



Dialogic® PowerMedia™ XMS Basic Network Media Services with SIP

User's Guide

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Revision History

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05-2714-006	March 2016	Updates to support PowerMedia XMS Release 3.1. 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.
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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.

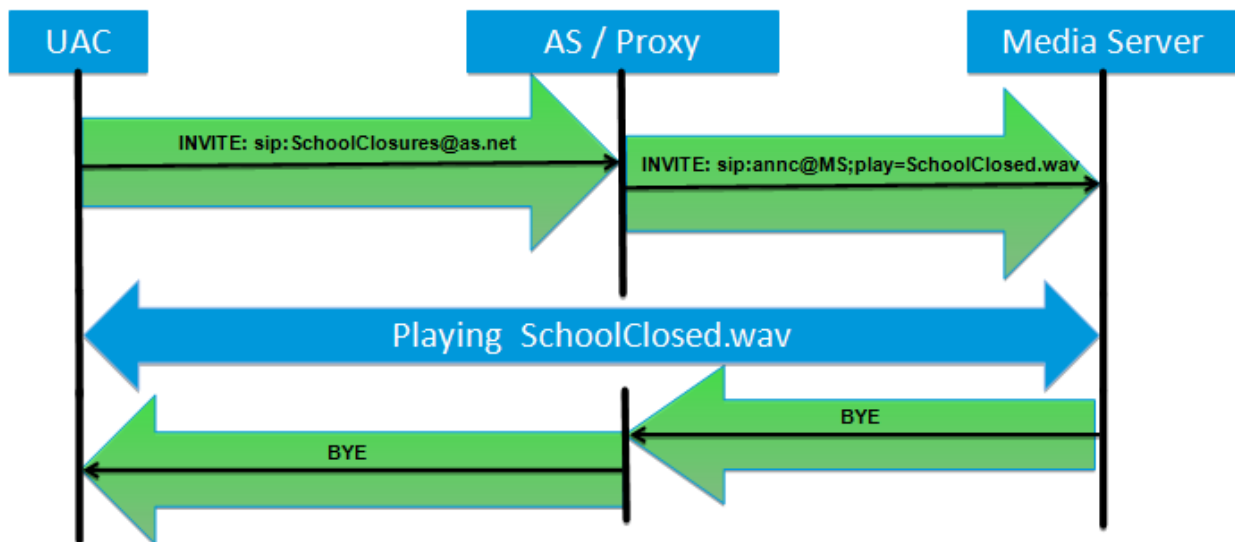
3. Network Announcement Service

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

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

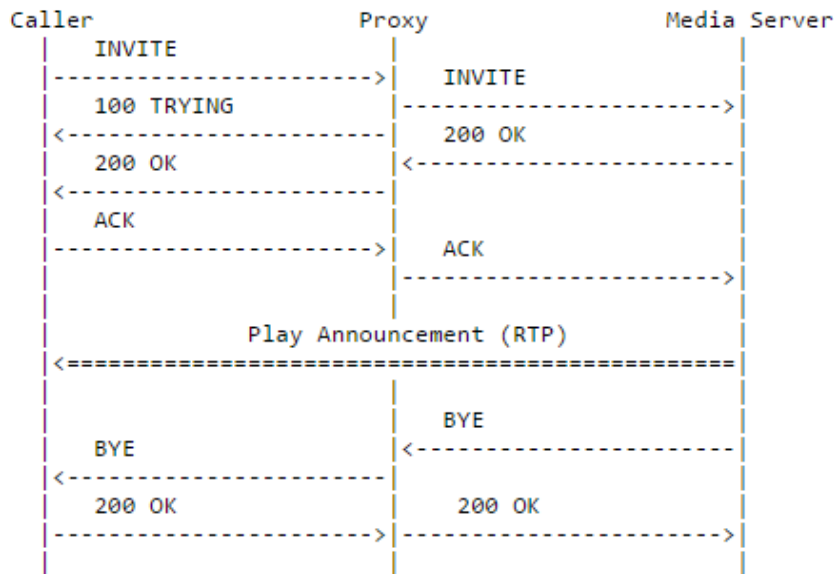
The announcement service provides basic play prompt commands to the SIP user. The media file to stream is provided as a URL by the <play> parameter. The call must be fully established prior to playing the prompt. The prompt starts to play after an acknowledgement (ACK) is received from the requester.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

The following diagram 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.

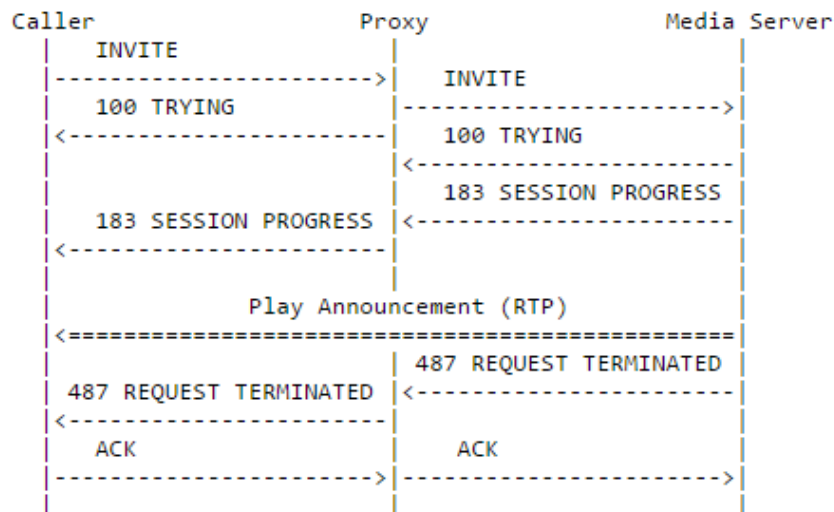
This is an example of the syntax used to access the NETANN service:

```
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 U.S. 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:

```
ANN-C-URL      = sip-ind ann-c-ind "@" hostport
                  ann-c-parameters uri-parameters
sip-ind        = "sip:" / "sips:"
ann-c-ind      = "ann-c"
ann-c-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: <ul style="list-style-type: none"> • 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.

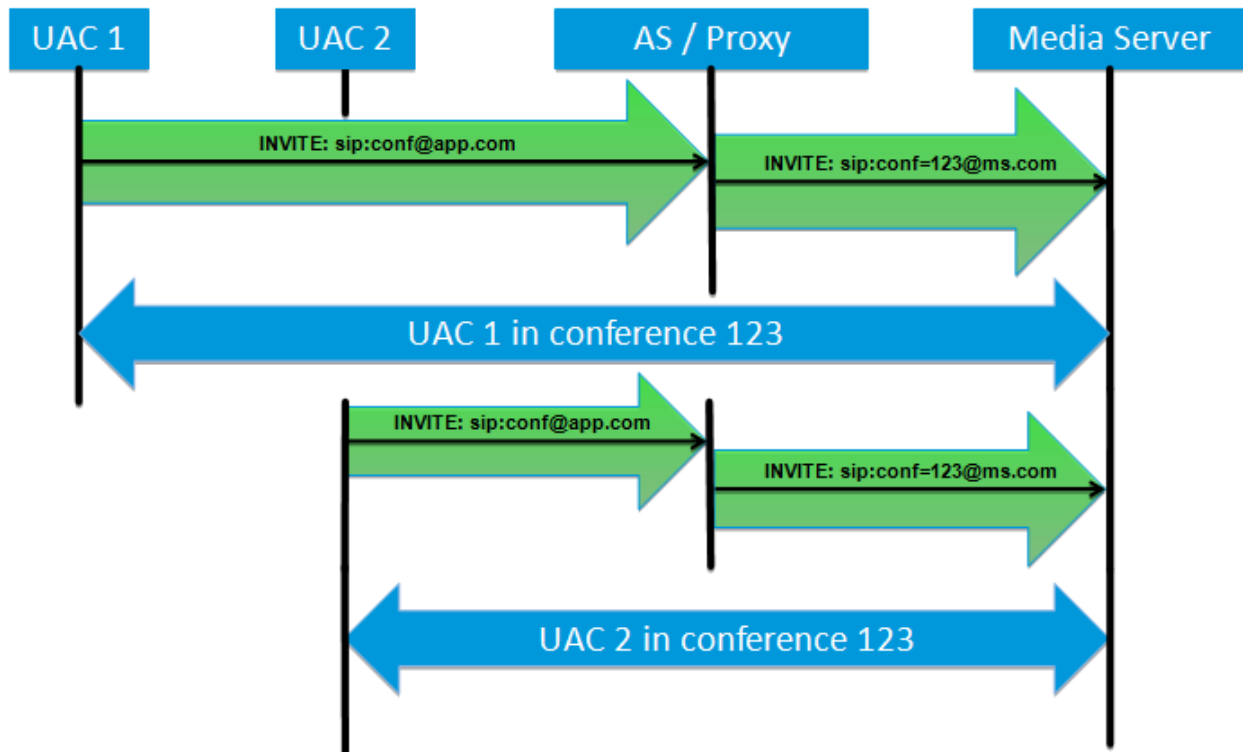
```
sip:conf=uniqueIdentifier@<xms_ip_address>
```

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*.