

## Dialogic® PowerMedia™ HMP for Windows

### Host Media Processing Software for Voice IP Solutions

**Dialogic® PowerMedia™ HMP for Windows (HMP Windows)** is scalable, feature-rich media processing software for building innovative and cost-effective voice solutions suitable for enterprise or service provider deployment. HMP Windows can enable basic SIP or hybrid connectivity, audio play/record, transcoding, fax, automated interactive voice response (IVR), and high-end live interactions, such as contact centers and audio conferencing or speech portals. With HMP Windows, Dialogic brings decades of media processing and signaling development experience to a pure software media engine, allowing developers to transition many existing Dialogic hardware-based applications to software-based IP-enabled solutions, or create completely new interactive applications.



**Dialogic® PowerMedia™ HMP**

HMP Windows extends the capabilities of software-based IP media processing with security features that scale up to 5000 SIP signaling sessions or 2000 concurrent voice user sessions per system. HMP Windows runs on general-purpose servers without the need for specialized hardware. Along with virtualization support, this reduces total cost of ownership and provides greater efficiency and deployment flexibility. Adding Dialogic® HMP Interface Boards (DNI Boards) allows PSTN connectivity in a “single box” solution with gateway functionality. Programming interfaces for HMP Windows include Dialogic® R4 and Global Call APIs for low-level media and signaling control.

| Features   | Benefits  |
|--|---|
| <b>Supports up to 2000 channels of G.711 RTP with voice play or record on COTS servers</b>   | Allows high-density media processing on COTS servers  |
| <b>Applications scale according to processor performance, memory and co-resident application demands on the host server platform</b>   | Allows for high density, cost-effective IP and TDM solutions that typically can support several thousand concurrent sessions                                |
| <b>VMware ESXi Virtualization support</b>  | Promotes low CAPEX, and deployment of communications solutions on virtual machines  |
| <b>Supports Dialogic® HMP Interface Boards (DNI Boards) for T1/E1, and analog media boards (4 port)</b>  | Enables converged solutions in enterprise and service provider environments with easy migration to pure IP platforms  |
| <b>Security support of SRTP and SIP TLS</b>  | Provides encryption protection at the media layer with SRTP and at the signaling layer with TLS   |
| <b>Support for local Dialogic® Global Call API for Call Control and Dialogic® R4 API for Media</b>   | R4 API and Global Call API allow easy migration of existing applications by providing compatibility at the API level with other Dialogic® telecom products. |
| <b>Conferencing features include coaching, active talker notification, tone clamping, echo cancellation, and scalability</b>   | Facilitates development of advanced conferencing applications   |
| <b>Supports play, record, and synchronization of voice and H.263-format video in a multimedia stream that includes video I-frame detection to trigger start of record as well as transmit-of-tone notification when recording begins</b> | Enables media processing for video-based messaging and content delivery media servers   |

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## Applications

- IVR and speech-enabled IVR
- Voice announcement server
- Voice mail server
- Unified messaging (voice, fax, speech)
- Audio conferencing server
- Prepaid/debit card services
- Contact center
- Outbound dialing
- Speech-enabled applications
- Transcoding server (TDM-IP, IP-IP, voice)
- IP media gateways
- TDM/IP gateways
- Converged PBX and IP-PBX

## How PowerMedia HMP Windows Works

HMP Windows performs media processing tasks on general-purpose processors running on common server architecture without requiring specialized hardware. HMP Windows provides media services and functionality for building flexible, scalable, and cost-effective converged telephony applications, next-generation multimedia servers and gateway solutions for TDM, IP, 3G/4G wireless and IMS networks. HMP Windows is complimented by support for other Dialogic products and technologies, including:

- **Dialogic® Global Call and R4 APIs** — enables existing applications written for other Dialogic® products (for example, board products) to move easily from TDM to IP and to HMP Windows.
- **Dialogic® HMP Interface Boards (DNI Boards or Analog boards)** — enables PSTN (T1/E1) connectivity in a variety of densities and 4-port Analog boards
- **Dialogic® DSI SS7 Boards, Dialogic® DSI Signaling Servers, and Dialogic® DSI Protocol Stacks**
  - provides TDM or IP SS7 interfaces using Global Call API for SS7 Signaling
  - supports single-server solutions, such as for pre-paid wireless and CRBT

## Security Features

HMP Windows supports security features to encrypt media and signaling information for media transactions. Secure RTP (SRTP) provides encryption, message authentication, and integrity and replay protection to RTP data so that conversations cannot be stolen for later playback. Transport Layer Security (TLS) is available in SIP to protect signaling data so that dialing or keypad input information cannot be stolen.

## Multimedia Features

When deployed in an IP network, HMP Windows supports the initiation and termination of a multimedia (audio/video) call, which includes SIP-based call control and H.263 video format. HMP Windows synchronizes voice and video streams for playback on IP video phones and video-enabled soft clients, and it can also deliver only the audio portion of a video call to an audio-only endpoint.

## Easy Migration to Hybrid TDM-IP and Pure IP Solutions

HMP Windows uses the Ethernet Network Interface Card (NIC) typically present in host server platforms to enable IP connectivity, and supports the IETF RFC 3261 SIP standard for voice and video call session establishment.

When combined with Dialogic® HMP Interface Boards (DNI Boards) for PSTN connectivity, HMP Windows provides a cost-effective platform for building TDM solutions, and then later migrating them easily to hybrid platforms, and ultimately to pure IP deployments. The DNI Boards are software-selectable T1 and E1 trunks supporting a range of PSTN protocols, including ISDN and CAS. Hybrid platforms can be deployed as IP media gateways, enhanced service platforms, or converged PBX solutions.

To help customers accelerate their time-to-market and migrate existing applications to IP, HMP Windows supports two direct APIs: the Dialogic® R4 API for media processing and the Dialogic® Global Call API for call control. Because these APIs are consistent with the APIs for Dialogic boards with DM3 architecture, Dialogic customers can facilitate quick application development and easy migration from a board-based platform to a platform based on HMP Windows.

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## Interoperability

To provide interoperability for high-quality media streaming with a wide variety of IP gateways and endpoints that comply with IETF and ITU standards, HMP Windows supports RTP/RTCP protocols for streaming over IP using G.711, G.726, G.723.1, G.729, GSM-FR, GSM-EFR, AMR-NB, AMR-WB (G.722.2) and G.722.

To further provide high voice quality and low latency, HMP Windows supports:

- Threshold alarms
- Packet loss reduction/concealment
- RTP and RTCP timeouts
- Type Of Service (TOS) byte setting
- Detection and reporting of timeouts in RTP and RTCP sessions to applications

## Conferencing

Audio Conferencing features in HMP Windows facilitate the development of advanced conferencing applications. These features include:

- Coaching and Whisper Conferencing
- Active talker notification
- Tone clamping
- Echo cancellation

## Other Notable Features

HMP Windows also includes the following notable features:

- Support for HD Voice Messaging using wideband audio codecs G.722 and AMR-WB (G.722.2)
- Ability to use Dialogic's IP call control API or, at developers' preference, to integrate another IP call control protocol stack
- Ability to programmatically control the volume of RTP sessions in order to benefit the end-user experience
- Support for a variety of media processing functions, such as:
  - Play with volume control
  - Record with Automatic Gain Control (AGC)
  - Dual-Tone Multi-Frequency (DTMF)
  - User-defined tone detection and generation, including industry-standard RFC 2833/RFC 4733 mechanisms
- Support for outbound call progress analysis with positive voice detection and positive answering machine detection algorithms
- Support for Dialogic® Continuous Speech Processing (CSP) functionality with APIs that are compatible with Dialogic® boards, allowing integration with Automatic Speech Recognition (ASR) engines
- Support for fax store and forward for IP (T.38 and G.711 fax pass-through) and PSTN (V.17) networks.

## Configurations

Applications developed on HMP Windows often serve as a voice or video IP Media Server, a network entity that terminates IP signaling and media connections in a network, which can be deployed differently in service provider and enterprise environments. Configurations for IP media servers that can be developed with HMP Windows include network announcement, IVR, voice mail, and conferencing server.

### Service Provider Configuration

Figure 1 illustrates how an IP media server based on HMP Windows can be deployed in a typical service provider environment for IVR, announcements, voice mail/messaging, speech, or conferencing applications.

An IP-PSTN gateway terminates PSTN connections. A softswitch manages call establishment and teardown over IP. Once the call is established, an RTP connection is created between the IP media server and an endpoint. The softswitch tells the IP media server, IP endpoints, and IP-PSTN gateway when to establish or drop connections.

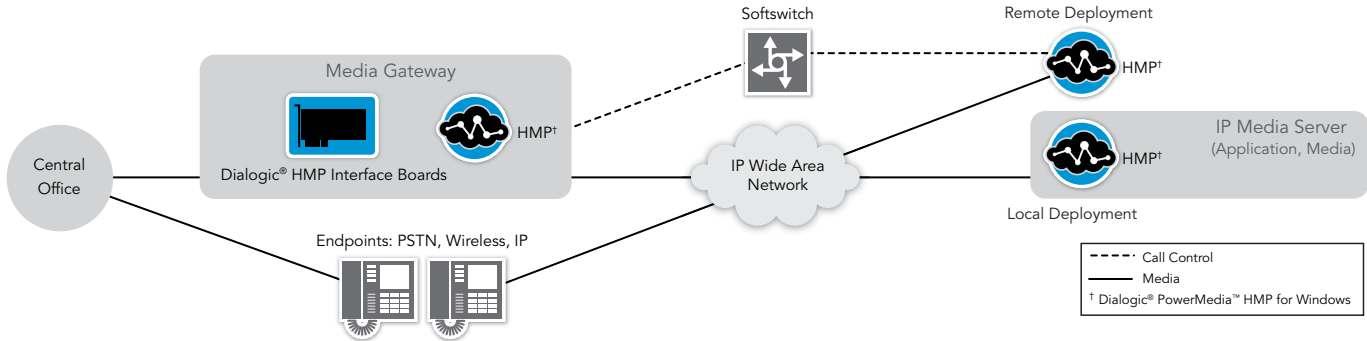


Figure 1. Dialogic® PowerMedia™ HMP for Windows in a Service Provider Environment

## Enterprise Configurations

Figure 2 shows an example of how HMP Windows can be deployed in a media gateway or a converged PBX in an enterprise environment for IVR, video portal, auto attendant, voice mail, unified messaging, speech, or conferencing services.

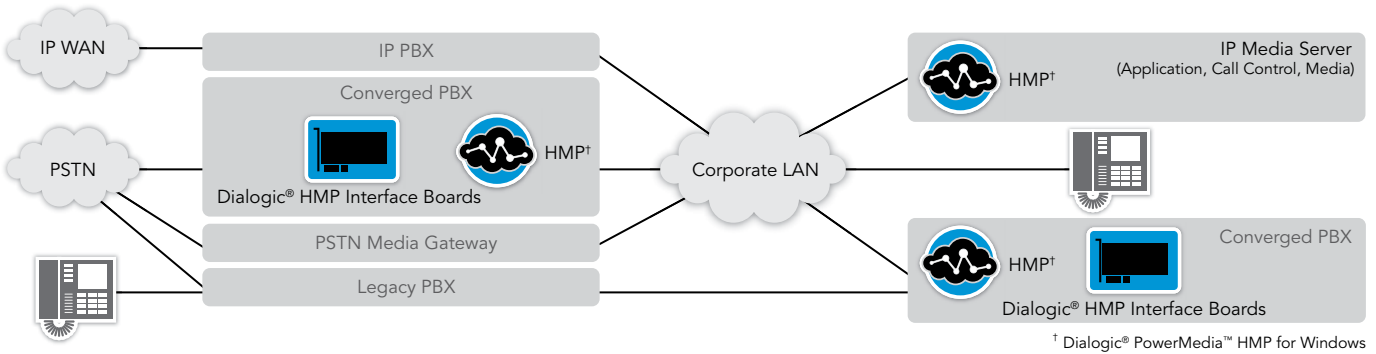


Figure 2. Dialogic® PowerMedia™ HMP for Windows in an Enterprise Environment

Figure 3 provides a more detailed architectural view of the converged PBX element shown in Figure 2. HMP Windows presents the media and API to the application. It also controls the Dialogic® HMP Interface Boards (DNI Boards) for T1 and E1 connectivity.

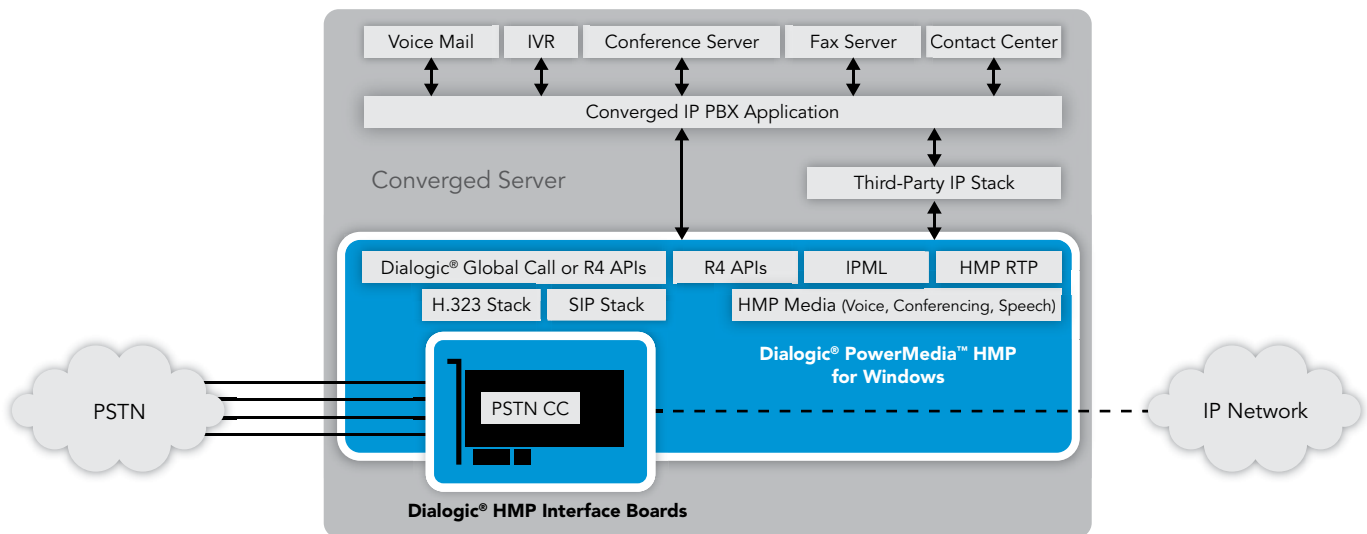


Figure 3. Dialogic® PowerMedia™ HMP for Windows in a Converged PBX

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In the converged architecture of Figure 3, the application can support IP and TDM trunking, as well as drive IP phones or softphones, all from a single platform. This ability delivers a remarkable level of deployment flexibility, and the opportunity to extend current Dialogic technology-based applications into additional market segments.

## Technical Specifications

### Channel Density

Using G.711, a maximum of 2000 concurrent user sessions per system of voice, or 580 conferencing. A wide variety of other configurations that combine RTP streaming, voice, fax, speech, multimedia, and conferencing resources are also available, and the maximum number of concurrent sessions per system is configuration-dependent.

### Network Interface

IP over an Ethernet NIC connection

Multiple NIC interfaces (for signaling)

### Call Control over IP and TDM

Protocols

SIP

Transport Layer Security (TLS)

Dialogic® DSI SIGTRAN SS7 Stacks or TDM Dialogic® DSI SS7 Stack running on DNI with combined SS7 / media, or the Dialogic® DSI SS7 Boards,

CAS, ISDN

Integration with third-party call and connection control stacks using the IP media library

### Media Streaming over IP

Protocols

IPv4, IPv6 (signaling)

RTP

RTCP

Secure RTP (SRTP)

Audio Codecs

G.711 A-Law,  $\mu$ -law (10ms, 20ms, 30ms)

G.722

G.723.1

G.726

G.729a, G.729b, G.729ab

GSM-FR

GSM-EFR

AMR-NB

AMR-WB (G.722.2)

QoS

Alarms

Frames per packet control

RTP/RTCP timeouts

Ability to modify the default DiffServe/TOS byte setting

Tone generation and detection

In-band DTMF

User-defined global tone generation and detection (GTG, GTD)

RFC 2833/4733

Media control over RTP

Programmatic control of inbound RTP stream gain and outbound RTP stream volume

### Voice Processing Features

Features supported

Play, record, and tone generation and detection

Play

Volume control and index play

Record

Automatic Gain Control (AGC)

Audio file formats for play/record

OKI ADPCM 24K, 32K (vox and wav formats)

G.711 A-law,  $\mu$ -law 48K, 64K (vox and wav formats)

Linear PCM 8b 11K (wav format only)

Linear PCM 8b 8K

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## Conferencing Features

|                          |  |
|--------------------------|--|
| Total parties per server | 580  |
| Advanced features        | N-way summing<br>Coach/pupil mode<br>DTMF detection<br>DTMF clamping<br>Active talker notification<br>Automatic Gain Control (AGC)<br>Echo Cancellation (EC) |

## Video Processing Features

|                         |   |
|-------------------------|---|
| Video Codecs            | H.263 (Baseline profile up to level 30)   |
| Video image formats     | Common Intermediate Format (CIF) PAL at 352 by 288 pixels,<br>Quarter Common Intermediate Format (QCIF) PAL at 176 by 144 pixels,<br>Sub-QCIF PAL at 128 by 96 pixels |
| Features supported      | Play, Record<br>I-frame update (video fast update or VFU)   |
| Play                    | Playback of voice and video, voice only, video only<br>Synchronization of voice and video   |
| Record                  | Stores synchronized voice and video to a file   |
| Multimedia file formats | Audio file (.wav/.pcm): Linear PCM 16b 8K<br>Video file (.vid); Dialogic HMP native codec format (H.263 bit-stream data)  |

## API Support

|                              |   |
|------------------------------|---|
| Call control                 | Global Call API for TDM, SIP, Global Call Software for SS7 signaling<br>Third-party stack integrated via IP Media Library |
| Voice processing             | R4 voice (dx_)  |
| IP media (RTP, QoS, etc.)    | R4 IPML (ipm_)  |
| Conferencing                 | R4 conferencing (cnf_)<br>R4 conferencing (dcb_)  |
| Continuous Speech Processing | R4 speech (ec_)   |
| Fax                          | R4 fax (fx_)  |
| Multimedia                   | R4 multimedia (mm_)   |
| Virtual CT Bus routing       | R4 routing (sc_)  |
| System Event reporting       | R4 SRL (sr_)  |

## Virtualization Support

|             |                         |
|-------------|-------------------------|
| Hypervisors | VMWare ESXi 5.x and 6.x |
|-------------|-------------------------|

## Supported Dialogic® HMP Interface Boards (DNI Boards)

|                                |   |
|--------------------------------|---|
| Network Interface (DNI Boards) | Single, Dual, Quad and Octal T1/E1 Digital Network Interface (DNI) Boards<br>See <a href="#">Dialogic HMP Interface Boards</a> for more details |
| Analog Interface               | 4 Port Analog boards<br>See <a href="#">Dialogic HMP Interface Boards</a> for more details  |

## Licensing

|                  |   |
|------------------|---|
| Enabling methods | Node-locked using FlexNet licensing utility |
|------------------|---|

## System Requirements

### Hardware

|            |  |
|------------|--|
| Processor  | Intel and AMD processors, including multi-processor, multi-core versions                                   |
| Memory     | 8 GB or above recommended for voice applications; 16 GB or above recommended for high density applications |
| Disk Space | 1 GB required for full installation of HMP Windows   |

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## System

- **IP-only solutions** — Multi-processor, multi-core platforms with an Ethernet NIC (**Note:** 1000Base-T recommended)
- **Converged solutions** — Multi-processor, multi-core PCI platform with an Ethernet NIC and Dialogic® HMP Interface Boards (DNI Boards) or gateways

HMP Windows provides a very high level of flexibility in choosing media processing configurations; therefore it is not feasible to list all the available combinations of media processing resources here. Contact your authorized Dialogic distributor or account manager for help in configuring your system and for detailed system configuration information.

## Operating System Requirements

HMP Windows is a standalone product and can function with the following operating systems:

- Windows Server 2012 R2
- Windows Server 2012
- Windows Server 2008 R2 (64-bit version)
- Windows Server 2008 (32-bit and 64-bit versions)
- Windows 8.1 Pro (32-bit and 64-bit versions)
- Windows 7 (32-bit and 64-bit versions)

## Ordering Information

Please see the [Ordering Information](#) tab for this product

## Obtaining Third-Party Licenses

Using the AMR-NB resource in connection with Dialogic's PowerMedia™ HMP for Windows product does not grant the right to practice the AMR-NB standard. To seek a patent license agreement to practice the standard in connection with PowerMedia HMP for Windows, contact the VoiceAge Corporation at [licensing@voiceage.com](mailto:licensing@voiceage.com).



[www.dialogic.com](http://www.dialogic.com)

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

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