



Dialogic® Multimedia Software for AdvancedTCA Release 1.0

Release Guide

January 2008

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Document Revision History

This Revision History summarizes the changes made in each published version of the document .

Document Rev 02 – published December 2007

Made global changes to reflect Dialogic brand and changed title to “Dialogic® Multimedia Software for AdvancedTCA Release 1.0 Release Guide.”

Document Rev 01 – published December 2006

Initial version of document.

About This Publication

The following topics provide information about this publication:

- [Applicability](#)
- [Intended Audience](#)
- [How to Use This Publication](#)
- [Related Information](#)

Applicability

This Release Guide provides information about the features, system requirements, and release documentation for Dialogic® Multimedia Software for AdvancedTCA Release 1.0, and is applicable to the Dialogic® Multimedia Platform for AdvancedTCA.

The Dialogic® Multimedia Platform for AdvancedTCA consists of the Dialogic® Multimedia Software for AdvancedTCA and associated Dialogic® Multimedia Blade for AdvancedTCA.

Intended Audience

This Release Guide is intended for the following types of customers:

- System Integrators
- Original Equipment Manufacturers (OEMs)

How to Use This Publication

The information in this document is organized into the following sections:

- [Chapter 1, “Release Overview”](#) describes the highlights of this release.
- [Chapter 2, “System Requirements”](#) describes the hardware and software requirements for Dialogic® Multimedia Software for AdvancedTCA Release 1.0.
- [Chapter 3, “Features”](#) describes the features supported in this release.
- [Chapter 4, “Programming Libraries”](#) describes the various development software libraries and demonstration programs that are available as part of this release.
- [Chapter 5, “Documentation”](#) provides a list of the documents that accompany this release.

Related Information

See the following for additional information:

- <http://www.dialogic.com/manuals/> (for Dialogic® product documentation)
- <http://www.dialogic.com/support/> (for Dialogic technical support)
- <http://www.dialogic.com/> (for Dialogic® product information)

This chapter provides a high level overview of the Dialogic® Multimedia Platform for AdvancedTCA. The Dialogic® Multimedia Platform for AdvancedTCA consists of the Dialogic® Multimedia Blade for AdvancedTCA and associated Dialogic® Multimedia Software for AdvancedTCA (hereinafter referred to as the Dialogic® Multimedia Platform, Dialogic® Multimedia Blade, and Dialogic® Multimedia Software).

The Dialogic® Multimedia Platform provides 500 ports of multimedia processing functionality in a fully compliant Dialogic® PICMG 3.0 ATCA blade. To help customers migrate their existing applications to IP, the software supports two direct APIs: Dialogic® R4 API for media processing and Dialogic® Global Call API for call control. A standards-based Media Server Markup Language (MSML) interface is also included, providing a rich set of media management capabilities and allowing media processing on the multimedia server from a remote agent such as an application server.

The Dialogic® Multimedia Blade includes an Advanced Mezzanine Card (AdvancedMC) and a rear transition module (RTM). The AdvancedMC, which is pre-installed on the baseboard, has four digital signal processors (DSPs) used for echo cancellation and transcoding offload. The Dialogic® Multimedia Blade can be used with either:

- a public switched telephone network (PSTN) RTM, which provides 16 spans of E1/T1 (clear channel only) and two Gigabit Ethernet interfaces.
- an IP-only RTM, which provides two Gigabit Ethernet interfaces.

The Dialogic® Multimedia Software supports the industry-standard Session Initiation Protocol (SIP) for call control, with the Real-time Transport Protocol (RTP) and Real-Time Control Protocol (RTCP) for media streaming and control over IP in G.711, G.723.1, G.726, G.729A,B,AB, GSM AMR, EVRC audio formats and H.263 (profile 0, level 30) video format.

OA&M capabilities are provided through simple network management protocol (SNMP) functionality and a command line interface (CLI), enabling the user to treat the Dialogic® Multimedia Blade as a remote stand-alone media processing element.

Refer to [Chapter 3, “Features”](#) for further information about the supported features in this release.

Release Overview

This chapter describes the hardware and software system requirements for the Dialogic® Multimedia Platform for AdvancedTCA (hereinafter referred to as the Dialogic® Multimedia Platform, Dialogic® Multimedia Blade, and Dialogic® Multimedia Software). The information is provided in the following sections:

- [Basic Hardware Requirements 9](#)
- [Basic Software Requirements. 9](#)
- [Additional Requirements. 10](#)

2.1 Basic Hardware Requirements

The Dialogic® Multimedia Platform requires the following hardware:

- PICMG 3.0 compliant chassis with Shelf Management Controller (ShMC) installed and functional

Note: If you are using a **Schroff** chassis, note the following compatibility issues:

The Dialogic® Multimedia Platform has a compatibility issue with Schroff Shelf Manager firmware prior to Version 2.2.0. If an older version is used, the Field Replaceable Unit (FRU) file on the Rear Transition Module (RTM) will be overwritten, making the RTM unusable until the RTM is reprogrammed. Before installing the RTM in a Schroff chassis, update the Shelf Manager firmware to v2.2.0. Downloads are available at the following web site:

<http://www.schroff.us/home.asp>

The Dialogic® Multimedia Platform has a compatibility issue with some revisions of Schroff Shelf Manager boards. When the Dialogic® Multimedia Blade for AdvancedTCA is plugged into a chassis and the chassis is powered up, the BLUE Hotswap LED on the Dialogic® Multimedia Blade will light and stay lit continuously. At this point, the Dialogic® Multimedia Blade is unusable. To correct the problem, the user must remove the Dialogic® Multimedia Blade and then plug it back in to the chassis.

2.2 Basic Software Requirements

The following software is supported in this release:

- Supported operating systems:
 - Red Hat Enterprise Linux Advanced Server Release 4.0 with Update 2
 - SUSE Linux SLES Release 9 SP3

System Requirements

- Supported compilers: GNU Compiler Collection (GCC) Versions 3.2 and 3.4.2

Note: When using **SUSE Linux**, the SUSE Linux kernel **.config** file should be configured for an Intel Pentium 4 processor (at a minimum) as follows:

- CONFIG_M586 should be disabled and CONFIG_MPENTIUM4 should be enabled, depending on your processor.
- CONFIG_PREEMPT should be enabled.
- CONFIG_HPET_RTC_IRQ should be disabled.

Although the **.config** file can be manually configured, it is recommended that you use the provided configuration script from the web site:

<http://www.dialogic.com/support/helpweb/dxall/hmplinux/hmp12/suse/default.htm>

2.3 Additional Requirements

The following topics describe additional requirements:

- [Early Media Requirements](#)

2.3.1 Early Media Requirements

Note: Early media refers to media (e.g., audio and/or video) transfer before a particular session is accepted by the called party.

Applications such as video color ring and video caller ID require a half duplex, early media session (preanswer) to be established between the Dialogic® Multimedia Platform and the calling or called party. For video caller ID applications, an early media session must be established with the called party, and for video color ring, it must be established with the calling party.

The Dialogic® Multimedia Platform does not directly support early media between the multimedia server and the calling or called party and is therefore dependent upon other network elements, such as a gateway, to provide this capability. Additionally, video color ring or video caller ID services require video phones that support these services.

In a 3G or IP environment, where the multimedia server sits behind a gateway, video color ring or video caller ID applications can be supported without the multimedia server directly supporting early media. Early media support can be established by another subsystem in the network, such as by a gateway that supports early media. A full duplex call between the multimedia server and the gateway could be established and the multimedia server could be provided the IP address and RTP port of the calling or called party, allowing the multimedia server to stream the video color ring to the calling party or the video caller ID to the called party. As an alternative approach, call signaling to the multimedia server is not even required. The multimedia server could be instructed to just stream the appropriate media to a specified IP address and RTP port.

This chapter lists and describes the features that are supported by Dialogic® Multimedia Software for AdvancedTCA Release 1.0 (hereinafter referred to as the Dialogic® Multimedia Platform, Dialogic® Multimedia Blade, and Dialogic® Multimedia Software). This information is provided in the following sections:

- [AdvancedTCA Hardware Design](#) 11
- [Multimedia \(Audio/Video\)](#) 11
- [Audio Codes for IP \(RTP\) Encoding/Decoding](#) 13
- [H.263 Video Codecs for IP \(RTP\)](#) 14
- [IP Signaling](#) 14
- [Tone Management](#) 14
- [APIs](#) 14
- [Play and Record](#) 15
- [Audio Conferencing](#) 16
- [Administration via CLI and SNMP](#) 16

3.1 AdvancedTCA Hardware Design

The Dialogic® Multimedia Blade was designed following the standards of the Advanced Telecommunications Compute Architecture (AdvancedTCA) Design Guide for high availability, switched network computing.

The AdvancedTCA standards define open architecture modular computing components for carrier-grade, communications network infrastructure. The goals of the standards are to enable blade-based modular platforms to be:

- Cost effective
- High-density
- Highly available
- Scalable

3.2 Multimedia (Audio/Video)

Multimedia features include:

- Multimedia record and playback with basic playback control and synchronized audio and video.

Features

- Record from RTP stream to multimedia file. Play from multimedia file into RTP stream while maintaining synchronization.
- Support for H.263 (profile 0, level 30) video codec. Level 30 supports CIF, QCIF, and sub-QCIF resolution decoding. It is capable of operation with a bit rate up to $6 \times 64,000 = 384,000$ bits per second, with a picture decoding rate up to $(30,000)/1001$ pictures per second.
- Support for the following audio codecs for RTP:
 - G.711
 - G.723.1
 - G.726
 - G.729A (compatible with G.729 format)
 - G.729AB (compatible with G.729B format)
 - AMR Narrow Band
 - EVRC
- Support for the following video picture formats:
 - Common Intermediate Format (CIF) picture size (PAL 352 pixels by 288 pixels)
 - Quarter Common Intermediate Format (QCIF) picture size (PAL 176 pixels by 144 pixels)
 - Sub-QCIF picture size (PAL 128 pixels by 96 pixels) at 30, 15, 10, or 6 frames/second, used for mobile handsets
- Support for a proprietary video file format and the Linear PCM (128 kbps) audio file format.
- Dialogic® Multimedia File Conversion Utilities: These utilities provide off-line conversion of multimedia files. They can be downloaded from the following web site (check this web site periodically for updates to the conversion tools and their capabilities):

<http://www.dialogic.com/support/helpweb/dxall/hmpmedia/default.htm>

Note: The conversion utilities perform CPU-intensive tasks and should only be used when sufficient CPU capacity is available and when they won't impact other operations on the system. For example, they should not be used while performing audio/video operations or when processing audio/video calls, as this can impact the performance and operation of the system.

– **mmconvert:** Conversion of multimedia data from Audio Video Interleave (AVI) Type-2 files with DVSD and DV25 encoded video in PAL 720 x 576 or NTSC 720 x 480 video format, with PCM linear 16-bit (any rate) mono or stereo audio format, to Dialogic proprietary multimedia file format. Conversion includes selectable picture format (sub-QCIF, QCIF, CIF), aspect ratio adaptation, bit rate, and frames per second (30, 15, 10, 6).

Note: The mmconvert utility does not support conversion in the reverse direction (from Dialogic proprietary multimedia file format to AVI file format).

– **hmp3gp:** Conversion of multimedia data from Dialogic proprietary multimedia file format to 3rd Generation Partnership Project (3GPP) file format conforming to 3GP Release 4 file format (.3gp), conforming to 3GPP specifications. The generated 3GP file contains two tracks: a video track with H.263 bit-stream video data, and an audio track with Global System for Mobile communication Adaptive Multi-Rate Narrow Band (GSMAMR- NB) audio encoded at a bit rate of 12.2 kbps.

No transrating or resizing is done, so the destination frame rate and the picture size will be the same as the source.

Note: The hmp3gp utility does not support conversion in the reverse direction (from 3GPP to Dialogic proprietary multimedia file format).

- Play to and record from SIP devices, depending upon capability of device (audio or audio/video). Play video only if no audio is required. Play audio only for non-video devices.
- Support for existing Quality of Service (QoS) audio alarms through the IPML API for the voice portion of multimedia stream.

Note: QoS alarms and events are not supported for video streams.

- Play Voice API audio files in a multimedia session. You can play Dialogic® Voice API audio files in a multimedia session as long as tight synchronization with video is not required (as when playing with a video menu or status display). In this case, the “ipm” device in a multimedia session will listen to the “dxxx” device to which the Dialogic® Voice API is playing an audio file. This overrides any audio stream (but not video) from the “mm” device in the multimedia session. See the *Dialogic® Multimedia API Programming Guide* for details.
- The programming libraries that provide multimedia-related enhancements and additions are:
 - The Dialogic® Multimedia API Library records and plays the multimedia data using a multimedia device.
 - The Dialogic® Device Management API Library is used to connect the multimedia device with an IP media device.
 - Multimedia record and playback between the Dialogic® Multimedia Platform and remote IP endpoints is accomplished by using both the multimedia and IP media devices.
 - The Dialogic® IP Media API Library provides the IP multimedia session control.
 - The Dialogic® Global Call API Library provides IP call control for multimedia using SIP and Session Description Protocol (SDP). The Dialogic® Global Call API Library must be used in third party call control (3PCC) mode.

3.3 Audio Codes for IP (RTP) Encoding/Decoding

Supported audio codes for IP (RTP) encoding/decoding include:

- G.711 – 64 kbps format, mu-law and A-law, and 10, 20, and 30 ms frames
- G.723.1 – 5.3 and 6.3 kbps, 30 ms frames, and 1 or 2 frames per packet
- G.726 – 16, 24, 32 and 40 kbps
 - 10 ms frame size, 1, 2, 3 or 4 frames per packet
 - 20 ms frame size, 1, 2 or 3 frames per packet
- G.729A and G.729AB – 8 kbps, 10 ms frames, and 1, 2, 3, or 4 frames per packet
- AMR Narrow Band – 20 ms frames, 1 frame per packet
- EVRC – 20 ms frames, 1 frame per packet

3.4 H.263 Video Codecs for IP (RTP)

Supported H.263 video codecs for IP (RTP) include:

- H.263 (profile 0, level 30) video codec.
- Level 30 supports CIF, QCIF, and sub-QCIF resolution. It is capable of operation with a bit rate up to $6 \times (64,000) = 384,000$ bits per second, with a picture rate up to $(30,000)/1001$ pictures per second.
- RTP video data is compliant with Internet Engineering Task Force RFC 2190: "RTP Payload Format for H.263 Video Streams."

3.5 IP Signaling

The Dialogic® Multimedia Platform supports the industry-standard Session Initiation Protocol (SIP).

Note: Session Description Protocol (SDP) information is exposed for media capabilities exchanges when the Dialogic® Global Call API is configured in third party call control (3PCC) mode (SIP only).

3.6 Tone Management

Tone management support includes:

- In-Band DTMF detection and generation
- RFC 2833 DTMF detection and generation

3.7 APIs

The supported APIs for the Multimedia Platform are:

- Dialogic® IP Media Library API - Support for IP media session control (audio only, video only, or multimedia) when using the Dialogic® Global Call API library in third party call control (3PCC) mode (SIP only).
- Dialogic® Global Call API Library for call control - Third party call control (3PCC) mode, in which call control is managed by the Dialogic® Global Call API library and media exchange is managed by the Dialogic® IP Media Library. Global Call supports multimedia call control over IP when using SIP and SDP.

Note: To play/record multimedia with the Dialogic® Multimedia API, you must configure and use the Dialogic® Global Call API library for 3PCC mode. In this mode, the application is responsible for capability negotiation by accessing and manipulating the SDP contents passed with call control exchanges.

- Dialogic® Device Management Library for multimedia connection and coder reservation.

- Dialogic® R4 APIs for media processing:
 - Multimedia (audio/video)
 - Voice
 - Conferencing
 - Fax
- Dialogic® Standard Runtime Library for event handling.

MSML

MSML Media Control Interface utilizes the evolving Media Sessions Markup Language (MSML) standard as defined in the respective IETF internet drafts.

3.8 Play and Record

Play and record features include:

- Dialogic® Voice API audio play and record capability
 - Playing and recording files in all supported encoding formats, with or without wave headers
 - Indexed play
 - Stream to board (streams data to the network interface in real time)
 - Transaction record
- Dialogic® Voice API audio play and record file formats
 - G.711 mu-law and A-law (48 kbps and 64 kbps)
 - OKI ADPCM (24 kbps and 32 kbps)
 - G.726 (16 kbps and 32 kbps)
 - Linear PCM (88 kbps)
 - Linear PCM (128 kbps). To use the Dialogic® Multimedia API audio file format in the Dialogic® Voice API, set the fields in the DX_XPB structure to the following values:
 - wFileFormat = FILE_FORMAT_VOX
 - wDataFormat = DATA_FORMAT_PCM
 - nSamplesPerSecond = DRT_8KHZ
 - wBitsPerSample = 16
- Dialogic® Multimedia API video play and record capability
 - Record and playback of audio and video, video only, or audio only
 - Record to and playback from a file
 - Transmit notification tone at start of recording
- Dialogic® Multimedia API audio play and record file format
 - Linear PCM (128 kbps): 16-bit, 8 kHz, mono, LSB-MSB (“little-endian”)

Note: Except for the 128 kbps linear PCM file format listed above, the Dialogic® Multimedia API does not directly support Dialogic® Voice API audio files. However, they are indirectly supported and you can play these Dialogic® Voice API audio files in a multimedia session as long as tight synchronization

with video is not required (as when playing with a video menu or status display). In this case, the “ipm” device in a multimedia session will listen to the “dxxx” device to which the Dialogic® Voice API is playing an audio file. This overrides any audio stream (but not video) from the “mm” device in the multimedia session. For details, see the *Dialogic® Multimedia API Programming Guide*.

- Dialogic® Multimedia API video play and record file formats
 - Dialogic proprietary format. See the *Dialogic® Multimedia API Programming Guide* for more information on this format.
- Dialogic® Multimedia file conversion utilities - See the description in [Section 3.2, “Multimedia \(Audio/Video\)”](#), on page 11.

3.9 Audio Conferencing

Audio conferencing features include:

- Asynchronous programming model support
- Support for conferees from multiple sources
- Conference bridging
- Coach/pupil feature
- DTMF digit detection
- Volume control
- DTMF tone clamping
- Automatic gain control (AGC)
- Active talker
- Conference monitoring
- Echo cancellation
- Tariff tone

3.10 Administration via CLI and SNMP

Users have a choice of two interfaces for configuring and monitoring the Dialogic® Multimedia Blade: command line interface (CLI) and simple network management protocol (SNMP). They both have access to the same configuration and monitoring data. SNMP is MIB-based, and CLI is text command line-based.

For information about using CLI and SNMP, see the *Dialogic® Multimedia Blade for ATCA Technical Product Specification*.

This chapter describes the various development libraries and demonstration programs that are available as part of the Dialogic® Multimedia Platform for AdvancedTCA (hereinafter referred to as the Dialogic® Multimedia Platform, Dialogic® Multimedia Blade, and Dialogic® Multimedia Software).

- Dialogic® Conferencing (CNF) Library 17
- Dialogic® Device Management API Library 18
- Dialogic® Fax API Library 18
- Dialogic® Global Call API Library 19
- Dialogic® IP Media API Library 20
- Dialogic® Multimedia API Library 21
- Dialogic® Standard Runtime Library API 22
- Dialogic® Voice API Library 22
- Demonstration Programs 23
- API Functions Not Supported 24

4.1 Dialogic® Conferencing (CNF) Library

The Dialogic® Conferencing (CNF) API library supports development of conferencing applications. The conference can take place over an IP network and/or over traditional public switched telephone network (PSTN) lines.

The Dialogic® Conferencing (CNF) API software includes library functions, device drivers, and firmware.

Refer to the *Dialogic® Conferencing API Library Reference* and the *Conferencing API Dialogic® Programming Guide* for additional information.

Note: This Dialogic® Conferencing (CNF) API is distinct from and incompatible with the Dialogic® Conferencing (CNF) API that was previously released in Dialogic® System Software Release 6.0 PCIWIN.

Features

The Dialogic® Conferencing (CNF) API library supports the following conferencing features:

- Asynchronous programming model support
- Support for conferees from multiple sources

- Conference bridging
- Coach/pupil feature
- DTMF digit detection
- Volume control
- DTMF tone clamping
- Automatic gain control (AGC)
- Active talker
- Conference monitoring
- Echo cancellation
- Tariff tone

4.2 Dialogic® Device Management API Library

The Dialogic® Device Management API library provides run-time control and management of configurable system devices, including functions to reserve resources and to manage the connections between devices for communication. More specifically, the functions enable connections between IP media and multimedia devices on the Dialogic® Multimedia Platform, providing the ability for multimedia (audio/video) communication over IP connections.

The API also includes functions to reserve codecs (e.g., G.711, G.723, G.726, G.729A, G.729AB). The following APIs are required to reserve/unreserve coders with the Dialogic® Multimedia Software:

- **dev_ReserveResourceEx()**
- **dev_ReleaseResourceEx()**
- **dev_GetResourceReservationInfoEx()**

Refer to the *Dialogic® Device Management API Library Reference* for more information.

4.3 Dialogic® Fax API Library

The Dialogic® Fax API library supports development of a wide variety of fax applications such as fax mail, fax broadcast, and fax-on-demand. The Fax software includes library functions, device drivers, firmware, and demonstration programs.

Refer to the *Dialogic® Fax Software Reference* for more information.

Features

The Dialogic® Fax API library supports the following fax features:

- Uses T.38 Fax protocol to convert T.30 Fax session information and data to UDP packets

- Operates in T.38 Fax server mode (originates and terminates Fax sessions using T.38 protocol)
- Data rate
 - Up to 14.4 kbps transmission
 - Up to 14.4 kbps reception
 - Selectable preferred data transmission and reception rates
- File storage format
 - Raw MH, MR, and MMR encoded data
 - TIFF/F MH, MR, and MMR encoded data
 - ASCII for transmit only
- Data transmission encoding scheme with advanced compression
 - MH, MR, and MMR
 - ASCII
 - Selectable data transmission encoding scheme
- Data reception encoding scheme with advanced compression
 - MH, MR, and MMR
 - Selectable data reception encoding scheme
- Polling and turnaround polling
- Bad scan line detection and correction
- Image concatenation, compression formats, and resolutions
- Scaling to and from all supported page sizes, compression formats, and resolutions
- Support for A3, A4, and B4 page sizes
- Normal (100 dpi), fine (200 dpi), and superfine (400 dpi) resolution
- Simple header overlay
- Image bit order (MSB/LSB) conversion
- ASCII configuration
 - Left/right/top margin
 - Line spacing
 - Tab stop
 - Wrapping
 - Extended characters greater than ASCII #127

4.4 Dialogic® Global Call API Library

The Dialogic® Global Call API library provides a uniform call control interface for developing applications for multiple network interface technologies.

The Dialogic® Global Call API library:

- supports Session Initiation Protocol (SIP).
- provides a consistent application interface for the various protocols and technologies.

- can be run in third party call control (3PCC) mode (SIP only).

The generic functionality of the Dialogic® Global Call API library is documented in the *Dialogic® Global Call API Library Reference* and *Dialogic® Global Call API Programming Guide*. Functionality specific to the Dialogic® Multimedia Software is documented in the *Dialogic® Global Call IP Technology Guide*.

Features

The Dialogic® Global Call API library provides the following features for IP technologies:

- Support for the development of applications that use the host-based SIP stacks supplied with the Dialogic® Multimedia Software. Applications can configure the preferred DTMF mode for SIP: RFC 2833 or in-band.
- Initialization of the Dialogic® Global Call API library in third party call control (3PCC) mode, allowing the application to coordinate calls in which media communications are actually between two or more other parties
- Ability to attach Session Description Protocol (SDP) information to outbound Global Call API events in 3PCC mode. Similarly, applications can parse inbound Global Call API events for SDP content.
- SDP example code for parsing and generating SDP contents for media capabilities exchanges in 3PCC mode
- In 3PCC mode, ability to generate and accept SIP re-INVITE methods to modify the characteristics of established media sessions

Note: The **ipm_ModifyMedia()** function, which modifies various properties of an active media session, is not supported in this release as part of the re-INVITE functionality supported in Global Call 3PCC mode. Support for changing the media session parameters, including changing the media codec in a media session to switch the call from audio to video, is provided by interrupting the session using the **ipm_Stop()** function, making the changes, and then resuming the session with the **ipm_StartMedia()** function.

- In 3PCC mode using the SIP INFO method, request from the remote encoder in a multimedia session a video picture fast update (an intraframe request) so that the encoder transmits an I-frame (complete video frame)
- Easy access to error information using **gc_ErrorInfo()** for function failures and **gc_ResultInfo()** for event information

4.5 Dialogic® IP Media API Library

The Dialogic® IP Media Library API is used to control media on IP devices. The Dialogic® IP Media Library API is primarily used for:

- Developing Voice over IP (VoIP) applications that use IP signaling stacks other than those supplied with Dialogic® products

- Controlling audio and multimedia sessions when the Dialogic® Global Call library is running in third party call control (3PCC) mode

Note: IP call control with multimedia is provided only when using the Dialogic® Global Call library in 3PCC mode.

Dialogic® IP media library functionality is documented in the *Dialogic® IP Media Library API Library Reference* and the *Dialogic® IP Media Library API Programming Guide*.

Features

The Dialogic® IP Media Library API provides the following features:

- Start/stop multimedia session and get/set video related properties
- Configure the preferred DTMF mode: RFC 2833, in-band, or out-of-band. In addition, applications can generate and receive DTMF tones to and from the TDM bus.
- Configure the Quality of Service (QoS) alarm threshold and status reporting for audio streams (including the audio streams in multimedia sessions)

Note: QoS alarms and events are not supported for video streams.

4.6 Dialogic® Multimedia API Library

The Dialogic® Multimedia (MM) API is used to play and record digitized multimedia in support of applications providing video services, such as video mail, video color ring, video caller ID, and video location-based services.

The Dialogic® Multimedia API is documented in the *Dialogic® Multimedia API Library Reference* and the *Dialogic® Multimedia API Programming Guide*.

Features

The Dialogic® Multimedia API library provides the following capabilities:

- Transmit a start-of-recording tone to notify the party being recorded. If enabled, the tone is transmitted upon detection of an I-frame (complete video frame) or upon time-out waiting for an I-frame.
- Record audio and video data from an IP stream into a file in real time; also provides the capability to record only the audio portion or video portion
- Play back audio and video data from a file to a media session in real time while maintaining synchronization; also provides the capability to playback only the audio portion or video portion
- Play Dialogic® Voice API audio files in a multimedia session where tight synchronization with video is not required (such as for playing with a video menu or status display)
- Easy access to error information using **mm_ErrorInfo()** for function failures

4.7 Dialogic® Standard Runtime Library API

The Dialogic® Standard Runtime Library (SRL) API provides a common interface for event handling and other functionality common to all Dialogic® devices. The Dialogic® Standard Runtime Library API provides the framework for implementing the supported programming models and serves as the central dispatcher for events that occur on all devices. Through the Dialogic® Standard Runtime Library API, events are handled in a standard manner.

Refer to the *Dialogic® Standard Runtime Library API Programming Guide* and the *Dialogic® Standard Runtime Library API Library Reference* for more information.

Features

The Dialogic® Standard Runtime Library API provides the following features:

- Support for the following programming models:
 - Asynchronous polled model
 - Asynchronous with non-signal callback model
 - Extended asynchronous model
- A set of functions called the device grouping API to support a more efficient alternative to the **sr_waitevtEx()** variant of the extended asynchronous model
- Device event management
- Device information retrieval using ATDV_ prefixed functions
- The ability to set and retrieve user-specific context using the **sr_setparm()** and **sr_getparm()** functions

4.8 Dialogic® Voice API Library

The Dialogic® Voice API library provides a rich set of features for building a wide range of high-density call processing applications such as voice messaging, interactive voice response, telemarketing/call center, operator services, and more. Features include tone signaling, global tone detection and generation, call progress analysis, and a variety of voice encoding algorithms selectable on a channel-by-channel basis.

Refer to the *Dialogic® Voice API Library Reference* and the *Dialogic® Voice API Programming Guide* for more information.

Features

The Dialogic® Voice API library provides the following features:

- Call progress and call analysis through the **dx_dial()** function, including the ability to handle pre-connect (call progress) information that reports the status of the call connection, such as busy, no dial tone, or no ringback, and post connect (call

analysis) information that reports the destination party's media type (that is, voice, answering machine, fax, or modem)

- Tone detection/generation:
 - Dual Tone Multi Frequency (DTMF)
 - Global Tone Detection (GTD) user-defined tones
 - Global Tone Generation (GTG) user-defined tones, including Cadenced Tone Generation
- Data formats for play and record:
 - G.711 PCM at 6 kHz with 8-bit samples (48 kbps) and 8 kHz with 8-bit samples (64 kbps) using A-law or mu-law coding, VOX and WAVE file formats
 - OKI ADPCM at 6 kHz with 4-bit samples (24 kbps) and 8 kHz with 4-bit samples (32 kbps), VOX and WAVE file formats
 - PCM at 11 kHz with 8-bit samples (88 kbps) using linear coding, VOX and WAVE file formats
 - PCM at 8 kHz with 16-bit samples (128 kbps) using linear coding, VOX file format (Multimedia API audio file format)
 - G.726 bit-exact voice coder at 8 kHz with 2- or 4-bit samples (16, 32 kbps), VOX and WAVE file formats
- Volume control
- Transaction record through the **dx_mreciottdata()** function to enable the recording of a two-party conversation by allowing two time slots from a single channel to be recorded
- Asynchronous routing through the **dx_listenEx()** and **dx_unlistenEx()** functions

4.9 Demonstration Programs

Demonstration programs are provided to demonstrate product functionality and features, and serve as examples of application programming using the supported API libraries. All demo programs are supplied as source code that users may modify to explore other capabilities of the products.

The demo programs are located in */usr/dialogic/demos*.

Note: Only the Dialogic® Multimedia Demo has been customized to work on the Dialogic® Multimedia Platform. The other demos will require modification.

Dialogic® Multimedia Demo Program

The Dialogic® Multimedia Demo processes a multimedia (audio and video) IP call with SIP endpoints. It uses the following APIs to accomplish the audio/video streaming:

- Dialogic® Device Management Library API to connect the multimedia device with an IP media device
- Dialogic® Multimedia API to record and play audio/video data

- Dialogic® IP Media Library API for media session control and RTP stream manipulation
- Dialogic® Global Call API in 3PCC mode for SIP call control

4.10 API Functions Not Supported

The following sections identify those API functions that are not supported by the Dialogic® Multimedia Software. The functions that are not supported are mostly functions associated with particular features that are not supported in this release.

The functions are grouped alphabetically by the API with which they are associated.

Dialogic® Audio Conferencing (DCB) API Functions

Dialogic® DCB API functions are not supported. The Dialogic® CNF API is used for conferencing.

Dialogic® Continuous Speech Processing (CSP) API Functions

Dialogic® CSP API functions are not supported.

Dialogic® Device Management API Functions

The following Dialogic® Device Management API functions are not supported:

- dev_GetResourceReservationInfo()
- dev_ReleaseResource()
- dev_ReserveResource()

Instead, the following new functions are used to reserve/unreserve coders with the Multimedia Software:

- **dev_GetResourceReservationInfoEx()**
- **dev_ReleaseResourceEx()**
- **dev_ReserveResourceEx()**

Dialogic® Fax API Functions

The following Dialogic® Fax API functions are not supported:

- fx_getxmitslot()
- fx_listen()
- fx_unlisten()

Dialogic® IP Media Library API Functions

The following Dialogic® IP Media Library API functions are not supported:

- ipm_ModifyMedia()
- ipm_ReceiveDigits()
- ipm_SendDigits()

Dialogic® Standard Runtime Library API Functions

The following Dialogic® Standard Runtime Library API function is not supported:

- sr_getboardcnt()

Programming Libraries

This chapter lists the documents that are provided with Dialogic® Multimedia Software for AdvancedTCA Release 1.0. The documentation is divided into the following categories:

- [Release Documentation 27](#)
- [Technical Product Specification \(Includes Installation and Configuration\) 27](#)
- [Programming Libraries Documentation 27](#)
- [MSML Remote Interface Documentation 28](#)

Note: For documentation updates, check the Release Update. Information is updated in the Release Update, as needed, during the lifecycle of the release.

5.1 Release Documentation

The following system documentation is provided for this release:

- *Dialogic® Multimedia Platform for AdvancedTCA Software Release 1.0 Release Guide* (this document)
- *Dialogic® Multimedia Platform for AdvancedTCA Software Release 1.0 Release Update*

5.2 Technical Product Specification (Includes Installation and Configuration)

The following technical product specification is provided for this release:

- *Dialogic® Multimedia Blade for ATCA Technical Product Specification*

5.3 Programming Libraries Documentation

The following development software documentation is provided for this release:

- *Dialogic® Conferencing API Library Reference*
- *Dialogic® Conferencing API Programming Guide*
- *Dialogic® Device Management API Library Reference*
- *Dialogic® Fax Software Reference*
- *Dialogic® Global Call API Library Reference*
- *Dialogic® Global Call API Programming Guide*
- *Dialogic® Global Call Technology Guide*

Documentation

- *Dialogic® IP Media Library API Library Reference*
- *Dialogic® IP Media Library API Programming Guide*
- *Dialogic® Multimedia API Library Reference*
- *Dialogic® Multimedia API for Linux Programming Guide*
- *Dialogic® Standard Runtime Library API Library Reference*
- *Dialogic® Standard Runtime Library API Programming Guide*
- *Dialogic® Voice API Library Reference*
- *Dialogic® Voice API Programming Guide*

5.4 MSML Remote Interface Documentation

The following MSML remote interface documentation is provided for this release:

- *MSML Media Server User's Guide*