



Nex Gen Media Web Portal (NGMP) v1.6.4 User Guide

Nex Gen Bits

Nex Gen Media Web Portal (NGMP)

v1.6.4

User Guide



<http://www.ngmsvid.com>



Contents

CONTENTS	2
1. INTRODUCTION.....	3
2. NGMP COMMAND LINE REFERENCE.....	3
2.1. GENERAL PURPOSE ARGUMENTS	3
3. MEDIA RESOURCE CONFIGURATION	5
3.1. DEVICE PROFILES	5
3.2. MEDIA DIRECTORY.....	6
3.3. META FILES.....	7
4. STREAMING LIVE AND STATIC MEDIA	14
4.1. STREAMING LIVE MEDIA	14
4.2. STREAMING STATIC MEDIA	16





1. Introduction

NGMS is a real-time streaming media server with capabilities to stream live content, record, and host a complete media library for streaming. NGMS can be used as part of a live broadcasting system, cloud based media distribution infrastructure, or directly embedded in set-top boxes or mobile devices.

NGMP (Nex Gen Media Web Portal) is responsible for handling all client requests for media resources. NGMP is used to adapt and format live and stored media content to match client capabilities. It will selectively launch NGMS child processes to handle client media session requests.

2. NGMP Command Line Reference

2.1. General purpose arguments

- 2.1.1. **-conf** - Configuration file path. If omitted, the default configuration file processed is "*etc/ngmsmgr.conf*". The configuration file contains many settings which cannot be controlled via command line arguments.
- 2.1.2. **-dbdir** - NGMS media database directory used to store all media meta information and indexes. By default, the database directory is created under the path *[media directory]/ngmsdb* . A non-default





Nex Gen Media Web Portal (NGMP) v1.6.4 User Guide

location may need to be provided if the media directory exists on a read-only file system.

- 2.1.3. **-help** - Show program usage and help.
- 2.1.4. **-home** - Non-default home directory if the NGMP executable is not located under *[home directory]/bin*.
- 2.1.5. **-listen** - HTTP Server listen address and port used to override the 'listen' entry in the configuration file. Default value is "http://127.0.0.1:8080". To enable an SSL/TLS listener use "https://". Up to four unique line items can be listed to create listeners on unique HTTP and HTTPS *address:port* combinations.
- 2.1.6. **-logfile** - An optional log file path. The log file can also be specified in the configuration file. If omitted, all log output is sent to *stdout*.
- 2.1.7. **-media** - Media database directory used to override the "*media*" entry in the configuration. The media database directory is the root folder for all media resources handled by the server.
- 2.1.8. **-nodb** - If present, disables all media library database indexing. This value will override the "*dbDisable*" configuration entry found in the configuration file "*etc/ngmsmgr.conf*".
- 2.1.9. **--verbose** – Enable verbose logging. This is the same as giving the "-v" option. Each single instance of "-v" increases the verbosity





level. For eg. “-vv” is equivalent to “--verbose=3”, which increases the log verbosity from the default value of “1”.

3. Media Resource Configuration

3.1. Device Profiles

The file “*etc/devices.conf*” contains the client device profile configuration. NGMP examines the User-Agent header of each client request to identify the client device type. Each line in the device profile file defines a means to match a unique device by mapping a User-Agent substring to a custom defined device. Devices are searched in descending order until a User-Agent match has been found.

3.1.1. device - Identifies the custom device type name. This name is used by NGMS to refer to the specific client in other configuration components, such as any media resource metafile.

3.1.2. type - Identifies the custom device type or category. Device type categories describe the available viewing area and layout of the client device. NGMS uses the device type parameter to decide which type of viewable HTML layout to render to the client.

3.1.2.1. pc - Personal Computer.

3.1.2.2. mobile - Mobile Phone.





- 3.1.2.3. **tablet** - Tablet or Pad.

- 3.1.3. **match** - A text string used as a substring match for a client User-Agent string. Each device match string is searched in descending order until a match is found.

- 3.1.4. **method** - The preferred delivery method of live content.
 - 3.1.4.1. **flvlive** - FLV encapsulated stream over HTTP accessible by Flash player.

 - 3.1.4.2. **httplive** - HTTP Live Streaming used for Apple devices.

 - 3.1.4.3. **mkvlive** - Matroska / WebM encapsulated stream over HTTP accessible by an HTML5 aware Web Browser.

 - 3.1.4.4. **rtsp** - RTSP (Real Time Streaming Protocol).

 - 3.1.4.5. **rtmp** - RTMP (Real Time Media Protocol) used by Flash clients.

 - 3.1.4.6. **tslive** - MPEG-2 Transport Stream over HTTP used by Media Players such as VLC.

3.2. Media Directory

The media directory is set via the “*media=*” parameter in the “*ngmsmgr.conf*” configuration file. All supported media file formats located within the media directory are made accessible to media clients. NGMP indexes and creates





dynamic preview thumbnails of all media resources found within the media directory.

3.3. Meta Files

A metafile is a special configuration files located within the media directory. A metafile can be used to specify directory wide or file specific streaming attributes. Metafiles always end with the “.meta” filename extension.

Metafiles are text files containing key / value parameter pairs identifying properties for a media resource. Each line can contain multiple key / value pairs describing a single instance of a media resource and how it should be rendered to a requesting client.

3.3.1. Media Resource Specific Meta File

Any media file can have a corresponding metafile by creating a filename with the “.meta” extension following the media file name. For eg. The metafile “*testfile.mp4.meta*” is automatically loaded when a client request the media resource “*testfile.mp4*”.

A metafile consists of one or more lines used to describe how NGMP should present the media content to a client. Each line can contain the following elements.

- 3.3.1.1. device** - A custom device name which has been defined in the device profile configuration file (*etc/devices.conf*). A matching device entry can be used to create a unique rendering of the same media resource for each different device.





- 3.3.1.2. file** - The filename of the input media file for the matching entry line. If the file parameter is missing the filename is assumed to be the same as the metafile path after stripping the “.meta” extension.
- 3.3.1.3. http link** - The non-local URL where the client should load the media resource. This applies only to static media files which are hosted or mirrored on a remote server.
- 3.3.1.4. id** - A unique identifier assigned to a NGMS instance used to transcode or render the requested video. NGMP uses the media file resource name in conjunction with the meta file entry line “*id*” as a unique key to identify a child NGMS instance used to render and transcode the media file. An “*id*” can be shared between multiple line entries when the same transcoding configuration is used to render the media file. Different transcoding configurations, such as distinct resolutions or video profiles, should use distinct ids. This ensures that similar transcoding resources are re-used when a client requests the same media resource already processed by an existing “*id*”.
- 3.3.1.5. input** - Defines any custom arguments which will be passed to an underlying NGMS process used to handle the live media resource. This applies only to live (.sdp) media resource files.
- 3.3.1.6. profile** - A custom profile string which can be used to represent a unique encoding quality and delivery method of the media resource. The profile string is visible to the requesting client in the viewable media file description. The profile can be commonly used to describe a unique resolution when hosting multiple resolutions of the





Nex Gen Media Web Portal (NGMP) v1.6.4 User Guide

same media resource. For eg. “*profile=720p*” can be used to describe a line entry which will render the media file at 720p by either defining a “*file=*” or “*httplink=*” entry mapping to the 720p version of the file, or an “*xcodestr=*” resulting in a 720p rendering of the media resource.

The following URL can be used to access the “720p” profile specific instance of a given media resource: *http://[NGMP]:[port]/[media resource name]/prof_720p*.

3.3.1.7. httpproxy - Defines the address and port string delimited by a colon of a remote HTTP server used to serve an FLV media resource (available via the “*flvlive*” URL). NGMP can be used to relay an HTTP client connection to a remote HTTP server hosting the media resource. For eg. “*httpproxy=http://127.0.0.1:50080*” will relay the HTTP connection from a server listening on localhost port 50080 to the respective NGMS child process HTTP listener port. To enable an SSL/TLS listener use “*https://*”. Up to four unique line items can be listed to create listeners on unique HTTP and HTTPS *address:port* combinations.

The format of the FLV URL used to connect to the media resource is “*rtsp://[NGMP]:[HTTP PORT]/flvlive/[media resource filename and extension]*”.

Note: This option is only processed when “*FLVLive*” and “*FLVLiveMax*” are defined in “*ngmsmgr.conf*”. If the “*httpproxy*” parameter is not present in the media resource metafile, NGMP will start a dedicated instance of NGMS to process the media resource and





Nex Gen Media Web Portal (NGMP) v1.6.4 User Guide

automatically relay the HTTP FLV client connection to the HTTP server port of the underlying NGMS instance.

- 3.3.1.8. rtmpproxy** - Defines the address and port string delimited by a colon of a remote RTMP server. NGMP can be used to relay an RTMP client connection to a remote RTMP server requesting the media resource. For eg. “*rtmpproxy=127.0.0.1:51935*” will relay the RTMP connection to a server listening on localhost port 51935.

The format of the RTMP URL used to connect to the media resource is “*rtmp://[NGMP]:[RTMP PORT]/[media resource filename and extension]/live*”.

Note: This option is only processed when “*RTMPLive*” and “*RTMPLiveMax*” are defined in “*ngmsmgr.conf*”. If the “*rtmpproxy*” parameter is not present in the media resource metafile, NGMP will start a dedicated instance of NGMS to process the media resource and automatically relay the RTMP client connection to the RTMP server port of the underlying NGMS instance.

- 3.3.1.9. rtspproxy** - Defines the address and port string delimited by a colon of a remote RTSP server. NGMP can be used to relay an RTSP client connection to a remote RTMP server requesting the media resource. For eg. “*rtspproxy=127.0.0.1:50554*” will relay the RTSP connection to a server listening on localhost port 50554.





Nex Gen Media Web Portal (NGMP) v1.6.4 User Guide

The format of the RTSP URL used to connect to the media resource is “*rtsp://[NGMP]:[RTSP PORT]/[media resource filename and extension]*”.

Note: This option is only processed when “*RTSPLive*” and “*RTSPLiveMax*” are defined in “*ngmsmgr.conf*”. If the “*rtspproxy*” parameter is not present in the media resource metafile, NGMP will start a dedicated instance of NGMS to process the media resource and automatically relay the RTSP client connection to the RTSP server port of the underlying NGMS instance.

3.3.1.10. xcodeargs - The transcoder configuration string which will be used when rendering the media file. Using a transcoder configuration string will result in NGMP launching a dedicated NGMS instance to transcode and serve the media file. The exact syntax of the “*xcodeargs*” element is described in the NGMS User guide (*NGMS_userguide.pdf*).

3.3.2. Example metafile configuration file

#iphone3 rendered at 480x320 baseline profile

device="iphone3",id="iphone3_320",xcodeargs="vc=264,vx=480,vy=320,vb=200,vt=20,vfr=29.97,vp=66,ac=aac,ar=16000,as=1"

#iphone 4 rendered at 480x320 main profile

device="iphone4",id="iphone3_320",xcodeargs="vc=264,vx=480,vy=320,vb=200,vt=20,vfr=29.97,vp=77,ac=aac,ar=16000,as=1"

#ipad available at either 1024x768 or 512x384 main profile





```
device="ipad",id="ipad_768",profile="High Def",
xcodeargs="vc=264,vx=1024,vy=768,vb=900,vt=20,
vfr=29.97,vp=77,ac=aac,ar=16000,as=1"
device="ipad",id="ipad_384",profile="default",
xcodeargs="vc=264,vx=512,vy=384,vb=400,vt=20,vfr=29.97,vp=77,
ac=aac,ar=16000,as=1"
```

```
#generic android device string will reuse iphone3 configuration
device="android",id="iphone3_320",xcodeargs="vc=264,vx=480,vy=
320,vb=300,vt=20,vfr=29.97,vp=66,ac=aac,ar=16000,as=1"
#catch all device available at either 720p, 480p, or 360p
id="720",profile="720p",xcodeargs="vc=264,vy=720,vb=1400,vf=1,
vfr=29.97,vp=100,ac=aac,as=1"
id="480",profile="480p",xcodeargs="vc=264,vy=480,vb=700,vf=1,
vfr=29.97,vp=100,ac=aac,as=1"
id="360",profile="360p",xcodeargs="vc=264,vy=360,vb=400,vf=1,
vfr=29.97,vp=100,ac=aac,as=1"
id="360",profile="",xcodeargs="vc=264,vy=360,vb=400,vf=1,
vfr=29.97,vp=100,ac=aac,as=1"
```

3.3.3. Directory Wide Meta File

Each directory or subdirectory containing media files can contain a directory wide metafile named "*default.meta*". This file contains configuration parameters specific to all files located within the parent directory.

The following parameters are permitted in the file "*default.meta*"





3.3.3.1. description - Contains a descriptive string used as the title for a media resource. If absent, the filename of the media resource is used as the title. Each line containing a “*description*” keyword must also contain a “*file*” keyword specifying the name of the file that the description refers to.

For eg. The line “*file=testfile.mp4, description=This is a test video*” will replace the the title of the video.

3.3.3.2. ignore - Each ignore instance specifies a file name which should not be visible from the user viewable media file listing. This is useful when multiple versions of the same content are stored with different encoding properties and only one thumbnail visible link should be visible to clients.

For eg. The line “*ignore=testfile.mp4*” will hide the file “*testfile.mp4*” by not displaying it in the user viewable media file listing.

3.3.4. Example directory wide metafile “*default.meta*”

#Ignore multiple instances of the same content from the media library listing.

ignore="test_360p.mp4"

ignore="test_480p.mp4"

ignore="test_720p.mp4"

file="test.mp4",description="Test File Descriptive Title"

ignore="test2_360p.mp4"





```
ignore="test2_480p.mp4"
```

```
ignore="test2_720p.mp4"
```

```
file="test2.mp4",description="Test2 File Descriptive Title"
```

4. Streaming Media

4.1. Streaming Live Media

A live media resource can be defined by creating a generic SDP file within the “*media*” directory with the extension “.sdp”, such as “*test.sdp*”. If using a metafile to define how the live content should be handled, the actual SDP file contents do not matter.

A metafile is defined by creating the file “*test.sdp.meta*”. NGMP will search for the file “[*Media Resource Name*].meta” and use its directives to capture and stream the live media resource. Each distinct directive should be listed on a single line with each key / value parameter pair separated by comma.

In this example below, the live input stream is captured from a remote RTMP server. When the resource is requested by mobile devices it is transcoded to a specific “*xcodeargs*” configuration.

```
id="320p", device="iphone3", profile="", input="--capture=rtmp://[RTMP HOST  
URL]/[RTMP STREAM NAME] --delay=3 --vidq=300 --audq=400 --  
pipconf=./piptest.conf",  
xcodeargs="vc=264,vb=250,vt=20,vy=320,vp=66,vf=1,vfr=25.0,vcfrout=1,ac=aac  
,ab=32000,ar=22050,as=1"
```





```
id="320p", device="iphone4",profile="", Input="--capture=--capture=rtmp://[RTMP  
HOST URL]/[RTMP STREAM NAME] --delay=3 --vidq=300 --audq=400 --  
pipconf=./piptest.conf",  
xcodeargs="vc=264,vb=250,vt=20,vy=320,vp=66,vf=1,vfr=25.0,vcfout=1,ac=aac  
,ab=32000,ar=22050,as=1"
```

```
id="320p", device="android_generic", profile="" ,input="--capture=rtmp://[RTMP  
HOST URL]/[RTMP STREAM NAME] --delay=3 --vidq=300 --audq=400 --  
pipconf=./piptest.conf",  
xcodeargs="vc=264,vb=250,vt=20,vy=320,vp=66,vf=1,vfr=25.0,vcfout=1,ac=aac  
,ab=32000,ar=22050,as=1"
```

```
id="320p", device="blackberry_generic", profile="" ,input="--capture=rtmp://[RTMP  
HOST URL]/[RTMP STREAM NAME] --delay=3 --vidq=300 --audq=400 --  
pipconf=./piptest.conf",  
xcodeargs="vc=264,vb=250,vt=20,vy=320,vp=66,vf=1,vfr=25.0,vcfout=1,ac=aac  
,ab=32000,ar=22050,as=1"
```

```
id="320p", device="ipad", profile="" , input="--capture=rtmp://[RTMP HOST  
URL]/[RTMP STREAM NAME] --delay=3 --vidq=300 --audq=400 --  
pipconf=./piptest.conf",  
xcodeargs="vc=264,vb=250,vt=20,y=320,vp=66,vf=1,vfr=25.0,vcfout=1,ac=aac,  
ab=32000,ar=22050,as=1"
```

```
id="480p", device="", profile="480p", input="--capture=rtmp://[RTMP HOST  
URL]/[RTMP STREAM NAME] --delay=2 --vidq=200 --audq=300"
```

```
id="480p", device="", profile="" , input="--capture=rtmp://[RTMP HOST  
URL]/[RTMP STREAM NAME] --delay=2 --vidq=200 --audq=300"
```





The “*input*” field is used to pass any additional parameters to the underlying NGMS process used to handle the live stream.

4.2. Streaming Static Media

The following example shows a sample metafile configuration used to host several versions of the same file with varying formats and resolutions.

4.2.1. Media Resource called “*test.mp4*” found within the “*media*” directory.

4.2.1.1. “*test_720p.mp4*” - H.264 High Profile 720p 2.5Mb/s

4.2.1.2. “*test_480p.mp4*” - H.264 High Profile 480p 1.1Mb/s

4.2.1.3. “*test_360p.mp4*” - H.264 High Profile 360p 0.6Mb/s

4.2.1.4. “*test_320base.mp4*” - H.264 Baseline Profile 320x480
0.4Mb/s

4.2.1.5. “*test_320main.mp4*” - H.264 Main Profile 320x480 0.3Mb/s

A metafile is defined by creating the file “*test.mp4.meta*”.

```
device="iphone4", file="test_32main.mp4", profile=""
```

```
device="iphone3", file="test_320base.mp4", profile=""
```

```
device="android_generic", file="test_320base.mp4", profile=""
```





```
device="blackberry_generic", file="test_320base.mp4", profile=""
```

```
profile="720p", httpLink="http://[CDN HOST]/path/test_720p.mp4"
```

```
profile="480p", httpLink="http://[CDN HOST]/path/test_480p.mp4"
```

```
profile="360p", file="test_360p.mp4"
```

```
profile="", file="test_360p.mp4"
```

In the example, the high bandwidth versions of the file are hosted on a remote CDN. The lower bandwidth versions are hosted locally and are served via HTTP by NGMP.

A requesting device identified as *“iphone3”* (via the configuration specified in *“/etc/devices.conf”*) will return the file *“test_320base.mp4”*. A device which is unmatched (or a generic fall-through) will have the option to select either a 360p, 480p, or 720p version of the file. By default, the lower quality 360p version is served to the client.

