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| Software Requirement Specification Document |
| Media Server |
| Version 1.0 |

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| **Document Information** |

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| **Document Sign Off** |

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**Document Purpose**

The information provided in this document explains both functional and non functional requirements for Media Servers API. It clearly identifies the requirements and contains detail information about it. For complete scope of Media Servers please see the **Project Proposal.**

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Changes are periodically made to this document. Changes, technical inaccuracies, and typographic errors will be corrected in subsequent versions.

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| **Table of Contents** |

[**1. References & Abbreviations 1**](#_Toc190637243)

[**2. Project Overview 2**](#_Toc190637244)

[**3. Functional Requirements 3**](#_Toc190637245)

[**4. Non-Functional Requirements 7**](#_Toc190637246)

[**5. Operating Environment Requirements 11**](#_Toc190637247)

# References & Abbreviations

**References**

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

[1] IETF RFC 5022: “MSCML”.

[2] 3GPP RFC 3261: “SIP”.

**Abbreviations**

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

|  |  |
| --- | --- |
| **API** | Application Program Interface. |
| **AVPs** | Attribute Value Pair. |
| **MS** | Media Servers |
| **Description** | Detailed requirement description. |
| **Group Name** | Functional Requirement Grouping representing the Diameter Base Protocol API. |
| **ID** | ID is for internal requirement reference. |
| **Name** | Requirement Title |

# Project Overview

# Functional Requirements

Following illustrates Media Server’s functional requirements.

* 1. **All**

**Requirement: 1 – Video Support**

|  |  |
| --- | --- |
| **ID** | MS – 00061. |
| **Group Name** | All. |
| **Name** | Video Support |
| **Description** | Video does not handle video |

* 1. **MSCML**

**Requirement: 1 - <error\_ Info> tag.**

|  |  |
| --- | --- |
| **ID** | MS – 00028. |
| **Group Name** | MSCML; State Machine; |
| **Name** | <error\_info> tag |
| **Description** | MG should support tag and its following attributes: code text context. |

**Requirement: 2 - <faxrecord> tag**

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

**Requirement: 3 - <managecontent> tag**

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

**Requirement: 4- <playcollect> tag**

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

**Requirement: 5– <playrecord> tag**

|  |  |
| --- | --- |
| **ID** | MS – 00031. |
| **Group Name** | MSCML; State Machine; |
| **Name** | <playrecord> tag |
| **Description** | 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- <prompt> tag**

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

**Requirement: 7 - <response> tag**

|  |  |
| --- | --- |
| **ID** | MS – 00032. |
| **Group Name** | MSCML; State Machine; |
| **Name** | <response> tag |
| **Description** | MG should support <response> tag and its following attributes id request code text |

**Requirement: 8 - <stop> tag**

|  |  |
| --- | --- |
| **ID** | MS – 00033. |
| **Group Name** | MSCML; State Machine; |
| **Name** | <stop> tag |
| **Description** | MG should support <stop> tag and its following attributes id |

**Requirement: 9 – Collection Timer**

|  |  |
| --- | --- |
| **ID** | MS – 00034. |
| **Group Name** | MSCML; State Machine; |
| **Name** | Collection Timer. |
| **Description** | MG should support the following attributes for collection timers firstdigittimer interdigittimer extradigittimer interdigitcriticaltimer |

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

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

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

|  |  |
| --- | --- |
| **ID** | MS – 00040. |
| **Group Name** | MSCML. |
| **Name** | file:// URI support |
| **Description** | MG should support media retrieval and storage using file:// URI syntax |

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

|  |  |
| --- | --- |
| **ID** | MS – 00041. |
| **Group Name** | MSCML. |
| **Name** | http:// and https:// |
| **Description** | MG should support media retrieval and storage using http:// and https:// URI syntax |

# Requirement: 13 - VCR Control

|  |  |
| --- | --- |
| **ID** | MS – 00051. |
| **Group Name** | MSCML. |
| **Name** | VCR Control |
| **Description** | MG should support the following attributes to support VCR Control skipinterval ffkey rwkey |

* 1. **General**

# Requirement: 1 - Audio file support

|  |  |
| --- | --- |
| **ID** | MS – 00066. |
| **Group Name** | General. |
| **Name** | Audio file support |
| **Description** | MG should support ulaw, alaw, gsm and pcm(raw) files |

# Requirement: 2 – Call Movement

|  |  |
| --- | --- |
| **ID** | MS – 00056. |
| **Group Name** | General. |
| **Name** | Call movement |
| **Description** | The media server MUST support moving the call 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: 3 – http:// and https://

|  |  |
| --- | --- |
| **ID** | MS – 00041. |
| **Group Name** | General. |
| **Name** | http:// and https:// |
| **Description** | MG should support media retrieval and storage using http:// and https:// URI syntax |

# Requirement: 4 – Media mismatch handling

|  |  |
| --- | --- |
| **ID** | MS – 00044. |
| **Group Name** | General. |
| **Name** | Media mismatch handling |
| **Description** | If there is a mismatch between the real time media and specified content, the media server MUST play or record the appropriate content, tracks  rather than failing the request. |

# Requirement: 5 – MSCML and SDP payload support

|  |  |
| --- | --- |
| **ID** | MS – 00055. |
| **Group Name** | General. |
| **Name** | MSCML and SDP payload support |
| **Description** | MG MUST support message bodies with the MIME type "multipart/mixed" in SIP INVITE requests |

# Requirement: 6 – Time Resolution

|  |  |
| --- | --- |
| **ID** | MS – 00057. |
| **Group Name** | General. |
| **Name** | Time Resolution |
| **Description** | MG should support timers in milliseconds |

# Requirement: 6 – Transcoding Support

|  |  |
| --- | --- |
| **ID** | MS – 00057. |
| **Group Name** | General. |
| **Name** | Transcoding Support |
| **Description** | MG should provide transcoding support |

# 3.3 SIP

# Requirement: 1 – Multiple content types

|  |  |
| --- | --- |
| **ID** | MS – 00065. |
| **Group Name** | SIP. |
| **Name** | Multiple content types |
| **Description** | SIP in MG should be able to multiple content types |

**Requirement: 2 – SIP UA with INFO.**

|  |  |
| --- | --- |
| **ID** | MS – 00049. |
| **Group Name** | SIP. |
| **Name** | SIP UA with INFO |
| **Description** | MG should have a SIP user agent functionality to transport MSCML message through INFO method. UA will be compliant with RFC 3261. UA should show MSCML support |

# Non-Functional Requirements

Following illustrates non- functional Media Server’s requirements.

* 1. **ALL**

**Requirement: 1 – Platform not Supported.**

|  |  |
| --- | --- |
| **ID** | MS – 00060. |
| **Group Name** | All |
| **Name** | Platform not Supported. |
| **Description** | MG will not support Windows platform |

**Requirement: 2 – Supported Operating System.**

|  |  |
| --- | --- |
| **ID** | MS – 00052. |
| **Group Name** | All |
| **Name** | Supported Operating System. |
| **Description** | MG should support Fedora Core 8 and Windows XP Professional |

**Requirement: 3 – Transcoding Media for Recording**

|  |  |
| --- | --- |
| **ID** | MS – 00052. |
| **Group Name** | All |
| **Name** | Transcoding Media for Recording. |
| **Description** | MG should support recording in specified codec and file-format PCMU PCMA AMR |

* 1. **MSCML**

**Requirement: 1 - <audio> tag.**

|  |  |
| --- | --- |
| **ID** | MS – 00027. |
| **Group Name** | MSCML. |
| **Name** | <audio> tag. |
| **Description** | MG should support the <audio> tag and its following attributes url encoding |

**Requirement: 2 - <play> tag**

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

**Requirement: 3 - Logging Caller DTMF Input**

|  |  |
| --- | --- |
| **ID** | MS – 00042. |
| **Group Name** | MSCML. |
| **Name** | Logging Caller DTMF Input |
| **Description** | MG should support the following attributes for logging of DTMF input maskdigits |

**Requirement: 4 – Mapping DTMF Keys to Special Functions**

|  |  |
| --- | --- |
| **ID** | MS – 00043. |
| **Group Name** | MSCML. |
| **Name** | Mapping DTMF Keys to Special Functions |
| **Description** | MG should support the following tags to support mapping of DTMF keys to special functions escapekey returnkey |

**Requirement: 5 – Media Server Control Markup Language (MSCML)**

|  |  |
| --- | --- |
| **ID** | MS – 00043. |
| **Group Name** | MSCML. |
| **Name** | Media Server Control Markup Language (MSCML) |
| **Description** | MG should support the following MSCML tags with all their attributes as defined in RFC-5022: <play> <playcollect> <playrecord> <stop> <prompt> <audio> |

**Requirement: 6 – RFC 3470**

|  |  |
| --- | --- |
| **ID** | MS – 00047. |
| **Group Name** | MSCML. |
| **Name** | RFC 3470. |
| **Description** | MSCML bodies MUST be well formed and valid as defined in RFC 3470. |

**4.3 General**

# Requirement: 1 - Addition of new functionality

|  |  |
| --- | --- |
| **ID** | MS – 00039. |
| **Group Name** | General. |
| **Name** | Addition of new functionality |
| **Description** | Design should allow new functionality to be added without effecting already implemented functionality |

# Requirement: 2 – Conferencing Support

|  |  |
| --- | --- |
| **ID** | MS – 00053. |
| **Group Name** | General. |
| **Name** | Conferencing support |
| **Description** | MG should support provide support for conferencing applications according to conferencing model described in RFC 4353 |

# Requirement: 3 – DTMF Grammar

|  |  |
| --- | --- |
| **ID** | MS – 00037. |
| **Group Name** | General. |
| **Name** | DTMF Grammar |
| **Description** | MG should support specifying of DTMF grammar in the following formats regular expression |

# Requirement: 4 – Error Handling

|  |  |
| --- | --- |
| **ID** | MS – 00038. |
| **Group Name** | General. |
| **Name** | Error handling |
| **Description** | MG should be able to handle errors gracefully appropiate error response |

# Requirement: 5 – Simultaneous request handling

|  |  |
| --- | --- |
| **ID** | MS – 00048. |
| **Group Name** | General. |
| **Name** | Simultaneous request handling |
| **Description** | MG should be able to handle 120 multiple simultaneous media channels |

**4.4 SIP**

# Requirement: 1 – MSCL Support in OPTION request

|  |  |
| --- | --- |
| **ID** | MS – 00046. |
| **Group Name** | SIP |
| **Name** | MSCL Support in OPTION request. |
| **Description** | 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. |

# Operating Environment Requirements

The system will primarily be developed and tested on Linux/Unix based Operating Systems. But our goal is to make it a platform independent solution. The target platforms are:

* Linux ,
* Microsoft Windows &
* Solaris.