

An Introduction to the Dialogic® NaturalAccess™ Video Access Toolkit

Technology Brief

The Dialogic® NaturalAccess™ Video Access Toolkit, in conjunction with Dialogic® CG Series Media Boards, enables the development of flexible, scalable, and cost-effective IP and mobile video solutions. This combination of boards and software APIs can be used to create a wide range of powerful video applications for deployment by wireless and fixed carriers worldwide, including 3G-324M-to-SIP video gateways, video media servers, and wireless video messaging and streaming servers.

Features

- **3G-324M interface multiplexes and demultiplexes voice and video to/from T1 or E1 trunks and includes H.245 stack and H.223 mux/demux** — Enables high voice and video quality in mobile applications; integrated standard video call control stack for rapid prototyping and development
- **Fast call set-up, including support for WNSRP and MONA** — Greatly reduces call set up time for real-time 3G-324M multimedia services
- **Simultaneous, synchronized, randomly accessible, low-delay video and voice play and record from multiple 3GPP file formats; support for QCIF and CIF image resolutions** — Enables flexible, high-quality video system designs in both narrowband and broadband terminal environments
- **Support for media streams from 3G-324M phones and IP video terminals** — Expands range of services and supported user base
- **Video tromboning** — Enables chat, portal, and messaging applications
- **Real-time and off-line diagnostic tools** — Allows system-level trouble shooting
- **Audio/video synchronization including support for RTCP, media stream skew control, and video jitter buffer management** — Enhances quality of service, improving the user experience

Functional Areas

NaturalAccess Video Access has three major functional areas: an H.324M gateway API, a messaging API, and a transcoder API (licensed separately). These functional areas can satisfy development requirements when building video solutions for both 3G and 2.5G networks.

- **3G-324M gateway API** — Assists developers in creating mobile network to IP network video gateway solutions. Based on the 3G-324M video standard, NaturalAccess Video Access offers mobile video development capabilities proven through IMTC interoperability testing, and supports up to 120 video gateway sessions on Dialogic® CG Series Media Boards to enable high-density, cost-effective video deployments.
- **Messaging API** — Works seamlessly with Dialogic® NaturalAccess™ Software and CG Series Media Boards to support media manipulation and management functions, such as play and record to and from 3GP files.
- **Transcoder API** — Addresses the need for diverse multimedia terminal capabilities by supporting media adaptation between video terminals. Such media adaptation provides a framework for dynamically modifying content representation, such as picture size, encoding format, and organization of the multimedia content, through sophisticated algorithms and media processing. Throughout this process, media adaptation works to keep content as coherent and faithful as possible to the original, while taking into account terminal capabilities and user preferences. **Note:** This API must be licensed separately from Dialogic as part of the Dialogic® Software Video Transcoder (SVT).

Technical Information

General

Developed to meet 3GPP 3G-324M standards
Flexible API to bridge 3G-324M terminals to IP multimedia endpoints
Supports development of 3G-324M-to-SIP IP gateways
Supports development of IP multimedia messaging servers
Seamless integration with Dialogic® NaturalAccess™ Software APIs
Seamless integration with Dialogic® Software Video Transcoder (SVT) for MPEG-4 and H.263 formatting and bit-rate adaption (licensed separately from Dialogic)

Obtaining Third-Party Licenses

Using the AMR-NB resource or the EVRC resource in connection with NaturalAccess Video Access does not grant the right to practice either such standard. To seek a patent license agreement to practice the AMR-NB standard, visit <http://www.voiceage.com/licensing.php>. To seek a patent license agreement to practice the EVRC standard, contact Qualcomm Inc. at qtl.info@qualcomm.com. Neither such license is provided by Dialogic.

3GPP 3G-324M Implementation

TS.26.911
TS.26.111
TS.26.110
TS.26.235 Release 5
TS.26.244

3G-324M Interface

H.324 Annex A/C (CCSRL/NSRP/WNSRP)
H.324 Annex K (MONA)
H.245 version 11
H.223 Annex B (Level 2 only)

3G-324M Circuit Setup

ISDN
- 5ESS
- 4ESS
- DMS 100/250
- NI-2
- Euro-ISDN
- INS 1500
- For more, see Dialogic® CG Series Media Boards datasheet
SS7 (requires a Dialogic® TX 4000 Series SS7 Board and SS7 software support)
- MTP1-3
- ISUP
- TUP
- SCCP
- TCAP

Technical Information *(continued)*

IP Interface

IPv4 and IPv6 support
Audio and video transport over RTP/UDP
RFC3550 and RFC3551 (RTP and RTCP)
RFC2190, RFC2429 (for H.263)
RFC2833 (for DTMF)
RFC3016 (for MPEG-4)
RFC3267 (for AMR-NB)
RFC3984 (for H.264)
RFC3558 (for EVRC)
RFC3951 (for iLBC)

IP Session Setup

Requires third-party support for protocols such as SIP, H.323, MGCP, etc.

Video Processing

Pass-through
- H.263
- MPEG-4
- H.264
Transcoding
- Seamless integration with Dialogic® Software Video Transcoder Release (SVT) (licensed separately from Dialogic)

Audio Processing

Pass-through
- AMR-NB, G.723.1
Transcoding
- AMR-NB
- G.723.1
- G.729
- G.711
- EVRC
- iLBC

Multimedia Messaging

Native play and record of AMR-NB, G.711, G.723.1, H.263, MPEG-4, H.264
Simultaneous play/record
Synchronized record of audio and video
Audio silence detection
Video silence detection
File format
- .3GP Basic Profile
- .3GP Streaming Server Profile
Random access for 3GP files

Technical Information *(continued)*

User Indications

H.245 UII
DTMF detection and generation

IP Jitter Absorption

Audio jitter buffering equivalent to Natural Access 2005-1 environment
Video burst absorption, re-ordering, and latency control

Software Environment

APIs for channelized control of

- ISDN call setup
- 3G-324M session control
- Multimedia play and record
- File play and store
- Audio transcode
- Video transcode (requires Dialogic® Software Video Transcoder (SVT); licensed separately from Dialogic)
- User Input Indication / DTMF support

Sample application demonstrating messaging, gateway, and transcoding capabilities
Runtime tracing and logging
Windows®, Solaris, Linux. For details about operating system support, go to www.dialogic.com/systemreleases.

Hardware Environment

Minimum system requirements

- UltraSPARC Ili @ 1.5 GHz (or equivalent)
- Intel Xeon @ 1.5 Ghz (or equivalent)
- 1 GB main memory

Port Density

- Maximum number of ports supported per system:

Dialogic® CG Series Media Boards	Full-Duplex Ports without Audio Transcoding (gateway functionality)	Full-Duplex Ports with Audio Transcoding to/from G.711 (gateway functionality)	Half-Duplex Ports with or without Audio Transcoding (messaging functionality)
CG 6565(C)/6400 MIPS	120	120	120
CG 6565(C)/3200 MIPS	120	60	120
CG 6060(C)/3200 MIPS	60	60	75
CG 6060(C)/4200 MIPS	60	60	75

Ordering Information

Order Code	Description
Runtime Licenses (OS-Independent)	
VAD310120	Video Access 3.x license, Developer Seat, 120 ports
VAL310004	Video Access 3.x License, 4 ports
VAL310024	Video Access 3.x License, 24 ports
VAL310030	Video Access 3.x License, 30 ports
VAL310048	Video Access 3.x License, 48 ports
VAL310060	Video Access 3.x License, 60 ports
VAL310072	Video Access 3.x License, 72 ports
VAL310090	Video Access 3.x License, 90 ports
VAL310096	Video Access 3.x License, 96 ports
VAL310120	Video Access 3.x License, 120 ports
VAL313120	Video Access 3.x License, 120 ports, 90 day Trial
Capacity Upgrades	
VAL310024U	Video Access 3.x, capacity upgrade, 24 ports
VAL310030U	Video Access 3.x, capacity upgrade, 30 ports
Version Upgrades	
VAL311030	Video Access 3.x License, version upgrade, 30 ports
VAL311048	Video Access 3.x License, version upgrade, 48 ports
VAL311060	Video Access 3.x License, version upgrade, 60 ports
VAL311072	Video Access 3.x License, version upgrade, 72 ports
VAL311090	Video Access 3.x License, version upgrade, 90 ports
VAL311096	Video Access 3.x License, version upgrade, 96 ports
VAL311120	Video Access 3.x License, version upgrade, 120 ports
FCS Licenses - MONA	
VAM310004	Video Access 3.x MONA License, 4 ports
VAM310024	Video Access 3.x MONA License, 24 ports
VAM310030	Video Access 3.x MONA License, 30 ports
VAM310048	Video Access 3.x MONA License, 48 ports
VAM310060	Video Access 3.x MONA License, 60 ports
VAM310072	Video Access 3.x MONA License, 72 ports
VAM310090	Video Access 3.x MONA License, 90 ports
VAM310096	Video Access 3.x MONA License, 96 ports
VAM310120	Video Access 3.x MONA License, 120 ports

Ordering Information *(continued)*

Order Code	Description
FCS Licenses - WNSRP	
VAW310004	Video Access 3.x WNSRP License, 4 ports
VAW310024	Video Access 3.x WNSRP License, 24 ports
VAW310030	Video Access 3.x WNSRP License, 30 ports
VAW310048	Video Access 3.x WNSRP License, 48 ports
VAW310060	Video Access 3.x WNSRP License, 60 ports
VAW310072	Video Access 3.x WNSRP License, 72 ports
VAW310090	Video Access 3.x WNSRP License, 90 ports
VAW310096	Video Access 3.x WNSRP License, 96 ports
VAW310120	Video Access 3.x WNSRP License, 120 ports
FCS Licenses - Packed H.245	
VAP310004	Video Access 3.x Packed H.245 License, 4 ports
VAP310024	Video Access 3.x Packed H.245 License, 24 ports
VAP310030	Video Access 3.x Packed H.245 License, 30 ports
VAP310048	Video Access 3.x Packed H.245 License, 48 ports
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VAP310072	Video Access 3.x Packed H.245 License, 72 ports
VAP310090	Video Access 3.x Packed H.245 License, 90 ports
VAP310096	Video Access 3.x Packed H.245 License, 96 ports
VAP310120	Video Access 3.x Packed H.245 License, 120 ports

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