

Features and Plug-ins of NMM

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This is an overview of plug-ins in the current version of NMM. For detailed information about commercial codecs please contact Motama GmbH. Section 1 describes all features of NMM, supported platforms and licenses under which NMM or features of NMM are available. Section 2 describes which features of NMM are supported on which platforms and available under which licenses and provides information on the status of all features of NMM and which external libraries are needed for each feature on each platform.

1. Overview of NMM

This section describes all features of NMM, supported platforms and licenses under which NMM or features of NMM are available.

1.1. Core Multimedia Middleware Architecture

Table 1. Overview of NMM Core Multimedia Middleware Architecture

| Component | Directory | Description |
|--------------------------------|-----------------|--|
| Core Middleware Architecture | nmm/comm/ | The communication middleware layer provides basic functionality such as a unified messaging system, a proxy-object communication mechanism, an abstract network architecture, serialization and format negotiation |
| Core Multimedia Architecture | nmm/multimedia/ | The multimedia middleware layer provides the basic building blocks of NMM-based multimedia applications, such as nodes and jacks. It is required by NMM plug-ins and applications using NMM plug-ins. |
| Multimedia Middleware Services | nmm/services/ | The core multimedia middleware architecture provides a registry service for device and plug-in management. |

1.2. Optional Features

Table 2. Overview of NMM Optional Features

| Feature | Directory | Description |
|----------------------|----------------------|--|
| TCP Protocol Support | nmm/comm/netstrategy | A transport strategy based on the Transport Control Protocol (TCP) |
| RTP Protocol Support | nmm/comm/netstrategy | A transport strategy based on the Real-time Transport Protocol (RTP) |
| UDP Protocol Support | nmm/comm/netstrategy | A transport strategy based on the User Datagram Protocol (UDP) |

| Feature | Directory | Description |
|--|-----------------------|---|
| Magic Number Serialization | nmm/comm/serialize | A serialization strategy which uses magic numbers |
| XML Serialization | nmm/comm/serialize | A serialization strategy which uses XML |
| Audio/Video Synchronization | nmm/multimedia/sync | Distributed synchronization of multiple audio and multiple video streams |
| High-quality Audio/Audio Synchronization | nmm/multimedia/sync | Distributed highly accurate synchronization of multiple audio streams |
| Service Discovery | nmm/services/registry | Discovery of available registries and plug-ins within the network |
| Audio Handover | nmm/multimedia/sync | Seamless audio handover between multiple hosts in the network |
| Session Sharing | nmm/services/registry | Sharing of multimedia flow-graphs between multiple applications running in the same network |

1.3. Plug-ins

Table 3. Overview of NMM Plug-ins

| Plug-in | Directory | Description |
|----------------------------|---------------------|---|
| BufferDropNode | nmm/plugins/general | Drops buffers at regular intervals |
| BufferShapingNode | nmm/plugins/general | Packs multimedia data into buffers of fixed size |
| BufferTimestampControlNode | nmm/plugins/general | Frame rate converter which only adjusts buffer timestamps |
| BufferTimestampNode | nmm/plugins/general | Sets or changes timestamps of incoming buffers. |
| CopyNode | nmm/plugins/general | Creates multiple copies of the input stream |
| TimedBufferDropNode | nmm/plugins/general | Drops buffers within a given timestamp range |
| StdOutNode | nmm/plugins/stats | A sink node which writes buffer data to standard output |

| Plug-in | Directory | Description |
|-------------------|----------------------|--|
| AnalyseDataIdNode | nmm/plugins/stats | Extended version of the IdNode, which uses analyseData. Can be used as a template for new nodes which do data analysis to determine the format (typically done by decoders). |
| DevNullNode | nmm/plugins/stats | A sink node which does nothing |
| IdNode | nmm/plugins/stats | A filter node which does nothing |
| MessageSeekNode | nmm/plugins/general | Dumps messages to a file and can resend single messages or sequences of messages |
| RawNode | nmm/plugins/stats | A source node which produces a stream of raw random data |
| StdOutNode | nmm/plugins/stats | A sink node which writes buffer data to standard output |
| WavReadNode | nmm/plugins/file/wav | Reads a raw audio stream from a WAV file |
| WavWriteNode | nmm/plugins/file/wav | Writes a raw audio stream to a WAV file |

1.4. Supported Platforms

This section lists the platforms which are supported by NMM.

Table 4. Platforms

| Name | Description |
|----------|--|
| Linux | A Linux system on a PC or other platform, such as embedded platforms. NMM supports both 32-bit and 64-bit Linux installations. |
| Windows | Microsoft Windows XP, Windows Vista, or Windows 7 |
| Mac OS X | A Mac OS X system on an x86 platform |

1.5. Licenses

This section describes the different licences under which NMM or individual features of NMM are available.

Table 5. Licenses

| Name | Description |
|---------|--------------------------------|
| GPL | GNU General Public license |
| NMM-NCL | NMM Non-Commercial License |
| NMM-CEL | Commercial Evaluation Licenses |
| NMM-CL | Commercial Licenses |

2. Status, Licensing and Requirements

This section describes which features of NMM are supported on which platforms and available under which licenses and provides information on the status of all features of NMM and which external libraries are needed for each feature on each platform. For general information about supported platforms, see Section 1.4. For an explanation of the different licenses under which NMM is available, see Section 1.5.

Table 6. Availability Information

| Name | Value(s) | Description |
|---------|---------------|---|
| License | GPL | GNU General Public License, see Section 1.5 |
| | NMM-NCL | NMM Non-Commercial License, see Section 1.5 |
| | NMM-CEL | Commercial Evaluation Licenses, see Section 1.5 |
| | NMM-CL | Commercial Licenses, see Section 1.5 |
| Status | OK | The feature is available on this platform |
| | NOT AVAILABLE | The feature is not available on this platform, either because there is no source code or binary for this feature, or because the feature is not included in this release. |
| | BROKEN | The feature can be used on this platform, but it is broken or has other problems. |

| Name | Value(s) | Description |
|----------------|----------------|--|
| | NOT TESTED | Source code is provided for this feature, and it is possible that this feature can be compiled on this platform. However, no external libraries are available. However, we have not tested this feature on this platform and therefore we cannot guarantee that it will compile and be used. |
| Used Libraries | | No external libraries are used for this feature |
| | libfoo (1.2.3) | This feature requires version 1.2.3 in order to be compiled or used. |

2.1. Linux

Table 7. NMM Core Multimedia Middleware Architecture on Linux

| | License | Status | Used Libraries (and versions) |
|--------------------------------|-------------|--------|-------------------------------|
| Core Middleware Architecture | GPL, NMM-CL | OK | libltdl (1.4.2), loki |
| Core Multimedia Architecture | GPL, NMM-CL | OK | libltdl (1.4.2), loki |
| Multimedia Middleware Services | GPL, NMM-CL | OK | libltdl (1.4.2), loki |

Table 8. NMM Optional Features on Linux

| Feature or Plug-in | License | Status | Used Libraries (and versions) |
|-----------------------------|-------------|--------|-------------------------------|
| TCP Protocol Support | GPL, NMM-CL | OK | |
| UDP Protocol Support | GPL, NMM-CL | OK | |
| Raw UDP Protocol Support | GPL, NMM-CL | OK | |
| Magic Number Serialization | GPL, NMM-CL | OK | |
| XML Serialization | GPL, NMM-CL | OK | libxml2 (2.4.23), libxml++ |
| Audio/Video Synchronization | GPL, NMM-CL | OK | |

| Feature or Plug-in | License | Status | Used Libraries (and versions) |
|--|-----------------|--------|-------------------------------|
| High-quality Audio/Audio Synchronization | NMM-CEL, NMM-CL | OK | |
| Service Discovery | GPL, NMM-CL | OK | |
| Audio Handover | NMM-CEL, NMM-CL | OK | |
| Session Sharing | GPL, NMM-CL | OK | |

Table 9. NMM Plug-ins on Linux

| Feature or Plug-in | License | Status | Used Libraries (and versions) |
|----------------------------|-------------|--------|-------------------------------|
| BufferDropNode | GPL, NMM-CL | OK | |
| BufferShapingNode | GPL, NMM-CL | OK | |
| BufferTimestampControlNode | GPL, NMM-CL | OK | |
| BufferTimestampNode | GPL, NMM-CL | OK | |
| CopyNode | GPL, NMM-CL | OK | |
| DevNullNode | GPL, NMM-CL | OK | |
| IdNode | GPL, NMM-CL | OK | |
| MessageSeekNode | GPL, NMM-CL | OK | |
| RawNode | GPL, NMM-CL | OK | |
| TimedBufferDropNode | GPL, NMM-CL | OK | |
| StdOutNode | GPL, NMM-CL | OK | |
| AnalyseDataIdNode | GPL, NMM-CL | OK | |
| WavReadNode | GPL, NMM-CL | OK | |
| WavWriteNode | GPL, NMM-CL | OK | |

2.2. Mac OS X

Table 10. NMM Core Multimedia Middleware Architecture on Mac OS X

| | License | Status | Used Libraries (and versions) |
|---|-------------|--------|-------------------------------|
| Core Multimedia Middleware Architecture | GPL, NMM-CL | OK | libltdl (1.4.2), loki |
| Core Multimedia Architecture | GPL, NMM-CL | OK | libltdl (1.4.2), loki |
| Multimedia Middleware Services | GPL, NMM-CL | OK | libltdl (1.4.2), loki |

Table 11. NMM Optional Features on Mac OS X

| Feature or Plug-in | License | Status | Used Libraries (and versions) |
|--|-----------------|---------------|--------------------------------------|
| TCP Protocol Support | GPL, NMM-CL | OK | |
| RTP Protocol Support | GPL, NMM-CL | NOT TESTED | libliveMedia (2005.07.13) |
| UDP Protocol Support | GPL, NMM-CL | NOT TESTED | |
| Raw UDP Protocol Support | GPL, NMM-CL | NOT TESTED | |
| Magic Number Serialization | GPL, NMM-CL | OK | |
| XML Serialization | GPL, NMM-CL | NOT TESTED | libxml2 (2.4.23), libxml++ |
| Audio/Video Synchronization | GPL, NMM-CL | NOT TESTED | |
| High-quality Audio/Audio Synchronization | NMM-CEL, NMM-CL | NOT TESTED | |
| Service Discovery | GPL, NMM-CL | NOT TESTED | |
| Audio Handover | NMM-CEL, NMM-CL | NOT TESTED | |
| Session Sharing | GPL, NMM-CL | NOT TESTED | |

Table 12. NMM Plug-ins on Mac OS X

| Feature or Plug-in | License | Status | Used Libraries (and versions) |
|----------------------------|----------------|---------------|--------------------------------------|
| BufferDropNode | GPL, NMM-CL | OK | |
| BufferShapingNode | GPL, NMM-CL | OK | |
| BufferTimestampControlNode | GPL, NMM-CL | OK | |
| BufferTimestampNode | GPL, NMM-CL | OK | |
| CopyNode | GPL, NMM-CL | OK | |
| DevNullNode | GPL, NMM-CL | OK | |
| IdNode | GPL, NMM-CL | OK | |
| MessageSeekNode | GPL, NMM-CL | OK | |
| RawNode | GPL, NMM-CL | OK | |
| TimedBufferDropNode | GPL, NMM-CL | OK | |
| StdOutNode | GPL, NMM-CL | OK | |
| AnalyseDataIdNode | GPL, NMM-CL | OK | |
| WavReadNode | GPL, NMM-CL | OK | |
| WavWriteNode | GPL, NMM-CL | OK | |

2.3. Windows

Table 13. NMM Core Multimedia Middleware Architecture on Linux

| | License | Status | Used Libraries (and versions) |
|---|--------------------------|--------|-------------------------------|
| Core Multimedia Middleware Architecture | NMM-NCL, NMM-CEL, NMM-CL | OK | pthread-win32 (?), ntp, loki |
| Core Multimedia Architecture | NMM-NCL, NMM-CEL, NMM-CL | OK | pthread-win32 (?), ntp, loki |
| Multimedia Middleware Services | NMM-NCL, NMM-CEL, NMM-CL | OK | pthread-win32 (?), ntp, loki |

Table 14. NMM Optional Features on Windows

| Feature or Plug-in | License | Status | Used Libraries (and versions) |
|--|--------------------------|---------------|-------------------------------|
| TCP Support | NMM-NCL, NMM-CEL, NMM-CL | OK | |
| RTP Protocol Support | | NOT AVAILABLE | |
| UDP Protocol Support | NMM-NCL, NMM-CEL, NMM-CL | OK | |
| Raw UDP Protocol Support | NMM-NCL, NMM-CEL, NMM-CL | OK | |
| Magic Number Serialization | NMM-NCL, NMM-CEL, NMM-CL | OK | |
| XML Serialization | | NOT AVAILABLE | |
| Audio/Video Synchronization | NMM-NCL, NMM-CEL, NMM-CL | OK | |
| High-quality Audio/Video Synchronization | NMM-CEL, NMM-CL | OK | |
| Service Discovery | | NOT AVAILABLE | |
| Audio Handover | NMM-CEL, NMM-CL | OK | |
| Session Sharing | NMM-NCL, NMM-CEL, NMM-CL | OK | |

Table 15. NMM Plug-ins on Windows

| Feature or Plug-in | License | Status | Used Libraries (and versions) |
|--------------------|-------------|--------|-------------------------------|
| BufferDropNode | GPL, NMM-CL | OK | |
| BufferShapingNode | GPL, NMM-CL | OK | |

| Feature or Plug-in | License | Status | Used Libraries (and versions) |
|----------------------------|----------------|---------------|--------------------------------------|
| BufferTimestampControlNode | GPL, NMM-CL | OK | |
| BufferTimestampNode | GPL, NMM-CL | OK | |
| CopyNode | GPL, NMM-CL | OK | |
| DevNullNode | GPL, NMM-CL | OK | |
| IdNode | GPL, NMM-CL | OK | |
| MessageSeekNode | GPL, NMM-CL | OK | |
| RawNode | GPL, NMM-CL | OK | |
| TimedBufferDropNode | GPL, NMM-CL | OK | |
| StdOutNode | GPL, NMM-CL | OK | |
| AnalyseDataIdNode | GPL, NMM-CL | OK | |
| WavReadNode | GPL, NMM-CL | OK | |
| WavWriteNode | GPL, NMM-CL | OK | |