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# System Requirement Specification Document

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Media Server

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Version 1.0

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**Document Information****Document Sign Off**

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**History****Document Version Control**

Date	Revision	Author	Description
April 9, 2008		Shafaq Irshad	Details of System Requirement Specifications.

**Document Purpose**

The information provided in this document explains both functional and non functional requirements for Media Server's API. It clearly identifies the requirements and contains detail information about it. For complete scope of Media Server please see the [Project Proposal](#).

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## 1. References & Abbreviations

### References

Following is the 3GPP reference document list, which is related to the information present in this document:

- [1] IETF RFC 5022: “Media Server Control Markup Language (MSCML) and Protocol”.
- [2] 3GPP RFC 3261: “SIP : Session Initiation Protocol”.
- [3] IETF RFC 3470: “Guidelines for the Use of Extensible Markup Language (XML) within IETF Protocols”.
- [4] IETF RFC 4353: “A Framework for Conferencing with SIP”.
- [5] IETF RFC 4240: “Basic Network Media Services with SIP”.

### Abbreviations

Following are the abbreviations that have been used in the document:

<b>API</b>	Application Program Interface.
<b>MS</b>	Media Server
<b>MRFC</b>	Media Resource Function Controller.
<b>MRFP</b>	Media Resource Function Processor.
<b>Description</b>	Detailed requirement description.
<b>Group Name</b>	Functional Requirement Grouping representing the Media Server API.
<b>ID</b>	ID is for internal requirement reference.
<b>Name</b>	Requirement Title

## **2. Project Overview**

Media Server is most significant component in IMS architecture. Media Server is responsible of handling and delivery media services to end user. It provides all media related functions i.e. media manipulations, and playing of tones and announcements. Media Server is further decomposed into two separate elements i.e. MRFC and MRFP.

MRFC is responsible of controlling all session related measurements, it establishes multi party sessions, and deals with all kinds of announcement services and transcoding services. MRFP on the other hand, ensures RTP related activities i.e. number of incoming/outgoing of RTP Packets, number of octets of incoming/outgoing of RTP packets etc. It further controls all routing information interrogations from CSF and AS. MRFP is responsible of mixing/processing of all media streams and ensures that data is transferred in a correct format.

### 3. Functional Requirements

Following illustrates Media Server’s functional requirements.

#### 3.1 General

##### Requirement: 1 – Transcoding Media for Recording.

<b>ID</b>	MS – 00062.
<b>Group Name</b>	General.
<b>Name</b>	Transcoding Media for Recording.
<b>Description</b>	MG should support recording in specified codec and file-format: PCMU PCMA GSM.

##### Requirement: 2 - Audio file support.

<b>ID</b>	MS – 00066.
<b>Group Name</b>	General.
<b>Name</b>	Audio file support.
<b>Description</b>	MG should support ulaw, alaw, gsm and pcm(raw) files.

##### Requirement: 3 – Call Movement.

<b>ID</b>	MS – 00056.
<b>Group Name</b>	General.
<b>Name</b>	Call Movement.
<b>Description</b>	The media server MUST support call movement between services through sending the media server a BYE on the existing dialog and establishing a new dialog with an INVITE to the desired service.

##### Requirement: 4 – Conferencing Support.

<b>ID</b>	MS – 00053.
<b>Group Name</b>	General.
<b>Name</b>	Conferencing Support.
<b>Description</b>	MG should support provide support for conferencing applications according to conferencing model described in RFC 4353.

**Requirement: 5 – DTMF Grammar.**

<b>ID</b>	MS – 00037.
<b>Group Name</b>	General.
<b>Name</b>	DTMF Grammar.
<b>Description</b>	MG should support specifying of DTMF grammar in the following formats: regular expression.

**Requirement: 6 – http:// and https://.**

<b>ID</b>	MS – 00041.
<b>Group Name</b>	General.
<b>Name</b>	http:// and https://.
<b>Description</b>	MG should support media retrieval and storage using http:// and https:// URI syntax.

**Requirement: 7 – Media Mismatch Handling.**

<b>ID</b>	MS – 00044.
<b>Group Name</b>	General.
<b>Name</b>	Media Mismatch Handling
<b>Description</b>	If there is a mismatch between the real time media and specified content, the media server MUST play or record the appropriate content, track the issue rather than failing the request.

**Requirement: 8– MSCML and SDP Payload Support.**

<b>ID</b>	MS – 00055.
<b>Group Name</b>	General.
<b>Name</b>	MSCML and SDP Payload Support.
<b>Description</b>	MG MUST support message bodies with the MIME type "multipart/mixed" in SIP INVITE requests.

**Requirement: 9 – Timer Resolution.**

<b>ID</b>	MS – 00057.
<b>Group Name</b>	General.
<b>Name</b>	Timer Resolution.
<b>Description</b>	MG should support timers in milliseconds.

**Requirement: 10 – Transcoding Support.**

<b>ID</b>	MS – 00054.
<b>Group Name</b>	General.
<b>Name</b>	Transcoding Support.
<b>Description</b>	MG should provide transcoding support.

**Requirement: 11 – Access Control List.**

<b>ID</b>	MS – 00149.
<b>Group Name</b>	General.
<b>Name</b>	Access Control List.
<b>Description</b>	Clients connecting from IP address and port that are given in an ACL will be allowed to use the resources of MG

**3.2 MSCML****Requirement: 1 - Support for <audio> tag.**

<b>ID</b>	MS – 00027.
<b>Group Name</b>	MSCML.
<b>Name</b>	Support for <audio> tag.
<b>Description</b>	MG should support the <audio> tag and its following attributes: url encoding.

**Requirement: 2 - Support for <error\_info> tag.**

<b>ID</b>	MS – 00028.
<b>Group Name</b>	MSCML; State Machine.
<b>Name</b>	Support for <error_info> tag.
<b>Description</b>	MG should support tag and its following attributes: code text context.

**Requirement: 3 – Support for <play> tag.**

<b>ID</b>	MS – 00029.
<b>Group Name</b>	MSCML.
<b>Name</b>	<play> tag
<b>Description</b>	MG should support tag and its following attributes: id Its should also support corresponding attributes in tag: reason playduration playoffset.

**Requirement: 4- Support for <playcollect> tag.**

<b>ID</b>	MS - 00030
<b>Group Name</b>	MSCML; State Machine.
<b>Name</b>	<playcollect> tag.
<b>Description</b>	MG should support tag and its attribute and its corresponding attributes in tag.

**Requirement: 5– Support for <playrecord> tag.**

<b>ID</b>	MS – 00031.
<b>Group Name</b>	MSCML; State Machine.
<b>Name</b>	<playrecord> tag
<b>Description</b>	MG should support tag and its following attributes : barge cleardigits escapekey recurl recencoding mode duration beep initsilence endsilence recstopmask It will also support following attributes in tag: reason playduration playoffset digits error_info reclength recduration

**Requirement: 6- Support for <prompt> tag .**

<b>ID</b>	MS – 00086.
<b>Group Name</b>	MSCML.
<b>Name</b>	<prompt> tag.
<b>Description</b>	MG should support tag and its following attributes : baseurl delay duration offset repeat stoponerror.

**Requirement: 7 – Support for <response> tag.**

<b>ID</b>	MS – 00032.
<b>Group Name</b>	MSCML; State Machine.
<b>Name</b>	Support for <response> tag.
<b>Description</b>	MG should support <response> tag and its following attributes : id request code text.

**Requirement: 8 – Support for <stop> tag.**

<b>ID</b>	MS – 00033.
<b>Group Name</b>	MSCML; State Machine.
<b>Name</b>	Support for <stop> tag.
<b>Description</b>	MG should support <stop> tag and its following attributes: id.

**Requirement: 9 – Collection Timer.**

<b>ID</b>	MS – 00034.
<b>Group Name</b>	MSCML; State Machine.
<b>Name</b>	Collection Timer.
<b>Description</b>	MG should support the following attributes for collection timers firstdigittimer interdigittimer extradigittimer interdigitcriticaltimer.

**Requirement: 10 – Control of Digit Buffering & Barge- In.**

<b>ID</b>	MS – 00036.
<b>Group Name</b>	MSCML; State Machine.
<b>Name</b>	Control of Digit Buffering and Barge-In.
<b>Description</b>	MG should support the following attributes to control digit buffering and barge-in: cleardigits barge.

**Requirement: 11 – file:// URI support.**

<b>ID</b>	MS – 00040.
<b>Group Name</b>	MSCML.
<b>Name</b>	file:// URI support.
<b>Description</b>	MG should support media retrieval and storage using file:// URI syntax.

**Requirement: 12– http:// and https://.**

<b>ID</b>	MS – 00041.
<b>Group Name</b>	MSCML.
<b>Name</b>	http:// and https://.
<b>Description</b>	MG should support media retrieval and storage using http:// and https:// URI syntax.

**Requirement: 13 - Logging Caller DTMF Input.**

<b>ID</b>	MS – 00042.
<b>Group Name</b>	MSCML.
<b>Name</b>	Logging Caller DTMF Input.
<b>Description</b>	MG should support the following attributes for logging of DTMF input maskdigits.

**Requirement: 14 – Mapping DTMF Keys to Special Functions.**

<b>ID</b>	MS – 00043.
<b>Group Name</b>	MSCML.
<b>Name</b>	Mapping DTMF Keys to Special Functions.
<b>Description</b>	MG should support the following tags to support mapping of DTMF keys to special functions: escapekey. returnkey.

**Requirement: 15 – Media Server Control Markup Language (MSCML) .**

<b>ID</b>	MS – 00045.
<b>Group Name</b>	MSCML.
<b>Name</b>	Media Server Control Markup Language (MSCML).
<b>Description</b>	MG should support the following MSCML tags with all their attributes as defined in RFC-5022: <play> <playcollect> <playrecord> <stop> <prompt> <audio>.

**Requirement: 16 - VCR Control.**

<b>ID</b>	MS – 00051.
<b>Group Name</b>	MSCML.
<b>Name</b>	VCR Control.
<b>Description</b>	MG should support the following attributes to support VCR Control skipinterval ffkey rwkey.

**3.3 SIP****Requirement: 1 – MSCL Support in OPTION request.**

<b>ID</b>	MS – 00046.
<b>Group Name</b>	SIP
<b>Name</b>	MSCL Support in OPTION request.
<b>Description</b>	The media server MUST also advertise its support of MSCML in responses to OPTIONS requests by including "application/mediaservercontrol+xml" as a supported content type in an Accept header.

**Requirement: 2 – Multiple content types.**

<b>ID</b>	MS – 00065.
<b>Group Name</b>	SIP.
<b>Name</b>	Multiple content types.
<b>Description</b>	SIP in MG should be able to multiple content types.

**Requirement: 3 – SIP UA with INFO.**

<b>ID</b>	MS – 00049.
<b>Group Name</b>	SIP.
<b>Name</b>	SIP UA with INFO.
<b>Description</b>	MG should have SIP user agent functionality to transport MSCML message through INFO method. UA will be compliant with RFC 3261. UA should show MSCML support.

**4. Non-Functional Requirements**

Following illustrates non- functional Media Server’s requirements.

**4.1 General****Requirement: 1 – Supported Operating System.**

<b>ID</b>	MS – 00052.
<b>Group Name</b>	General.
<b>Name</b>	Supported Operating System.
<b>Description</b>	MG should support Fedora Core 8 and Windows XP Professional.

**Requirement: 2 - Addition of new functionality.**

<b>ID</b>	MS – 00039.
<b>Group Name</b>	General.
<b>Name</b>	Addition of new functionality.
<b>Description</b>	Design should allow new functionality to be added without effecting already implemented functionality.

**Requirement: 3 – Error Handling.**

<b>ID</b>	MS – 00038.
<b>Group Name</b>	General.
<b>Name</b>	Error handling.
<b>Description</b>	MG should be able to handle errors gracefully appropriate error response.

**Requirement: 4 – Simultaneous Request Handling.**

<b>ID</b>	MS – 00048.
<b>Group Name</b>	General.
<b>Name</b>	Simultaneous request handling.
<b>Description</b>	MG should be able to handle 120 multiple simultaneous media channels.

**4.2 MSCML****Requirement: 1 – RFC 3470.**

<b>ID</b>	MS – 00047.
<b>Group Name</b>	MSCML.
<b>Name</b>	RFC 3470.
<b>Description</b>	MSCML bodies MUST be well formed and valid as defined in RFC 3470.

## Out of Scope Requirements

**Requirement: 1 – Support for <faxrecord> tag.**

<b>ID</b>	MS – 00063.
<b>Group Name</b>	MSCML; State Machine.
<b>Name</b>	Support for <faxrecord> tag.
<b>Description</b>	MG should not support <faxrecord> and its corresponding sub-elements.

**Requirement: 2 - Support for <managecontent> tag.**

<b>ID</b>	MS – 00064.
<b>Group Name</b>	MSCML; State Machine.
<b>Name</b>	Support for <managecontent> tag.
<b>Description</b>	MG should not support <managecontent> and its corresponding sub-elements.

**Requirement: 3 – Video Support.**

<b>ID</b>	MS – 00061.
<b>Group Name</b>	General.
<b>Name</b>	Video Support.
<b>Description</b>	Media Server does not handle video.