Enable	Delete

**Add**

new\_server x

Speech Server Id: new\_server

Speech Server IP Address: 0.0.0.0

Speech Server Port: 5060

Protocol Version: MRCP/2.0

Transport: TCP

ASR: true

TTS: true

Enabled: false

Role: primary

Apply Cancel

Proceed as follows to configure the **Speech Server Configuration** parameters:

1. In the **Speech Server Id** field, enter the speech server identification for MRCP.
2. In the **Speech Server IP Address** field, enter the IP address of the MRCP server to connect to.
3. In the **Speech Server Port** field, enter the IP port of the MRCP server to connect to.
4. In the **Protocol** field, select MRCP/1.0 or MRCP/2.0 from the drop-down list to indicate the protocol version.
5. In the **Transport** field, select UDP or TCP from the drop-down list to indicate the SIP Transport protocol.

**Note:** For the SIP usage only. Once the session is established, MRCP uses TCP.

6. In the **ASR** field, select true or false from the drop-down list to enable Automatic Speech Recognition for this speech server.
7. In the **TTS** field, select true or false from the drop-down list to enable Text-to-Speech usage for this speech server.
8. In the **Enabled** field, select true or false from the drop-down list to enable this speech server.
9. In the **Role** field, select primary or backup from the drop-down list to indicate the role to use.
10. Click **Apply** to save changes.

## HTTP Client

The **HTTP Client** menu opens to the **HTTP Client Configuration** page which is used to configure cache on the HTTP client.

HTTP Client Configuration	
HTTP CACHE	YES
MAX STALE (seconds)	0
MAX AGE (seconds)	30
<input type="button" value="Apply"/>	

Proceed as follows to configure the **HTTP Client Configuration** parameters:

1. In the **HTTP CACHE** field, select YES to enable cache or NO to disable cache.
2. In the **MAX STALE (seconds)** field, enter the maximum amount of time in seconds that is allowed before a cached file becomes stale.
3. In the **MAX AGE (seconds)** field, enter the maximum amount of time in seconds that a file will be cached.
4. Click **Apply** to save changes.

## VXML

Voice Extensible Markup Language (VoiceXML or VXML) is an integral part of PowerMedia XMS. VoiceXML is designed for creating audio-only dialogs that feature synthesized speech, digitized audio, speech recognition and DTMF key input, speech recording, telephony, and mixed initiative conversations.

### VXML Interpreter Configuration

The **VXML Interpreter Configuration** page is used to configure **General Settings** for the VXML Interpreter, in addition to the local **Web Server Settings**.

Vxml Interpreter Configuration
VXML Application Configuration

**General Settings:**

Allow Call Transfer	<input type="text" value="true"/>
Complete Timeout (seconds)	<input type="text" value="0.8"/>
Incomplete Timeout (seconds)	<input type="text" value="1"/>
Grammar Locale	<input type="text" value="en-US"/>
Initial URI	<input type="text" value="/var/lib/xms/vxml/www/vxml/index.vxn"/>
Inter-digit Timeout (seconds)	<input type="text" value="3"/>
DTMF Mode	<input type="text" value="RFC2833"/>
Timeout (seconds)	<input type="text" value="3.4"/>
TTS Language	<input type="text" value="en-US"/>
Max Channels	<input type="text" value="2000"/>
System Log Level (1-5, where 5 represents the highest verbosity)	<input type="text" value="1"/>
VXML App Logs Enabled	<input type="text" value="false"/>
XSI Schema Validation Enabled	<input type="text" value="false"/>

**Web Server Settings:**

Static Content Directory	<input type="text" value="/var/lib/xms/vxml/www"/>
IP Address	<input type="text" value="127.0.0.1"/>
Port	<input type="text" value="9002"/>
User Name	<input type="text"/>
Password	<input type="text"/>

**General Settings**

Proceed as follows to configure the **General Settings** parameters:

Parameter	Description	Valid Values
<b>Allow Call Transfer</b>	Specifies whether call transfers are allowed.	Use the drop-down list to select the value. Valid values are: <ul style="list-style-type: none"> <li>true</li> <li>false</li> </ul>
<b>Complete Timeout</b>	Sets the default value of the VoiceXML complete timeout property in seconds.	0.2sec - 10s The default value is 0.25s.

Parameter	Description	Valid Values
<b>Incomplete Timeout</b>	Sets the default value of the VoiceXML incomplete timeout property in seconds.	0.2s - 10s The default value is 0.75s.
<b>Grammar Locale</b>	Sets the default RFC 3066 language identifier to use for grammar.	
<b>Initial URI</b>	URI of the initial page to execute when receiving or making a call. The value must be a full URI, because relative URIs are not allowed. Both HTTP and local file URIs are supported. In the latter case, the file:// protocol specifier must precede the path.	
<b>Inter-digit Timeout</b>	Sets the default value of the VoiceXML interdigit timeout property in seconds.	0 - 600s
<b>DTMF Mode</b>	Sets the DTMF mode.	Use the drop-down list to select the value. Valid values are: <ul style="list-style-type: none"> <li>• RFC2833</li> <li>• OutOfBand (SIP INFO)</li> <li>• InBand</li> </ul>
<b>Timeout</b>	Sets the default value of the VoiceXML timeout property in seconds.	0.05s - 20000s
<b>TTS Language</b>	Default system language. The value should be a language-identifier as per RFC 3066. It can have a particular voice name appended, for example, en-US-Crystal.	

Parameter	Description	Valid Values
<b>Max Channels</b>	<p>Maximum number of VoiceXML Interpreter channels to be used simultaneously. Each channel runs as a separate thread within the VoiceXML Interpreter executable.</p> <p>Actual resources increase only according the real needs.</p> <p><b>Note:</b> The resources used for a channel may not be available immediately after a call is disconnected, because the VoiceXML Interpreter can continue processing dialogs on behalf of a call. To avoid call rejection due to busy resources, it is generally recommended to add twenty percent (20%) more channels than the total concurrent number of calls PowerMedia XMS is expected to handle.</p>	1 - 1024 (depending on machine capabilities)
<b>System Log Level</b>	<p>Minimum severity level that must be assigned to a VoiceXML application log message for it to be written to the VoiceXML Interpreter system log file.</p> <p><b>Note:</b> If the value specified is less than 4, VoiceXML application log messages are not written to the system log file.</p>	<p>Use the drop-down list to select the value. Valid values are:</p> <ul style="list-style-type: none"> <li>• 1 - 5, where 5 represents the highest verbosity</li> <li>• WARNING</li> <li>• ERROR</li> <li>• FATAL</li> </ul>
<b>VXML App Logs Enabled</b>	Specifies whether to enable VoiceXML application logging.	<p>Use the drop-down list to select the value. Valid values are:</p> <ul style="list-style-type: none"> <li>• true</li> <li>• false</li> </ul>
<b>XSI Schema Validation Enabled</b>	Specifies whether to enable XSI schema validation.	<p>Use the drop-down list to select the value. Valid values are:</p> <ul style="list-style-type: none"> <li>• true</li> <li>• false</li> </ul>

## Web Server Settings

The web server is used to fetch local VXML document using http:// protocol instead of absolute file:// and to receive the application server requests, if any.

Proceed as follows to configure the local **Web Server Settings** parameters:

1. In the **Static Content Directory** field, enter the location where the VXML pages are stored.
2. In the **IP Address** field, enter the local IP address to use or LOCALHOST with 127.0.0.1. Also, entering ANY can be used to allow access with any IP address although not recommended.
3. In the **Port** field, enter the port number. Default is 9002.
4. In the **User Name** field, enter the username to login, if any.
5. In the **Password** field, enter the password to login, if any.
6. Click **Apply** to save changes.

## VXML Application Configuration

The **VXML Application Configuration** page is used to configure the VXML application.

Pattern	Initial URI	Logging
---------	-------------	---------

Buttons: Delete, Add, Apply

**New VXML Application**

Pattern :

Initial URI :

Logging :

Buttons: Apply, Cancel

Proceed as follows to configure the **VXML Application Configuration** parameters:

- 1. In the **Pattern** field, enter the regular expression to match for this VXML application.
- 2. In the **Initial URI** field, enter the initial URI for this VXML application.
- 3. In the **Logging** field, select true or false from the drop-down list to enable the logging for this VXML application.
- 4. Click **Apply** to save changes.

## RESTful API

The **RESTful API** menu opens to the **RESTful API Configuration** page which is used to configure several aspects of the RESTful call control and media API.

App Id	Status	Action
app	enable	Disable Delete
AgentOutdial	disable	Enable Delete
CompanyDirectory	disable	Enable Delete
PreProductionTest	enable	Disable Delete

Proceed as follows to configure the **RESTful API Configuration** parameters:

### Port

The port number is used by the lighttpd web server, which services the RESTful API.

If the service needs to be run on a port other than the default port 81, this may be configured in the **XMS RESTful Web Server Port** field. Enter the new port and click **Apply**.

**Note:** The system services must be restarted for the port change to take effect.

### Application ID

Application IDs are used in the **Routes** page to map a SIP URL to a specific application. The enabled Application IDs are available from the **Application** drop-down list in the **Routes** page.

To add Application ID, enter name in the **New Application ID** field. Click the **Add** button. The ID will be added to the **Trusted Application IDs** section. The ID will be enabled by default.

It may be disabled but kept in the list by choosing **Disable**. It can be re-enabled by choosing **Enable**. The entry can be entirely removed from the list by choosing **Delete**.

Changes to the list must be activated with **Apply**.

**Note:** The system services must be restarted for the changes to take effect.

## Protocol

The **Protocol** menu contains tabbed pages, **SIP** and **RTP**.

**Note:** This **Protocol** menu applies to PowerMedia XMS network settings, while the **Network** menu applies to system network settings.

### SIP

The **SIP** page is used to configure the **IP Address**, **Port**, **Transport**, or **Session Timeout** information.

The following information is provided:

Item	Description
IP Address	Specifies the SIP IP address. To change the address: <ol style="list-style-type: none"> <li>1. Enter the IP address in <b>IP Address</b> field.</li> <li>2. Note the IP address and click <b>Apply</b>.</li> </ol>
Port	Specifies the SIP listening port. The default is 5060.

Item	Description
Transport	Displays the transport protocol. The following protocols are available from the drop down list: <ul style="list-style-type: none"> <li>• UDP (User Datagram Protocol)</li> <li>• TCP (Transmission Control Protocol)</li> <li>• UDP_TCP (User Datagram Protocol - Transmission Control Protocol)</li> </ul>
Session Timeout (seconds)	Specifies the session timeout in seconds. The default is 1800.
Restrict Access to Specified Host	Click the check box to restrict access to a specified host.

Changing the SIP IP address is necessary when you have multiple e-net interfaces and want to switch among them, or if you have manually changed the address for the single e-net interface. Refer to the [Network](#) menu for more information.

Click **Apply** to save changes.

**Note:** A services restart is required when any changes are made to SIP interface configurations.

### Restrict Access to Specified Host

From the **Restrict Access to Specified Host** window, you can restrict access to trusted specified hosts.

**SIP**   **RTP**

**IP Address:**

**Port:**

**Transport:**

**Session Timeout (seconds):**

**Restrict Access to Specified Host**

IP Address	
<input type="text"/>	<input type="button" value="Add"/>
<b>Trusted</b>	
<input type="text"/>	<input type="button" value="Delete"/>

Enter the address you wish to add as a trusted host in the **IP Address** field and click **Add**. The address will be listed in the **Trusted** section.

To delete a trusted host, click on the address listed in the **Trusted** section and click **Delete**.

Click **Apply** to save changes.

## RTP

The **RTP** page is used to select the **Interface Name**.

**SIP**   **RTP**

**Media Engine**

**Interface Name:**

**Type Of Service :**

Select the appropriate interface name from the **Interface Name** drop-down list.

Enter the **Type Of Service**.

Click **Apply** to save changes.

## Codex

The **Codex** menu contains tabbed pages, **Audio** and **Video**. On each page, codecs are listed in priority order, with the first row having the highest priority. To change the priority, click on the desired row to select it, and then drag and drop within the table.

**Audio** **Video**

Name	Status	Action
g722	Enabled	Disable
pcmu	Enabled	Disable
pcma	Enabled	Disable
g726-32	Enabled	Disable
amr	Enabled	Disable
g723	Enabled	Disable
g729	Enabled	Disable
amr-wb	Enabled	Disable

**Apply**

### Enable/Disable Codex

1. Click the button listed in the **Action** column to toggle between **Disable** and **Enable**.
2. Click **Apply** to save changes. The **Status** column will change to the **Action** you selected.

### Change Parameters for Video Codex

You can change the parameters and bitrate settings. Available parameters and bitrates are listed in a drop-down list.

**Audio** **Video**

Name	Parameters	Bitrate	Status	Action
h264	level=31 size=vga fps=30	768000	Enabled	Disable
mp4v-es	level=3 size=cif fps=30	384000	Enabled	Disable
h263	level=30 size=cif fps=30	384000	Enabled	Disable
h263-1998	level=30 size=cif fps=30	384000	Enabled	Disable
h263-2000	level=30 size=cif fps=30	384000	Enabled	Disable
vp8	level=0 size=vga fps=30	768000	Enabled	Disable

**Apply**

Proceed as follows to configure the **Video** parameters:

### Parameters

1. Double-click on the appropriate parameter cell in the **Parameters** column.
2. Select the desired parameter from the drop-down list.
3. Click **Apply** to save changes.

### Bitrate

1. Double-click on the appropriate cell in the **Bitrate** column.
2. Select the desired bitrate from the drop-down list.
3. Click **Apply** to save changes.

## Routing

The **Routing** menu opens to the **Routes** page which illustrates how different applications like MSML, NETANN, VoiceXML, and RESTful, are engaged with PowerMedia XMS based on the content of SIP URI.

Routes

### New Route

**Pattern**

**Application**

	Pattern	Application
<input type="checkbox"/>	^(sip rtc):annc.*	NETANN
<input type="checkbox"/>	^(sip rtc):conf=.*	NETANN
<input type="checkbox"/>	^(sip rtc):dialog.*moml=.*	MSML
<input type="checkbox"/>	^(sip rtc):dialog.*	VXML
<input type="checkbox"/>	^sip:msml.*	MSML
<input type="checkbox"/>	^(sip rtc):play_demo.*	verification
<input type="checkbox"/>	^(sip rtc):conf_demo.*	verification
<input type="checkbox"/>	^(sip rtc):join_demo.*	verification
<input type="checkbox"/>	^(sip rtc):demo.*	verification
<input type="checkbox"/>	^rtc:sip:.*	verification
<input type="checkbox"/>	^(sip rtc):.*	app

Proceed as follows to configure the **Routes** parameters:

There are two editable fields as part of the **New Route** section on the **Routes** page, **Application** and **Pattern**. The **Pattern** field is a regular expression that is matched against the incoming call URI. Enter new route by clicking **Add** button.

**Note:** A services restart will automatically be performed once you click **Apply**.

The new route will now be listed on the **Routes** page. Routes can be deleted by clicking in the appropriate check box and clicking the **Delete** button. The default route for all calls is the application ID "app".

**Note:** Routes can be moved up or down by clicking the desired row to select it, then drag and drop within the table. The more specific routes (less inclusive) should be placed higher than the less specific routes (more inclusive) to avoid the less specific routes from grabbing the call.

## Tones

The **Tones** menu opens to the **Basic Tone Definitions** page which is used to add, modify, and delete tones.

**Note:** A services restart is required after adding, modifying, or deleting a tone.

**Basic Tone Definitions**

	Name	Type	Cadence
<input type="button" value="Delete"/>			<input type="button" value="Add"/>

**Note:** A maximum of 20 tones may be defined.

The following information is provided:

Item	Description
Name	Name of the tone.
Type	Specifies whether tone is a single or dual tone.
Cadence	Specifies cadence. Valid values are: Yes – Cadence tone No – Continuous tone

## Add a Tone

1. On the **Basic Tone Definitions** page, click **Add**. The following dialog box appears:

The dialog box titled "New Tone Definition" contains the following fields and sections:

- Tone Name:** A text box containing the value "New".
- Tone 1:** A section with two fields: "Frequency (Hz):" and "Tolerance (Hz):", both containing the value "0".
- Tone 2:** A section with two fields: "Frequency (Hz):" and "Tolerance (Hz):", both containing the value "0".
- Cadence:** A section with five fields: "On Time (ms):", "Tolerance (ms):", "Off Time (ms):", "Tolerance (ms):", and "repetitions :", all containing the value "0".

At the bottom of the dialog are "Apply" and "Cancel" buttons.

2. Enter the name of new tone in the **Tone Name** section.
3. In the mandatory **Tone 1** field, enter the **Frequency (Hz)**. Frequency range is between 300Hz to 3.5kHz.
4. Enter the **Tolerance (Hz)**. This specifies the deviation in Hz.
5. **Tone 2** field is optional. If only **Tone 1** is defined, then the tone is a single tone. If both **Tone 1** and **Tone 2** are defined, then the tone is a dual tone.

**Note:** Dual tones with frequency components closer than approximately 63 Hz cannot be detected. In this case, use a single tone definition.

6. In the **Cadence** section, enter the following in the spaces provided:

**On Times (ms)** field: tone-on time in milliseconds (minimum 40 ms). Set to 0 to define a continuous tone.

**Tolerance (ms)** field: tone-on time deviation in milliseconds. Cadence only.

**Off Time (ms)** field: tone-off time in milliseconds (minimum 40 ms). Cadence only.

**Tolerance (ms)** field: tone-off time deviation in milliseconds. Cadence only.

**repetitions** field:

7. When finished, click **Apply**.

### Modify a Tone

1. On the **Basic Tone Definitions** page, click the check box to the left of the tone you wish to modify.
2. Click on the **Tone Name**.
3. Change the desired fields in accordance with steps 3 through 7 as listed in the procedure to add a tone.

### Delete a Tone

1. On the **Basic Tone Definitions** page, click the check box to the left of the tone you wish to delete.
2. Click **Delete**.

### Media

The **Media** menu opens to the **Media Configuration** page which is used to configure PowerMedia XMS media file paths.

The screenshot shows a web interface with two tabs: "Media Configuration" (active) and "Media Management". Below the tabs are three configuration rows:

<b>Media File Path:</b>	<input type="text" value="/var/lib/xms/media"/>
<b>Locale:</b>	<input type="text" value="en-US"/>
<b>Allow Absolute Paths:</b>	<input type="text" value="NO"/>

At the bottom left of the configuration area is an "Apply" button.

Proceed as follows to configure the **Media Configuration** parameters:

1. In the **Media File Path** field, enter the file path for media files.
2. In the **Locale** field, enter the locale.
3. In the **Allow Absolute Paths** field, select NO to disable absolute paths or YES to enable absolute paths from the drop-down list.

If the **Allow Absolute Paths** field is not set (NO is selected), a media file can only be found by concatenating the **Locale** onto the **Media File Path** and looking for the specified media file there. If the **Allow Absolute Paths** field is set (YES is selected), the full file specification for the media can be used in the application. The application may also use the **Media File Path** and **Locale** combination.

For absolute path, the file URI would look something like the following:

```
<audio uri=file:///var/lib/xms/media/en-US/verification/main_menu.wav
```

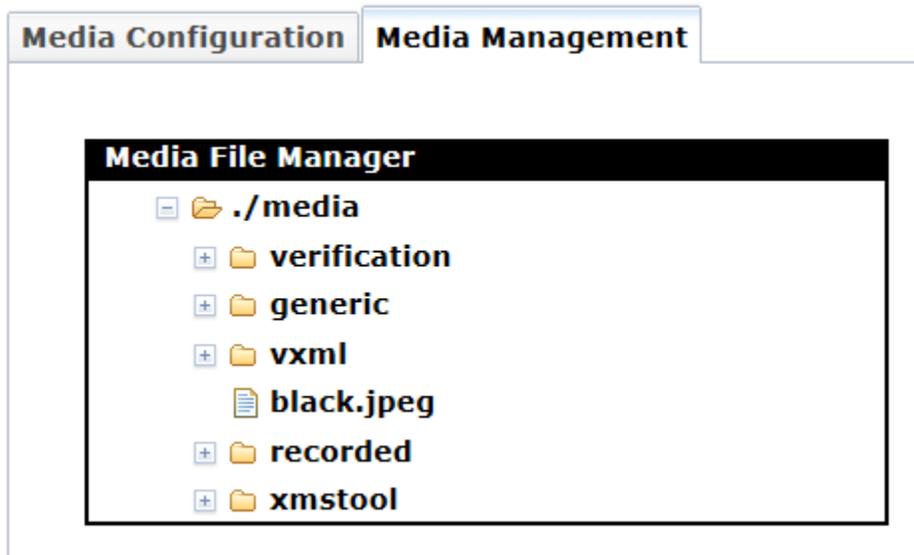
For relative path, the file URI would look something like the following:

```
<audio uri=file://./verification/main_menu.wav
```

4. Click **Apply** to save changes.

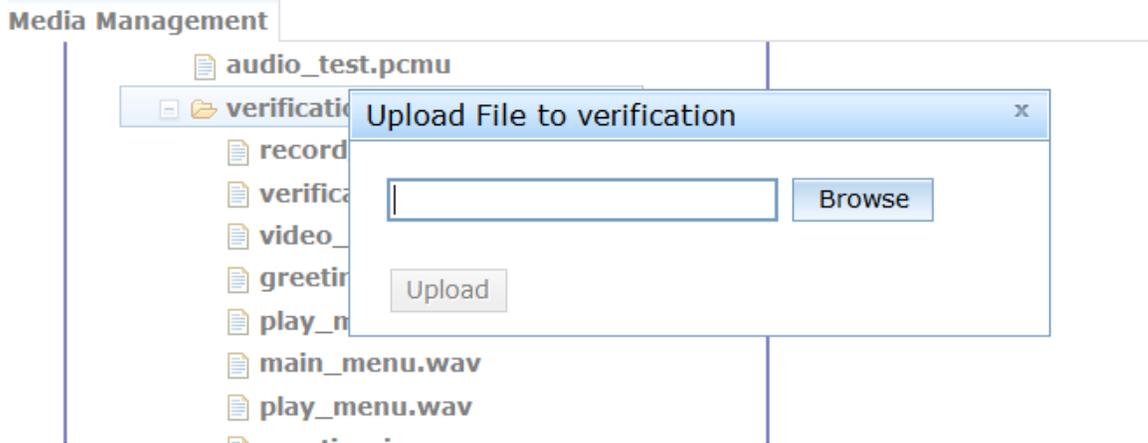
The **Media Management** page is used to view and manage the PowerMedia XMS media files. Functionality includes:

- [Uploading a Media File](#)
- [Deleting a Media File](#)
- [Creating a Media File Directory](#)
- [Deleting a Media File Directory](#)



## Uploading a Media File

1. Select the directory where the downloaded file will reside. For a new directory, see the [Creating a Media File Directory](#) section.
2. Right-click and select **Upload Media File**. The **Upload File to verification** dialog box should appear in the vicinity of the selection.



3. Select **Browse** to reach the file explorer. The file explorer look and feel is tied to the operating system of the web browser used.
4. Select a media file that has been downloaded to the system on which your web browser is running. The file explorer will close and the name of the selected file will appear in the text box. Note this text box is read only so to change the file you must click the browser button again and repeat the above steps.
5. Click **Upload** to start the upload process. After a successful upload, the file will appear under the selected directory.

### Deleting a Media File

1. Select the file to delete.
2. Right-click and select **Delete**. A delete media file notification dialog will confirm whether to delete media file.
3. Click **OK** to delete the file or click **Cancel** to abort the operation. Upon successful delete completion, the file is removed from the Console's list display.

### Creating a Media File Directory

1. Select the parent directory that will contain the new directory.
2. Right-click and select **Create Directory**. The **Enter Directory Name** dialog appears. Enter the name of the directory. To cancel the operation, click **x** in the right top corner of the dialog box.
3. To execute the directory creation after typing the name, press **Enter**. A dialog box is displayed indicating if PowerMedia XMS created the directory.
4. Click **OK**. The new directory will show on the list.

### Deleting a Media File Directory

1. Select the directory to delete.

**Note:** The root directory (*./media*) cannot be deleted.

2. Right-click and select **Delete**. A delete directory notification dialog will confirm whether to delete the directory and all its contents.
3. Click **OK** to delete the file or click **Cancel** to abort the operation. Upon successful delete completion, the directory is removed from the Console's list display.

## Options

The **Options** menu opens to the **Web Console Options** page which is used to configure or disable the Console's polling timeouts.

**Web Console Options**

<b>General Page Polling Timeout (ms):</b>	<input type="text" value="1000"/>	<b>Disable Polling</b> <input type="checkbox"/>	This field controls the General Page refresh polling rate. Default value is 1 sec or 1000 (ms).
<b>Header Polling Timeout (ms):</b>	<input type="text" value="3000"/>	<b>Disable Polling</b> <input type="checkbox"/>	This field controls the Header refresh polling rate. Default value is 3 sec or 3000 (ms).

Proceed as follows to configure the **Web Console Options** parameters:

### General Page Polling Timeout (ms)

This value controls the refresh polling rate. The default value is 1 second or 1000 ms. Enter the desired value in the space provided and click **Apply**.

To disable polling, click the check box to the right of **Disable Polling** and then click **Apply**.

### Header Polling Timeout (ms)

This value controls the header refresh polling rate. The default value is 3 seconds or 3000 ms. Enter the desired value in the space provided and click **Apply**.

To disable polling, click the check box to the right of **Disable Polling** and then click **Apply**.

## Downloads

The **Downloads** menu opens to the **Tools** page which will be updated periodically as additional demos and tools become available.



The **Tools** page contains the following applications to download:

- **Window Logger Manager Tool**  
Unzips the RemoteRtfTool to your local directory. Refer to the [RemoteRtfTool](#) section for more information.
- **XMS RESTful Verification Demo**  
Unzips the XMS Verification Demo to your local directory. Refer to the *Dialogic® PowerMedia™ XMS Quick Start Guide* for more information.
- **XMS RESTful Tool**  
Unzips the XMSTool RESTful Utility. Refer to the [XMSTool RESTful Utility](#) section for more information.

To download a file, click on the file name and follow the instructions.

**Note:** Files are downloaded to the local directory you specify.

## 5. PowerMedia XMS Troubleshooting

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### Troubleshooting PowerMedia XMS

This section provides information about the RemoteRtfTool utility and installation log files available to enhance the user experience. It contains the following topics:

- [RemoteRtfTool](#)
- [PowerMedia XMS Log Files](#)

### RemoteRtfTool

PowerMedia XMS logs are accessed through the RemoteRtfTool utility.

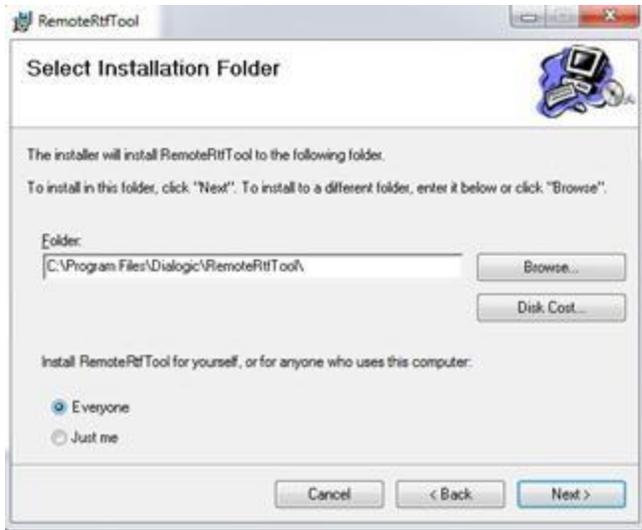
To use the RemoteRtfTool utility, access the **Downloads > Tools** page from the Console and click on **Window Logger Manager Tool** (*RemoteRtfToolInstaller.msi*) to download and install the file.



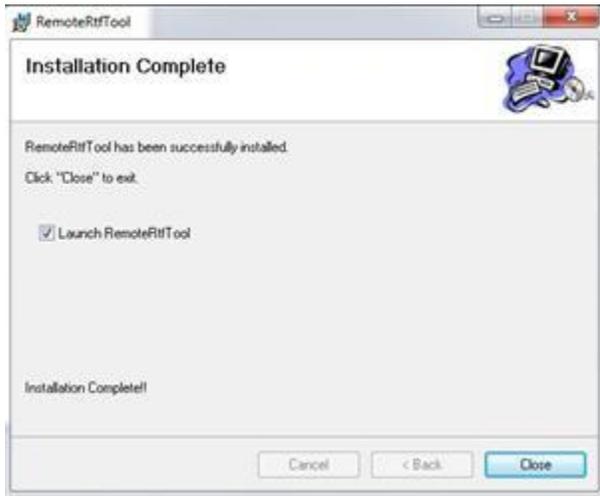
Run *RemoteRtfToolInstaller.msi* to start the setup wizard.



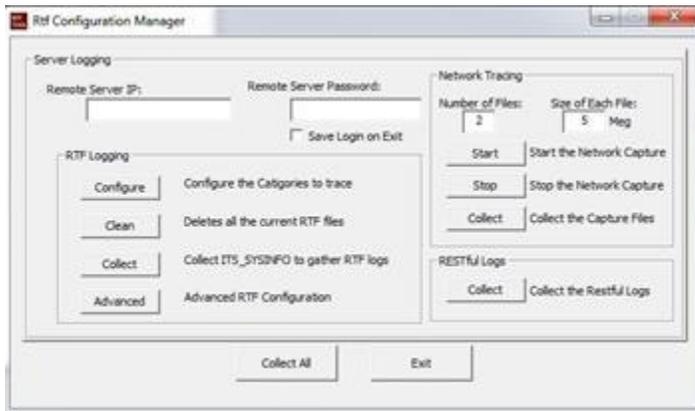
Click **Next**.



Browse to the folder indicated in the screen capture above and click **Next** to start the installation. When the installation is complete, the following screen appears:



The RemoteRtftool launches and displays the Rtf Configuration Manager window.



## Rtf Configuration Manager

The Rtf Configuration Manager contains four sections:

- [Server Logging](#)
- [RTF Logging](#)
- [Network Tracing](#)
- [RESTful Logs](#)

Clicking **Collect All** collects all log files in accordance with the default settings of the PowerMedia XMS. Proceed below to change the default settings.

### Server Logging

1. Enter the IP address on which to perform the trace in the **Remote Server IP** field.
2. Enter a valid password in the **Remote Server Password** field.

**Notes:** The password is not the Console password, but rather the combination used for Username: root and Password: powermedia.

For stand-alone RPM installations, password modification is not necessary as the installation script does not change the password to "powermedia" as it does with the .ISO install.

3. Click the check box if you wish to save the login upon exiting the Rtf Configuration Manager.

### RTF Logging

The buttons on the RTF Logging section are described below:

#### Configure

1. Click **Configure** to configure the categories to trace for both Native and MSML modes.



2. In **File Settings**, enter the number of files to trace and the maximum size of each file.

3. In **MSML Categories**, enter the categories you wish to trace.
4. In **Native Categories**, enter the media engine categories you wish to trace.
5. Click **Save** to save configuration settings.

**Clean**

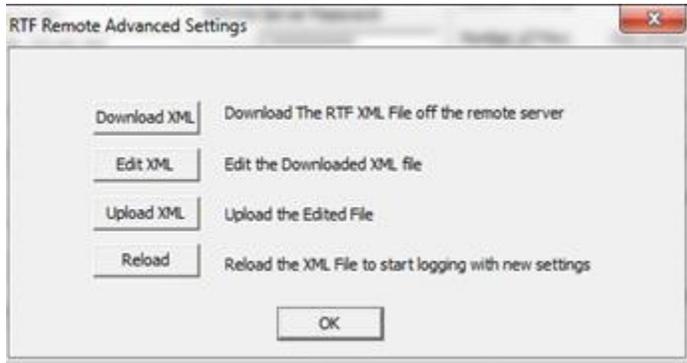
Deletes the currently stored RTF log files.

**Collect**

Runs **ItsSysinfo** used to gather RTF log files.

**Advanced**

Provides the advanced RTF configuration settings.



- **Download XML**  
Downloads the *RtfConfigLinux.xml* file.
- **Edit XML**  
Navigates to the *RtfConfigLinux.xml* file and opens it for editing.
- **Upload XML**  
Uploads the edited file to PowerMedia XMS.
- **Reload**  
Causes the RTF service to reread and restart RTF logging according to the new settings.

**Network Tracing****Number of Files**

Enter the number of network files to trace.

**Size of Each File**

Enter the maximum size of each file.

**Start**

Starts the network capture.

**Stop**

Stops the network capture.

**Collect**

Collects the captured files and copies the data to the specified location.

**RESTful Logs****Collect**

Collects the captured RESTful logs and copies the data to the specified location.

## PowerMedia XMS Log Files

The default PowerMedia XMS log location is `/var/log/xms`. Consult these log files when troubleshooting specific PowerMedia XMS problems.

**Note:** Multiple log files are created and capped at 2 MB each.

### Retrieving PowerMedia XMS Logs

Most of the PowerMedia XMS logs are not accessible through the Console.

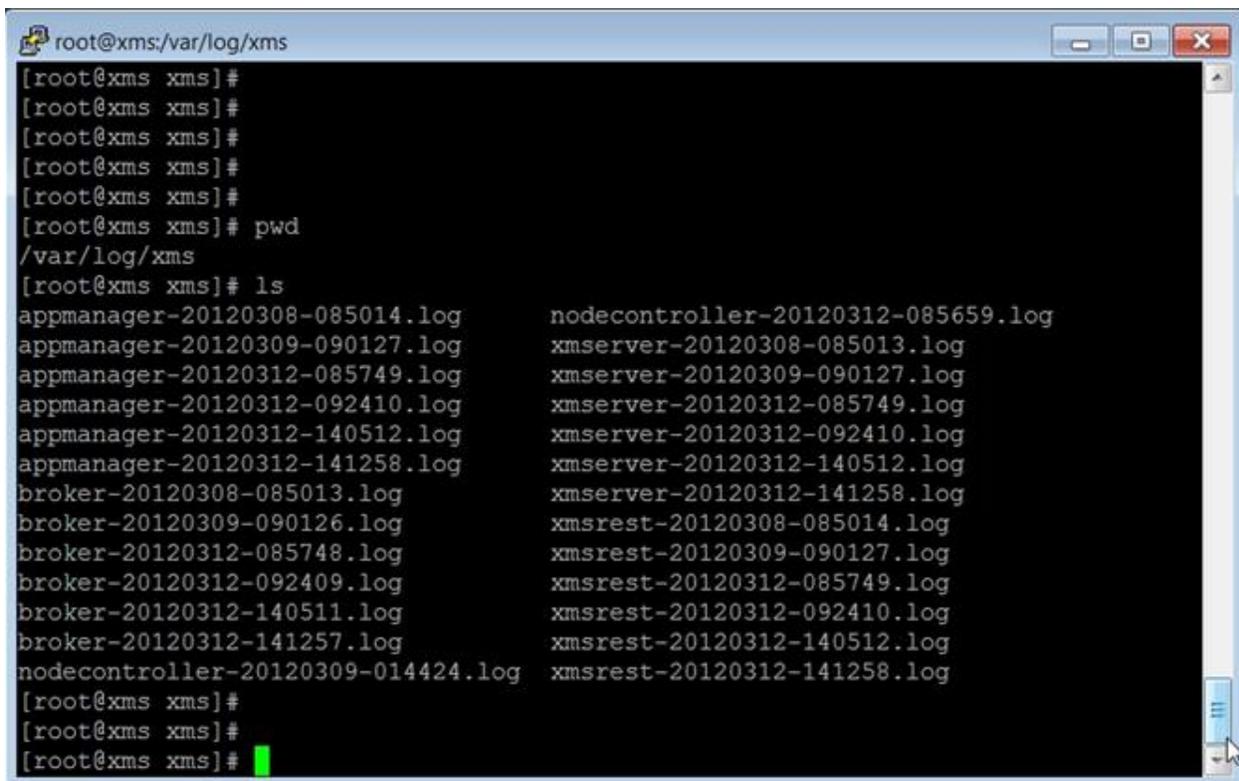
**Note:** RESTful logs can be collected by choosing "Collect the RESTful Logs" in the [RemoteRtftool](#) utility available for download in the Console.

To retrieve the logs, it is necessary to access the PowerMedia XMS using secure shell (ssh).

The "root" user's default password is "powermedia". If you wish to change the password, do so before proceeding.

**Note:** For stand-alone RPM installations, password modification is not necessary as the installation script does not change the password to "powermedia" as it does with the .ISO install.

Access the files from `/var/log/xms` and copy the logs to the desired location. See the example below:



```
root@xms:/var/log/xms
[root@xms xms]#
[root@xms xms]#
[root@xms xms]#
[root@xms xms]#
[root@xms xms]#
[root@xms xms]# pwd
/var/log/xms
[root@xms xms]# ls
appmanager-20120308-085014.log      nodecontroller-20120312-085659.log
appmanager-20120309-090127.log    xmserver-20120308-085013.log
appmanager-20120312-085749.log    xmserver-20120309-090127.log
appmanager-20120312-092410.log    xmserver-20120312-085749.log
appmanager-20120312-140512.log    xmserver-20120312-092410.log
appmanager-20120312-141258.log    xmserver-20120312-140512.log
broker-20120308-085013.log        xmserver-20120312-141258.log
broker-20120309-090126.log        xmsrest-20120308-085014.log
broker-20120312-085748.log        xmsrest-20120309-090127.log
broker-20120312-092409.log        xmsrest-20120312-085749.log
broker-20120312-140511.log        xmsrest-20120312-092410.log
broker-20120312-141257.log        xmsrest-20120312-140512.log
nodecontroller-20120309-014424.log xmsrest-20120312-141258.log
[root@xms xms]#
[root@xms xms]#
[root@xms xms]#
```

## Log File Retention

The logrotate capability in Linux is used to rotate, compress, and/or mail system log files. It is normally run from cron. It can be configured with the file `/etc/logrotate.d/xms` which is specified in the command line when logrotate is run.

The logrotate program deletes any PowerMedia XMS log files older than seven (7) days. To modify this number, access the PowerMedia XMS logrotate configuration file and change the "maxage" field from 7 to the number of days that you wish to retain the logs.

### Example

```
/var/log/xms/*.log {
daily
maxage 7
missingok
rotate 0
postrotate
kill -HUP `cat /var/run/nodecontroller.pid`
kill -HUP `cat /var/run/appmanager.pid`
kill -HUP `cat /var/run/broker.pid`
kill -HUP `cat /var/run/xmsserver.pid`
kill -HUP `cat /var/run/xmsrest.pid`
endscript
}
```

## Contacting Dialogic Technical Services and Support

When reporting an issue to Dialogic Technical Services and Support, be prepared to provide the following information:

- Full description of the issue.
- Version of the PowerMedia XMS software you are using.
- PowerMedia XMS log files.
- Whether the issue is reproducible; the steps that you took.

**Note:** The latest software update and release notes are available from the Dialogic website at <http://www.dialogic.com/products/media-server-software/xms>.

## 6. XMSTool RESTful Utility

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### XMSTool RESTful Utility

This section provides details about the XMSTool RESTful Utility (also referred to herein as "XMSTool" or "Utility"). XMSTool is used for developing, debugging, and supporting applications for the PowerMedia XMS using the HTTP RESTful API.

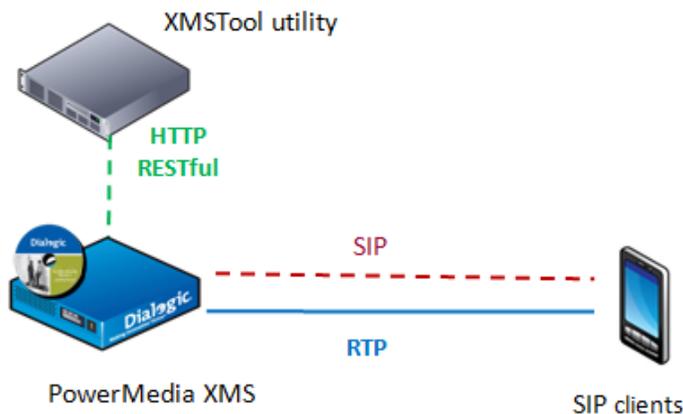
XMSTool is a java-based test application for passing and receiving XMS RESTful API messages to and from the PowerMedia XMS. Supported for both 1PCC and 3PCC (see the [Call Control Models](#)), it can be used to build and parse individual RESTful messages, and can drive and record simple applications. The utility provides the following:

- Ability to manually enter and execute the XMS RESTful API commands and observe the results
- Pre-recorded Macros available for commonly used call scenarios
- Method to record Macros for automated execution of command sequences (Demo mode), enabling users to create simple Demos and debug their applications
- Logging capabilities

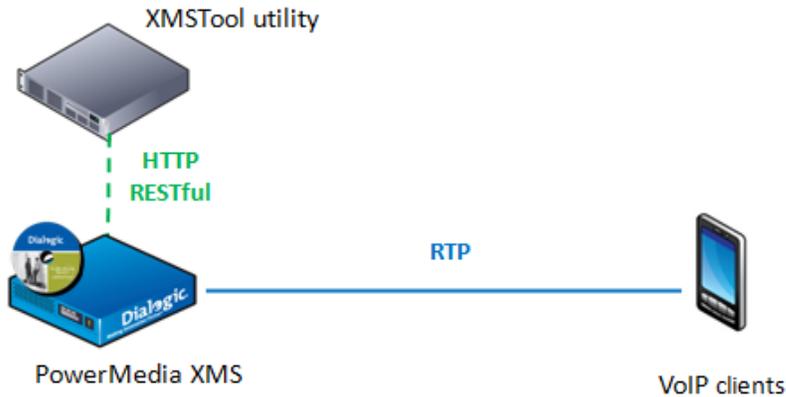
### Call Control Models

XMSTool can establish media connections on both 1PCC and 3PCC modes.

With the 1PCC model, illustrated below, the PowerMedia XMS handles inbound and outbound SIP calls, taking advantage of its built-in SIP call control functionality. XMSTool controls all aspects of the PowerMedia XMS operation, including SIP call control.



With the 3PCC model, illustrated below, the XMSTool only directs the PowerMedia XMS to establish and manipulate the RTP-based media sessions. This model is commonly used in VoIP network environments such as IMS, where SIP call control is performed by an application server. This model permits using signaling protocols other than SIP and allows application architects the flexibility of choosing the signaling protocol.



## Prerequisites

Prior to using XMSTool, the user is expected to:

- Understand the functionality and operation of the PowerMedia XMS.
- Be familiar with the HTTP RESTful control interface of the PowerMedia XMS in order to use the tool in Demo mode.
- Understand the HTTP RESTful interface of the PowerMedia XMS and have a working knowledge of XML and related topics (data structures, XSD, etc.) in order to use the tool at the individual command level (Advanced mode).
- Understand the key concepts of a service-oriented architecture and HTTP RESTful interface.
- Have a working knowledge of Java programming.

## Starting XMSTool

XMSTool is written in Java, making it operating system independent. The PowerMedia XMS on which it runs requires a Java Runtime Environment (JRE). The version of Java Standard Edition (JSE) used for the tests described in this document is Version 7, Update 2, build 1.7.0\_02-b13.

A SIP softphone should be available. See the *Dialogic® PowerMedia™ XMS Quick Start Guide* for information about setting up PowerMedia XMS and installing suitable SIP softphones.

To use the XMSTool utility, access the **Downloads > Tools** page from the Console and click on **XMS RESTful Tool** (*XMSTool.zip*) to download and install the file. Unzip the downloaded distribution and then go to the top level directory where you will see the */dist* and */testing* directories. From the top level directory, run the tools as follows:

```
> java -jar dist/XMSTool.jar -g -m <xms_server_ip_address>
```

**Note:** XMSTool can be run to expose its graphical user interface (GUI) or as a command line interface. Using the GUI provides access to both modes – Demo/Simple and Advanced. Running from the CLI only allows Demo/Simple mode.

## XMSTool Utility Modes

XMSTool can be run in two different modes:

- **Demo/Simple Mode**  
Uses predefined XML scripts; short application scenarios can be executed to demonstrate most of the PowerMedia XMS RESTful functionality. Session logging is available to examine the message interchange. Only sessions using inbound SIP calls are currently available in this mode.
- **Advanced Mode**  
Allows individual RESTful commands to be manually entered for full PowerMedia XMS control. This mode is intended to be used by developers who are looking to become familiar with the RESTful API messages used to control PowerMedia XMS. It also allows the individual commands that make up a macro/demo to be recorded for replay or to provide an accurate way to reproduce a problem in PowerMedia XMS.

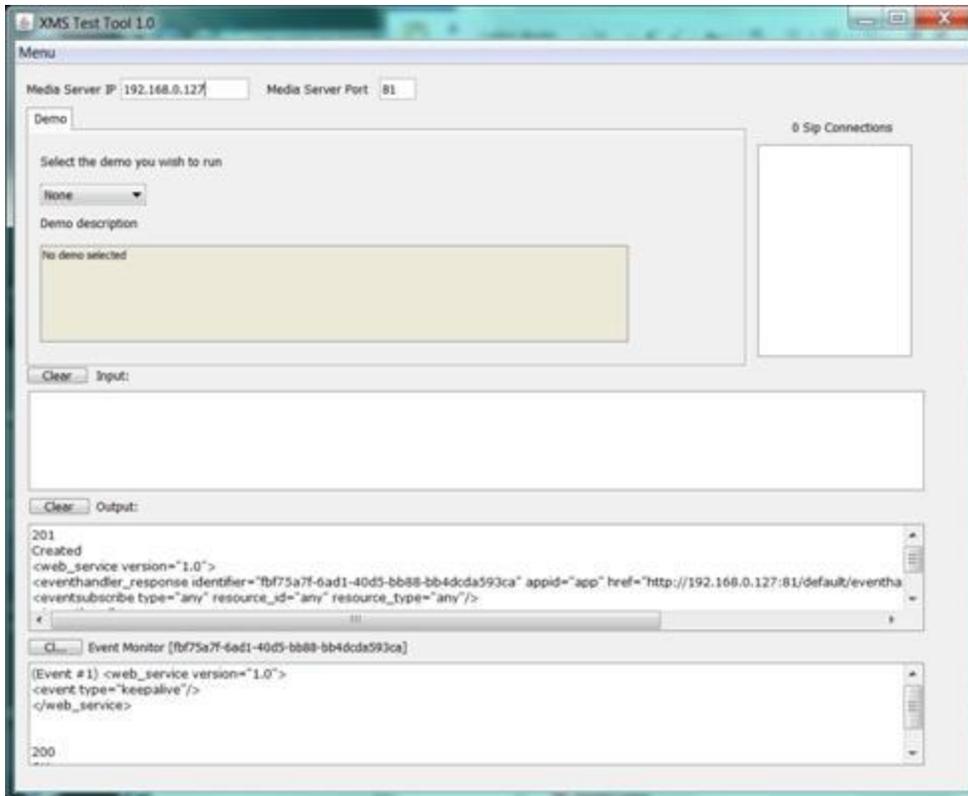
## Demo/Simple Mode

In this mode, XMSTool is used to execute predefined demos or macros that string together a series of RESTful request and response messages to make up a simple application, such as answering a call and playing a file or putting a caller into a video conference.

The **Demo** screen provides access to the demos listed below.

**Note:** All demos are multimedia – both audio and video.

- **Play**  
Answers an inbound call and plays a file.
- **Collect**  
Answers an inbound call (audio only) and collects four (4) digits. When the 4th digit is entered, the digit collection event is seen in the event handler window. The call will be automatically disconnected several seconds after the digit event is returned.
- **Join**  
Joins two inbound callers into a conference. The callers remain connected for ten (10) seconds, and then the conference is torn down.
- **Conference**  
Joins a single inbound caller into a conference. The caller remains connected for eight (8) seconds, and then the conference is torn down.
- **Confplay**  
Joins two inbound callers into a conference and a file is played. After the play terminates, the conference is torn down.
- **Record**  
An inbound caller is prompted by a file. After the prompt is played, record mode is entered. The recording can be terminated with # or ends by itself after ten (10) seconds.



Proceed as follows to run a demo:

1. Select a **Demo** from the drop-down list.
2. Place an inbound call from a SIP softphone. Any SIP user name (or extension) may be used with XMSTool, as the scenario selection is done through the drop-down list.
3. Make a call to the IP address of the PowerMedia XMS. The call will be answered by PowerMedia XMS and XMSTool, and the appropriate scenario will be played.

**Note:** Several scenarios will use two callers.

Details about the application's call flow may be found in the XMSTool's session log, which is located in the testing directory and named *xmstool.log*. The logger overwrites the log file each time XMSTool starts.

**Note:** All demo scenarios start when an inbound call is received. Currently, outbound calls cannot be used.

## Accessing XMSTool using CLI

Demos are also accessed through the command line interpreter (CLI) when a windowing system on the host computer is not available.

Proceed as follows to use the CLI interface:

1. Start the tool from the operating system command prompt:

```
> java -jar dist/XMSTool.jar -r -m <xms_server_ip_address>
```

2. Upon successful connection to PowerMedia XMS, all available test scenarios for inbound calls are displayed:

```
XMSTool Application
-----
Demos
-----

[collect]
Description: Play and collect demo

[conference]
Description: 2 party 10 second conference demo

[confplay]
Description: 2 party conference play demo

[join]
Description: Join 2 calls for 10 seconds demo

[play]
Description: Play demo

[record]
Description: Record demo

Waiting for incoming calls ...

XMSTool>
```

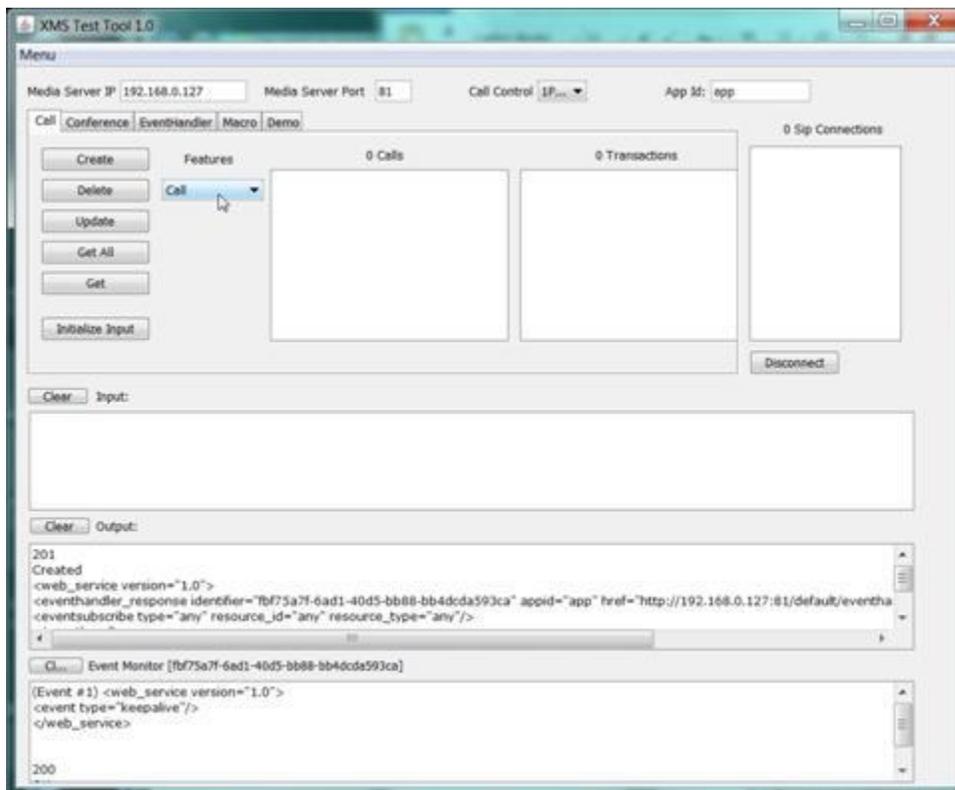
3. Access a scenario by placing a SIP video call to the IP address of PowerMedia XMS using the test name as the SIP user name. For example, entering `Sip:play@192.168.1.100` will connect to the PowerMedia XMS at IP address 192.168.1.100 and execute the multimedia file "play" test scenario.
4. Stop XMSTool using the exit command at the CLI prompt.

## Advanced Mode

Advanced users and RESTful application developers may choose to enter individual commands to closely examine the RESTful messages used. This method is useful when designing and coding one's own RESTful applications.

To accomplish this, select **Advanced** mode from the **Menu** drop-down list using **Menu > Advanced Mode**.

The following window appears:



The following existing connection and operation parameters are displayed:

- **PowerMedia XMS IP**  
Display only, set with XMSTool command line startup -m option.
- **PowerMedia XMS Port**  
Display only, set with XMSTool command line startup -p option.
- **Call Control**  
Specifies protocol used.
- **App Id**  
Specifies the PowerMedia XMS application to connect to. Corresponds to an application set on the **Routing > Routes** page from the Console. Defaults to "app".

The **Call**, **Conference**, **EventHandler**, **Macro**, and **Demo** tabs pertain to the different modes and messages used by XMSTool, while the **Create**, **Delete**, **Update**, **Get All**, and **Get** buttons determine the HTTP methods (GET, POST, PUT, DELETE) used to send the RESTful messages.

The **Features** drop-down list is used to select the media and call actions that make up the application flow. The **Calls**, **Transactions**, and **SIP Connections** areas list the IDs of all active calls, media transactions and SIP connections.

The three large horizontal text windows are used for building the XML input to PowerMedia XMS, for displaying responses from PowerMedia XMS to RESTful messages that have been sent, and for displaying events sent from the event handler in PowerMedia XMS.

When XMSTool starts, the event handler is created to relay unsolicited events to the XMSTool client. An Event Monitor ID is seen on the top of the lowest window. All content is cleared using the **Clear** button.

Individual commands, such as **Create**, are sent in a specific sequence for successful operation. The following table explains the sequences.

Sequence	Tasks
Create	<ol style="list-style-type: none"> <li>1. Select either a <b>Call</b> feature from the <b>Call</b> tab or a <b>Conference Feature</b> from the <b>Conference</b> tab.</li> <li>2. Click <b>Initialize Input</b> to initialize the command and clear any existing content.</li> <li>3. Edit, if necessary, the default command. For example, max_parties for a conference defaults to 2 and may need to be increased, or the destination URI for an outbound SIP call may need to be adjusted.</li> <li>4. Click <b>Create</b> to generate an HTTP POST containing the RESTful command issued.</li> </ol> <p>Responses to commands are displayed in the Output window.</p>
Update	<ol style="list-style-type: none"> <li>1. Select the entity (call, conference or transaction) ID. (For example, issuing a Stop command on a Play operation only requires selecting the Play transaction ID. Adding a party to a conference requires two ID selections, the Call ID and the Conference ID.)</li> <li>2. Click <b>Initialize Input</b> to clear any existing input and update with the default XML used with the command.</li> <li>3. Edit the RESTful commands as desired. For example, change the file to play in a Play operation.</li> <li>4. Click <b>Update</b> to generate an HTTP PUT that contains the new RESTful command.</li> </ol> <p>Responses to commands are displayed in the Output window.</p>
Get All and Get	<ol style="list-style-type: none"> <li>1. Select either the <b>Call</b> tab or <b>Conference</b> tab to access existing calls or existing conferences.</li> <li>2. Click <b>Get All</b> to generate an HTTP GET which returns information on all calls or all conferences depending on the tab selected.</li> <li>3. For specific call or conference information, click <b>Get</b> to generate an HTTP GET.</li> </ol> <p>Information returned is displayed in the Output window.</p>

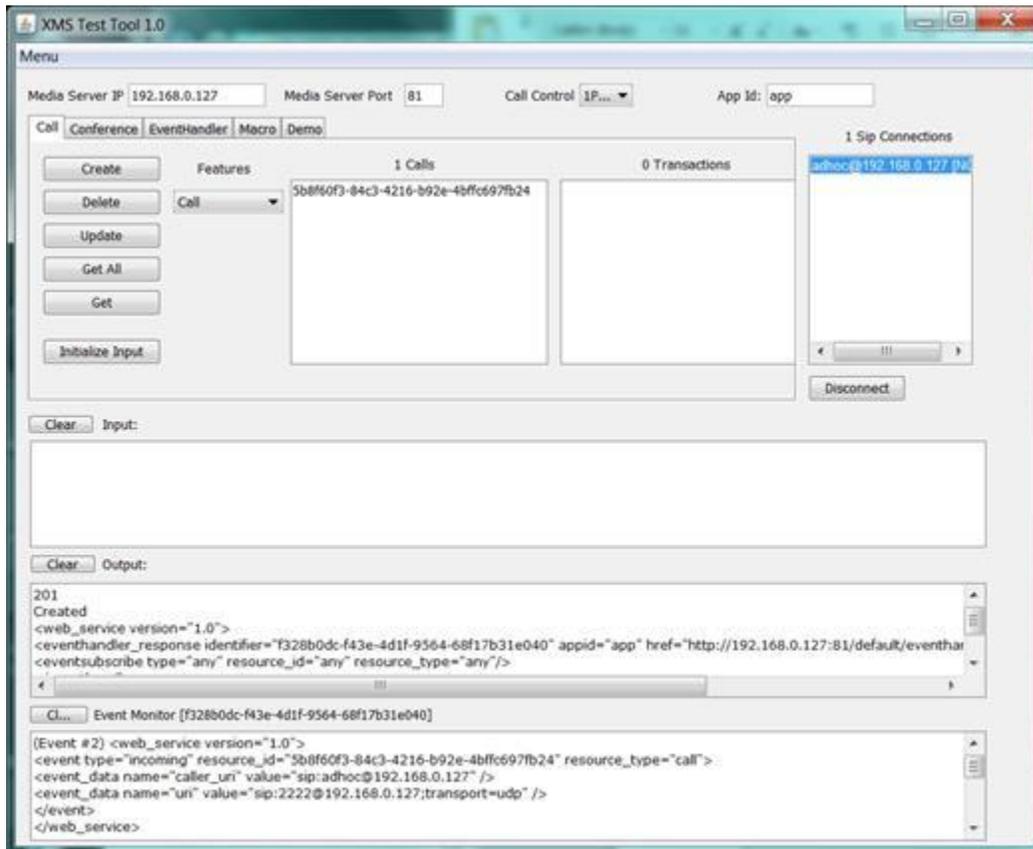
Sequence	Tasks
Delete	<ol style="list-style-type: none"> <li>1. Select the ID of the Call or Conference.</li> <li>2. Click <b>Delete</b> to generate an HTTP DELETE for the selected entity.</li> </ol> <p>A 200-series OK reply with no content will be displayed in the Output window.</p>

## Basic Operation and Commands

The following sections provide examples of basic commands.

### Receiving an Inbound Call

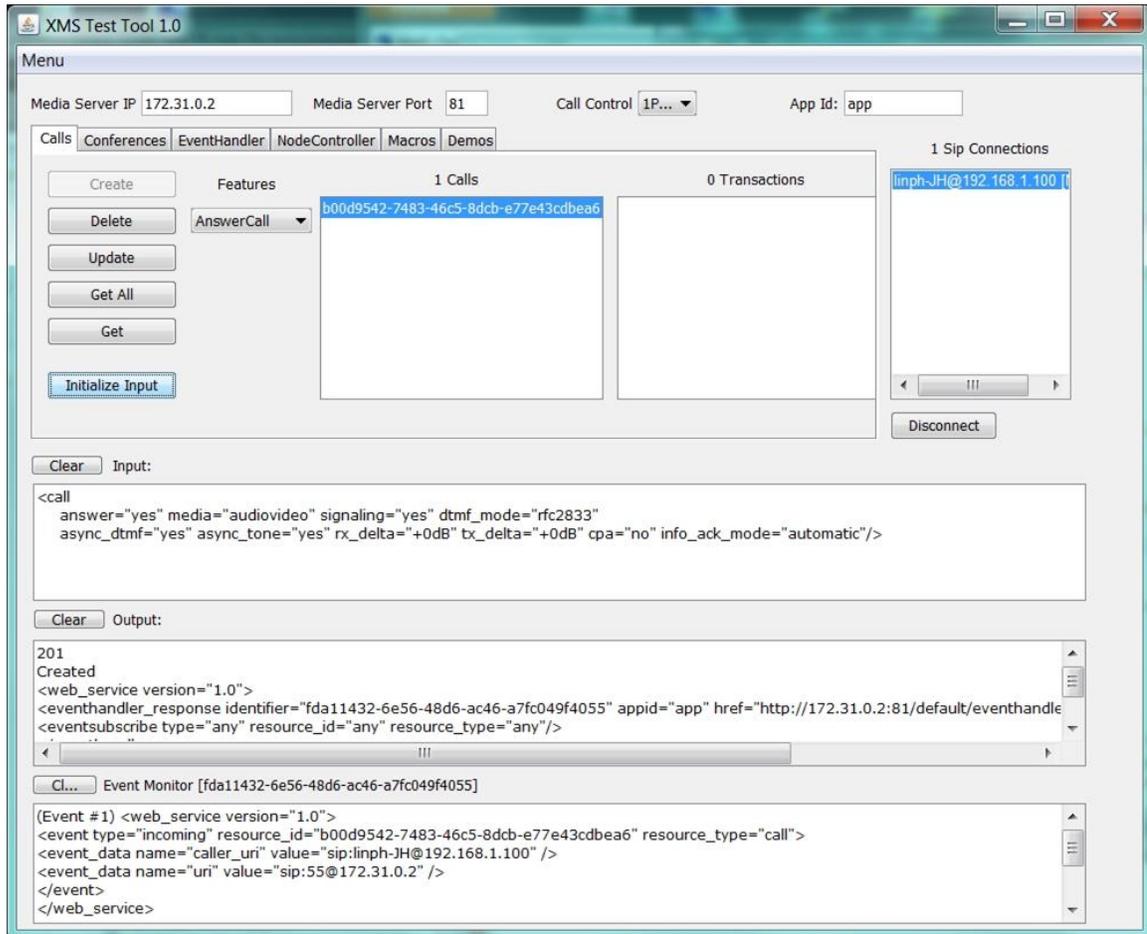
The **Call** tab is used to handle setup and teardown of a call. Inbound calls require a SIP softphone to initiate the call using any SIP user name (or extension). When a call is made to the IP address of the PowerMedia XMS, notification of the call is sent to XMSTool and displayed in the Input window as shown below:



The call offered event ("incoming") can be observed in the Event Monitor window. Proceed as follows to reply to the event:

1. In the **Call** tab, select the ID of the received call.
2. Select **AnswerCall** from the **Features** drop-down list. Alternately, **AcceptCall** could be selected if, for example, early media were desired. This would allow a file to be played to the caller before the call is answered.

- Click **Initialize Input** to create a reply to the call offered event. The answer message will be automatically generated. Note that the default values set in the message may be edited if desired.



- Click **Update** to send the answer message. The connection to the SIP softphone is now established.

## Making an Outbound Call

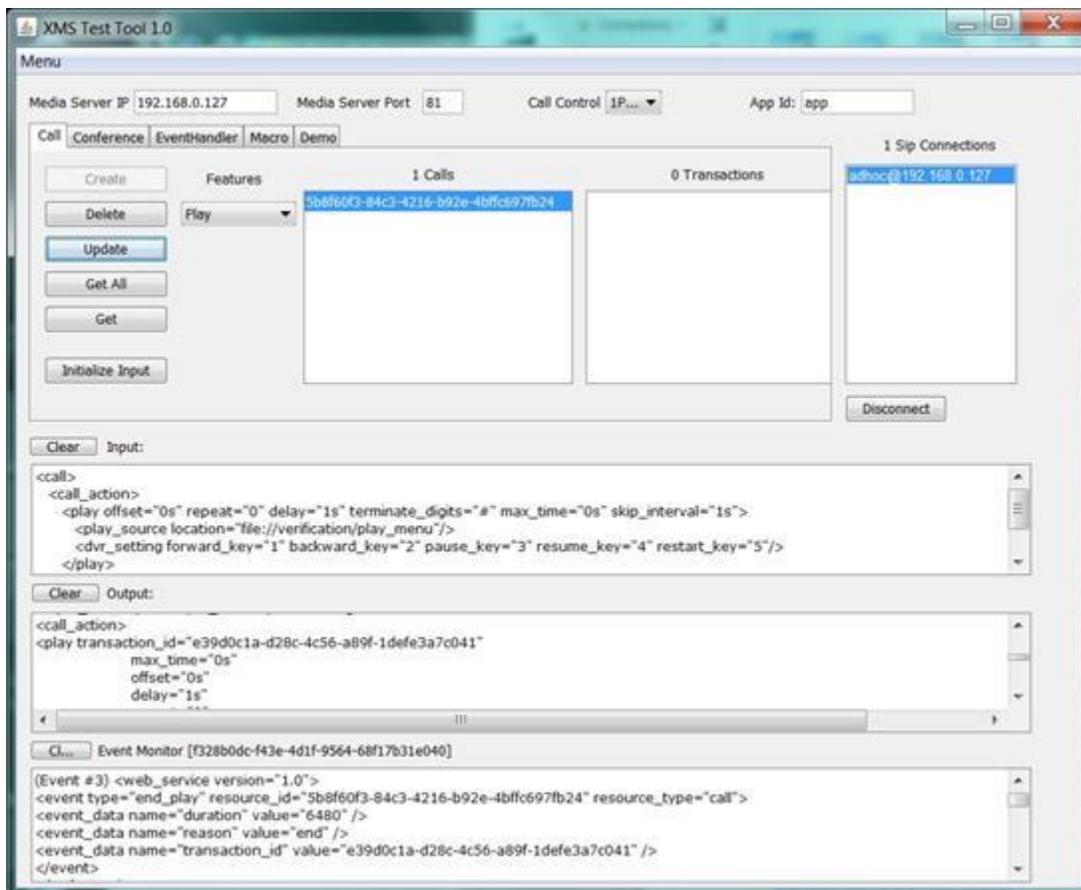
The **Call** tab is used to handle outbound call setup and teardown. The SIP softphone to call should be set in a mode where it can detect incoming calls and either ring or automatically answer them.

- Click **Initialize Input** to generate a RESTful Call command.
- Edit the default command. For example, the `destination_uri` and `source_uri` should reflect the SIP address of the SIP softphone being called and the PowerMedia XMS, respectively. Other default values may be adjusted if desired.
- Click **Create** to launch the call. The SIP softphone will ring and the call is connected when answered.

## Playing a File into a Call

Once a call is connected, media commands may be issued. In the following example, a multimedia file is played.

1. Select the call ID.
2. Select **Play** from the **Features** drop-down list.
3. Click **Initialize Input** to provide a call action command to play a file. Although a default file and default parameters are provided, these may be edited before being sent.
4. Click **Update** to send the message. If successful, the audio/video is heard/seen on the SIP softphone. The response to the play command is displayed in the Output window when the play is initiated, and a play termination event seen in the Event Monitor window once the play is complete.

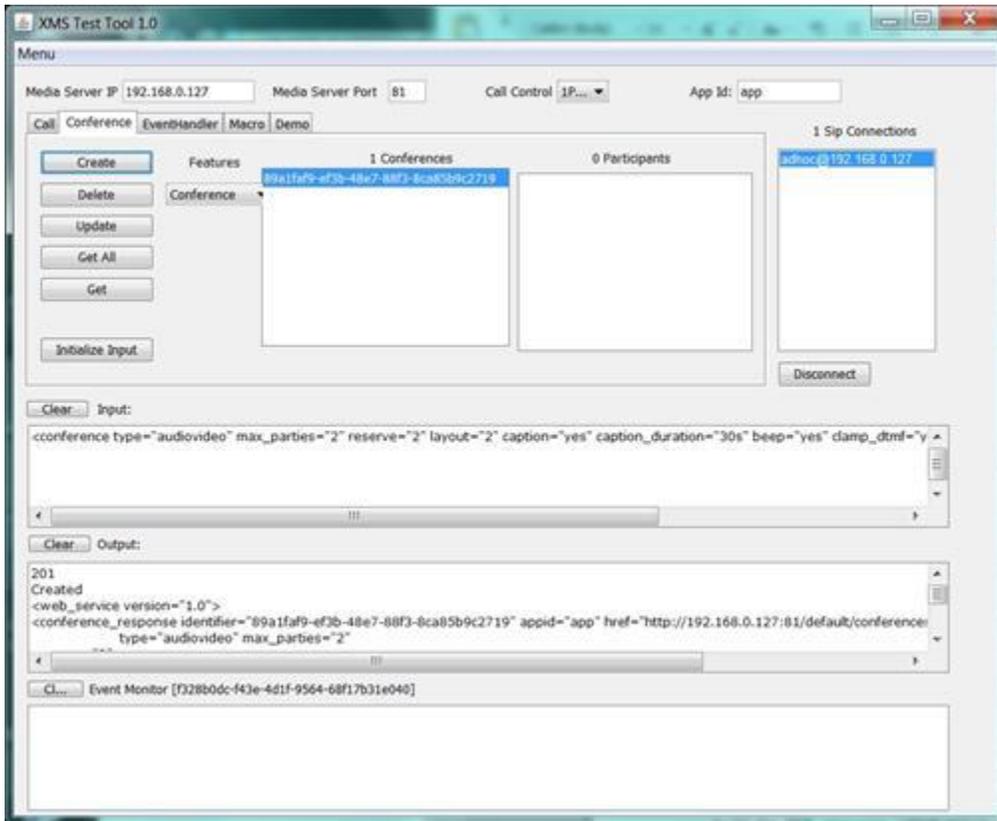


## Establishing a Conference

Once a call is idle, a video conference may be started. First, create a conference in which to add the call.

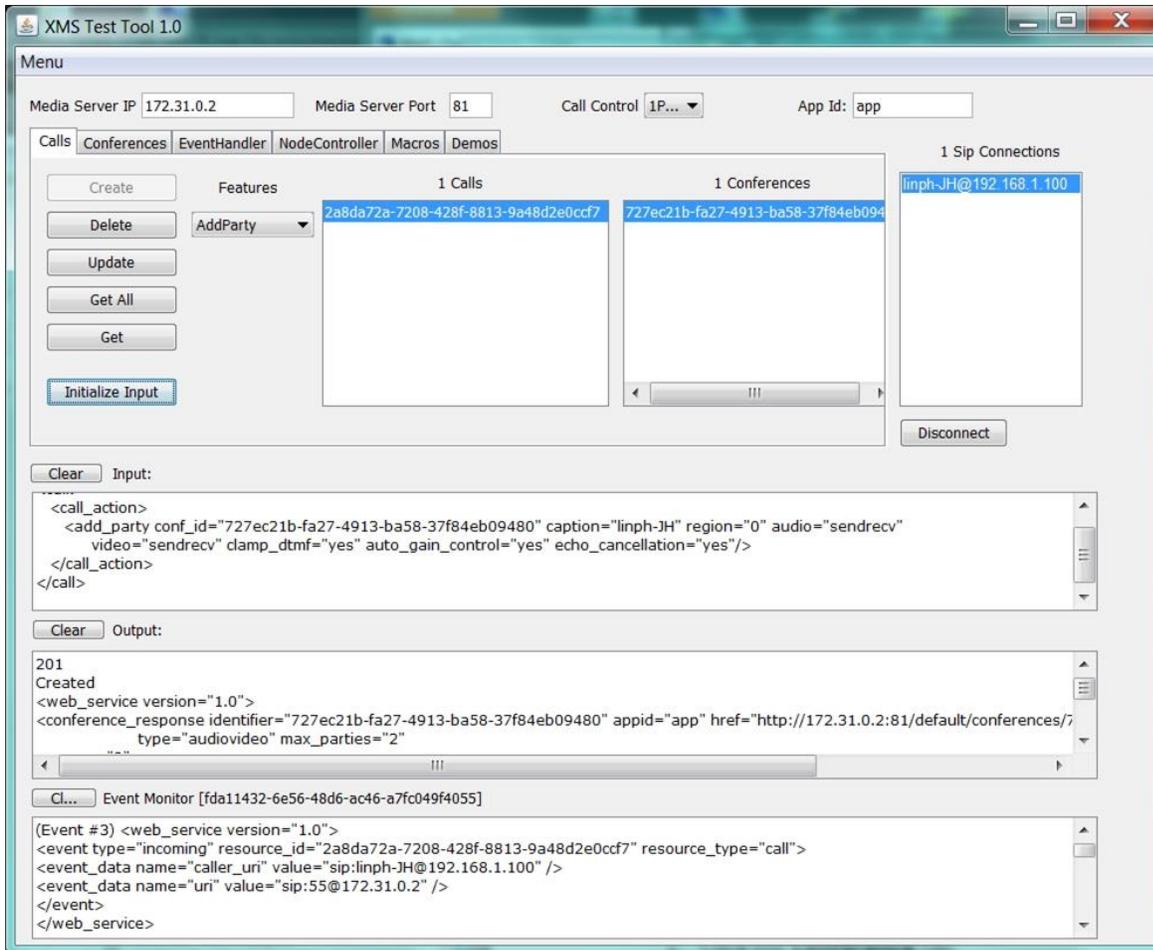
1. Click the **Conference** tab.
2. Click **Initialize Input** to get the default conference creation parameters. Edit them if desired.

3. Click **Create** to establish the conference and generate a conference ID.



4. Click the **Call** tab.
5. Select the call ID and the ID of the conference just created.
6. Select **AddParty** from the **Features** drop-down list.
7. Click **Initialize Input** to build the XML message, which may be edited as desired.
8. Click **Update** to add the caller to the conference.  
The SIP caller will be in a single-person conference.

For a multi-party conference, make additional calls and add each to the conference using the above procedure.



The conference may be torn down and cleaned up in the following order:

1. Click the **Conference** tab.
2. Select the call ID and click **RemoveParty** from the **Features** drop-down list. Repeat for each party in the conference.
3. Select the call ID and click **Disconnect** for each party in the conference.
4. Select the conference ID and click **Delete**.

## Additional XMSTool Commands

Many additional XMS RESTful commands can be run using XMSTool. Listed below are all available call actions. For the complete list of commands and their parameters, refer to the *Dialogic® PowerMedia™ XMS RESTful API User's Guide*.

The following call actions are available from the **Features** drop-down list in the **Call** tab. In most cases default values can be used, but it is good practice to check the parameters before applying. For all commands, the call ID must be selected before clicking **Initialize Input**.

Command	Description
accept	Accept an offered call, but do not yet answer it. This command is desirable for early media or to redirect a call elsewhere.
answer	Answer an offered call.
playcollect	Play a multimedia file and collect DTMF digit(s) during the play. The default message is set to collect four (4) digits. The result of the digit collect operation will be displayed in the Event Monitor window.
playrecord	Play an introductory multimedia file and then record it. Default recording termination is either the # key or a maximum time (10 seconds). The resulting file, "recorded_file", is played back using the Play command and setting play_source location=file://recorded_file.
overlay	Display an image overlay on the active call.
join/unjoin	Used to bridge or un-bridge two active calls.
add_party/ update_party/ remove_party	Used to add, modify, or remove a call from an existing conference. It may be necessary to change the default add and update options for this command. <b>Note:</b> A conference must be created before adding a party.
send_dtmf	Send the specified DTMF tones to the connected call.
send_info	Send a SIP INFO message to the caller.
send_info_ack	Manually acknowledge a SIP INFO message received from the caller.

Command	Description
transfer	Transfer (attended or unattended) the caller to the specified SIP URI.
redirect	Redirect an accepted but unanswered call to the specified SIP URI.
hangup	Send a SIP BYE message with the specified content to hang up the call. This is the equivalent of hanging up using the HTTP DELETE method, but allows a message to be sent along with the BYE.

The following call actions affecting an ongoing conference are available from the **Features** drop-down list on the **Conference** tab. For all commands, the call ID must be selected before clicking **Initialize Input**.

Command	Description
play	Play a file into an ongoing conference. The video will appear as an overlay to the entire conference.
update_play	Change the play characteristics of the ongoing play file in the conference.
stop	Stop playing a file in an ongoing conference and return the conference to the participants.

**Note:** The **Disconnect** button under the SIP Connections window sends a DELETE to the proper call ID to hang up the call, making it easier for the user to know which call they disconnected. This feature specifies which call ID corresponds to which incoming SIP call.

## Using XMSTool to Record Macros/Demos

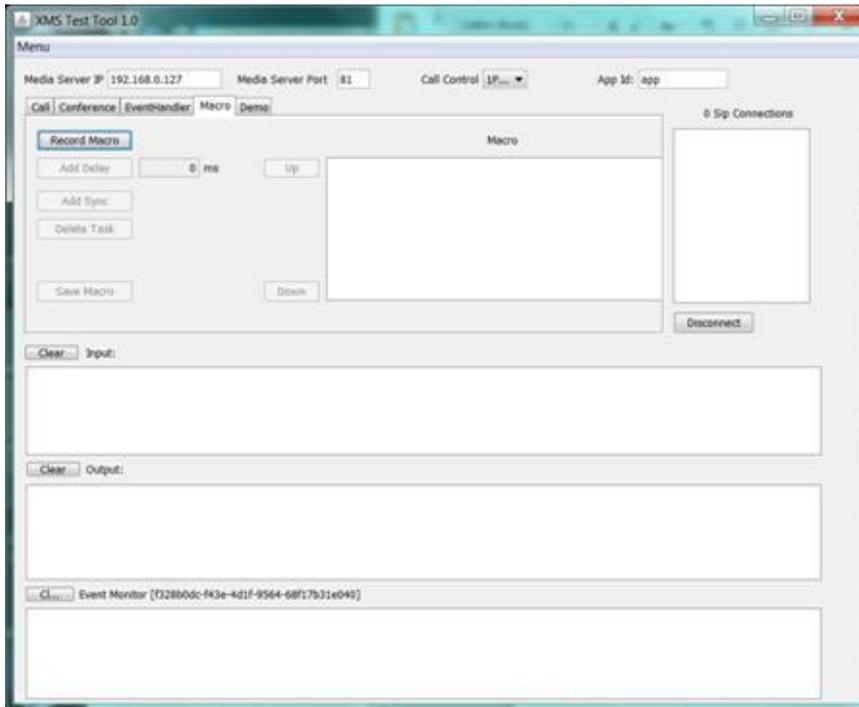
XMSTool has the ability to record a sequence of commands for an application scenario for later use. The recording can be saved and will appear in the installation's Demo directory.

**Note:** Macros are saved in XML format in the */testing* directory under *macro\_name.xml* file.

Prior to recording a Macro, be sure that XMSTool is completely idle and that no Demos are running. To see Demo status, click the **Demo** tab and verify that none are listed in the Demo box.

To start a recording, select the **Macro** tab and click **Record Macro**.

The following window displays:



**Note:** Macro recording begins when an inbound call is received. Currently, outbound calls cannot be used with **Record Macro**, either at the start of the macro or within it.

When an inbound call arrives, individual commands may be accomplished until the application scenario is complete. Since all manual commands, even erroneous ones, are logged, it is suggested that a scenario be run several times with no error responses before clicking **Record Macro**. To stop recording, click **Stop Macro**.

The **Add Delay** button is provided for timing an indeterminate command, such as a conference for a given number of seconds, before moving on to the next command. Add a delay by clicking **Add Delay** and setting a value in milliseconds.

**Note:** Many RESTful commands have a time parameter.

The **Add Sync** button is provided to sync the actions of all participants involved in either the same conference or joined call. This option verifies that all inbound calls have arrived before continuing with a macro. Callers are grouped together using their SIP "FROM" user name. For example, if six callers all have the same SIP From username and the executing macro has a <Sync> command, that macro waits until all other callers in that group are at that point before continuing.

The **Delete Task** button is used when an erroneous command is identified. The line containing the command may be deleted by selecting the entire line and clicking **Delete Task**. Tasks can be ordered differently using the "Up" and "Down" buttons next to the **Macro** box.

When satisfied with the recording, name the file and click **Save Macro**. The file is now written into an XML file in the */testing* directory and will be available in the **Demo** list for replay.

**Note:** The name of the recording must be manually added to the */testing* directory under *xmstool.cfg* file if the macro is desired when XMSTool is restarted.