Dialogic®

Dialogic® PowerMedia™ XMS Basic Network Media Services with SIP

User's Guide

March 2016 05-2714-005

www.dialogic.com

Copyright and Legal Notice

Copyright © 2013-2016 Dialogic Inc. All Rights Reserved. You may not reproduce this document in whole or in part without permission in writing from Dialogic Inc. at the address provided below.

All contents of this document are furnished for informational use only and are subject to change without notice and do not represent a commitment on the part of Dialogic Inc. and its affiliates or subsidiaries ("Dialogic"). Reasonable effort is made to ensure the accuracy of the information contained in the document. However, Dialogic does not warrant the accuracy of this information and cannot accept responsibility for errors, inaccuracies or omissions that may be contained in this document.

INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH DIALOGIC® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN A SIGNED AGREEMENT BETWEEN YOU AND DIALOGIC, DIALOGIC ASSUMES NO LIABILITY WHATSOEVER, AND DIALOGIC DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF DIALOGIC PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHT OF A THIRD PARTY.

Dialogic products are not intended for use in certain safety-affecting situations. Please see http://www.dialogic.com/company/terms-of-use.aspx for more details.

Due to differing national regulations and approval requirements, certain Dialogic products may be suitable for use only in specific countries, and thus may not function properly in other countries. You are responsible for ensuring that your use of such products occurs only in the countries where such use is suitable. For information on specific products, contact Dialogic Inc. at the address indicated below or on the web at www.dialogic.com.

It is possible that the use or implementation of any one of the concepts, applications, or ideas described in this document, in marketing collateral produced by or on web pages maintained by Dialogic may infringe one or more patents or other intellectual property rights owned by third parties. Dialogic does not provide any intellectual property licenses with the sale of Dialogic products other than a license to use such product in accordance with intellectual property owned or validly licensed by Dialogic and no such licenses are provided except pursuant to a signed agreement with Dialogic. More detailed information about such intellectual property is available from Dialogic's legal department at 6700 de la Cote-de-Liesse Road, Suite 100, Borough of Saint-Laurent, Montreal, Quebec, Canada H4T 2B5. **Dialogic encourages all users of its products to procure all necessary intellectual property licenses required to implement any concepts or applications and does not condone or encourage any intellectual property infringement and disclaims any responsibility related thereto. These intellectual property licenses may differ from country to country and it is the responsibility of those who develop the concepts or applications to be aware of and comply with different national license requirements**.

Dialogic, Dialogic Pro, Dialogic Blue, Veraz, Brooktrout, Diva, BorderNet, PowerMedia, ControlSwitch, I-Gate, Mobile Experience Matters, Network Fuel, Video is the New Voice, Making Innovation Thrive, Diastar, Cantata, TruFax, SwitchKit, Eiconcard, NMS Communications, SIPcontrol, Exnet, EXS, Vision, inCloud9, NaturalAccess and Shiva, among others as well as related logos, are either registered trademarks or trademarks of Dialogic Inc. and its affiliates or subsidiaries. Dialogic's trademarks may be used publicly only with permission from Dialogic. Such permission may only be granted by Dialogic's legal department at 6700 de la Cote-de-Liesse Road, Suite 100, Borough of Saint-Laurent, Montreal, Quebec, Canada H4T 2B5. Any authorized use of Dialogic's trademarks will be subject to full respect of the trademark guidelines published by Dialogic from time to time and any use of Dialogic's trademarks requires proper acknowledgement.

The names of actual companies and products mentioned herein are the trademarks of their respective owners.

This document discusses one or more open source products, systems and/or releases. Dialogic is not responsible for your decision to use open source in connection with Dialogic products (including without limitation those referred to herein), nor is Dialogic responsible for any present or future effects such usage might have, including without limitation effects on your products, your business, or your intellectual property rights.

Table of Contents

Revision History

Revision	Release Date	Notes
05-2714-005 (Updated)	March 2016	Network Announcement Service: Reorganized section and added a diagram to Early Media Announcements.
05-2714-005	September 2015	Updates to support PowerMedia XMS Release 3.0. Network Announcement Service: Removed HTTP play sequence functionality using text/uri-list.
05-2714-004	June 2014	Updates to support PowerMedia XMS Release 2.3.
05-2714-003	June 2014	Network Announcement Service: Added new section for Variable Content Announcements. Updated list of supported content type formats.
05-2714-002	February 2014	Updates to support PowerMedia XMS Release 2.2.
05-2714-001	October 2013	Updates to support PowerMedia XMS Release 2.1.
05-2714-001-01	August 2013	Initial release of this document.
Last modified: March 2016		

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

1. Welcome

This User's Guide provides detailed information about configuring Basic Network Media Services with SIP in the Dialogic® PowerMedia™ Extended Media Server (referred to herein as "PowerMedia XMS" or "XMS").

This User's Guide focuses on the Network Announcement (NETANN) service.

2. Overview

PowerMedia XMS is a multifunction SIP-controlled media server and provides some basic building block services through the SIP call control protocol. These services – Basic Network Media Services with SIP, are defined by RFC 4240.

It provides three (3) types of services:

- Network Announcement Service
  Network Announcement (NETANN) specifies media played to the user.
- Conference Service
  Conference involves initiating a media mixing session.
- Prompt and Collect Service
  Prompt and collect is where the media server prompts the user for some information, as in an announcement, and then collects the user's response.

PowerMedia XMS, upon receiving a basic service SIP INVITE, notes the requested service (via a service indicator) and depending on the service indicator, will either honor the request or return a failure response code.

PowerMedia XMS will send the following failure response codes:

- 488 Not Acceptable Here - when the service is not supported.
- 404 Not Found - for the following cases:
  - service requires an existing service instance and no such service instance exist.
  - requested file is not found.
- 400 Bad Request: for the following cases:
  - bad parameter in request.
  - announcement could not be retrieved.

Installation

Basic Network Media Services with SIP are available through the PowerMedia XMS Admin Console. For more information on PowerMedia installation and configuration, see the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

Service Indicator

Basic Network Media Services with SIP provides the services by adding directives to the user part of a SIP Request URL used to contact PowerMedia XMS. Different services are identified by **service indicator**.

```
sip:<service indicator>@<xms_ip_address>[;parameters]
```

Refer to the individual services (Network Announcement Service, Conference Service, Prompt and Collect Service) for more details.

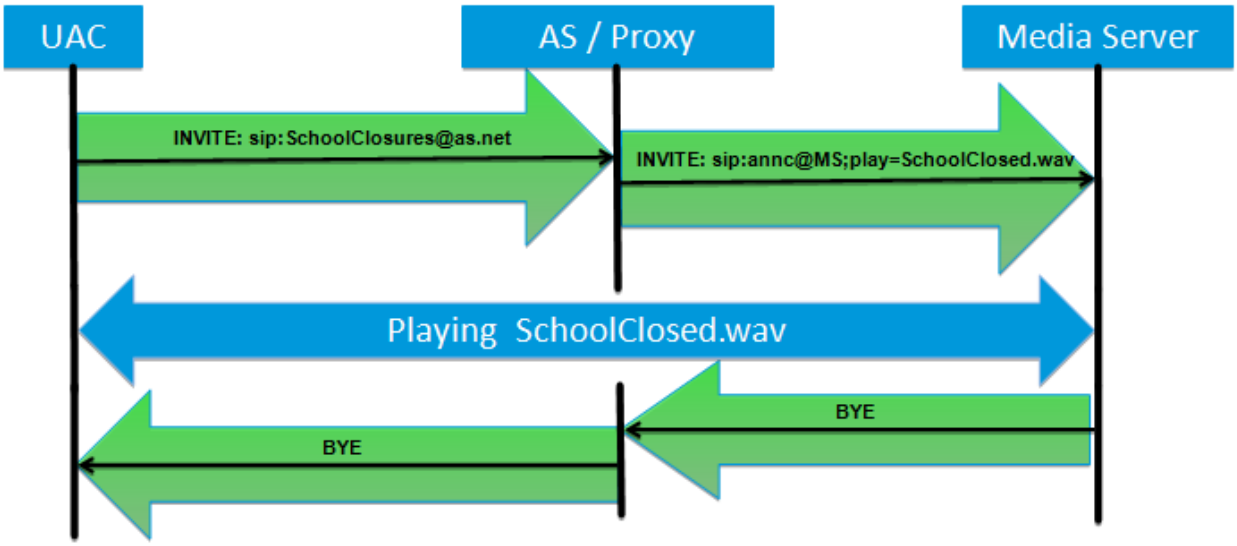
3. Network Announcement Service

The Network Announcement (NETANN) service is specified by "annc" tag as service indicator and additional parameters.

```
sip:annc@<xms_ip_address>;parameters
```

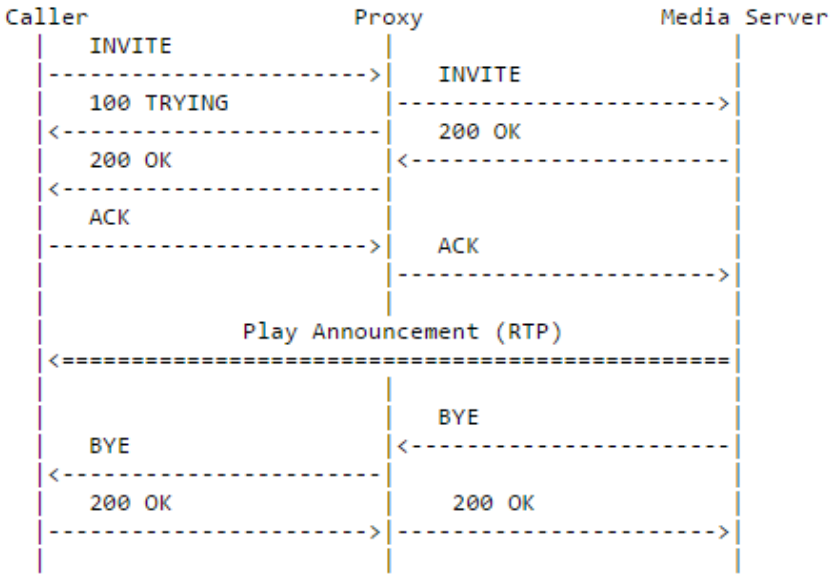
The announcement service provides basic play prompt commands to the SIP user. The media file to stream is provided as a URL by the <play> parameter. The call must be fully established prior to playing the prompt. The prompt starts to play after an acknowledgement (ACK) is received from the requester. Once completed, PowerMedia XMS sends a BYE to the requester to end the session.

The following diagarm illustrates a simple call flow for basic announcement services.



PowerMedia XMS supports establishing NETANN services for SIP or WebRTC calls. The "annc" URI can be used to play audio announcements.

The following diagram is an example of a call flow where the call is connected and then the announcement is played.



An announcement sequence is a series of audio files played back-to-back without interruption. PowerMedia XMS supports playing lists of audio segments with the NETANN service. An application specifies a URI that resolves to the MIME type text/uri-list. The NETANN server fetches the files in the uri-list and plays them in sequence.

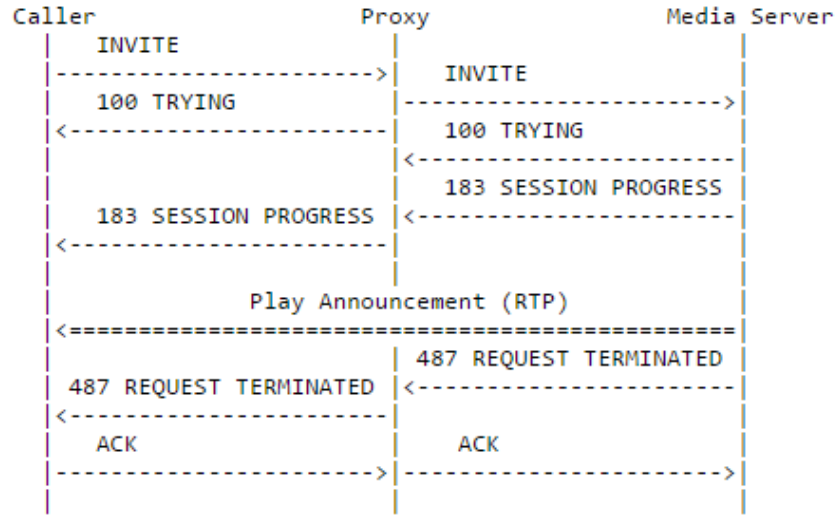
This is an example of the syntax used to access the NETANN service:

```
sip:annc@MS;play=file://verification/greeting.wav
```

Early Media Announcements

PowerMedia XMS supports Early Media announcements with the NETANN service. A user can select to play an announcement file before the SIP call is connected normally. The remote side may send a Provisional Response Acknowledgment (PRACK) and PowerMedia XMS will respond with the 200 OK. This is a way to play an announcement without connecting the SIP call, for example, in cases where announcements should not be billed.

The following diagram is an example of an early media call flow that does not contain the PRACK.



Variable Content Announcements

PowerMedia XMS supports variable content announcements for multiple languages. Variable content announcements consist of pre-recorded audio segments that are dynamically selected and played in a sequence that is determined by specified variables.

Variable content announcements in PowerMedia XMS are implemented by a phrase server that is accessed via URI. The URI parameters control the content of the phrases generated by the phrase server.

To play a sequence of variable language files or phrases through the NETANN interface, specify the 'var://' announcement URI and parameters in the SIP URL during the announcement. This can be used to play a variable announcement to an endpoint in the designated language.

In the following example, a phrase generated in US English will play a string of digits "12345678" to the endpoint:

```
annc@<XMSAddress>;play=var://locale=en-US;type=dig;subtype=ndn;value=12345678
```

For more details, see the *Dialogic® PowerMedia™ XMS Variable Content Announcements Feature Guide*.

Media Locations

For information on media files and their locations, see the *Dialogic® PowerMedia™ XMS Installation and Configuration Guide*.

Announcement Parameters

Additional parameters affecting an announcement follow the filename, separated by a semicolon. Refer to the following example:

```
sip:annc@<xms_ip_address>;play=file://verification/greeting.wav;repeat=3
```

The above example will repeat the announcement three (3) times, for a total of four (4) plays of the file. The following describes the parameters supported by PowerMedia XMS. With the exception of the <play> parameter, if any parameter provided in the SIP INVITE is not supported, PowerMedia XMS will silently discard it and not take it into account.

Formal Syntax

The following syntax specification uses the Augmented Backus-Naur Form (ABNF) as described in RFC 4234:

```
ANNC-URL        = sip-ind annc-ind "@" hostport
                    annc-parameters uri-parameters
sip-ind         = "sip:" / "sips:"
annc-ind        = "annc"
annc-parameters = ";" play-param [ ";" content-param ]
                                 [ ";" delay-param]
                                 [ ";" duration-param ]
                                 [ ";" repeat-param ]
                                 [ ";" locale-param ]
                                 [ ";" variable-params ]
                                 [ ";" extension-params ]
play-param      = "play=" prompt-url
content-param   = "content-type=" MIME-type
delay-param     = "delay=" delay-value
delay-value     = 1*DIGIT
duration-param  = "duration=" duration-value
duration-value  = 1*DIGIT
repeat-param    = "repeat=" repeat-value
repeat-value    = 1*DIGIT / "forever"
locale-param    = "locale=" token
                     ; per RFC 3066, usually
                     ; ISO639-1_ISO3166-1
                     ; e.g., en, en_US, en_UK, etc.
variable-params = param-name "=" variable-value
param-name      = "param" DIGIT ; e.g., "param1"
variable-value  = 1*(ALPHA / DIGIT)
extension-params = extension-param [ ";" extension-params ]
extension-param  = token "=" token
```

"uri-parameters" is the SIP Request-URI parameter list as described in RFC 3261. All parameters of the Request URI are part of the URI matching algorithm.

The MIME-type is the content type for the announcement, such as (for raw headerless files):

- audio/basic, audio/PCMU (equivalent)
- audio/x-alaw-basic, audio/PCMA (equivalent)
- audio/L8
- audio/L16
- text/uri-list

The text/uri-list is a file of URIs (one per line). When playing a text/uri-list file, the content type should be set to "text/uri-list".

If playing WAV or AUD, the file itself describes the content type.

A number of MIME registrations, which could be used here, have parameters. To accommodate this and retain compatibility with the SIP URI structure, the MIME-type parameter separator (semicolon, %3b) and value separator (equal, %d3) must be used as escape characters.

The syntax of prompt-url consists of a URL scheme as specified by RFC 3986 or a special token indicating a provisioned announcement sequence. For example, the URL scheme may include any of the following:

- http/https (not for use with text/uri-list)
- file (referencing a local or NFS mounted object)
- rtsp

Parameter	Description	Value Type
play	Specifies the resource or announcement sequence to be played.	URL string. This may include a file with list of URLs.
content-type	Specifies content type for the announcement.	MIME-type such as: • audio/basic, audio/PCMU (equivalent) • audio/x-alaw-basic, audio/PCMA (equivalent) • audio/L8 • audio/L16 • text/uri-list
repeat	Specifies how many times the media server should repeat the announcement.	Any number. The string "forever" will make the play repeat until the <duration> parameter has elapsed.
delay	Specifies a delay interval between announcement repetitions.	Number in milliseconds (ms).
duration	Specifies the maximum duration of the announcement.	Number in milliseconds (ms).
early	Specifies whether or not the announcement is to play before the session is completely established.	Values: "Yes" - The announcement plays when the media streams are connected, but before the final response (487) is sent. "No" - The announcement plays only after 200 OK.

4. Conference Service

The Conference Service is a service managed by PowerMedia XMS Network Announcement (NETANN) Application service. This service is specified by "conf=uniqueIdentifier" tag as part of the user part of the request URI address and additional parameters. It can be used to establish basic video conferences that adapt to the number of video parties in the conference. The uniqueIdentifier can be any value that is compliant with the SIP URI specification.

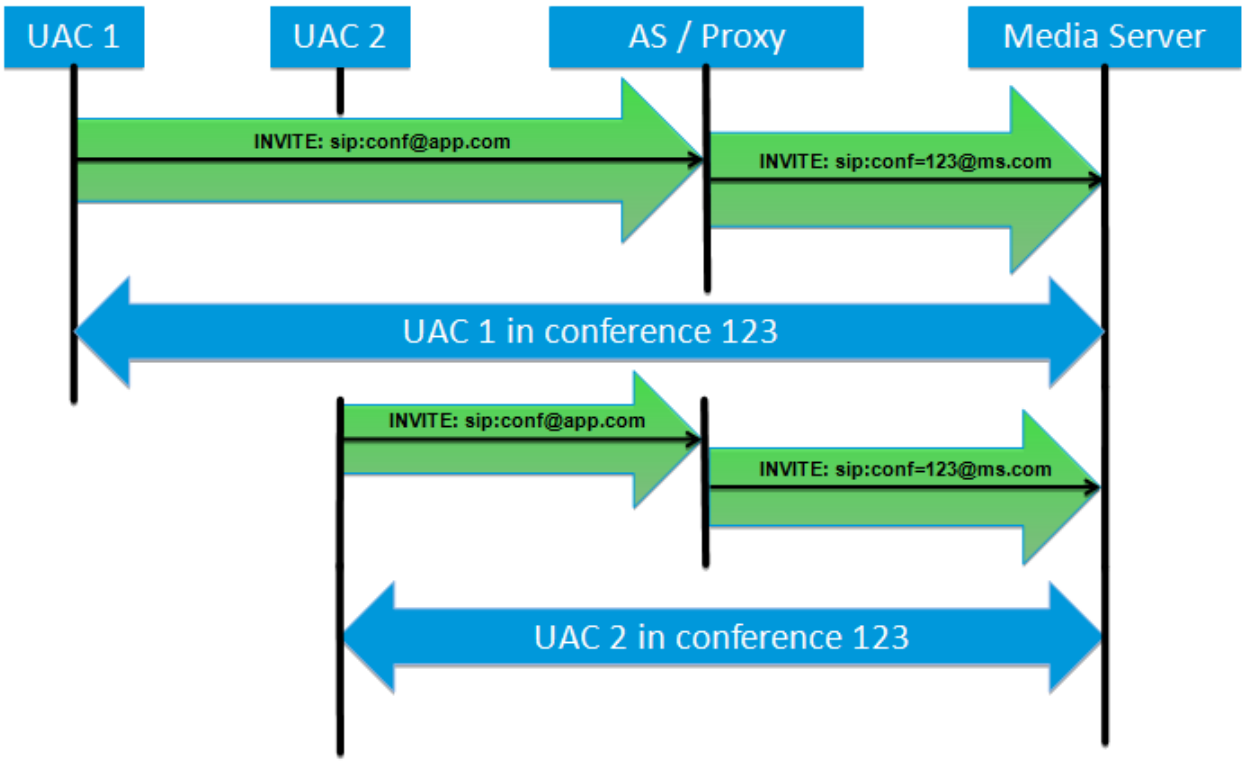
```
sip:conf=uniqueIdentifier@<xms_ip_address>
```

This service provides mixing sessions through their SIP request URIs. To create a mixing session, one sends an INVITE to a request URI that represents the session (conf_id). If the URI does not already exist on the media server and the requested resources are available, the media server creates a new mixing session. If there is an existing URI (conf_id) for the session on the media server and the resources are available, then the request for the new session is joined with an existing mixing session. Mixing session stays active as long as there is one active participant in it. Both audio and video conferences are supported.

The first party in a conference determines the type of conference (audio or video) based on the SDP.

```
sip:conf=123@<xms_ip_address>
```

The following diagram illustrates a simple call flow for a conference service.



5. Prompt and Collect Service

The Prompt and Collect service is also known as a voice dialog. It establishes an audio dialog with the user. The dialog service follows the model of the announcement service. However, the service indicator is specified with "dialog" tag:

```
sip:dialog@<xms_ip_address>;voicexml=vxmlserver/script.vxml
```

The dialog service takes a parameter, voicexml=, indicating the URI of the VoiceXML script to execute. In MSML, moml= is also supported. For more details on this PowerMedia XMS dialog service (VoiceXML), see the *Dialogic® PowerMedia™ XMS VoiceXML Reference Guide*.