

Overview

MMES (Multimedia Mobilizing Enterprise System) is a multimedia on-demand web-based application that allows corporations, institutions and broadcasters to “mobilize” video and/or audio content. Administrators can upload video/audio to the MMES website, where it can be interactively shared with PC (Internet browser) or mobile users on a global basis. MMES also allows users to on-demand live stream to any mobile device that can run the MMES mobile client.

Multiple virtual domain MMES websites can be created on a single server, or a single system can be distributed across a network of hosting servers for very large scale mobile VOD.

The MMES system allows interactive and on-demand video/audio across wireless networks and a wide range of mobile devices. This technology was designed to be relatively transparent to mobile networks. From a network perspective, watching MMES appears somewhat similar to browsing web pages from your mobile device; our system does not use typical streaming technology or protocols. If you can download and install the MMES mobile media client on your handset, there’s a good chance you be able to use MMES. However, higher speed connections – EVDO, EDGE, HSDPA, WCDMA, 3G – are necessary for video streaming.

MMES can support thousands of concurrent mobile clients (there is typically no software limitation; millions of video clips can be stored in its MySQL database.)

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MEDIA ON-DEMAND SYSTEM

Note that MMES is a streaming system, not a download utility; media is delivered over the network on-demand, as requested by the user. It is not stored (at this time) on the mobile device. Because of the dramatic range of mobile device capabilities, some may have ample memory to store media files for playback, while many others do not. At this time, we have chosen to only support on-demand streaming of media as opposed to download, in order to support the broadest range of mobile devices possible and to minimize issues of content ownership / replication.

VIDEO & AUDIO QUALITY

Video and audio playback quality is directly dependant on the capabilities of the mobile device and related network performance. Video frame rate has been observed to vary anywhere from about 3 frames per second (fps) to over 30 fps. As is the case with cellular telephony, there will be times when mobile network congestion or poor reception will limit the mobile client’s ability to either contact the MMES website, start a media stream, or causing it to repeatedly stop and buffer (receive more data) during media playback.

SUPPORTED MOBILE DEVICES

- Java Based Cell Phones
- Java (J2ME), midp2.0 and cldc1.0
- mobile browser (and the ability to reach the MMES website)
- most mdip2/j2me handsets will be able to use the playback & media access functions of MMES;

RIM Blackberry

Blackberries with cameras will be able to perform recording/live streaming; those without will still be able to access different archived and live video streams for play back.

- BlackBerry 8100 series
- BlackBerry 8300 series
- BlackBerry 8700 series
- BlackBerry 8800 series

SUPPORTED MOBILE NETWORKS

MMES streaming should be accessible through most GSM/GPRS networks (and by association, mobile devices that operate on GSM/GPRS). Such networks are prevalent throughout the world (Americas, Europe, Asia, Africa).

MMES streaming can also be accessed through CDMA networks/devices. However, operators of CDMA type networks (especially in North America) may require digital signing of applications loaded onto their subscribers mobile devices (essentially, determining the applications allowed to run on their subscribers' handsets).

As a result, functionality of the MMES mobile media client could be limited on CDMA networks. One particular limitation that has been observed is the lack of audio playback (i.e. video but no audio or

audio stops after several seconds). We are self-enabling Sprint and it would appear that we will soon be able to self-enable Verizon.

MMES streaming runs on mobile devices with faster connection capabilities - EDGE, 3G HSPDA, EVDO, 1x, W-CDMA. Faster data transmission allows our technology to take advantage of the higher dynamic encoding rates of our real-time adaptive transmission model.

VIDEO / AUDIO FORMATS

Once content is created, it will need to be saved in a source format that can be ingested by MMES, as follows:

Video - MPEG4, MPEG2, MPEG1, QuickTime .MOV, Windows WMV, AVI, DIVX, XVID and RealMedia/RM

Audio - MP3, AAC, Ogg Vorbis and AMR

For better quality, we typically recommend MPEG4 (DIVX, XVID) at 320x240 resolution with MP3 audio. Resolution should be as high as practical, or whatever your system allows.

MOBILE MEDIA CLIENT

The MMES Mobile media client is a downloadable application from the MMES server. Users simply point their web browser to a pre-defined URL (representing the MMES server or other location that contains the MMES mobile device client). Typical download / installation is as follows:

1. Using your mobile device browser, navigate to the URL defined by a system administrator. The MMES mobile client should automatically

download over-the-air (typically in less than 30 seconds).

2. Once the download is complete, you will have to accept the application to install on your device (this process may vary depending on the device). Once the client is installed, an icon will either be created for the client in your icons menu, or MMES will be listed as one of your applications.
3. Depending on your mobile device, you should: (1) ensure that the backlight is turned on before you begin using MMES; and (2) that the connection settings on your device are configured to allow the MMES client to access the network (without having to repeatedly accept connections while the client is running). This Setting assignment is usually found in your mobile device's Applications Manager utility.
4. Mobile users must be previously registered on the MMES website by the System Administrator who provides a Username and Password.
5. When user sign up is validated by the System Administrator, mobile users can search designated Group media on MMES. Assigning Groups is done through the website. Once mobile users have been assigned, the Groups should be listed on the mobile client and all the media content of the specified Groups will also be accessible.

MMES Live Streams

MMES are user on-demand live feeds. System Administrators can "mobilize" their live video/audio feeds for mobile clients.

MMES Groups

MMES "Groups" are virtual private groupings of

users created by the System Administrator. Groups can be created by the System Administrator, and membership in a Group is enabled through the MMES website.

MMES Management Interface

MMES provides a management interface for users of MMES (including separate, secure media Group owners) to manage their individual profile. MMES allows the management of content, Groups, messaging, favorites, and other functionality.

Messaging and Notification

MMES users can receive text messages and notifications from the System Administrator. Messaging functionality is found in the MMES website interface.

Searching & Filtering Media

MMES provides effective searching, filtering and sorting capabilities, both through the Filter/Search feature on the MMES website. Main web page or via the highlighted Tags associated with each item of media.

Tagging Media Content

When you upload media to MMES, you are required to name, choose (at least) one category and enter at least one tag to describe media content. Adding this information helps other MMES users search for and locate content. The more accurate (descriptive) the tags, the easier it is for users to find content. Multiple tags can be used to describe your media; tags must be separated by commas.

Note that all tags (and all media for that matter) listed on the on MMES website are accessible on the mobile client. You can perform the same searches on the mobile client as you can on the website.

Help on the MMES Mobile Client

The MMES mobile media client provides general “help” instructions on the proper use of the client – including FF/RW/Pause and TimeShifting controls on live streams. It is recommended that you review these instructions prior to use.

The basic media client controls are typically operated from the joystick, direction keys, or standard keys on your mobile device (dependant on the device itself).

These controls typically include:

- Scroll Through Lists – up / down on joystick
- Select an Item – press down (inward) on joystick
- TimeShift (on live media) – left / right on joystick
- Volume (while playing media) – up / down on joystick
- Pause / Play – press down on joystick to pause, press again to continue play
- FastForward / Rewind – while paused, left on joystick to Rewind, right on joystick to FastForward

Note that some mobile devices may not be able to display the full Help text within the confines of their screen or memory capacity. In such cases, refer to the instructions posted on the MMES website.

Searching on the MMES Mobile Client

All available media of Groups to which a mobile user has been entitled is searchable from the MMES mobile media player.

After selecting MMES on your mobile device, you are provided with a selectable list of the following:

- Groups (to which the user has permitted access)
- All Media (all user accessible media within a particular Group)
- Messages (referrals to media by SysAdmin)
- Above the initial list of media thumbnails presented on your mobile device, you will see three fields in which you can:
 - Search on a tag(s)
 - Search on User Name / Media Name
 - Select Order (of the search results)

Returned search results can be further refined by searching on additional tags (entered into the Tag field).

If you have highlighted a media thumbnail, you can also search by one of its component Tags in the Menu for that item.

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