



Dialogic® PowerMedia™ XMS

Quick Start Guide

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Revision History

| Revision | Release Date | Notes |
|--------------------------|---------------|---|
| 05-2701-018 | March 2019 | <p>Updates to support PowerMedia XMS Release 4.0.</p> <p>System Requirements: Updated the Operating System section and updated the Supported Virtual Machines section.</p> <p>Licensing: Updated the section.</p> <p>Logging: Updated the section.</p> |
| 05-2701-017 (Updated) | May 2018 | Browser Support for WebRTC : Updated the section. |
| 05-2701-017 | October 2017 | <p>Updates to support PowerMedia XMS Release 3.5.</p> <p>System Requirements: Added note in the Operating System section.</p> <p>Licensing: Updated the section.</p> |
| 05-2701-016 (Updated) | August 2017 | System Requirements : Added httpd requirement and note in the Operating System section. |
| 05-2701-016 | June 2017 | Updates to support PowerMedia XMS Release 3.4. |
| 05-2701-015 | May 2017 | <p>Updates to support PowerMedia XMS Release 3.3.</p> <p>Reserved Ports: Updated the section.</p> |
| 05-2701-014 | November 2016 | Updates to support PowerMedia XMS Release 3.2. |
| 05-2701-013 (Updated) | May 2016 | Supported Virtual Machines : Added the recommended number of VMs. |
| 05-2701-013 | March 2016 | <p>Updates to support PowerMedia XMS Release 3.1.</p> <p>System Requirements: Updated the operating system requirements.</p> <p>ISO Method: Updated the section.</p> <p>Connecting to the Console: Updated screenshots and content because the Mode tab has been removed as a result of legacy MSML mode no longer being supported.</p> |
| 05-2701-012 | October 2015 | <p>Updates to support PowerMedia XMS Release 3.0.</p> <p>PowerMedia XMS Overview: Updated the section.</p> <p>Installing PowerMedia XMS: Updated the System Requirements and Supported Virtual Machines.</p> |

| Revision | Release Date | Notes |
|-----------------------|----------------|---|
| 05-2701-011 (Updated) | April 2015 | RESTful Verification : Updated with information on the XMSTool and clarification on the verification demo. |
| 05-2701-011 | February 2015 | Updates to support PowerMedia XMS Release 2.4. Installing PowerMedia XMS : Updated list of supported processors. RPM Method : Added table of reserved ports. |
| 05-2701-010 | September 2014 | Updates to support PowerMedia XMS Release 2.3. |
| 05-2701-009 | May 2014 | Installing PowerMedia XMS : Updated list of supported operating systems and added new section for supported virtual machines. |
| 05-2701-008 | February 2014 | Updates to support PowerMedia XMS Release 2.2. Verification Options and WebRTC Verification : Removed note that the WebRTC verification demos are video-only. Supported on audio and video. |
| 05-2701-007 | November 2013 | Verification Options and WebRTC Verification : Added note that the WebRTC verification demos are video-only. |
| 05-2701-006 | October 2013 | Updates to support PowerMedia XMS Release 2.1. |
| 05-2701-005 | March 2013 | Overview of PowerMedia XMS : Updated with clarification that NETANN and VXML media options are currently audio-only. VoiceXML (VXML) : Updated with clarification that VXML is audio-only. Verification Options : Updated with clarification that VXML verification demos are audio-only. |
| 05-2701-004 | February 2013 | Updates to support PowerMedia XMS Release 2.0. Installing PowerMedia XMS : Added a note regarding Internet Explorer and file renaming at download. Configuring PowerMedia XMS : Added sections for Network Announcement (NETANN) , VoiceXML (VXML) , and Media Resource Control Protocol (MRCP). RESTful Verification : Updated section. Logging : Updated section. |
| 05-2701-003 | August 2012 | Installing PowerMedia XMS : Added information to the RPM Method section. |

| Revision | Release Date | Notes |
|---------------------------|--------------|---|
| 05-2701-002 | July 2012 | General update to support PowerMedia XMS Release 1.1. This is a 64-bit only release. Installing PowerMedia XMS : Updated and added a stand-alone RPM Method section. |
| 05-2701-001 | March 2012 | Initial release of this document. |
| Last modified: March 2019 | | |

Refer to www.dialogic.com for product updates and for information about support policies, warranty information, and service offerings.

1. Welcome

This Quick Start Guide provides instructions necessary to install and configure the Dialogic® PowerMedia™ Extended Media Server (also referred to herein as "PowerMedia XMS" or "XMS"). This guide will also show how to get the PowerMedia XMS running with a simple Verification Demo, and then allows you to try sample applications or to start developing your own.

The basic operation of the system is contained in this guide, which is primarily intended for users who do not have extensive experience working with PowerMedia XMS. For advanced operation, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

2. PowerMedia XMS Overview

Overview of PowerMedia XMS

Dialogic's PowerMedia XMS is a highly scalable, software-only media server that enables standards-based, real-time multimedia communications solutions for IMS, MRF, Enterprise, and WebRTC applications on premise or in the cloud. Built on 15+ years of software media processing experience, PowerMedia XMS is trusted by world-class service providers and large enterprises to power millions of rich media sessions.

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

PowerMedia XMS energizes application delivery by boosting performance with:

- State of the art mixing of media-rich communications
- Software providing a seamless transition to virtualization and cloud delivery
- Telco hardened scalability
- Supercharged WebRTC integration

PowerMedia XMS elevates what developers can create for their customers, from virtually any development environment, on virtually any network, and connecting to virtually any type of communication endpoint.

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

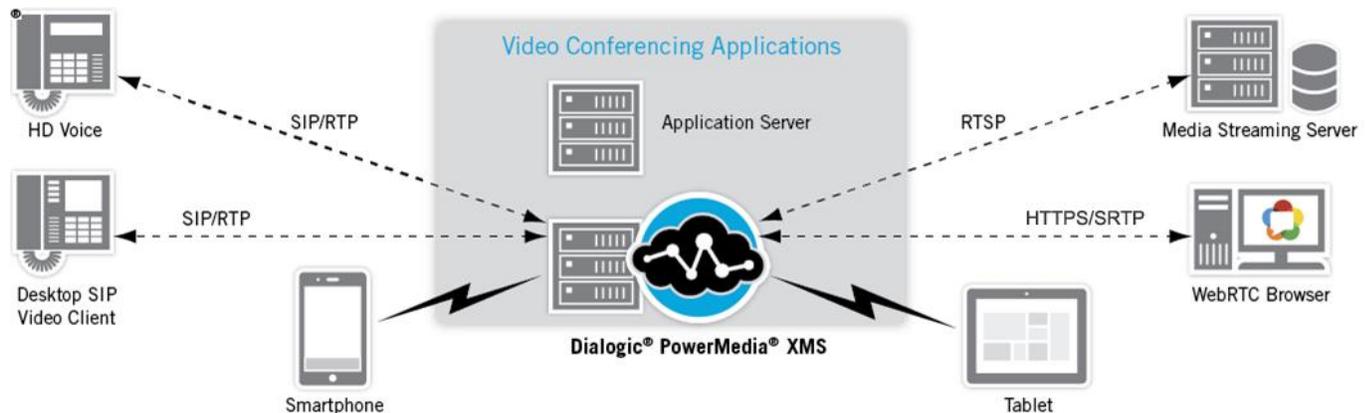
PowerMedia XMS is controlled by the business logic of applications deployed on SIP application servers and web application servers. PowerMedia XMS offers multiple media control protocols that can be used in a variety of network infrastructures. For example, a SIP application server (AS) can drive PowerMedia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

The MSML, JSR 309 Connector, VXML, RESTful, and NETANN interfaces support multimedia—both audio and video, using a variety of codecs. All PowerMedia XMS APIs provide support for handling RTP media, security (via DTLS/SRTP), and ICE negotiation from WebRTC media sources.

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

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

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



Related Information

See the following for additional information:

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

3. PowerMedia XMS Installation

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-4.0.xxxx-x86_64.iso* and *dialogic_xms_4.0.xxxx.tgz* where "xxxx" indicates the version number.

There are two installation methods available: [ISO Method](#) and [RPM Method](#) (used for a CentOS or RHEL installation)

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

Supported Virtual Machines

The supported virtual machines (VM) are as follows:

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

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

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

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

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

Cloud Environments

The qualified cloud environments include the following:

- Amazon Web Services (AWS)

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

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

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

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

Browser Support for WebRTC

The following web browsers are supported:

- Mozilla Firefox
- Google Chrome

Note: Other release lines of Mozilla Firefox (Nightly) and Google Chrome (Canary) are subject to frequent change and may not work correctly. Any other WebRTC clients including Apple Safari and Opera may also work, but may also have some compatibility issues.

ISO Method

Operating System Requirement:

- Community ENTERprise Operating System (CentOS) 7.x

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

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

To perform the ISO method of installation, there are two options:

- Burn the .ISO image to a bootable DVD.
- Place the .ISO image in a virtual datastore and point the DVD drive to that location. This method is helpful for remote installations. Refer to "Appendix A: ISO Method for Remote Installation" of the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide* for details.

Installation from the PowerMedia XMS installation DVD requires the following steps, which are described in detail after the procedure:

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>. Downloads can be found on the right side of your screen.

Note: You will be prompted to log in or sign up in order to download the software.

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 Burning 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.

Booting the 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.

Setting the IP Address

The installation requires little interaction. The main task is to set up the IP characteristics for the XMS. The IP characteristics for the XMS are set at the start of the installation and are handled as follows:

- **DHCP** - The default setting is to set up an Ethernet interface 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.

Note: If DHCP is used to assign an IP address, it should be configured to ensure that the IP address doesn't change between boots.

- **Static IP Address** - An Ethernet interface may also be given a static IP address. This option is preferable when setting up a server.

After the DVD is ready to be installed, the following console is used to set the IP address and perform the installation. If obtaining an IP address via DHCP, press **Enter** to automatically select the default **Install PowerMedia XMS with DHCP Networking**. If setting a static IP address, press **Tab** to edit the default network parameters ("ip=dhcp").

To edit the default network parameters ("ip=dhcp"), replace "dhcp" with the applicable network parameters. The CentOS 7 anaconda/dracut installer contains a comprehensive syntax to cover many network-related system boot options. The options given here are meant to simplify the process of setting up a static IP address by providing a common working example. Specify the parameters that you want to override. Parameters that are not entered will have their values automatically obtained. These are positional parameters that are "missing" from the syntax and indicated by double colons (::). When finished, press **Enter** to continue with the installation.

```
ip=<ip_addr>::
```

Refer to the following guidelines:

- For parameters ending with "_addr", enter the ipv4 addresses.
- The first double colon (::), which is between "<ip_addr>" and "<gateway_addr>", defaults to no peer. Unlike other instances of double colons in the syntax, this double colon does not represent a missing (i.e., not entered) parameter.
- The second double colon (:::), which is between "<hostname>" and "none", means the default Ethernet device is automatically obtained. The default Ethernet device is automatically obtained because the parameter was not entered.
- "none" means that a static IP address is being set up.
- It is recommended to set the DNS ("nameserver=<ip_addr>") as part of the installation. The "nameserver=" parameter is separate from the "ip=" parameter.

Refer to the following example for setting up a static IP address of 192.168.1.200 with a gateway of 192.168.1.1, a netmask of 255.255.255.0, a system name of "server.xms30.com", the default Ethernet device found on the system, and a DNS of 8.8.8.8.

```
ip=192.168.1.200::192.168.1.1:255.255.255.0:server.xms30.com:::none nameserver=8.8.8.8
```

For complete information on all available parameters, refer to the "Chapter 20. Boot Options" section of the Red Hat Documentation:

http://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux/7/html/Installation_Guide/chap-anaconda-boot-options.html#tabl-boot-options-network-formats.

Completing the Installation

Once the IP characteristics are set, the remainder of the installation is "hands off". When 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

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

- perl-core
- perl-JSON
- openssl version 1.0.1e or higher
- httpd-2.2.15-60.el6.centos.4.x86_64 or higher

Note: If using CentOS 6.x, please ensure that the installed version (2.2.15) and release (60.el6.centos.4) of httpd is *httpd-2.2.15-60.el6.centos.4.x86_64* or higher.

Note: The WebGUI requires a minimum version of TLS 1.2. If using CentOS 6.x, please ensure that the installed version of httpd is *httpd-2.2.15-60.el6.centos.4.x86_64* or higher. If the CentOS 6.x httpd package is not updated, the XMS installation logs will indicate that "httpd may fail to start" and the WebGUI will be unresponsive. The failure message will also appear in */var/log/messages* when trying to start httpd or reboot the system.

Note: If using VXML and CentOS/RHEL 7.x, please ensure that the installed version of js is *js-1.8.5-20.el7.x86_64* or higher.

The stand-alone RPM installation method is used for 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.

Ensure that your PowerMedia XMS system firewall is configured accordingly.

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

Reserved Ports

The default PowerMedia XMS configuration uses the following reserved ports:

| Service | Port |
|---|--|
| CDR | 27017 (mongo server), 28017 (mongo restful interface), 20000 (cdrserver) |
| Event Manager | 9876 |
| HTTP | 80 |
| HTTPS | 443 |
| Licensing | 27000-27009 (licensing server, vendor daemon uses random port) |
| MRB | 12000-12010 |
| Perf Manager | 6789 (xmserver) |
| RTP Audio Media Ports (RTP, RTCP) | 49152-53151 |
| RTP Video Media Ports (RTP, RTCP) | 57344-61344 |
| SIP Signaling | 5060 |
| SNMP | 161, 162 (all interfaces) |
| SSH | 22 |
| Telnet | 23 |
| T.38 Fax | 56500-56999 |
| WebRTC (all processes) | 1080 |
| WebUI (nodecontroller, lighttpd, httpd) | 81, 10443, 9004 (lighttpd) 10080 (nodecontroller) |

4. PowerMedia XMS Configuration

Configuring PowerMedia XMS

PowerMedia XMS configuration and operation is done through a secure web-based GUI called the PowerMedia XMS Admin Console (also referred to herein as "Console"). 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 a 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.

1. Add mapping in the "hosts" file:
xms.localhost <xms_ip_address>
2. 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 > Copy to File** 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.

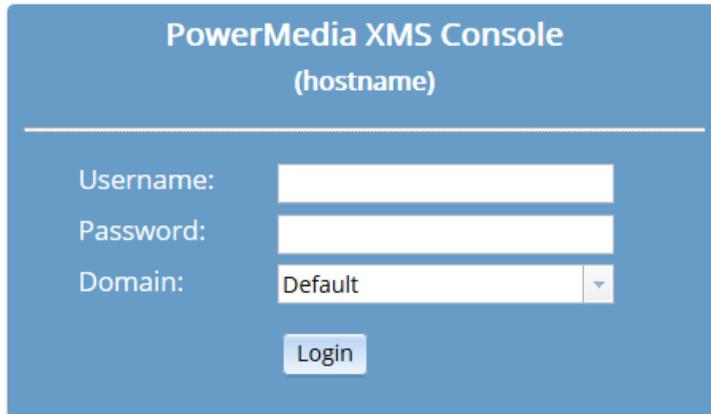
Note: A permanent, publicly accessible PowerMedia XMS should have a valid certificate from a signed certificate authority. Refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide* for more information.

Connecting 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.



The screenshot shows a login form for the PowerMedia XMS Console. The form is set against a blue background. At the top, the text 'PowerMedia XMS Console' is displayed in white, with '(hostname)' below it. A horizontal white line separates the header from the form fields. The form contains three rows: 'Username:' followed by a white text input field; 'Password:' followed by a white text input field; and 'Domain:' followed by a white dropdown menu with 'Default' selected. Below these fields is a light blue 'Login' button.

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.

On the **System > General** page, verify system data and system operation by noting that PowerMedia XMS is in a RUNNING state.

| General | Services | Time | Backup/Restore | Upgrade | NFS Mount Points | Maintenance | Account Manager | Diagnostics | Audit Logs |
|-----------------------|--------------------------------------|------|----------------|---------|------------------|-------------|-----------------|-------------|------------|
| XMS | | | | | | | | | |
| Release | 4.0.23064 GA | | | | | | | | |
| State | RUNNING | | | | | | | | |
| System | | | | | | | | | |
| OS Release | CentOS Linux release 7.5.1804 (Core) | | | | | | | | |
| Kernel Version | Linux 3.10.0-123.el7.x86_64 | | | | | | | | |
| Uptime | 0 days 0 hours 54 minutes 6 seconds | | | | | | | | |
| Cpu Load | T1=0.4 , T5=0.19 , T15=0.1 | | | | | | | | |
| Memory | total:3792 MB used:942 MB | | | | | | | | |
| System Storage | | | | | | | | | |
| /dev/sda2 (/) | total: 10230 MB, used: 4524 MB | | | | | | | | |
| /dev/sda5 (/var) | total: 12660 MB, used: 5790 MB | | | | | | | | |
| /dev/sda1 (/boot) | total: 124 MB, used: 74 MB | | | | | | | | |
| System Time | | | | | | | | | |
| Time | Tue Mar 12 15:00:44 2019 | | | | | | | | |
| Zone | America/New_York | | | | | | | | |

On the **System > Services** page, the status will indicate **Mandatory Services** and **Optional Services** are RUNNING as well.

| | | | | | | | | | |
|---------|-----------------|------|----------------|---------|------------------|-------------|-----------------|-------------|------------|
| General | Services | Time | Backup/Restore | Upgrade | NFS Mount Points | Maintenance | Account Manager | Diagnostics | Audit Logs |
|---------|-----------------|------|----------------|---------|------------------|-------------|-----------------|-------------|------------|

Overall Status: RUNNING
 Graceful Shutdown Timeout (seconds): 120
 Startup Mode: Auto

Restart Stop Graceful Shutdown Refresh

Mandatory Services:

| Service Name | Description | Status |
|--------------|-------------------------------|---------|
| hmp | Media Processing Service | RUNNING |
| broker | Message Routing Service | RUNNING |
| secstorage | Secure Storage Service | RUNNING |
| xmsserver | Signaling and Media Service | RUNNING |
| appmanager | Application Interface Service | RUNNING |

Optional Services:

| Service Name | Description | On Start Enabled | Status | Operations |
|----------------|---|-------------------------------------|---------|------------|
| rmtlogagent | Remote Logging Agent | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| eventmanager | Event Manager | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| perfmanager | Performance Manager | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| cdrserver | CDR Service | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| httpclient | HTTP Client | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| mrcpclient | MRCP Client | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| rtcweb | RTCWeb Signaling Service | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| xmsrest | RESTful Call/Media Control Service | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| netann | NETANN Service | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| vxml | VXML Service | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| msml | MSML Service | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| msrpservice | MSRP Service | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| faxservice | Fax Service | <input type="checkbox"/> | STOPPED | 🔄 ▶ |
| xspeechservice | Speech Service | <input type="checkbox"/> | STOPPED | 🔄 ▶ |
| verification | System/Application Verification Service | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| wsapiserver | WS Api Server | <input checked="" type="checkbox"/> | RUNNING | 🔄 ■ |
| xmsclid | Metrics Export Service | <input type="checkbox"/> | STOPPED | 🔄 ▶ |

OS Services:

| Service Name | Description | On Boot Enabled | Status | Operations |
|--------------|---------------------|--------------------------|---------|------------|
| adaptor | MRB Adaptor Service | <input type="checkbox"/> | STOPPED | 🔄 ▶ |

Licensing

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

From the **License** menu, you can view the **License Manager** page that provides license configuration options.

License Manager

| Licensed Features | | | | |
|-----------------------|-------------------|---------------|-----------------|---------------------|
| Feature | Local Usage Limit | Local Maximum | License Maximum | Advanced Parameters |
| Basic Audio | 1 | 1 | 1 | |
| HD Voice | 0 | 0 | 0 | |
| LBR Audio | 0 | 0 | 0 | |
| GSMAMR Audio | 0 | 0 | 0 | |
| Advanced Video | 0 | 0 | 0 | |
| High Resolution Video | 0 | 0 | 0 | |
| MRCP Speech Server | 0 | 0 | 0 | |
| MSRP | 0 | 0 | 0 | |
| Fax | 0 | 0 | 0 | |
| JSR309 | 0 | 0 | 0 | |
| MRB | 0 | 0 | 0 | |

Note: Start XMS services after modifying the license

License Configuration

License Code:

License Type: Cloud Local Server Node Locked

Server Connection: Direct Relay Proxy

Deactivate License on Services Stop:

License Information

| | |
|------------------------------|--------------|
| Status: | VERIFICATION |
| Node Id: | |
| Device Id: | |
| Maximum Activations: | |
| Expiration Date: | |
| Maintenance Expiration Date: | |

For detailed License Manager actions and other Console operations, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

5. PowerMedia XMS Verification

Verification Options

The following table shows the options for verifying the operation of PowerMedia XMS depending on the desired application technology.

| Application | Considerations |
|---|---|
| Web Real-Time Communication (WebRTC) | <p>The following WebRTC verification demos are available. These demos are installed by default on the system and are activated using a specific URI.</p> <ul style="list-style-type: none">• Video Play Verification Demo• Conference Verification Demo• Join Verification Demo• WebRTC to SIP Verification Demo |
| Network Announcement (NETANN) | <p>An announcement server that can be directed to play media files and put callers into a conference by adding directives to the SIP URL used to contact PowerMedia XMS.</p> |
| Voice Extensible Markup Language (VXML) | <p>Two VXML verification scripts, including all required media, are included in the PowerMedia XMS distribution. These verification demos are audio-only. One script plays and records audio files to verify operation, and the second script requires a Media Resource Control Protocol (MRCP) server for Automatic Speech Recognition (ASR) and Text-to-Speech (TTS).</p> <p>Note: Do not attempt to run the second verification script until basic operation of PowerMedia XMS has been verified.</p> |
| Representational State Transfer (RESTful) | <p>Included with PowerMedia XMS distribution, this Java-based RESTful application provides the same play/record demo as the basic VXML script. However, this verification demo uses both audio and video.</p> <p>Note: This option requires a Java Runtime Environment.</p> |
| Media Server Markup Language (MSML) | <p>A separate MSML application server is required to verify PowerMedia XMS operation. For this reason, using one of the supplied VXML or RESTful applications is suggested.</p> |

WebRTC Verification

The following WebRTC verification demos are available. These demos are installed by default on the system and are activated using a specific URI.

- Video Play Verification Demo – plays a video clip into browser or SIP phone.
- Conference Verification Demo – four (4) party conferencing demo that shows interoperability between Chrome, Firefox, and SIP. Inbound calls enter and leave the conference. Web page selections allow for playing a video clip into the conference and recording the conference and replaying the recording.
- Join Verification Demo – two SIP or WebRTC inbound video calls are joined together and then unjoined when one hangs up.
- WebRTC to SIP Verification Demo – allows a SIP URL to be dialed from a WebRTC screen. When the SIP call is answered, the two endpoints are joined together. When either call hangs up, the other caller will be disconnected and the demo reset.

Refer to the *Dialogic® PowerMedia™ XMS WebRTC Demo Guide* and *Dialogic® PowerMedia™ XMS WebRTC JavaScript API User's Guide* for more information.

NETANN Verification

Network Announcement (NETANN) is an announcement server that can be directed to play media files and put callers into a conference by adding directives to the SIP URL used to contact PowerMedia XMS.

By default, any SIP call whose URL begins with sip:annc or sip:conf= will be directed to the NETANN service.

Refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide* and *Dialogic® PowerMedia™ XMS Basic Network Media Services with SIP User's Guide* for more information.

VXML Verification

Two VXML demos are available to verify VXML. The first is a simple audio-only IVR script to take menu choices via DTMF and play and record audio. It uses audio prompts already installed on the media server, and will be automatically accessed when a SIP call is made to the default "dialog" user. This demo requires only the verification license that is automatically installed on PowerMedia XMS.

The second demo is a company directory application. This demo requires:

- An operating MRCP ASR/TTS server for voicing prompts and recognizing responses.
- A 4-port (or greater) trial or permanent license that must be manually installed on PowerMedia XMS using the Console. The license is required for call transfer functionality.

The demo is located on the PowerMedia XMS server in the default VXML script directory: `/var/lib/xms/vxml/www/vxml/company_directory.vxml`.

To test the transfer function part of the demo, the script must be modified so that the "transferaddr" VXML variable at the top of the script is set to a SIP address that is waiting to accept a call. A call can then be placed to the application. The employee can be selected by DTMF extension or by name.

If the extension is not answered, an option of leaving voicemail will be presented. The message will be replayed/re-recorded until the caller chooses to save it.

Refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide* and *Dialogic® PowerMedia™ XMS VoiceXML Reference Guide* for more information.

RESTful Verification

PowerMedia XMS comes with RESTful Client verification demo. This verification demo is a Java application that can be run from a system with a Java Runtime Environment (JRE). The usual choice would be the system used for the Console via a web browser.

Starting the 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.

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_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.

Starting the Demo

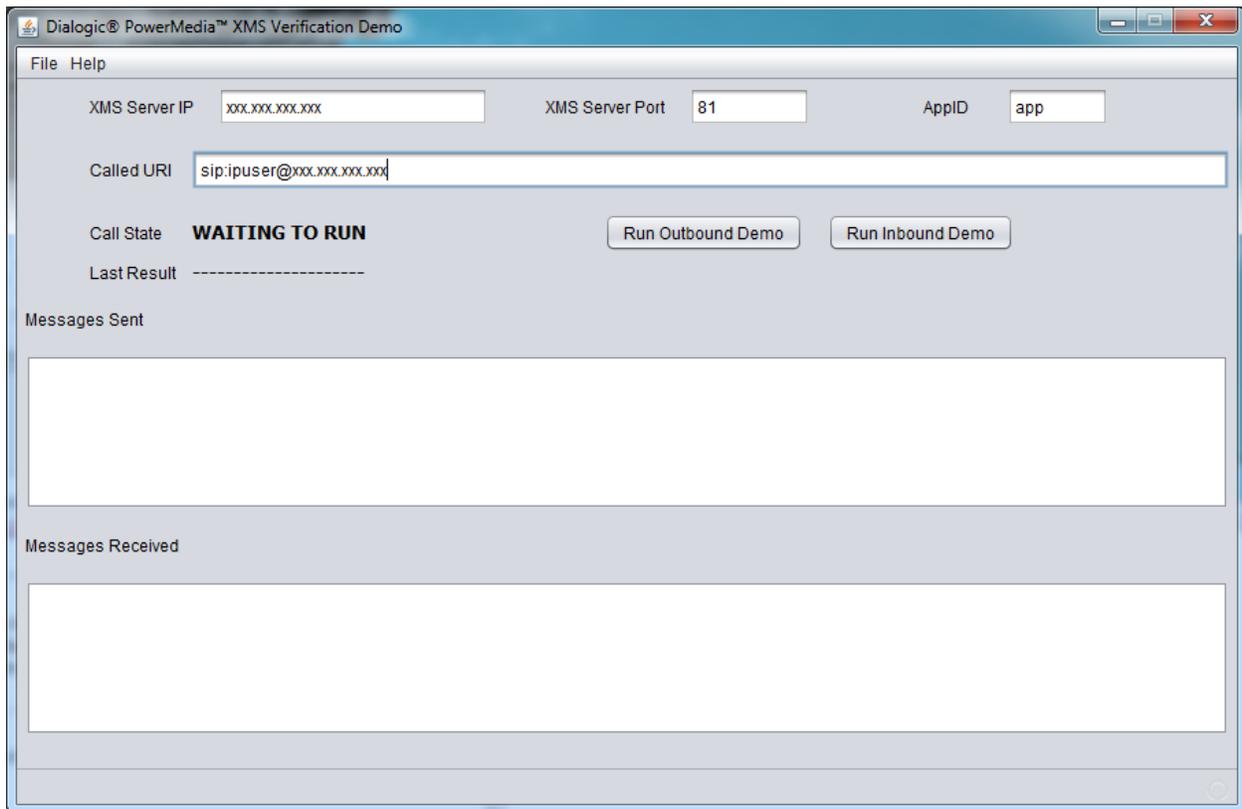
The verification demo is available through the Console's **Downloads** page. Before running the demo, you must set up a SIP softphone to receive calls. For more information, see [Verification Using a SIP Softphone](#). Be sure to have a SIP softphone ready before running the demo.

To run the demo, follow these steps:

1. From the Console, click **Downloads > Tools** page.
2. Select the **XMS Verification Demo**.
3. Save the **XMS Verification Demo** file to your local location from the pop up window. The demo file is a .zip file.
4. Unzip the file.
5. Navigate to the top level directory.
6. From the top level directory, run the tools as follows:

```
> java -jar dist/XMSVerificationDemo.jar -g -m <xms_ip_address>
```

The Demo's main screen will appear. It includes a Call State to show progress. All messages sent and received will appear in their respective boxes.



Running the Demo

The demo can be run in either an Inbound mode where the PowerMedia XMS will expect a call from a SIP softphone, or in an Outbound mode where it will place a call to a SIP softphone.

Run the Inbound demo as follows:

1. Indicate the name of the PowerMedia XMS IP address in the space provided.
2. Click **Run Inbound Demo**. The Call State should change to WAITING FOR CALL.
3. Place a call from your SIP softphone to the PowerMedia XMS IP address.

Run the Outbound demo as follows:

1. Indicate the name of your PowerMedia XMS IP address in the space provided.
2. Set the Called SIP URI to your SIP softphone's URI.
3. Click **Run Outbound Demo**. The Call State should change to OUTBOUND CALL STARTED.

In either the inbound or outbound case, a greeting should be seen and heard. The demo's progress can be determined by viewing the Call State and Last Result status.

Sent and received messages also provide the call status.

The demo leads the caller through several menus, and allows several multimedia clips to be played, or a multimedia recording to be made and replayed. If the verification demo is not successful, an error will appear on the screen and messages will be captured in the *verification.log* file. This log file is located in the */dist* directory from where the *.jar* file was executed.

Refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide* and *Dialogic® PowerMedia™ XMS RESTful API User's Guide* for more information.

Logging

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

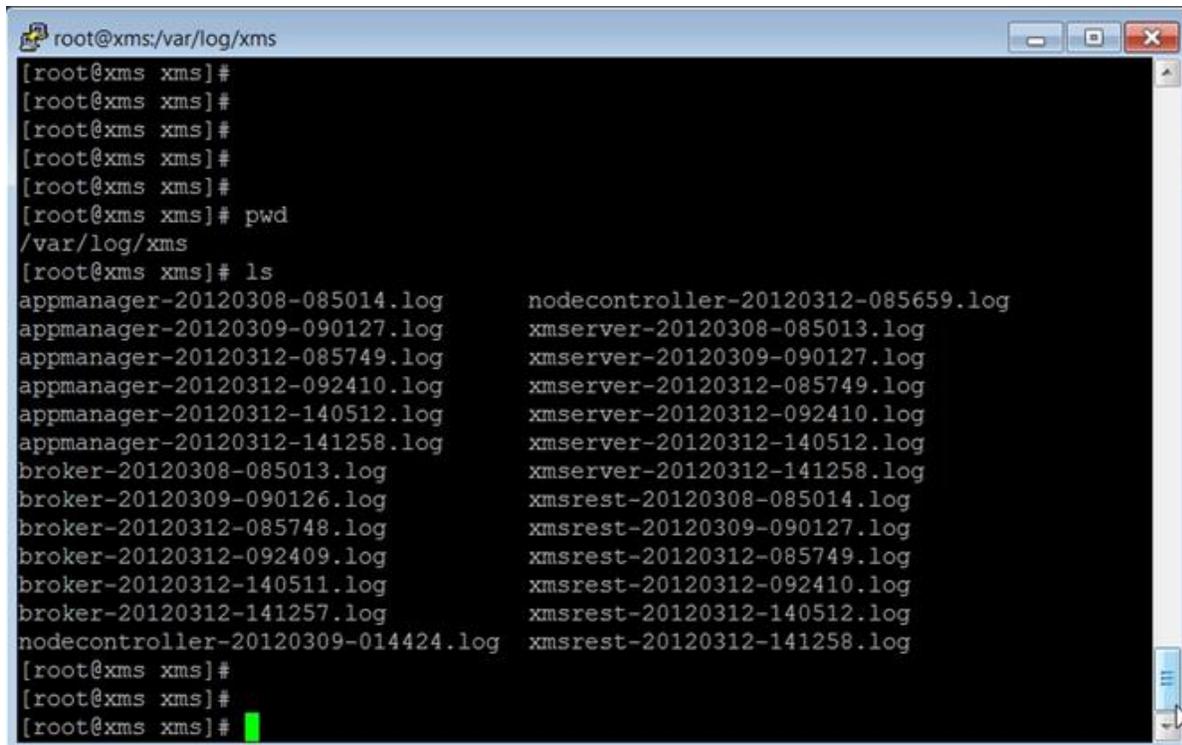
Most of the PowerMedia XMS logs are not accessible through the Console.

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 because 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    xmsserver-20120308-085013.log
appmanager-20120312-085749.log    xmsserver-20120309-090127.log
appmanager-20120312-092410.log    xmsserver-20120312-085749.log
appmanager-20120312-140512.log    xmsserver-20120312-092410.log
appmanager-20120312-141258.log    xmsserver-20120312-140512.log
broker-20120308-085013.log        xmsserver-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]#
```

For additional information about log files and the information they contain, refer to the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

Verification Using a SIP Softphone

This section provides details for verifying PowerMedia XMS using a SIP softphone. Instructions for download, install, and use are included in this section.

Linphone SIP Softphone

Linphone is a free, open source SIP softphone that works with PowerMedia XMS.

Linphone can be downloaded at <http://www.linphone.org/technical-corner/linphone.html>. For best results, you should also download and install the open source H.264 video codec at <http://www.videolan.org/developers/x264.html> rather than use the default H.263 that comes with Linphone. The Windows binary version of the codec can be found at <http://nongnu.askapache.com/linphone/plugins/win32> or <http://download.savannah.gnu.org/releases/linphone/plugins/win32>.

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.



The PowerMedia XMS may be directly dialed by IP address as shown above, with a SIP URL such as 100@192.168.0.126.