

Versatile Dialogic[®] Gateway Portfolio



Versatile Dialogic® Gateway Portfolio

The transformation from traditional communications to VoIP is well underway; but there is still a large installed base of PSTN equipment across service provider and enterprise networks that will remain in use for a long time. Gateways can smooth the transition to IP networks and bridge the gap between legacy and next generation technology requirements. Dialogic’s modern media gateways enable service providers to deliver innovative voice and video solutions, while allowing them to leverage their sizeable investments in existing communications infrastructure. The advent of new technologies like WebRTC, multimedia codecs and next generation IP networks are making service providers look to solutions like Dialogic’s media gateways to help them drive new revenue opportunities and lower CAPEX and OPEX.

	LOW DENSITY	MEDIUM DENSITY	HIGH DENSITY
Trunking gateway	Dialogic® I-Gate 4000 EDGE		Dialogic® I-Gate 4000 PRO
Access gateway	Dialogic® IMG 2020		
Customer premise	Dialogic® IMG 1010		
	Dialogic® DMG series		

Dialogic — A Market Leader in Gateway Solutions

Dialogic has been at the forefront of gateway development since pioneering the TDM-IP gateway. Today, network operators can cost-effectively deploy Dialogic’s suite of flexible, field-proven media gateway solutions for video, voice and signaling applications at the customer premise edge or in the service provider core.

How a Gateway Works

New types of networks have proliferated — IP, mobile, broadband, WiMAX and LTE — and they need both media and signaling connectivity with traditional PSTN and SS7 networks to deliver end-to-end services. A media gateway moves voice, fax, and video media streams across network boundaries and provides support for media-related capabilities such as echo cancellation and DTMF tone interworking. A signaling gateway translates different signaling protocols so services can be delivered across disparate networks.

What Type of Gateway Is Right for You?

If you need a gateway for customer premise applications, a **Dialogic® Media Gateway** (DMG Gateway) may be the right choice for you. Enterprise environments, which can include a PBX, often require a bridge between a TDM-based network and an IP network. DMG Gateways are well suited to provide IP-to-TDM interoperability for customer premise environments and are compatible with leading PBXs. They also support enterprise applications such as Unified Communications and are viable options for SIP Trunking and applications that require interworking.

Moving media and signaling across carrier networks can be quite complicated. Modern gateways need to support a wide range of connectivity requirements between TDM, 2G and 3G mobile and wireless IP networks as well as contact centers and other SIP-based applications. **Dialogic® Integrated Media Gateways** (IMG Gateways) are equipped to provide carrier class, any-to-any voice network connectivity and support SIP service delivery into legacy PRI, CAS, and SS7 networks. IMG Gateways also support IP-to-IP transcoding, SIP to SIP interworking, security features and SIP trunking.

Dialogic® I-Gate® 4000 Media Gateways (I-Gate 4000 MGWs) deliver high quality voice, significant bandwidth savings, and high reliability in both low and high port density options. Network operators seeking to benefit from operational efficiencies of next generation switching technology can improve deployment flexibility with I-Gate 4000 MGWs since they can support either MGCP or H.248 VoIP media gateway control. Moreover, I-Gate 4000 MGWs operating in standalone mode can benefit service providers that are looking to transport long-distance international or domestic traffic between PSTN and 2G mobile switches with significant bandwidth savings opportunities over TDM or IP transmission infrastructure (terrestrial, radio or satellite links). I-Gate 4000 MGWs can transport signaling and media traffic in both point-to-point and point-to-multipoint modes eliminating the need for redundant softswitch and signaling gateway elements.



Dialogic® Gateway Portfolio

Here are high-level overviews of the features, capabilities and applications for the members of the Dialogic Gateway portfolio.

Dialogic® Media Gateways (DMG Gateways)

Dialogic® 1000 and 2000 Media Gateways Series

Target applications: Customer premise-based applications

Scalability: 4 to 120 channels of VoIP and FoIP connectivity, depending on the model selected

- “Any-to-any” signaling: TDM-to-SIP, SIP-to-SIP, TDM-to-TDM
- Appliances and integrated systems field proven interoperability with leading legacy PBX switches
- Turnkey gateway systems with integrated technology for unified communications and support for third-party SIP and FoIP applications
- Unmatched T.38 FoIP support across all models, with fax transmission speeds up to V.34 on the DMG2000 Gateways
- Leverages network equipment investment while enabling worker productivity enhancement applications



Dialogic® 1000 Media Gateway



Dialogic® 2000 Media Gateway

Dialogic® Integrated Media Gateways (IMG Gateways)

Dialogic® 1010 and 2020 Integrated Media Gateways

Target applications: Network-based applications and edge infrastructure

Scalability:

- 1010 IMG per 1U shelf: 96 - 768 TDM channels, 96 - 1024 VoIP channels
- 2020 IMG per 1U shelf: 128 - 768 or 672 – 2016 TDM channels depending on I/O options, 100 - 4500 VoIP channels
- Configurations available to support T1/E1/DS3/STM-1 PSTN interfaces and GB Ethernet
- Simultaneous (“any-to-any”) support for PRI, CAS, and SS7 signaling and SIP, SIP-I / SIP-T, and H.323 (specific number of sessions depending on specific IMG Gateway product (i.e., IMG 2020 versus IMG 1010 model)
- SS7 signaling, call routing, call translation, and IP transcoding in a single chassis
- IP-to-IP transcoding and selected SBC functions, such as firewall, SIP interworking and bulk SIP registration
- Wireline and wireless support, including ENUM, DNS, and SIGTRAN M3UA
- For IMG 1010 and IMG 2020, NEBS 3 carrier-ready design uses independent IP network interfaces to separate transport, signaling, and OAM&P



Dialogic® IMG 1010 Integrated Media Gateway



Dialogic® IMG 2020 Integrated Media Gateway

	IMG 1010	IMG 2020
Signaling	SS7 ISUP, SIGTRAN, ISDN, CAS, SIP, SIP-I, SIP-T, H323, M3UA SG and AS, SS7 – SIP interworking, SIP over UDP, TCP or TLS	SS7 ISUP, SIGTRAN, ISDN, SIP, SIP-I, SIP-T, H323, M3UA SG and AS ISDN MLPP IPv6, IPv6 to IPv4 (Dual Stack), SIP over UDP, TCP or TLS
Codec	AMR, iLBC, G.711, G.723.1, G.729 A/B, G.729 E/G, GSM-FR, G.726, RFC 4040 clear channel	AMR-NB, AMR-WB, G.711, G.723.1, G.729 A/B, G.726, G.722, GSM-FR, GSM-EFR, iLBC, RFC 4040 Clear Channel
IP bearer features	Voice activity detection T.38 real-time fax Digit transmission via RFC 2833 (SIP and H.323) or H.245 UII (H.323) Symmetric NAT SRTP Supported	Voice activity detection and packet loss concealment T.38 real-time fax, T.38 – G.711 interworking Digit transmission via RFC 2833 (SIP) G.711 tones, SIP INFO, RFC 2833 interworking Hosted NAT, Firewall, Access Control Lists VLAN tagging SRTP, SRTP – to – RTP interworking
Capacity	96 – 768 TDM channels per 1U shelf (scalable from 3E1/4T1 to 24E1/32T1) 96 – 1024 VoIP channels per 1U shelf (two channels per session)	128 - 768 TDM channels per 1U shelf with Rear I/O Type 1 (scalable from 4 E1/5 T1 to 24 E1/T1) 672 - 2016 TDM channels per 1U shelf with Rear I/O Type 2 (supports either Optical OC3 interface or 3 DS3s) 100 - 4500 VoIP channels per 1U shelf (two channels per transcoding session)
I/O interfaces	T1, E1, DS3	T1 and E1, DS3, OC3/STM-1
Resiliency	SS7 Signaling: 1+1 active/standby redundancy DS3 N+1 active/standby redundancy Redundant Element Management System servers Optional dual DC power	SS7 signaling: 1+1 active/standby redundancy Automated failover (Ethernet links), Smart Probing Failover via automatic protection switching (optical links) Dual, hot swappable, AC/DC power supplies Redundant EMS Servers
Additional		Web UI, Offline Configuration Software Trace Servers

Find out more details at: <http://www.dialogic.com/en/products/gateways/img.aspx>

Dialogic® I-Gate® 4000 Media Gateways

Dialogic® I-Gate® 4000 EDGE and PRO Media Gateways

Target applications: Core and edge network applications

Scalability:

- I-Gate 4000 EDGE: From 24 to 496 simultaneous calls in a 1U chassis with E1 or T1 interfaces to the PSTN and/or mobile switches and up to 3 Fast Ethernet ports to the IP network domain
- I-Gate 4000 PRO: Up to 24,000 simultaneous calls in a standard 300 mm ETSI chassis with E1, T1, DS3, STM1, OC-3 or mix interfaces to the PSTN and/or mobile switches and up to 3 Gigabit Ethernet ports to the IP network domain
- Support for softswitch-controlled mode for VoIP media gateway applications – MGCP and H.248 call control protocol
- Support for standalone mode, without requiring a softswitch, for static trunking applications
- SS7, PRI, CAS and DTMF signaling support
- Up to 16:1 bandwidth savings on terrestrial, radio or satellite network links
- 99.9999 (“six 9s”) availability for the I-Gate 4000 EDGE MGW and “five 9s” for the I-Gate 4000 PRO MGW – Automatic redundancy protection for traffic handling and power supply/power feed cards



Dialogic® I-Gate® 4000 EDGE Media Gateway



Dialogic® I-Gate® 4000 PRO Media Gateway

	I-Gate® 4000 EDGE MGW	I-Gate® 4000 PRO MGW
Signaling	CAS-R1 (static Trunking) CAS-R2 (static Trunking) CAS-R2 (switched) CAS-R1.5 (switched) M3UA	CAS-R1 (DS3 or OC3, switched /MGCP package) CAS-R2 (CAS tunneling, static Trunking) CAS-R1.5 (switched)
Codec	G.711 A-law/μ-law, G.729A (+B) CS-ACELP, G.723.1 ACELP / MPMLQ, EFR, AMR-WB, iLBC, GSM-AMR, OPUS 64 kbps (G.711), VAD OFF, EC OFF	G.711 A-law/μ-law, G.729A (+B) CS-ACELP, G.723.1 ACELP / MPMLQ, EFR, AMR-WB ^{1,3} , iLBC ² 64 kbps (G.711), VAD OFF, EC OFF RFC 4040 Clear Channel Transcoding: Voice, Fax, DTMF
Traffic processing	Signal Detection and Classification (Voice, Fax, VBD, Video, DTMF, signaling) Silence Suppression (Voice Activity Detection and Comfort Noise Injection) Router-agnostic and bandwidth-efficient RTP Multiplexing mechanism Bandwidth-efficient signaling transmission mechanism (SS7, PRI, CAS)	Signal Detection and Classification (Voice, Fax, VBD, Video, DTMF, signaling) Silence Suppression (Voice Activity Detection and Comfort Noise Injection) Router-agnostic and bandwidth-efficient RTP Multiplexing mechanism Bandwidth-efficient signaling transmission mechanism (SS7, PRI, CAS)
Capacity	1 RU, Compact & Fully Redundant 1 E1 / T1 up to 16 / 20 E1 / T1 (496 / 480 DS0)	Up to 14 RU, Fully Redundant Max. 16,800 DS0s (G.711) Max. 13,400 DS0s (G.729A, G.723, AMR) Max. 22,464 IP-to-IP transcoding sessions in transcoding gateway mode
Interfaces	T1, E1 3 x Fast Ethernet	E1, T1, DS3, STM1, OC-3 & mix 3 x GE (optical or electrical); 1 Fast Ethernet
Resiliency	Full system and module redundancy Hitless & short switchover (< 1 sec) Multiple link protection modes	Full system and module redundancy Hitless & short switchover (< 1 sec) Multiple link protection modes
Additional		DSP Pooling Functionality Border Gateway

¹ AMR-WB & iLBC codec are supported only for switch channels, not for static channels. As of the publication date of this document listed below, the earliest version of the Dialogic® ControlSwitch™ System which supports AMR-WB & iLBC codecs is Release 5.9.2.

² AMR-WB & iLBC codec are supported by I-Gate 4000 PRO and EDGE models with DSPK-R2 only. AMR-WB codec requires separate licensing.

³ Using the AMR-WB resource in connection with one or more Dialogic products mentioned herein does not grant the right to practice the AMR-WB standard. To seek a patent license agreement to practice the AMR-WB standard, contact the applicable patent holder(s).

Find out more details at: <http://www.dialogic.com/en/products/gateways/i-gate-media-gateways.aspx>

Comparison – Dialogic® I-Gate® 4000 PRO Media Gateways and Dialogic® Integrated Media Gateways

 <p>IMG 1010, 2020</p>	 <p>I-Gate 4000 PRO & EDGE MGW</p>
<p>Target Applications: Network-based applications</p>	<p>Target Applications: Core and edge network applications</p>
<p>Deployed as: Access gateway (embedded call control)</p>	<p>Deployed as: Trunking gateway (with external call-control)</p>
<p>Signaling, call-control/routing/translation/transcoding– all in one</p>	<p>Softswitch-controlled via MGCP, H.248 (TDM/VoIP - VoIP Switching Solution)</p>
<p>Compression: Not applicable</p>	<p>Compression: Yes Up to 16:1 bandwidth savings over terrestrial, radio or satellite network links - Cost-effective solution to carry and/or terminate long-distance calls.</p>
<p>Any-to-any signaling: SS7 ISUP, SIGTRAN, ISDN, CAS, SIP, SIP-I, SIP-T, H323, M3UA</p>	<p>Any-to-any signaling: SS7 ISUP, SIGTRAN, ISDN, CAS, SIP, M3UA</p>
<p>NGN and TDM applications, interwork with IMS SIP</p>	<p>IMS architecture and ETSI TISIPAN compliant security solution – IMS MGW</p>
<p>TDM Interfaces:</p> <ul style="list-style-type: none"> • IMG 1010: E1, T1, DS3 • IMG 2020: E1, T1, DS3, OC-3, STM-1 	<p>TDM Interfaces:</p> <ul style="list-style-type: none"> • I-Gate 4000 EDGE: E1, T1 • I-Gate 4000 PRO: E1,T1, DS3, STM-1, OC-3 <p>Can be used in terrestrial, radio-link & satellite installations.</p>
<p>Low to medium density transcoding – all in one, and via SIP b2bUA</p>	<p>Medium to high density SIP Transcoding Gateway</p>
<p>Up to 2016 gateway sessions or 2250 IP-to-IP sessions</p>	<p>Edge: Up to 16-E1 in a 1U PRO : Up to 193-E1 in ~14U</p>
<p>Examples of users</p> <ul style="list-style-type: none"> • VAS Provider • SIP trunk provider • Consumer/Business VoIP provider 	<p>Examples of users</p> <ul style="list-style-type: none"> • VoIP carriers • VoLTE, 2G, 3G and LTE operators • IPX and Wholesaler carriers
<p>Example use cases</p> <ul style="list-style-type: none"> • IVR/IVVR • Unified communication • Contact Center • Conferencing, Voicemail, prepaid • IP-PSTN, IP- IP transcoding • SIP to SIP interworking • Mobile Network Connectivity, MVNO • SIP Trunking (TDM-IP, IP-IP) • NG 911 Emergency Services • Hosted IP-PBX and consumer VoIP • Carrier termination & interconnection – tier-2, 3 	<p>Example use cases</p> <ul style="list-style-type: none"> • Transmission of long-distance international/domestic telephony traffic • Interconnection of MSC switches in mobile networks • Backhaul transmission between MSC switches and POIs to the PSTN • Backup protection networks • Wireless carrier interconnection • Medium to high density IP-to-IP transcoding gateway



Dialogic: A Company Committed

Mobile, fixed and value added service providers extensively deploy Dialogic products and solutions to connect, optimize and transport communications services. Our technology touches over two billion mobile subscribers a day, and our network solutions carry 15 billion minutes of traffic per month. Dialogic’s product – including its Gateways - enable customers to focus on developing and deploying innovative services that involve rich media processing, switching, and transport. Customers can deploy Dialogic Gateways to enable IP access for a wide range of applications over a multitude of network types to streamline development and accelerate time-to-revenue.

Compliance and Certification

Dialogic Gateways have been tested for interoperability and found compliant and/or received vendor certification or confirmation for use with various products and programs. Some of the companies whose products or networks have been tested in connection with one or more Dialogic Gateways include:

- Avaya
- BT
- Genesys
- Microsoft
- AVST
- DTAG
- IBM
- Motorola
- Blackberry
- Ericsson
- Ingate
- NSN
- BroadSoft
- FaxCore
- Interactive Intelligence
- Siemens

For a current list of interoperable Dialogic products, including gateways, please visit www.dialogic.com/interoperability/. For additional interoperability information, check the specific product datasheets on the Dialogic website or contact your local Dialogic sales representative.

A Rich Set of Support Programs

Dialogic has programs in place to help resellers and system integrators deliver a high level of customer satisfaction.

- **Training** — Study the basics on the web from the convenience of your desktop, and then receive instruction on more advanced skills via a hands-on course at a Dialogic location. Visit www.dialogic.com/training for more details.
- **Web-Based Community and Support Forums** — Online configuration guides provide details about typical Dialogic Gateway installations and configurations. You can also join the Dialogic Exchange Network (DEN), an online community for interactive discussion and for sharing tips on gateway deployment. For more information, visit <http://www.dialogic.com/den/forums/9.aspx>.
- **Service Plans** — Dialogic® Pro™ Service Plans offer direct expert technical support, advance replacement insurance, extended warranty, and software maintenance for gateway deployments. Dialogic® Pro™ Platinum Per Unit Plans add additional coverage required by service providers, including 24 x 7 emergency services. More details are available at <http://www.dialogic.com/products/services/>.



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For a list of Dialogic locations and offices, please visit: <https://www.dialogic.com/contact.aspx>

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