



Intel® Dialogic® System Software for PCI Products on Windows

Administration Guide

November 2003



INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER, AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. Intel products are not intended for use in medical, life saving, or life sustaining applications.

Intel may make changes to specifications and product descriptions at any time, without notice.

This Intel® Dialogic® System Software for PCI Products on Windows Administration Guide as well as the software described in it is furnished under license and may only be used or copied in accordance with the terms of the license. The information in this manual is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by Intel Corporation. Intel Corporation assumes no responsibility or liability for any errors or inaccuracies that may appear in this document or any software that may be provided in association with this document.

Except as permitted by such license, no part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without express written consent of Intel Corporation.

Copyright © 2003 Intel Corporation.

AnyPoint, BoardWatch, BunnyPeople, CablePort, Celeron, Chips, CT Media, Dialogic, DM3, EtherExpress, ETOX, FlashFile, i386, i486, i960, iCOMP, InstantIP, Intel, Intel Centrino, Intel Centrino logo, Intel logo, Intel386, Intel486, Intel740, IntelDX2, IntelDX4, IntelSX2, Intel InBusiness, Intel Inside, Intel Inside logo, Intel NetBurst, Intel NetMerge, Intel NetStructure, Intel SingleDriver, Intel SpeedStep, Intel StrataFlash, Intel TeamStation, Intel Xeon, Intel XScale, IPLink, Itanium, MCS, MMX, MMX logo, Optimizer logo, OverDrive, Paragon, PDCharm, Pentium, Pentium II Xeon, Pentium III Xeon, Performance at Your Command, RemoteExpress, SmartDie, Solutions960, Sound Mark, StorageExpress, The Computer Inside., The Journey Inside, TokenExpress, VoiceBrick, VTune, and Xircom are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

* Other names and brands may be claimed as the property of others.

Publication Date: November 2003

Document Number: 05-1910-001

Intel Converged Communications, Inc.
1515 Route 10
Parsippany, NJ 07054

For **Technical Support**, visit the Intel Telecom Support Resources website at:

<http://developer.intel.com/design/telecom/support>

For **Products and Services Information**, visit the Intel Telecom Products website at:

<http://www.intel.com/design/network/products/telecom>

For **Sales Offices** and other contact information, visit the Where to Buy Intel Telecom Products page at:

<http://www.intel.com/buy/wtb/wtb1028.htm>



Contents

	Revision History	7
	About This Publication	9
	Purpose	9
	Intended Audience	9
	How to Use This Publication	9
	Related Information	10
1	Administration Overview	11
1.1	Common Administration Tasks	11
1.1.1	Stopping and Starting the System	11
1.1.2	Adding, Removing, and Replacing Boards	11
1.2	Administration Tools	12
1.2.1	QScript Tools	12
2	Stopping and Starting the System	13
2.1	Initiating the Intel Dialogic System	13
2.1.1	System/Device Autostart ModesAdministration Guide	15
2.1.2	Setting Startup Mode to Manual Before Making Hardware Changes	17
2.2	Stopping the System	17
2.3	Starting the System	17
2.3.1	Starting the Devices After a Reboot	17
2.4	Applying Configuration Changes	18
2.4.1	System Level Changes	18
2.4.2	Board Level Changes	19
3	Installing and Uninstalling Boards	21
3.1	Installing a Board in the System	21
3.2	Uninstalling a Board From the System	22
3.3	Replacing a Board in the System	23
4	Alarms Reference	27
4.1	Description	27
4.2	Guidelines	27
4.3	Options	27
5	Audio Control Reference	29
5.1	Description	29
5.2	Guidelines	29
5.3	Options	29
6	CAS Signal Editor Reference	31
6.1	Description	31
6.2	Guidelines	32
6.3	Options	32
7	Event Viewer Reference	33

8	Line Admin Reference	35
8.1	<i>Description</i>	35
8.2	Guidelines	36
8.3	Options	36
9	List Boards Reference	37
9.1	Description	37
9.2	Guidelines	37
9.3	Options	39
10	STD Config Reference	41
10.1	Description	41
10.2	Guidelines	42
10.3	Options	42
11	TBList Reference	43
11.1	Description	43
11.2	Guidelines	44
11.3	Options	44
12	Troubleshooting	45
12.1	General Troubleshooting Information	45
12.2	Checking Configuration	45
12.3	Event Viewer	46
12.4	Checking Which Packages Are Installed	46
12.5	Checking Hardware	46
12.6	Board Download Failures	46
	Index	47

Figures

1	Starting the Intel Dialogic System	14
2	Start Devices Preference.	15
3	System/Device Autostart	16
4	DCM Main Window - Device Menu	20
5	Alarms Display.	27
6	DM3 Audio Control Display	29
7	CAS Signal Editor Display	31
8	DCM Main Window - View Menu	33
9	Line Admin Display	35
10	Listboards Display (Level 1)	38
11	ListBoards Display (Level 2)	38
12	STD Config Display	41
13	tblist Display.	43





Revision History

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

Document No.	Publication Date	Description of Revisions
05-1910-001	November 2003	Initial version of document.





About This Publication

The following topics provide information about this publication:

- Purpose 9
- Intended Audience..... 9
- How to Use This Publication..... 9
- Related Information..... 10

Purpose

This publication provides information about performing administrative tasks on an active Windows*-based system that uses the Intel® Dialogic® System Release Software. The information applies to a system that has been successfully installed and configured, and has been in operation.

Intended Audience

This publication is written for the following audience:

- System Integrators
- Independent Software Vendors (ISVs)
- Original Equipment Manufacturers (OEMs)
- Telephony Equipment Manufacturers (TEMs)
- Network Equipment Providers
- Distributors

How to Use This Publication

Refer to this publication after you have installed and configured the Intel Dialogic System Software and associated hardware. This publication assumes that you are familiar with the Windows operating system.

The information in this guide is organized as follows:

- [Chapter 1, “Administration Overview”](#) provides an overview of the administrative tasks and tools associated with a system using the Intel Dialogic System Software.
- [Chapter 2, “Stopping and Starting the System”](#) provides information about stopping and starting the Intel Dialogic system and applying configuration changes to Intel telecom boards.
- [Chapter 3, “Installing and Uninstalling Boards”](#) provides procedures for adding, removing, or replacing boards in a system.

- Chapter 4, “Alarms Reference” provides reference information about the Alarms tool.
- Chapter 5, “Audio Control Reference” describes the Audio Control tool.
- Chapter 6, “CAS Signal Editor Reference” provides information about the CAS Signal Editor tool.
- Chapter 7, “Event Viewer Reference” describes the Event Viewer administrative tool.
- Chapter 8, “Line Admin Reference” provides reference information about the Line Admin tool.
- Chapter 9, “List Boards Reference” describes the List Boards administrative tool.
- Chapter 10, “STD Config Reference” contains information about the STD Config tool.
- Chapter 11, “TBLIST Reference” provides reference information about the TBLIST tool.
- Chapter 12, “Troubleshooting” provides general information about troubleshooting a system that uses the Intel Dialogic System Software.

Related Information

Refer to the following documents for more information about the System Release 6.0 software:

- For timely information that may affect installation and configuration, see the Release Guide and the Release Update. Be sure to check the Release Update for the system release you are using for any updates or corrections to this publication.
- For information about installing the system software, refer to the *Intel Dialogic System Release 6.0 PCI for Windows on Intel Architecture Software Installation Guide*.
- For information about configuring Intel telecom boards, refer to the *Intel DM3 Architecture PCI Products on Windows Configuration Guide* and the *Intel Springware Architecture Products on Windows Configuration Guide*.
- For diagnostics information, refer to the *Dialogic Universal Hardware Diagnostics Guide* and the *Intel Dialogic System Software for DM3 Architecture Products Diagnostic Guide*.
- For information about using the SNMP Agent Software, refer to the *SNMP Agent Software for Windows Operating Systems Administration Guide*.
- For development software documentation relating to administrative tasks see the *Standard Runtime Library API for Linux and Windows Operating Systems Library Reference* and the *Event Service API for Windows Operating Systems Library Reference*.
- For hardware installation instructions, see the Quick Install Card that comes with each board.
- <http://www.intel.com/network/csp> for product information
- <http://developer.intel.com/design/telecom/support> for technical support

This chapter provides an overview of the tasks that can be performed and the tools that can be used on a system using the Intel® Dialogic® System Software. The following sections are included:

- [Common Administration Tasks](#) 11
- [Administration Tools](#) 12
- [QScript Tools](#) 12

1.1 Common Administration Tasks

The common administration tasks that may be performed on a system using the Intel Dialogic System Software include:

- [Stopping and Starting the System](#)
- [Adding, Removing, and Replacing Boards](#)

1.1.1 Stopping and Starting the System

To reconfigure the Intel Dialogic System Software, the system must first be stopped and then restarted again, after the configuration has been completed, so that the new configuration will take effect. Choosing **Stop System** from the Intel Dialogic Configuration Manager (DCM) **Service** menu stops all Intel computer telephony system resources in the system. Choosing **Start System** from the DCM **System** menu may or may not start all Intel computer telephony system resources in the system, depending on the startup mode option that the user selects. For more information about the system/device startup modes, see [Chapter 2, “Stopping and Starting the System”](#).

- Notes:**
1. Stopping and starting the Intel Dialogic System Software stops and starts all of the active boards installed in the system.
 2. When the system is rebooted, the Intel Dialogic System Software can be configured to start automatically.

1.1.2 Adding, Removing, and Replacing Boards

To add, remove, or replace a board in the system, the application must be notified to stop all activity, the Intel Dialogic System must be stopped, and the system must be shut down. When restarting the system, there are three startup mode options to select from.

1.2 Administration Tools

A number of tools allow you to perform administration tasks on a system using Intel telecom boards.

Alarms

Monitors the alarms on a T1 or E1 line.

Audio Control

Controls the Player and Recorder resources.

CAS Signal Editor

Allows you to dynamically view and modify CAS signal identification parameters (transitions, pulses, trains, or sequences) so you can test them before changing the *.config* file.

Event Viewer

Displays error and administration messages using the Windows* Event Viewer.

LineAdmin

Places T1 and E1 lines in service so you can run a number of the other utilities. Also monitors T1 and E1 alarms.

Listboards

Displays information about the Intel® NetStructure™ boards that are installed in the system.

STD Config

Compares component parameters.

TBList

Provides information about the system's TDM bus settings for the boards specified.

1.2.1 QScript Tools

The QScript tools are a subset of the administration tools that talk to the various components of a DM3 board (player, recorder, etc.). QScript is an object-oriented scripting tool developed for the Intel telecom products based on the DM3™ architecture. QScript is intended for use while developing demonstration or test programs and is implemented using the Tcl/Tk generic scripting language. All QScript utilities can be run from the Windows operating system.

Note: Do not directly run any *<toolname>.qs* files located in *C:\program files\dialogic\qscript*. Script files have been created which call the QScript interpreter to run the *<toolname>.qs* file. To use a QScript tool, specify the tool name, along with any options, at the command line as shown in the various administration tool reference sections in this document.

QScript tools use board and line numbers as follows: board numbers are 0-based and line numbers are 1-based. That is, the first board is typically board 0 and the first line is line 1.

The following administration tools use QScript:

- Audio Control
- CAS Signal Editor
- Line Admin
- STD Config

Stopping and Starting the System 2

This chapter covers the following topics about starting and stopping the Intel® Dialogic® System:

- [Initiating the Intel Dialogic System](#) 13
- [Stopping the System](#) 17
- [Starting the System](#) 17
- [Applying Configuration Changes](#) 18

After you install and configure Intel® telecom boards, you must start the Intel Dialogic System. The Intel Dialogic System downloads firmware with configuration parameter settings to the boards and initiates their device drivers. Following this, you can use some of the tools provided by Intel to verify that your system is operating properly, before starting work on your applications.

2.1 Initiating the Intel Dialogic System

To start the Intel Dialogic System for the first time, choose **Start System** from the **System** menu or click the **Start all enabled devices** icon in the configuration manager (DCM) main window (Figure 1).

You also have the option of choosing **Start devices preference** from the **Settings** menu (Figure 2). This allows you to select from two modes:

Start all device(s) or Start none

causes the Intel Dialogic System to run only if all devices have downloaded the firmware. If at least one device fails to download, the Intel Dialogic System will not start.

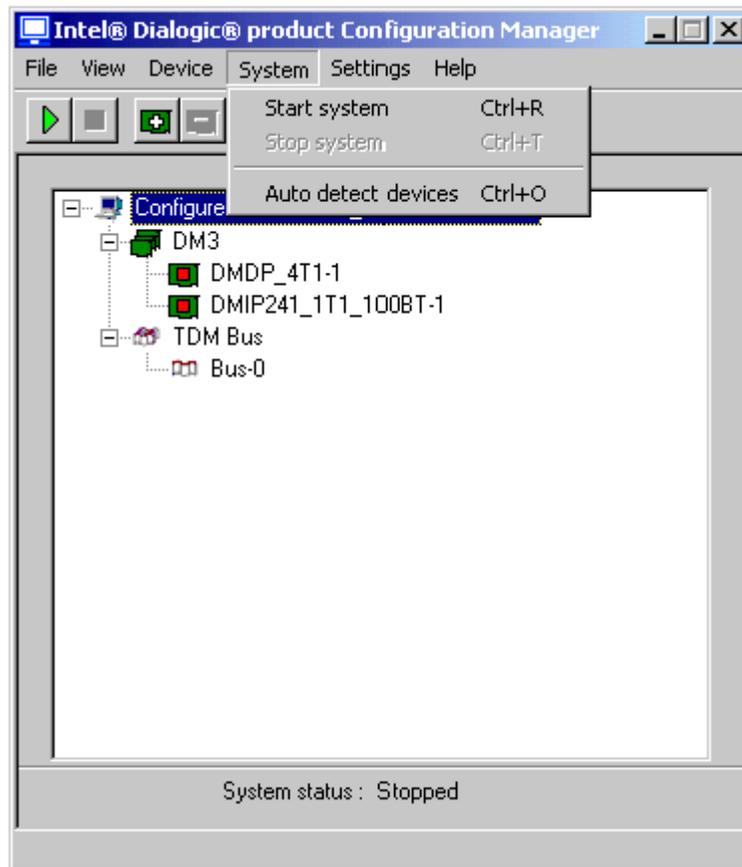
Start selective (Good devices only)

causes the Intel Dialogic System to run even if one or more devices fail to download the firmware. The DCM will bypass the problematic device(s) and the Intel Dialogic System will start.

It may take several minutes for the Intel Dialogic System to start. DCM displays a progress bar in the upper right corner of the screen during the wait time. When the Intel Dialogic System starts, the **System status** indicator at the bottom of the DCM main window indicates **Running**.

The progress bar is normally displayed until the Intel Dialogic System is started. However, when connected to a remote node, for example, the time to download boards and start the Intel Dialogic System could be extended because of network latency. If the progress bar is no longer displayed but the **System status** indicator does not indicate the **Running** state yet, this does not necessarily indicate a problem. Click the **Refresh** icon on the DCM main window periodically to update the **System status** indicator. Eventually, it should indicate **Running**. If not, check the Windows Event Viewer to see if an error occurred.

Figure 1. Starting the Intel Dialogic System

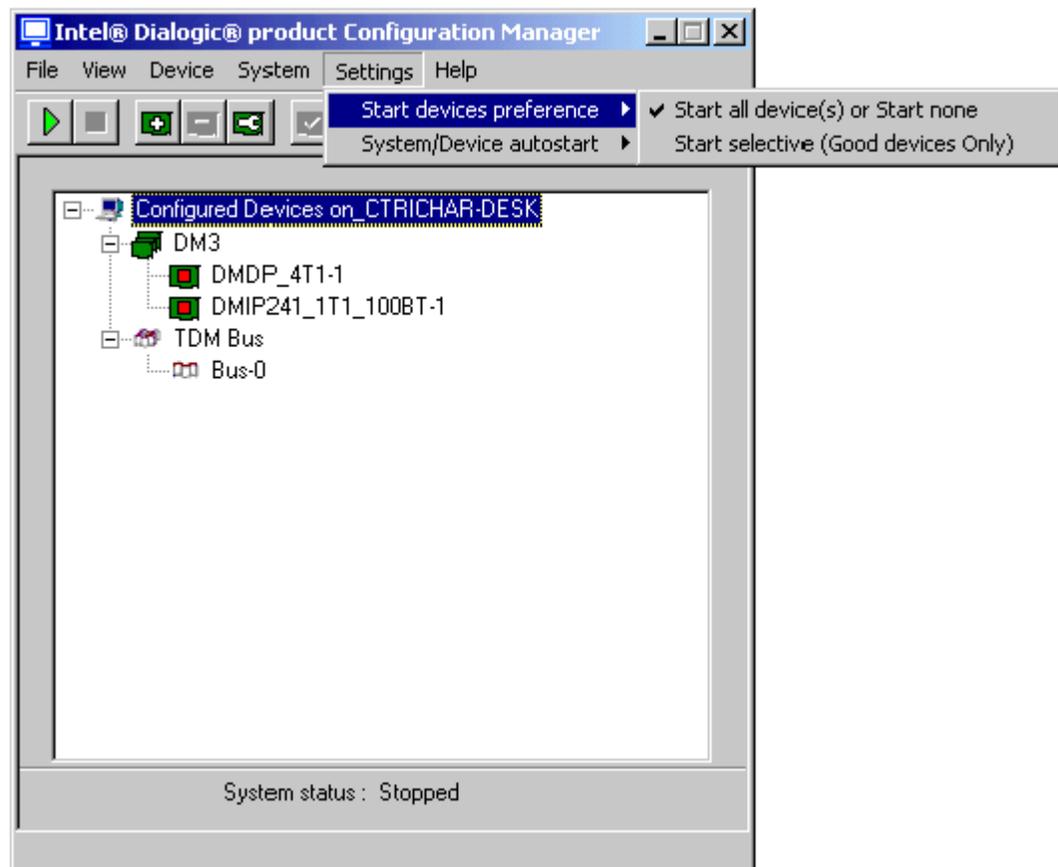


You cannot start the Intel Dialogic System while all the boards are disabled. Also, you should not start the Intel Dialogic System from the Windows Control Panel.

Note: When scanning the PCI bus, Windows 2000 uses an *inf* file to correlate a discovered device with a driver binary file that would be loaded for the scanned device. In this case, you need to direct the system to the *inf* file. The *inf* file makes the system aware of the name and manufacturer of the board. The *inf* file also keeps track of the device in the device manager.

If you don't point the system to the *inf* file, a **Found New Hardware Wizard** will appear every time you reboot the computer. Refer to the procedure in [Section 3.1, "Installing a Board in the System"](#), on page 21.

Figure 2. Start Devices Preference



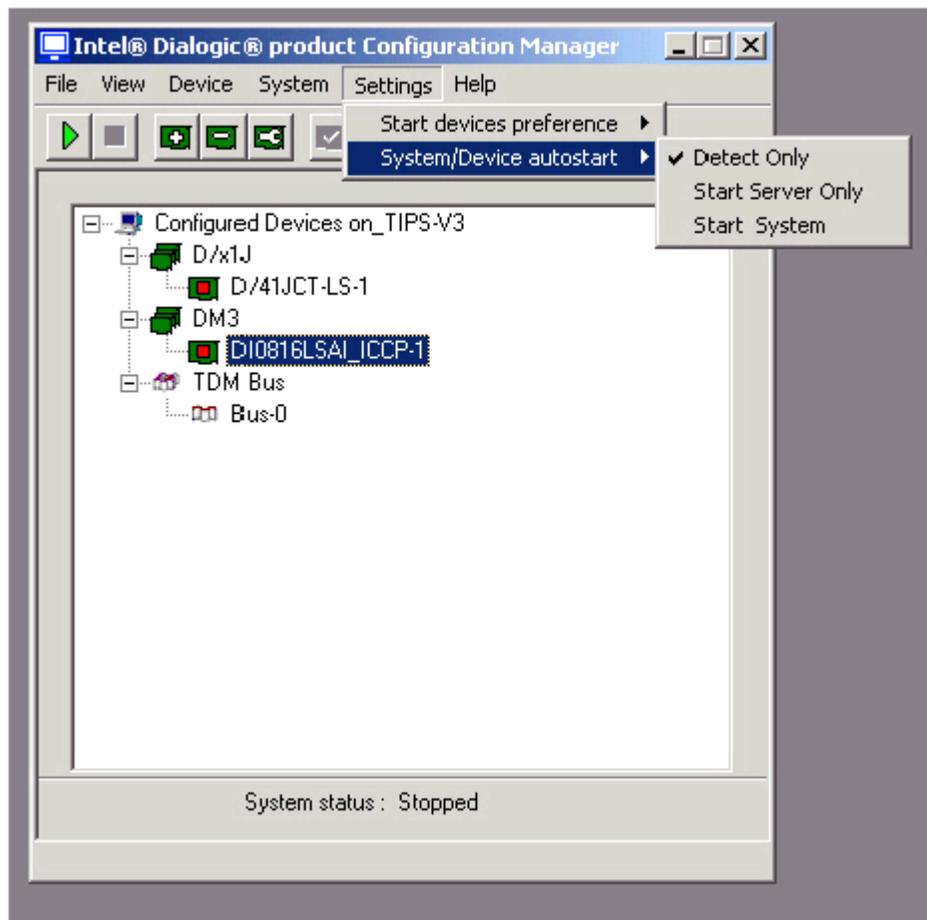
2.1.1 System/Device Autostart Modes Administration Guide

There are cases where the Intel Dialogic System must be started automatically (without human assistance) and there are other cases when the Intel Dialogic System, as well as the boards, need to be started manually. Users with administrative privileges can set the **System/Device autostart** option to **Detect Only**, **Start Server Only**, or **Start System** using the DCM **Settings** menu (Figure 3) or programmatically using the NCM API library (described in the *Native Configuration Manager API for Windows Library Reference* and *Native Configuration Manager API for Windows Programming Guide*).

2.1.1.1 Detect Only Mode

Selecting the **Detect Only** mode causes Windows to detect the boards that are installed in the system when the system reboots, but neither the Intel Dialogic System nor the boards are started automatically. If you select **Detect Only** as the **System/Device autostart** option, you will need to manually start both the Intel Dialogic System and the boards using the DCM GUI or the NCM API.

Figure 3. System/Device Autostart



2.1.1.2 Start Server Only Mode

Selecting the **Start Server Only** mode from the **System/Device autostart** submenu causes the Intel Dialogic System to start automatically when the server is started. The boards will be automatically detected, but not started. In this mode you will need to start the boards manually using the DCM GUI or the NCM API.

2.1.1.3 Start System Mode

If the **System/Device autostart** option is set to **Start System**, the Intel Dialogic System restarts automatically when the system reboots and all boards are automatically detected and started.

Note: Do *not* use the Windows Services applet to set the Intel Dialogic System startup mode to **Start System**. You must use the DCM GUI or the NCM API to do this because they internally set the startup mode of the Intel Dialogic drivers to **Start System**. If you use the Windows Services applet, you will not set up the driver dependencies properly.

If you set the **System/Device autostart** option to **Start System**, and you want to reconfigure boards through DCM after rebooting the computer, you should use DCM to stop the Intel Dialogic System and then perform the normal operations through DCM. (It is possible to use Windows Services applet to stop the Intel Dialogic System, but this is not recommended.)

2.1.2 Setting Startup Mode to Manual Before Making Hardware Changes

Do not make changes to hardware in the system while the Intel Dialogic System is set to **Start System**. This is because in the **Start System** Mode, the Intel Dialogic System does **not** run the detection routine. If you intend to change hardware, set the **System/Device autostart** option to **Detect Only** first. Then, after you've completed the changes and the detection routine has run, you can reset the **System/Device autostart** option to **Start System**.

2.2 Stopping the System

Before you stop the Intel Dialogic System, the application must be stopped and the application must ensure that all channels have been closed.

The Intel Dialogic System is stopped using the DCM. From the DCM main window, choose **Stop System** from the **System** menu or click the **Stop all enabled devices** icon. See Figure 1 for a display of the DCM main window.

2.3 Starting the System

Startup should only be performed when the system is stopped.

You only have to reboot the system for the **initial** startup. To start the Intel Dialogic System at any time after the initial startup, from the DCM main window, choose **Start System** from the **System** menu or click the **Start all enabled devices** icon. See Figure 1 for a display of the DCM main window.

For information about startup messages, see the *Intel Dialogic System Release 6.0 PCI for Windows on Intel Architecture Software Installation Guide*.

2.3.1 Starting the Devices After a Reboot

The Intel Dialogic devices may be configured to start automatically or manually after the system is rebooted. The default configuration is for the devices to be manually started. The DCM **Settings** menu item **System/Device Autostart** is set by default to **Detect Only (Don't Start)**. If the system is rebooted with this configuration selected, you will then need to manually restart the devices by choosing **Start System** from the DCM **System** menu.

To change the Intel Dialogic System to automatically start the devices after a reboot, perform the following:

1. Stop the application and ensure that all channels have been closed.
2. Choose **Stop System** from the **System** menu in the DCM main window or click the **Stop all enabled devices** icon.
3. From the DCM main window, choose the **Detect and Start** option from the **Settings** menu **System/Device Autostart** item.
4. Reboot the system.
5. Restart the application.

2.4 Applying Configuration Changes

Configuration changes can be made at both the system level and board level. The following topics are include in this section:

- [System Level Changes](#)
- [Board Level Changes](#)

2.4.1 System Level Changes

Whenever a system-level configuration change is made, the system must first be stopped before the change is made and then restarted after the change has been made, but you do not have to reboot the system.

1. Before you stop the system, the application must be stopped and the application must ensure that all channels have been closed.
2. Stop the system from the DCM main window by choosing **Stop System** from the **System** menu or by clicking the **Stop all enabled devices** icon. See Figure 1 for a display of the DCM main window.
3. Modify configuration parameters as necessary.
4. Start the system from the DCM main window by choosing **Start System** from the **System** menu or by clicking the **Start all enabled devices** icon. See Figure 1 for a display of the DCM main window.
5. Restart the application.

For information about startup messages, refer to the *Intel Dialogic System Release 6.0 PCI for Windows on Intel Architecture Software Installation Guide*.

2.4.2 Board Level Changes

To modify one or more parameters on a single board without stopping the system, use the following procedure:

1. Inform the application to stop all activity on the board and close all open device handles.

The Standard Runtime Library (SRL) functions can be used to determine the devices on the board with the specified AUID, and the devices can be closed using `dx_close()`, `dt_close()`, etc. For information about these functions, see the *Standard Runtime Library API for Linux and Windows Operating Systems Library Reference*.

2. When the application has stopped using devices associated with the board, use the DCM to stop the board. From the DCM main window, highlight the board that you wish to stop and then choose **Stop Device** from the **Device** menu to inform the driver to release the operating system resources assigned to the board. See Figure 4 for a display of the **Device** menu.

The board and all virtual devices associated with the board must not be used until the board is restarted.

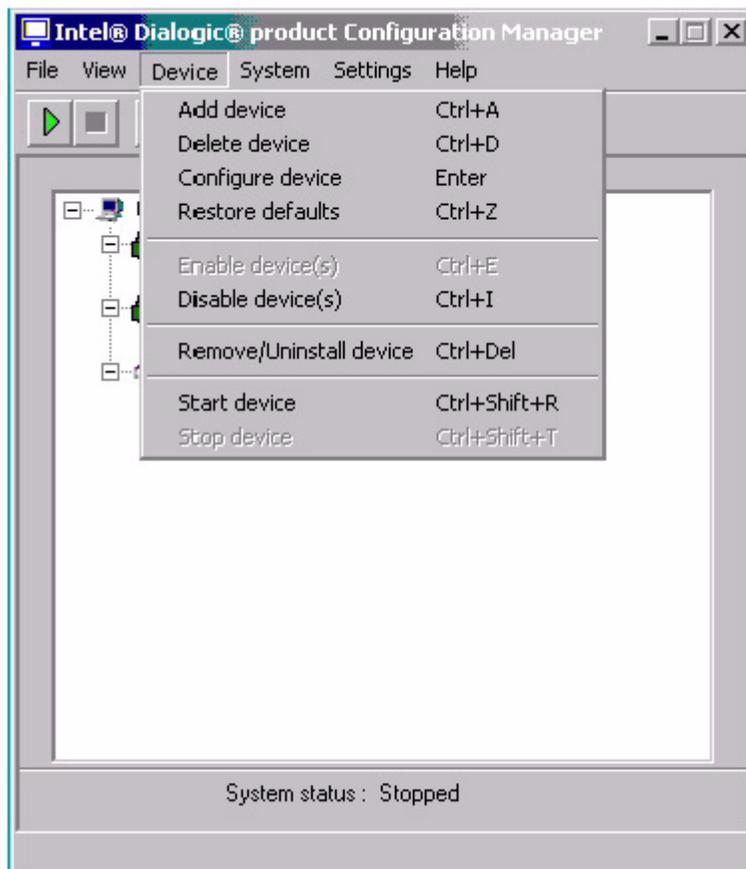
3. Start the board using the DCM. From the DCM main window, with the board still highlighted, choose **Start Device** from the **Device** menu to download the revised configuration and initialize the board.

The board and all virtual devices on the board can be used once the download and initialization have completed.

Note: When the board is started, the `DLGC_EVT_BLADE_STARTED` event is generated by the event notification framework. For an application to receive this event, the application must be registered with the `ADMIN_CHANNEL`. For additional information about events, refer to the *Event Service API for Windows Operating Systems Library Reference*.

4. Inform the application to start using the board.

Figure 4. DCM Main Window - Device Menu



The standard runtime library (SRL) functions can be used to determine the devices that are in service again on the board with the specified AUID, and the devices can be opened using **dx_open()**, **dt_open()**, etc. For information about these functions, see the *Standard Runtime Library API for Linux and Windows Operating Systems Library Reference*.

Installing and Uninstalling Boards 3

This chapter provides information and procedures associated with installing and uninstalling boards in the system. The following topics are included:

- Installing a Board in the System 21
- Uninstalling a Board From the System 22
- Replacing a Board in the System. 23

3.1 Installing a Board in the System

The following procedure describes how to add a new PCI board to a system.

1. Inform the application to stop all activity and close all open device handles.
The Standard Runtime Library (SRL) functions can be used to determine the devices to be closed using **dx_close()**, **dt_close()**, etc. For information about these functions, see the *Standard Runtime Library API for Linux and Windows Operating Systems Library Reference*.
2. When the application has stopped all activity, use the configuration manager (DCM) to stop the Intel® Dialogic® System. From the DCM main window, choose **Stop system** from the **System** submenu.
3. From the Windows* Start menu, shut down the system.
4. Insert the new board in an empty slot following the instructions in the Quick Install Card provided with the board.
5. Re-apply power to the system.
6. Depending on the DCM System/Device autostart option selected, the new board will be detected by the system and either be started using the default values, or remain in the stopped state, allowing you to manually configure and start the board. See [Figure 3, “System/Device Autostart”](#), on page 16 for a display of the System/Device autostart menu.
 - If the **Detect Only** option has been selected from the **System/Device autostart** submenu, the Intel Dialogic System and the boards will have to be manually started using the DCM GUI (or NCM API). The new board will be detected by the system and displayed in the DCM main window, but will not be started automatically. You will have to manually start the new board using the DCM GUI (or NCM API).
 - If the **Start Server Only** option has been selected, the Intel Dialogic System will start automatically when the system is restarted and the new board will be detected automatically. You will, however, need to start the new board manually using the DCM GUI.

- If the **Start System** option has been selected, the Intel Dialogic System will be automatically started and the new board will be detected by the system, displayed in the DCM main window, and automatically started using the system default configuration for that board type.
7. For Intel telecom boards that use the DM3™ architecture, ensure that the new board's Power On Self Test (POST) has completed. This will be indicated by the LEDs on the board becoming extinguished.

Note: The POST does not apply to Intel Dialogic Springware boards.
 8. Starting the board depends on the option selected from the **System/Device autostart** menu:
 - 8a. If the System/Device autostart option is set to **Detect Only**, first start the Intel Dialogic System and then start the new board using the DCM GUI (or NCM API). From the DCM main window, click the **Start all enabled devices** button or highlight the new board and then choose **Start Device** from the **Device** menu to download and initialize the board.
 - 8b. If the System/Device autostart option is set to **Start Server Only**, the Intel Dialogic System will start automatically, but you will need to start the new board using the DCM GUI (or NCM API). From the DCM main window, click the **Start all enabled devices** button or highlight the new board and then choose **Start Device** from the **Device** menu to download and initialize the board.
 - 8c. If the System/Device autostart option is set to **Start System**, the Intel Dialogic System and all boards, including the new board, will be started automatically.

The board and all virtual devices on the board can be used once the download and initialization have completed.

Note: When the board is started, the DLGC_EVT_BLADE_STARTED event is generated by the event notification framework. For an application to receive this event, the application must be registered with the ADMIN_CHANNEL. For additional information about events, refer to the *Event Service API for Windows Operating Systems Library Reference*.

9. Inform the application to resume activity and open all closed device handles.

The standard runtime library (SRL) functions can be used to determine the devices that are in service again on the board with the specified AUID, and the devices can be opened using **dx_open()**, **dt_open()**, etc. For information about these functions, see the *Standard Runtime Library API for Linux and Windows Operating Systems Library Reference*.

3.2 Uninstalling a Board From the System

The following procedure describes the basic steps for removing a PCI board from a system.

1. Inform the application to stop all activity on the board and close all open device handles.

The Standard Runtime Library (SRL) functions can be used to determine the devices on the board with the specified AUID, and the devices can be closed using **dx_close()**, **dt_close()**, etc. For information about these functions, see the *Standard Runtime Library API for Linux and Windows Operating Systems Library Reference*.

2. When the application has stopped using devices associated with the board, use the Intel Dialogic Configuration Manager (DCM) to stop the Intel Dialogic System. From the DCM main window, select **Stop system** from the **System** submenu.
3. From the Windows Start menu, shut down the system.
4. Physically remove the board according to the instructions in the Quick Install Card that came with the board.
5. Re-apply power to the system.
6. Restarting the boards depends on the option selected from the **System/Device autostart** menu:
 - If the System/Device autostart option is set to **Detect Only**, first start the Intel Dialogic System and then start the boards using the DCM GUI (or NCM API). From the DCM main window, click the **Start all enabled devices** button to restart the boards.
 - If the System/Device autostart option is set to **Start Server Only**, the Intel Dialogic System will start automatically, but you will need to start the boards using the DCM GUI (or NCM API). From the DCM main window, click the **Start all enabled devices** button to restart the boards.
 - If the System/Device autostart option is set to **Start System**, the Intel Dialogic System and all remaining boards will be started automatically.
7. Inform the application to start using the boards.

The standard runtime library (SRL) functions can be used to determine the devices that are in service again on the boards with the specified AUIDs, and the devices can be opened using **dx_open()**, **dt_open()**, etc. For information about these functions, see the *Standard Runtime Library API for Linux and Windows Operating Systems Library Reference*.

3.3 Replacing a Board in the System

The following procedure describes the basic steps for removing a PCI board and replacing it with a PCI board of the same type in a system.

1. Inform the application to stop all activity on the board and close all open device handles.

The Standard Runtime Library (SRL) functions can be used to determine the devices on the board with the specified AUID, and the devices can be closed using **dx_close()**, **dt_close()**, etc. For information about these functions, see the *Standard Runtime Library API for Linux and Windows Operating Systems Library Reference*.

Note: If the board being replaced was previously functioning as the Primary Clock Master or Reference Master, and the system has now automatically switched to a backup Clock Master and/or Reference Master because this board failed, replacing this board will not cause the system to automatically revert back to using the replacement board as the Primary Clock Master and/or Reference Master.

All virtual devices associated with the board must not be used until the replacement board is started.

2. When the application has stopped using devices associated with the board, use the Intel Dialogic Configuration Manager (DCM) to stop the Intel Dialogic System. From the DCM main window, select **Stop system** from the **System** submenu.
3. From the Windows Start menu, shut down the system.
4. Physically remove the board according to the instructions in the Quick Install Card that came with the board.
5. Insert the replacement baseboard in the vacated slot following the instructions provided with the Quick Install Card.
6. Re-apply power to the system.
7. Depending on the DCM System/Device autostart option selected, the replacement board will be detected when the system is rebooted and either be started using the default values, or remain in the stopped state, allowing you to manually configure and start the board. See Figure 4 for a display of the Device menu.
 - If the **Detect Only** option has been selected from the **System/Device autostart** submenu, the Intel Dialogic System and the boards will have to be manually started using the DCM GUI (or NCM API). The replacement board will be detected by the system and displayed in the DCM main window, but will not be started automatically. You will have to manually start the new board using the DCM GUI (or NCM API).
 - If the **Start Server Only** option has been selected, the Intel Dialogic System will start automatically when the system is restarted and the replacement board will be detected automatically. You will, however, need to start the replacement board manually using the DCM GUI (or NCM API).
 - If the **Start System** option has been selected, the Intel Dialogic System will be automatically started and the replacement board will be detected by the system, displayed in the DCM main window, and automatically started using the existing system configuration for that board.
8. For Intel telecom boards that use the DM3 architecture, ensure that the replacement board's Power On Self Test (POST) has completed. This will be indicated by the LEDs on the board becoming extinguished.

Note: The POST does not apply to Intel Dialogic Springware boards.
9. Starting the replacement board depends on the option selected from the **System/Device autostart** menu:
 - If the System/Device autostart option is set to **Detect Only**, first start the Intel Dialogic System and then start the replacement board using the DCM GUI (or NCM API). From the DCM main window, click the **Start all enabled devices** button or highlight the replacement board and then choose **Start Device** from the **Device** menu to download and initialize the board.
 - If the System/Device autostart option is set to **Start Server Only**, start the new board using the DCM GUI. From the DCM main window, click the **Start all enabled devices** button or highlight the replacement board and then choose **Start Device** from the **Device** menu to download and initialize the board.

- If the System/Device autostart option is set to **Start System**, the Intel Dialogic System and all boards, including the replacement board, will be started automatically.

The board and all virtual devices on the board can be used once the download and initialization have completed.

Note: When the board is started, the DLGC_EVT_BLADE_STARTED event is generated by the event notification framework. For an application to receive this event, the application must be registered with the ADMIN_CHANNEL. For additional information about events, refer to the *Event Service API for Windows Operating Systems Library Reference*.

10. Inform the application to resume activity and open all closed device handles.

The standard runtime library (SRL) functions can be used to determine the devices that are in service again on the board with the specified AUID, and the devices can be opened using **dx_open()**, **dt_open()**, etc. For information about these functions, see the *Standard Runtime Library API for Linux and Windows Operating Systems Library Reference*.



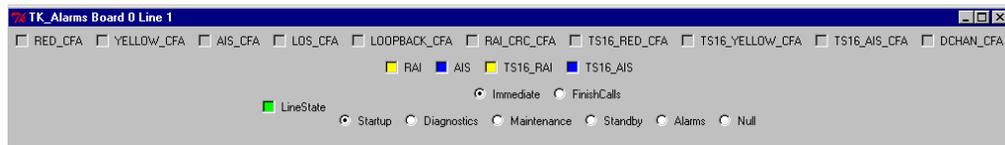
This chapter provides reference information about the Alarms tool. The following topics are included:

- Description. 27
- Guidelines 27
- Options. 27

4.1 Description

The Alarms tool is used for sending and monitoring the alarm states on a T1 or E1 line. Figure 5 shows a typical Alarms display.

Figure 5. Alarms Display



4.2 Guidelines

If you are already using the LineAdmin tool to put lines into service, you may not need to use the Alarms tool because the LineAdmin tool displays much of the same information. See [Chapter 8, “Line Admin Reference”](#) for information about the LineAdmin tool.

4.3 Options

The Alarms tool uses the following command line options:

`-board <n>`

Board number (required). Use the *Listboards* utility to obtain the board number.

`-line <n>`

Line number (required)

The following example monitors the alarm states on line 1 of board 0:

```
alarms -board 0 -line 1
```



This chapter provides reference information about the Audio Control tool. Topics include:

- Description. 29
- Guidelines 29
- Options. 29

5.1 Description

The Audio Control tool demonstrates the use of the Player and Recorder components. This utility provides control of the Player and Recorder resources, including speed and volume control. It also supports remote audio monitoring.

Figure 6 shows a typical DM3 Audio Control display:

Figure 6. DM3 Audio Control Display



5.2 Guidelines

The following guidelines should be considered when using the Audio Control tool:

- The Audio Control tool only applies to Intel telecom boards that use the DM3 architecture.
- When using dynamic routing configurations, the Audion Control tool is inoperative.

5.3 Options

The Audio Control tool uses the following command line options:

-board <n>

Board number (required). Use the Listboards tools to obtain the board number.

-line <n>

Line number (optional, default is 1)

-chan <n>

Channel number (optional, default is 1)

The following example runs the Audio Control tool on board 0, line 1, channel 1:

```
audio -board 0 -line 1 -channel 1
```

This chapter provides reference information about the CAS Signal Editor tool and includes the following topics:

- Description. 31
- Guidelines 32
- Options. 32

6.1 Description

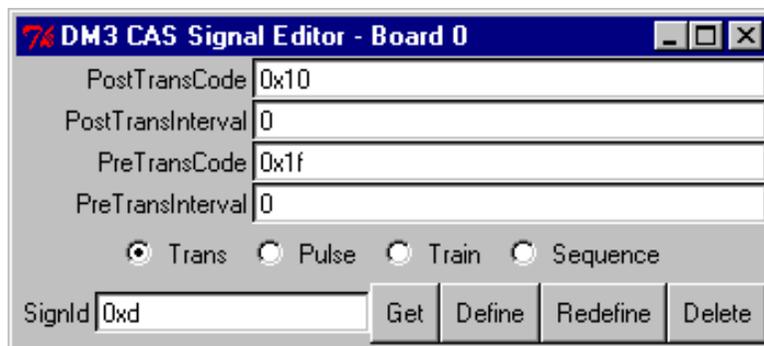
The CAS Signal Editor tool allows you to dynamically view and modify CAS signal identification parameters (transitions, pulses, trains, or sequences) so you can test them before changing the *.config* file.

Signal identification parameters are defined by the *.config* and *.fcd* files for DM3 boards and downloaded to the board. To modify the parameters without the CAS Signal Editor tool, you must modify the signal definitions contained in the *.config* file, generate a new *.fcd* file, and then re-download the file to the board. (This process is described in the *Intel DM3 Architecture PCI Products for Windows Configuration Guide*.) Using the CAS Signal Editor tool, you can retrieve the current signal identification parameters and reconfigure them at runtime without downloading to the board.

The CAS Signal Editor tool also allows you to define a new signal (fill in the fields and click **Define**) and delete a signal (use **Get** to populate the display with the signal you want to delete and click **Delete**).

A typical Signal Editor display is shown in Figure 7.

Figure 7. CAS Signal Editor Display



6.2 Guidelines

Once you start the utility, a window will open in which you can choose the signal that you want to edit. See Figure 7 for an example of the CAS Signal Editor tool. For signal IDs, refer to the *Intel DM3 Architecture PCI Products for Windows Configuration Guide*. You can edit a signal and check the results as follows:

1. In the SignId field of the display, enter the ID of the signal you want to edit.
2. Select the appropriate category (Trans, Pulse, Train, or Sequence).
3. Click **Get**. The display will show the signal information you requested.
4. Edit the signal information as desired.
5. Click **Redefine** to apply the update.
6. If you wish, use the Phone tool and the TSP Monitor tool to check the changes you made to the signal. For information about these tools, see the *Intel Dialogic System Software for DM3 Architecture Products on Windows Diagnostic Guide*.

The CAS Signal Editor tool only applies to Intel telecom boards that use the DM3 architecture.

6.3 Options

The CAS Signal Editor tool uses the following command line options:

- board <n>
Board number (required). Use the Listboards tool to obtain the board number.
- signal <n>
Signal ID (optional)

The following example runs the CAS Signal Editor tool on board 0:

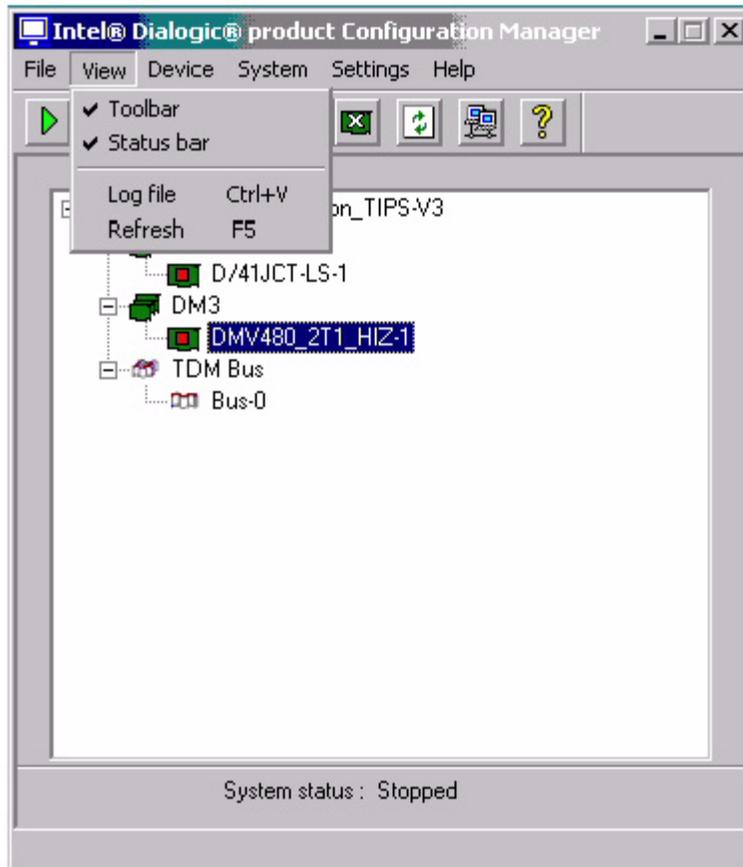
```
signaleditor -board 0
```

This chapter provides information about the Event Viewer tool.

The Event Viewer tool displays the Windows Event Viewer which allows you to view error and administrative messages generated by the system. The Event Viewer tool is accessed through the configuration manager (DCM). From the DCM main window, choose **Log File** from the **View** menu to display the Windows Event Viewer. Highlight System Log to display the Intel® Dialogic® System error and event messages.

See Figure 8 for a display of the DCM View menu.

Figure 8. DCM Main Window - View Menu





This chapter provides information about the Line Admin tool.

- Description. 35
- Guidelines 36
- Options. 36

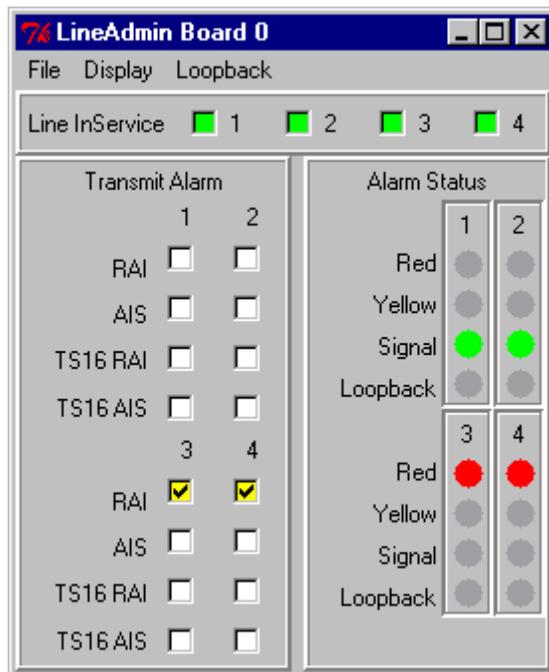
8.1 Description

The Line Admin tool puts lines into service so you can run many of the other diagnostic utilities. The Line Admin tool like the Alarms tool, is used for sending and monitoring the alarm states on a T1 or E1 line but the Line Admin tool is recommended as a more useful tool.

A flexible logging feature is available that includes the ability to log the status of the trunks and alarm conditions on a DM3 board.

Figure 9 shows the Line Admin display. This example shows four trunks. The alarm setting is on the left and the alarm indicators are on the right.

Figure 9. Line Admin Display



8.2 Guidelines

The Line Admin tool only applies to Intel telecom boards that use the DM3 architecture.

8.3 Options

The Line Admin tool uses the following command line options:

-board *<n>*

Board number (required). Use the List Boards tool to obtain the board number.

-line *<n>*

Line number (optional, default is 1)

-lines {*n n+ ...*}

Line numbers. This parameter is used when more than 1 line is monitored (optional, default is {1 2 3 4})

-advanced *<n>*

The presence or absence of the following alarms on the line: AIS, CRC, and D-Channel

The following example runs the Line Admin tool on board 1, lines 1, 2, 3, and 4:

```
lineadmin -board 1 -lines {1 2 3 4}
```

This chapter provides reference information about the List Boards tool and includes the following sections:

- Description. 37
- Guidelines 37
- Options. 39

9.1 Description

The List Boards tool displays information for boards present in the system and recognized by the device driver. This tool displays information regarding the current status of the baseboard along with a list of attached digital network interface and processing daughter boards (if any).

Figure 10 and Figure 11 show the results of running the List Boards tool.

9.2 Guidelines

The following guidelines should be considered when using the List Boards tool:

- The List Boards tool only provides a logical board number. This *logical* board number should be used when running any of the administrative utilities that require a board number.
- Board numbers are dynamically assigned. The List Boards tool displays the logical board number along with the board's serial number. Use the serial number to physically identify the board.

Note: *Listboards* will fail if you specify a board number that does not exist on the system.

- To use the List Boards tool, you must first start the boards using the configuration manager (DCM) and then invoke the List Boards tool from the Command Prompt window.

Figure 10. Listboards Display (Level 1)

```

C:\>listboards -h0
=====
Listboards - Version 2.00 Beta 4 Build: 07
=====

MNTI Library version: 1.16
DM3pp Library version: 1.20 Beta 1 Build: 1
Driver version       : v1.16

Logical Board Number is : 0
Physical Board Number is : 0

=====> Board: 0
=====

Generic info
=====
Number of SP daughterboards      : 1
Number of Comm boards           : 0
Number of Network IF daughterboards: 0
Serial Number                   : FT000587

=====
BaseBoard info
=====
BoardType           : <0x9> Compact PCI Baseboard
HardwareVersion    : 0x4
Host memory size   : 17 <0x11>
CP local memory size: 21 <0x15>
Flash memory size  : 18 <0x12>
Global memory size : 16 <0x10>

=====
Daughterboards
=====
SP Daughterboard ==> 1
BoardType       : Motorola Onyx SP Daughterboard
HWVersion      : 0x3
Number of procs: 6

=====

```

Figure 11. ListBoards Display (Level 2)

```

C:\WINNT\System32\cmd.exe
C:\Program Files\Dialogic\bin>listboards -l2 -e
! AUDID!CT Platform!PCIBus!PCISlot!ThumbWheel!Log ID!Serial Num!ModelNum!ConfigID!
D!DriverState!AdminState

50001 DM3 0 15 0 0 KS015094 0x200 0
Running Started
50002 Springware 0 16 1 1 HK000106 <un> <un>
<un> <un>

Total number of boards: 2
C:\Program Files\Dialogic\bin>

```

Note: The ModelNum, ConfigID, DriverState, and AdminState fields in the Level 2 display do not apply to Springware boards.

9.3 Options

The List Board tool uses the following command line options:

Note: Options that are listed as intrusive send messages to the boards and may affect performance testing.

- b <PCI bus number>
Displays information for boards having specified PCI bus number (optional) (intrusive)
- d <level>
Application debug level (optional)
- e
Provides extra information - model number, config ID, driver state, and admin state (DM3 boards only) (optional).
Note: This option must be used in conjunction with the -l option (For example, -l2 -e).
- i <board number>
Retrieve hardware information (optional) (intrusive)
- h
Help (optional)
- l <level>
Listboards release level to run (1 or 2) (optional)
- v
Version (optional)

Note: The ModelNum, ConfigID, DriverState, and AdminState fields do not apply to Springware boards.

The following example command lists all the board attributes for boards associated with PCI bus 0. If any daughter boards are present, their attributes are also listed:

```
listboards -b0
```



This chapter provides the following reference information about the STD Config tool:

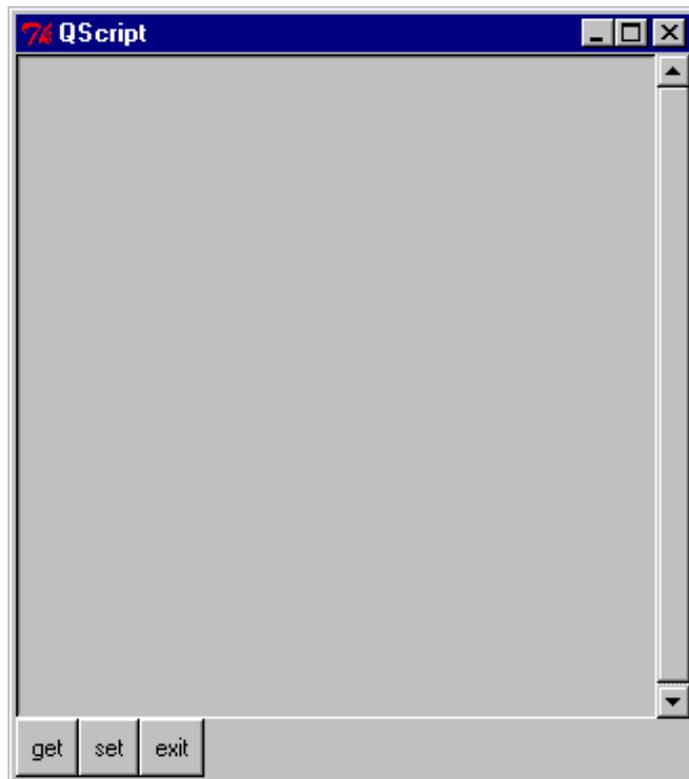
- Description. 41
- Guidelines 42
- Options. 42

10.1 Description

The STD Config tool provides a flexible way to configure DM3 component parameters. You put the parameters to be set and retrieved for a particular component into a file. You can create and modify these files. When used in conjunction with the The STD Config tool these component parameters (for example, lineadmin, CCS, player) can be easily configured.

Figure 12 shows the STD Config display.

Figure 12. STD Config Display



10.2 Guidelines

The STD Config tool only applies to Intel telecom boards that use the DM3 architecture.

10.3 Options

The STD Config tool uses the following command line options:

- board *<n>*
Board number (required). Use the *Listboards* utility to obtain the board number.
- file *<name.ext>*
The file name of the containing the relevant parameters of the component to be configured (such as *tsc.prm*, *ccscomp.prm*).
- inst *<n>*
Specifies the particular instance (of the component) whose parameters the user wants to modify.
- comptype *<n>*
Standard Dialogic component types (1 - 255).
- class *<name>*
One of the standard Dialogic components (such as TSC, LCON, CHP). This should match the relevant -file parameter.

The following example runs the STD Config tool on board 0:

```
stdconfig -board 0
```

This chapter provides reference information about the tblast tool and includes the following topics:

- [Description](#) 43
- [Guidelines](#) 44
- [Options](#) 44

11.1 Description

The tblast tool provides a display of the TDM bus settings for specified boards that have been started. See Figure 13 for an example of the tblast display.

Figure 13. tblast Display

```

C:\>tblast

```

AUID	Clk Role	Bus Type	On Bus?	CTBus Line	Clk Src	Clk SrcSpd	NetRf Src	NetRf SrcSpd	Stand-alone?	Num TimeSlots
50001	Pri	H.100	Yes	A	NetRf1	8MHz	NetInt1	8KHz	No	240
50003	Sec	H.100	Yes	A	NetRf1	8MHz	N/A	8KHz	No	---
50002	Slv	H.100	Yes	A	N/A	8MHz	N/A		No	---

In the tblast display, the following information is available:

- AUID = Addressable Unit Identifier of the board
- Clk Role = Identifies whether this board is a primary clock master (Pri), secondary clock master (Sec), or clock slave (Slv).
- Bus Type = Type of TDM bus that the board interfaces with. Bus Types are H.100 or H.110.
- On Bus? = Identifies whether or not board is connected (Yes) to the TDM bus or not (No).
- CTBus Line = Identifies which CT Bus Line the primary or secondary clock master is using to provide system clocking - Line A or Line B.
- Clk Src = Identifies the clock source that the primary or secondary clock master is using to drive the primary (A) or secondary (B) line. Clock sources include IntOsc, NetRef1, or NetRef2.
- Clk SrcSpd = Identifies the clock source speed. Value of speed can be 2MHz, 4MHz, or 8MHz.
- NetRf Src = If this board contains the interface to the network line that drives NETREF_1 or NETREF_2, the network interface (NetInt1, NetInt2, NetInt3, or NetInt4) is displayed.

- NetRf SrcSpd = If this board contains the interface to the network line that drives NETREF_1 or NETREF_2, the network interface source speed is displayed. Value can be 8 KHz, 1.536MHz, 1.544MHz, or 2.048MHz.
- Stand alone? = Board does not support the TDM bus configuration or the board does not have TDM bus capability.
- Num TimeSlots = Lists the number of time slots supported by this board.

11.2 Guidelines

The tblast tool only displays TDM bus information for boards that have been started. If a board has been stopped or is disabled, the information for that board will not be displayed.

11.3 Options

The tblast tool uses the following command line options:

-a<n>

Displays TDM bus information for board with this Addressable Unit Identifier (AUID) number.

-p<n>

Displays TDM bus information for board with this physical slot number.

-b<n> -s<n>

Displays TDM bus information for board with this PCI bus number (-b) and PCI slot number (-s).

-h

Displays Help information, including a definition of each abbreviation.

-v

Displays tblast version information.

Note: If no option is defined (default), TDM bus information will be displayed for all boards in the system.

The following example displays the TDM bus information for the board with an AUID of 50001:

```
tblast -a50001
```

This chapter discusses the following topics about troubleshooting:

- General Troubleshooting Information 45
- Checking Configuration 45
- Event Viewer 46
- Checking Which Packages Are Installed. 46
- Checking Hardware 46

12.1 General Troubleshooting Information

After a condition has been diagnosed, troubleshooting can be performed to correct the faulty condition. Troubleshooting tasks that apply to an initial startup include checking the configuration files, checking which packages have been installed, and checking that all boards have been securely installed in their slots.

Solutions to many problems can be found in the technical notes on the Intel® Telecom Support Resources Web site at <http://developer.intel.com/design/telecom/support>. In addition, check the online Release Update for the latest information about any issues, restrictions, or limitations that may affect the installation.

Problems on initial startup are typically caused by errors in your configuration. Hardware related problems are also a possibility. The following sections provide some general information for troubleshooting these problems.

In addition, refer to the *Intel Dialogic System Release 6.0 PCI for Windows on Intel Architecture Software Installation Guide* and check that all of the necessary procedures were performed.

12.2 Checking Configuration

Check that your system has been configured correctly. Use the configuration manager (DCM) to verify the configuration.

For a new configuration to take effect if system-level changes are made, the system must first be stopped and then restarted after the changes have been made. For configuration changes to a single board to take effect, the board must first be stopped and then restarted after the changes have been made. See [Chapter 2, “Stopping and Starting the System”](#).

12.3 Event Viewer

Check the Windows Event Viewer for error and event messages. The Event Viewer can be accessed through DCM. See [Chapter 7, “Event Viewer Reference”](#) for information about the Event Viewer.

12.4 Checking Which Packages Are Installed

Ensure that you installed all of the packages that you need. For a list and description of all system release software packages, see “Checking Which Packages to Install” in the *Intel Dialogic System Release 6.0 PCI for Windows on Intel Architecture Software Installation Guide*.

12.5 Checking Hardware

Ensure that each board is securely installed in its slot. Check that the correct cables are used and that they are connected properly.

For hardware testing information, see the *Dialogic Universal Hardware Diagnostics Guide* or the *DM3 Diagnostic Utilities Reference Guide*.

12.6 Board Download Failures

If the download to a DM3 architecture board fails because of a Control Processor (CP) fault, the failure will not be reported to a log file. You can, however, determine the cause of the download failure by using the dlgsnapshot tool. This tool uses the Intel Dialogic System Software fault monitoring components to generate a core dump file when a CP, Signal Processor (SP), or Shared RAM fault is detected on a DM3 architecture board.

For more information about using the dlgsnapshot tool, refer to the *Intel Dialogic System Software for Windows Operating Systems Diagnostic Guide*.

A

- adding a board to a system 21
- alarms tool 27
- applying board-level configuration changes 19
- applying system-level configuration changes 18
- audio control tool 29
- autostart modes 15
 - detect only 15
 - making hardware changes 17
 - start server only 16
 - start system 16

B

- board download failures 46
- board power on self test 22, 24
- board removal 22
- board replacement 23
- board-level configuration changes 19

C

- CAS signal editor tool 31
- changing system startup mode 17
- checking error and event messages 46
- checking hardware 46
- checking installed packages 46
- checking the configuration 45
- configuration changes
 - board level 19
 - system level 18

D

- DCM 22, 23
 - Start Device option 24
 - system/device autostart modes 15
- detect only mode 15

E

- error and event messages 46
- event viewer tool 33
- Event Viewer, Windows 46

F

- found new hardware wizard 14

H

- hardware installation, troubleshooting 46

I

- inf file 14
- installing a board 21
- Intel Dialogic devices
 - starting after a reboot 17
- Intel Dialogic System
 - applying board-level configuration changes 19
 - applying system-level configuration changes 18
 - initiating 13
 - setting the startup mode 17
 - start all devices or start none 13
 - start selective (good) devices only 13
 - starting 13
 - starting after initial startup 17
 - stopping 17

L

- lineadmin tool 35
- LineAdmin utility 27
- listboards tool 37

M

- making hardware changes 17

P

- POST 22, 24
- power on self test 22, 24
- primary clock master 23
- procedures
 - adding a board to a system 21
 - removing a board from a system 22
 - replacing a board in a system 23

R

- reference master 23
- related information 10
- removing a board from a system 22
- replacing a board in a system 23

S

- Start Device option 24
- start server only mode 16
- start system mode 16
- Starting 17
 - starting devices after a reboot 17
 - starting the Intel Dialogic System 17
- STD config tool 41
- stopping the Intel Dialogic System 17
- system startup mode
 - changing 17
- system/device autostart modes 15
 - detect only 15
 - making hardware changes 17
 - start server only 16
 - start system 16
- system-level configuration changes 18

T

- tblist tool 43
- tools
 - alarms tool 27
 - audio control 29
 - CAS signal editor 31
 - event viewer 33
 - lineadmin tool 35
 - listboards tool 37
 - STD config tool 41
 - tblist tool 43
- troubleshooting
 - board download failures 46
 - checking configuration 45
 - checking event and error messages 46
 - general information 45
 - hardware 46
 - package installation 46

U

- uninstalling a board 22

W

- Windows 2000 found new hardware wizard 14
- Windows Event Viewer 46