Dialogic®

Dialogic® Continuous Speech Processing API

Demo Guide

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Revision History

This revision history summarizes the changes made in each published version of this document.

Document No.	Publication Date	Description of Revisions
05-2084-005	May 2008	Made global changes to reflect Dialogic brand and changed title to "Dialogic® Continuous Speech Processing API Demo Guide."
05-2084-004	December 2005	Running the Demo chapter: Updated demo path information in Starting the Demo section.
05-2084-003	April 2005	Demo Description chapter: Added note about channel number that can be used when running the demo. Running the Demo chapter: Updated demo name (now CSPDemo) and demo path information for CSP demo. Demo Details chapter: Added CSPDemo_version.c file to the table.
05-2084-002	September 2004	Added support for Linux.
05-2084-001	September 2003	Initial version of document.

About This Publication

The following topics provide information about this publication:

- Purpose
- Applicability
- Intended Audience
- How to Use This Publication
- Related Information

Purpose

This publication describes the Dialogic® Continuous Speech Processing (CSP) API demonstration program for Dialogic® Host Media Processing (HMP) Software and provides instructions for running the program on Linux and Windows® operating systems.

Applicability

This document version (05-2084-005) is published for Dialogic® Host Media Processing Software Release 3.1LIN.

This document may also be applicable to later software releases (including service updates) on Linux or Windows®. Check the Release Guide for your software release to determine whether this document is supported.

Intended Audience

This publication is written for the following audience:

- Distributors
- System Integrators
- Toolkit Developers
- Independent Software Vendors (ISVs)
- Value Added Resellers (VARs)
- Original Equipment Manufacturers (OEMs)

How to Use This Publication

This publication assumes that you understand computer telephony terms and concepts, and are familiar with the Windows® or the Linux operating system and the C programming language.

The information in this guide is organized as follows:

- Chapter 1, "Demo Description" provides a brief overview of the Dialogic® CSP API demo.
- Chapter 2, "System Requirements" discusses the requirements for running the demo.
- Chapter 3, "Preparing to Run the Demo" lists tasks to follow before running the demo.
- Chapter 4, "Running the Demo" describes the steps to run the demo, the demo options, the various demo modes of operation, and how to stop the demo.
- Chapter 5, "Demo Details" provides additional information about the demo, such as the files used by the demo.

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)

Demo Description 1

This chapter describes the Dialogic® Continuous Speech Processing (CSP) API demonstration program for the Dialogic® Host Media Processing (HMP) Software, also referred to as the Dialogic® CSP API demo.

The Dialogic CSP API demo is a single-threaded program that illustrates notable product features such as barge-in, voice activity detection, echo-cancelled recording and echo-cancelled streaming.

You can run the demo in two different modes:

- **Manual mode** - The manual mode is a single-channel, interactive demo. This mode allows you to barge in on a prompt that is being played. Messages are displayed on your screen as the demo progresses. This mode illustrates the operation of the **ec_stream( )** function.
- **Diagnostic mode** - The diagnostic mode is a non-interactive demo that exercises the CSP parameters.

Note: The Dialogic CSP API demo is designed to run on a single channel. The highest channel number that can be specified is 120. Attempts to run the demo using a channel number higher than 120 will cause the demo to fail.

System Requirements 2

The requirements for running the Dialogic® Continuous Speech Processing (CSP) API demo for the Dialogic® Host Media Processing (HMP) Software are described in this chapter.

To run the Dialogic® CSP API demo, you need the following:

- Internet ready PC with the Dialogic® HMP Software installed
- Microsoft® NetMeeting® or an Analog Telephone Adaptor (for example, Cisco ATA 186)
- Runtime Dialogic® HMP Software license that supports the Dialogic® CSP feature

Preparing to Run the Demo 3

This chapter provides information on the preparations to follow before running the Dialogic® Continuous Speech Processing (CSP) API demo for the Dialogic® Host Media Processing (HMP) Software.

Before running the Dialogic® CSP API demo, make sure you have completed the following:

1. Adhered to the system requirements listed in Chapter 2, "System Requirements".
2. Started the system service using the dlstart command on Linux or the Dialogic® Configuration Manager (DCM) on Windows®.

Running the Demo 4

Information about running the Dialogic® Continuous Speech Processing (CSP) API demo for the Dialogic® Host Media Processing (HMP) Software is provided in the following sections:

- Starting the Demo 17
- Demo Options 18
- Using the Demo 19
- Stopping the Demo 20

4.1 Starting the Demo

The Dialogic® CSP API demo is a command-line driven demo.

Linux

To run this demo, follow these instructions:

1. Open a command prompt window and go to the directory where the demo is located. On Linux, the demo is located in */demos/SpeechProcessing/CSPDemo/Release* under INTEL_DIALOGIC_DIR, the environment variable for the directory in which the Dialogic® HMP Software was installed.

2. At the command prompt, type

   ```
   ./CSPDemo -<option>
   ```

   For help on demo options, type

   ```
   ./CSPDemo -?
   ```

   Note: On Linux, the demo name is case-sensitive and must be entered as shown.

   The demo options are described in Section 4.2, "Demo Options", on page 18. If you don't specify an option, default options are assumed.

Windows®

To run this demo, follow these instructions:

1. Open a command prompt window and go to the directory where the demo is located. On Windows®, the demo is located in *\demos\SpeechProcessing\CSPDemo\Release* under INTEL_DIALOGIC_DIR, the environment variable for the directory in which the Dialogic® HMP Software was installed.

2. At the command prompt, type

```
CSPDemo -<option>
```

For help on demo options, type

```
CSPDemo -?
```

Note: On Windows®, the demo name is not case-sensitive.

The demo options are described in Section 4.2, "Demo Options", on page 18. If you don't specify an option, default options are assumed.

4.2 Demo Options

You can choose from several options when running the Dialogic CSP API demo as shown in Table 1. If an option is not specified when running the Dialogic CSP API demo, a default value applies.

The format for specifying options at the command prompt is:

```
<demo name> -<option1> -<option2> -<optionx>
```

For example, to run a test on channel 10 with the voice activity detector, echo canceller and barge-in turned on, type:

```
CSPDemo -c10 -v -e -b
```

For detailed information on functions and parameters mentioned in the table, see the *Dialogic® Continuous Speech Processing API Library Reference*.

Notes: ***1.*** The order in which you specify demo options is not important.

2. In the table, N represents an integer.

Table 1. Dialogic® CSP API Demo Options

Demo Option	Default Value	Description/Value
-?	none	Displays command line options.
-b	disabled	Enables barge-in mode. In this mode, the outgoing prompt will be terminated when the voice activity detector (VAD) is triggered.
-cN	-c1	Specifies the channel number to use in manual mode. Channel number cannot be higher than 120. **Note:** This value is ignored for the diagnostic mode. See -d option for information on setting diagnostic mode.

Table 1. Dialogic® CSP API Demo Options (Continued)

Demo Option	Default Value	Description/Value
-d	disabled	Enables diagnostic mode. When running in diagnostic mode, it is recommended that you turn on logging (-l) to have a written record of the findings. In this mode, the demo tests all parameters available in **ec_setparm( )**. After the tests are completed, the demo resets all values to their original setting.
-e	disabled	Enables echo cancellation mode. In this mode, the incoming energy is echo-cancelled.
-l	disabled	Enables logging of results to a text file called *CSPdemo.log*. **Note:** This option is available for diagnostic mode only. For manual mode, the results are displayed on the screen.
-pN	-p1	Specifies the network interface channel for Global Call. The default value is 1, for H.323. A value of 2 is used for IP.
-tN	-t-40	Specifies the speech threshold value while a prompt is playing. This setting overrides the value in DXCH_SPEECHPLAYTHRESH. The default value is -40 dBm. The range is +3 to -54 dBm.
-v	disabled	Enables voice-activated record mode (ECCH_VADINITIATED). Enables or disables voice-activated record in the application. If enabled, streaming of data to the application begins only after energy is detected. If disabled, streaming begins when **ec_setparm( )** is called.

4.3 Using the Demo

The following topics provide more information on using the Dialogic CSP API demo:

- Manual Mode
- Diagnostic Mode

4.3.1 Manual Mode

To run the Dialogic CSP API demo in the manual mode, type:

```
CSPDemo -p2 -b
```

The manual mode is a single-channel demo that uses the specified channel to allow you to listen to a prompt and interrupt as the prompt is playing. Messages are displayed on your screen as the demo progresses. This mode illustrates the operation of the **ec_stream( )** function. It also contains code for the **ec_reciottdata( )** function.

In manual mode, the demo runs as follows:

1. After the demo starts, a welcome prompt, *CSP_prompt.pcm*, is played.

2. This part of the demo illustrates the operation of the **ec_stream( )** function. As the prompt is playing, you can interrupt the prompt or barge in through the NIC connection.

   As soon as you speak, the prompt stops playing and echo-cancelled recording begins. TDX_BARGEIN, TEC_VAD, and TDX_PLAY events are generated. The demo records your message for 6 seconds and stores the message in *ec_stream.pcm*. At the end of this time, the TEC_STREAM event is generated to indicate termination of recording.

   The demo then plays back the echo-cancelled recording of your message.

3. The demo is completed.

4.3.2 Diagnostic Mode

To run the Dialogic CSP API demo in diagnostic mode, type:

```
CSPDemo -d -l
```

The diagnostic mode is a single-channel demo that can be used to verify operation of all parameters available through the **ec_setparm( )** function. The demo alternatively sets each parameter to the minimum value, maximum value, and an out-of-range value and returns the appropriate message. After the demo is completed, parameters are reset to their original values (see demo source code).

A summary of the results is reported in the log file.

Note: Because diagnostic mode includes a test for invalid parameter values, you will see error messages in the log file. This is expected. For example, you will see a message such as "FAIL: diagnostic test found 16 errors."

4.4 Stopping the Demo

Typically, the Dialogic CSP API demo runs to completion and stops automatically.

If necessary, you can press **Ctrl-C** at any time to exit the demo. The channel and files are properly closed by the demo.

Demo Details 5

The following section provides a list of the files used by the Dialogic® Continuous Speech Processing (CSP) API demo for the Dialogic ® Host Media Processing (HMP) Software.

- Files Used by the Demo. 21

5.1 Files Used by the Demo

Table 2 lists the files used by the Dialogic® CSP API demo.

Table 2. Files Used by the Dialogic® CSP API Demo

File Name	Purpose
CSPDemo.c	Demo program source file.
CSPDemo.h	Demo program header file.
CSPdemo.log	Log file. This ASCII text file logs the results of the Dialogic® CSP demo run. For example, the log lists the test mode, channel used, and the activities that occur as the demo progresses.
CSPDemo_version.c	Version control file. Contains version number of the demo.
CSP_prompt.pcm	Welcome prompt used when the demo begins. Used when running the demo in either the manual or diagnostic mode.
ec_stream.pcm	File generated by the **ec_stream( )** function. Contains an echo-cancelled recording of your speech in response to the second prompt when you run the demo in manual mode.

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