



Technical Specifications

NG Media Server 6.1.6

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NG MEDIA

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TECHNICAL SPECIFICATIONS

APPLICATION PROGRAMMING INTERFACE

- NG Media Server - Unified Communications Server (UCS) API
- NG Media Server - Real Time Communications (RTC) API
- CAPI 2.0⁽¹⁾, TAPI⁽¹⁾ 2 and 3, Wave⁽¹⁾, Fax Services⁽¹⁾

SIGNALING PROTOCOL

- WebRTC over WebSocket
- HLS
- SIP
- RTSP
- MRCPv2 for sessions with Speech Servers
- RTP for standalone RTP streams
- H.248-MEGACO

MEDIA CODECS

Audio

- G.711 (PCMU/PCMA)
- G.729
- G.722⁽²⁾
- AAC⁽²⁾
- Opus⁽²⁾⁽³⁾

Video

- H.264 (MPEG-4 AVC)⁽³⁾, H.265⁽³⁾
- VP8⁽³⁾, VP9⁽³⁾

Fax⁽¹⁾

- T.38 (FaxRelay) up to 33 600 bps (V.34)
- G.711 (FaxPassThrough) up to 14 400 bps
- Error Correction Mode (ECM)
- Compression (MH, MR, MMR)

MEDIA CONTAINERS

WAVE (Audio)

- Audio Codecs : PCM (16-bits/8-bits), G.711 (PCMU/PCMA)
- Frequency : 8000 Hz
- Channels : Mono, Stereo

MP4 (Video/Audio)

- Audio Codecs : AAC
- Video Codecs : H.264 (MPEG-4 AVC)

MOV (Video/Audio)

- Audio Codecs : AAC, and same as .wav
- Video Codecs : H.264 (MPEG-4 AVC)

TIFF (Fax)

- Format : TIFF 6.0 specifications - TIFF Class F files
- Image Codecs: MMR, MH
- Stripping : File must not be stripped (the TIFF tag RowsPerStrip must contain a value of 1)

MEDIA PROCESSING

- DTMF In-band (RTP-NTE rfc2833) and Out-band (SIP-NOTIFY/INFO)
- Call Analysis (Fax, Voice, Answering Machine Detection)
- Packet Loss Concealment (PLC)

CONFERENCING

- Line Interconnect Mixing Matrix
- Unlimited number of participants

SPEECH RECOGNITION AND SYNTHESIS

- MRCPv2

SECURITY

- DTLS
- TLS
- SRTP
- X.509 Certificates

TRACEABILITY

- PCAPNG (capture of all messages exchanged with Applications and Networks)

SUPPLEMENTARY SERVICES

- Call Deflection
- Call Hold
- Call Transfer (Attended/Unattended)
- Call Conferencing
- Call Forwarding
- Caller, Called, Connected, Redirecting, Redirection IDs, Names and IPs
- Calling Line Identification Restriction
- Message Waiting
- Overlap Signaling (Sending/Receiving)
- User-User Signaling
- Instant Messaging
- Registrar Server

FRONT END SERVER

Available for WebRTC calls

- TURN Server
- WebSocket Proxy Server
- Separate Front-End and Back-End Media URLs

HIGH AVAILABILITY

- Virtualization
- Failover (server redundancy)
- Load Balancing⁽²⁾
- QoS (DSCP)

FLEXIBILITY

- Media Transcoding
- Dynamic IP routing
- Multiple IPs support (each trunk can be assigned a different local IP)
- Smart NAT/Firewall Traversal
- Scalable, up to several thousand channels per server (depending on system performance)

SYSTEM REQUIREMENTS

SOFTWARE REQUIREMENTS

Linux

- Linux Ubuntu Server 20.04 LTS, 18.04 LTS
- Linux Ubuntu Desktop 20.04 LTS, 18.04 LTS

Windows

- Windows Server and Server Core 2008 R2 SP1+ (2019, 2016, 2012, 2012R2, 2008 R2 SP1)
- Windows 7+ (10, 8, 7)

HARDWARE REQUIREMENTS

Processor

- Architectures : x64 (Linux, Windows) and x32 (Windows only)
- Cores : Minimum: 2 physical cores
- Frequency : Minimum: 2 GHz
- Optimizations : Digital Signal Processing optimizations for Intel processors (G.729)

Memory

- Minimum: 1 GB of physical memory

Local Storage

- Minimum: 40 MB disk space necessary for product installation

Network adapter

- Standard

Minimum resources requirements per channel density:

G.711 Channels	0	60	150	300	600
Processor					
Physical Cores ⁽⁴⁾	2	3	4	4	4
Frequency (GHz)	2.0	2.5	2.5	3.0	3.0
Physical Memory (GB)	1	2	4	4	6

G.729 Channels	0	60	150	300	500
Processor					
Physical Cores ⁽⁴⁾	3	4	4	4	4
Frequency (GHz)	2.0	2.5	3.0	3.0	3.4
Physical Memory (GB)	1	2	4	4	6

Minimum resources requirements for Front End Servers:

The resources requirements for the Front End Server are currently the same than for the Back End Server, see G.711 Channels.

HYPERVERSOR REQUIREMENTS

- VMWare ESXi 5.0 and higher
- Microsoft HyperV 2008 R2 and higher
- Xen Server 5.1 and higher

Virtualization specific requirements

Recent hypervisors and hardware enable excellent real time performance under Virtual Machines. However, this requires:

- Correctly sized physical resources on the host machine
- Correctly sized resources on the guest machine
- Resources reservation and prioritization for the guest machine running NG Media Server on high density servers.

CONTAINERIZATION REQUIREMENTS

- Docker 19.03.11 (under Linux Ubuntu 20.04 LTS) and 18.09 (under Linux Ubuntu 18.04 LTS)

WEB BROWSER REQUIREMENTS

NG Media Server configuration

- Firefox
- Chrome
- Opera
- Safari
- Edge
- Internet Explorer 11+

WebRTC support

- Firefox : 18+
- Chrome : 17+
- Opera : 12+
- Safari : 11+
- Edge : 26+

(1) : Will be provided in future releases (available in NG Media Server 5.x, will be part of next 6.x)

(2) : Will be provided in future releases

(3) : This codec is available directly between Web Browsers using WebRTC.

(4) : The number of Physical Cores must be used, not the number of Logical Processors (VCPUs); warning, processors with hyper-threading (HT) report 2 Logical Processors (VCPUs) per Physical Core. In virtualized environments, CPU reservation must be used.



INTEROPERABILITY

PBX and Call Manager

- Cisco
Unified Communications Manager,
Call Manager,
Call Manager Express
- Avaya
Communication Manager
IP Office
Integral 55
- 3Com (VCX)
- Aastra
OpenComm
Aastra 5000
IntelliGate 150
- Alcatel-Lucent
OmniPCX Enterprise (OXE)
OmniPCX Office (OXO)
- Mitel
- Nortel (CS)
- Siemens (HiPath)

Gateways

- Audiocodes (Mediant)
- Cisco
- Dialogic (DMG)
- Linksys
- Media5 (Mediatrix)
- Patton Inalp (SmartNode)
- TelcoBridge (TMG)
- Teles (VoIPBox)
- VegaStream (Vega)

Phones

- Aastra
- Cisco
- Linksys
- Polycom (SoundPoint)
- Siemens (Open Stage)
- Snom
- Thomson (ST2030)

IP-PBX

- 3CX
- Asterisk
- Brekeke
- Microsoft Lync
- sipXecs

And many more...



STANDARDS

Based on the following Standards:

ITU

- G.711
- G.729
- Q.850
- Q.931
- H.248
- H.264
- T.4
- T.30
- T.38
- V.17
- V.29
- V.27

RFC

- rfc3261 (SIP 2.0)
- rfc2327 (SDP)
- rfc3264 (SDP Offer/Answer)
- rfc3550 (RTP)
- rfc2833 (RTP NTE)
- rfc3711 (SRTP)
- rfc4346 (TLS)
- rfc2326 (RTSP)
- rfc3525 (MEGACO)
- rfc6787 (MRCPv2)
- rfc7230 (HTTP)
- rfc2821 (SMTP)
- rfc8489 (STUN)
- rfc8656 (TURN)

- rfc2976 (SIP INFO)
- rfc3265 (SIP SUBSCRIBE)
- rfc3265 (SIP NOTIFY)
- rfc3311 (SIP UPDATE)
- rfc3428 (SIP MESSAGE)
- rfc3515 (SIP REFER)

- rfc3325 (SIP Asserted-Identity)
- rfc3326 (SIP Reason - Q.850 Cause)
- rfc3398 (SIP ISUP)
- rfc3428 (SIP Instant Messaging)

- rfc3455 (SIP Private-Header 3GPP)
- rfc3578 (SIP Overlap Signaling)
- rfc3581 (SIP Symmetric Response Routing)
- rfc3680 (SIP Event Package for Registrations)
- rfc3725 (SIP 3PCC)
- rfc3824 (SIP E.164 numbers)
- rfc3842 (SIP Message Waiting)
- rfc3856 (SIP Presence)
- rfc3891 (SIP Replaces)
- rfc3892 (SIP Referred-By)
- rfc4028 (SIP Session Timers)
- rfc4235 (SIP Call Monitoring)
- rfc4244 (SIP History Information)
- rfc4497 (SIP Interworking with Q.SIG)
- rfc4504 (SIP Telephony Device Requirements)
- rfc5373 (SIP Auto Answer)
- rfc5806 (SIP Diversion)
- rfc5876 (SIP Updates to Asserted-Identity)
- rfc7433 (SIP UUI)

- draft-kaplan-dispatch-info-dtmf-package-00 (SIP INFO DTMF)
- draft-mahy-sip-signaled-digits-01.txt (SIP NOTIFY Telephony Events)

- rfc2069 (HTTP Digest Authentication)

W3C

- SSML 1.0
- WebRTC 1.0

ETSI

- ETS 300-102.1

Other

- PCAPNG
- JSON, XML, CSV

And many more...