TAS3108 COMMAND TOOL SOFTWARE

8 CHANNEL DIGITAL PWM PROCESSOR

Operating Instructions Command Tool 6.0

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Table of Contents

Topic **Page**

1. Introduction to TAS3108 COMMAND TOOL Software 4
   1.1 Opening and Closing of TAS3108 Command Tool 5
   1.2 Initial Operation of TAS3108 COMMAND TOOL Software 5
   1.3 Opening the Track Bar Window 5
   1.4 Opening the Memory Window 5
   1.5 Resetting the TAS3108 COMMAND TOOL Software and the TAS3108 EVM hardware 5
   1.6 Checking the I2C status 5
2. Adjust the Volume 6
3. Peek / Poke Data in the Memory Window 7
   3.1 Peek or Poke 8
4. READ/WRITE Register Window 9
   4.1 GO 10
   4.2 Zero 10
   4.3 ADDR file (.addr) 10
      4.3.1 I2C Address of the Part 10
      4.3.2 I2C Sub-Address and Size 11
      4.3.3 Track bar Setup 11
      4.3.4 Track bar Parameters 12
   4.4 Configuration file (.cfg) 12
5. QUIT 13
6. RESET 13
7. Menu Options 14
   7.1 File 14
   7.2 Tools 14
   7.3 Help 16
8. I2C Error Messages 17
9. USB Port Pin Connections 18
   9.1 Reset Pulse 18
   9.2 ACK and WAIT 18
   9.3 SCL and SDA 18

1. Introduction to TAS3108 COMMAND TOOL Software

The TAS3108 Graphical User Interface

1.1 Opening and Closing of TAS3108 Command Tool

To open TAS3108 CommandTool

Click **Start → Programs → Texas Instruments Inc. → CommandTool6.0 → CommandTool**

To close TAS3108 CommandTool

Click **File → Exit** or

Click the **QUIT** button on the Control Panel.

1.2 Initial Operation of TAS3108 COMMAND TOOL Software

Before running the COMMAND TOOL software, the TAS3108 should be connected to the PC through USB. The COMMAND TOOL is designed to operate with the TAS3108 EVM via the USB interface. This USB interface converts USB commands to I2C for reading and writing the I2C registers located in the TAS3108.

1.3 Opening the Track Bar Window

To open the Track Bar window click on **TRACK BAR** button on the **Control Panel**.

1.4 Opening the Memory Window

To open the Memory window click on the **MEMORY** button on the **Control Panel**.

1.5 Resetting the TAS3108 COMMAND TOOL Software and the TAS3108 EVM hardware.

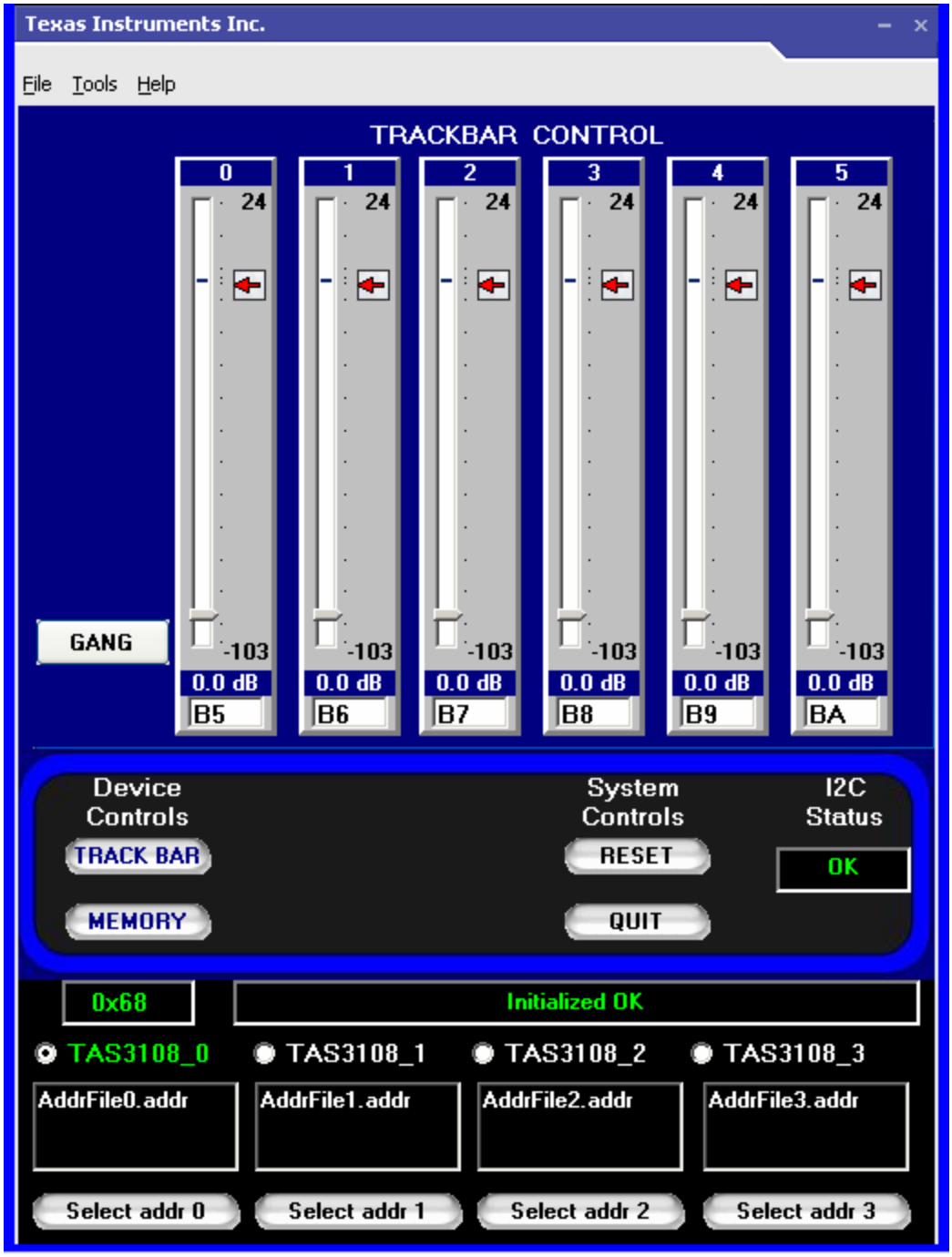
The RESET button on the Control Panel sends a reset to the TAS3108 EVM. Following this action, the TAS3108 COMMAND TOOL reads the TAS3108 I2C registers and initializes the COMMAND TOOL to the same state as the TAS3108 part.

1.6 Checking the I2C status

The I2C Status button displays the I2C connection status, the error conditions are displayed in RED color and normal conditions are displayed in GREEN color.

2. Adjust the Volume

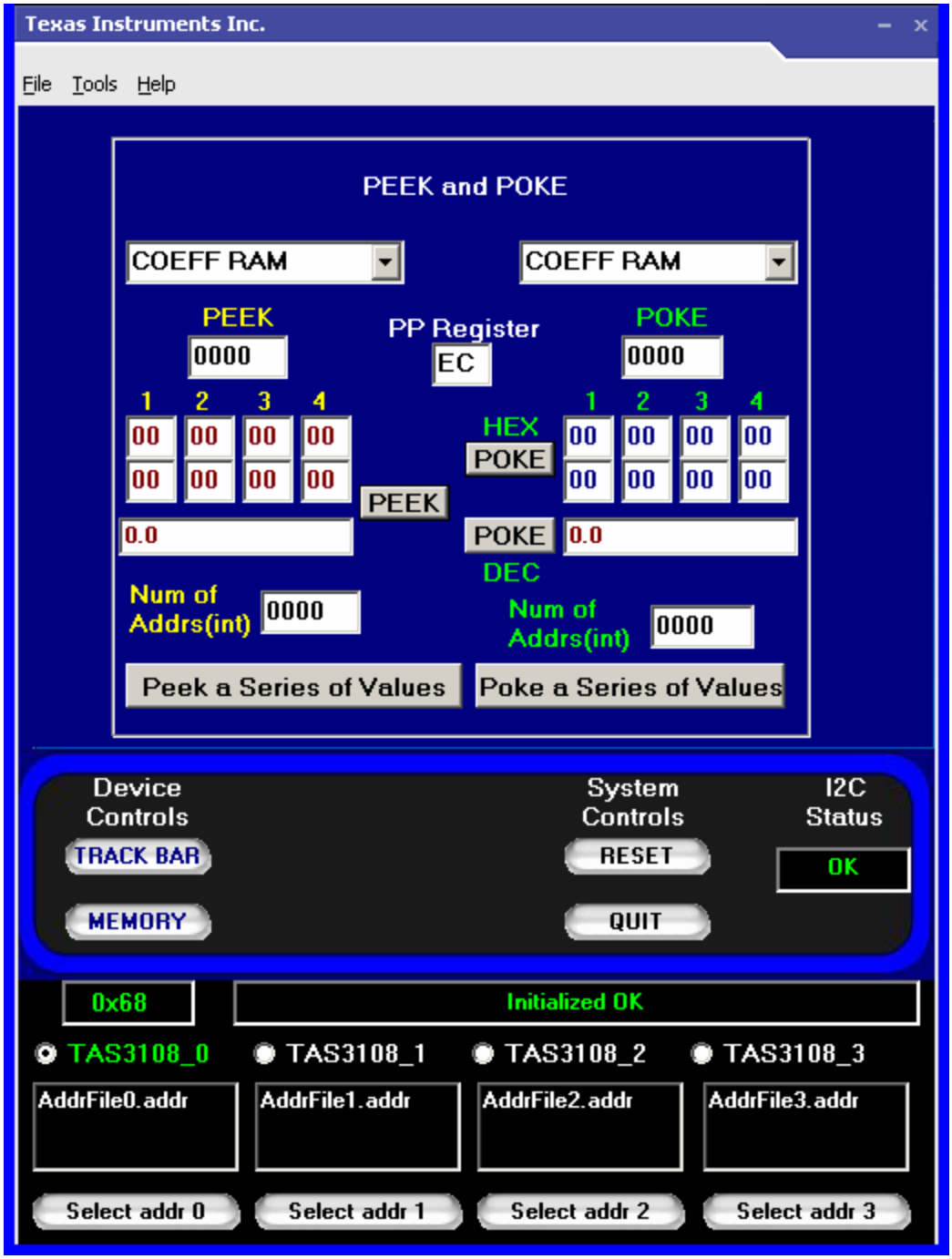
To adjust the volume level of the TAS3108 click on the **TRACK BAR** button.
Then UP/DOWN the track bar to desired volume level for each channel.
The GANG/UNGANG is provided to adjust volume levels of all the six channels at once.



3. Peek / Poke Data in the Memory Window

The Memory Window is displayed when the user clicks on the **MEMORY** Button. Using this Memory Window a series of values or single data value can be Peeked or Poked to the selected memories and registers.

PEEK/ POKE WINDOW



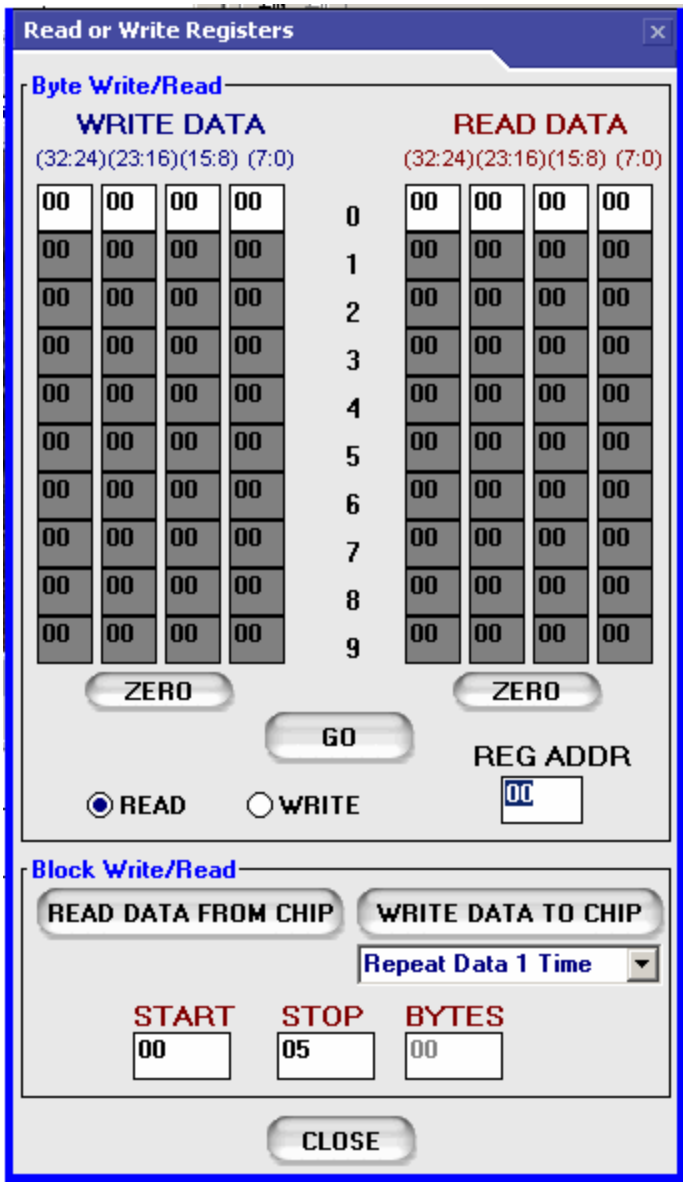
3.1 Peek or Poke

This section covers two ways of peeking and poking of data values to the specified memory.

One way is to Read / Write a single value to a specified memory.
The two combo boxes in the Peek/Poke window are used for selecting the type of memory to which the data values have to be peeked or poked from.
The PP register edit box is for selecting the register of a particular memory to be peeked or poked from.

The second way is to Peek / Poke a series of values to or from a specified memory.
The edit boxes named Peek and Poke are used for entering the starting register and the edit boxes named Num of Addrs (int) are used for specifying the number of bytes to peek a series of values or poke a series of values.

4. READ/WRITE Register Window



The Command Tool allows the user to write data to a Sub-Address or read data from any I2C Device. The user must enter the Register Address in HEX. The Read and Write Radio buttons select between reading and writing.

If the RegAddr is 0x01 then 01 must be entered. When this value is entered it will display the available bytes based on the Byte Count.

4.1 GO

By clicking on the **GO** button the CommandTool Writes the number of bytes displayed in the Write Data Window to the device or Reads the number of bytes to the Read Data Window from the device.

4.2 Zero

The Zero Buttons will zero the Write and Read Data Windows. It will not send any data to the device.

There are two types of files that control the Command Tool: ADDR & CFG.

The ADDR file fully defines the Device characteristics and the CFG file is essentially a script of I2C commands.

4.3 ADDR file (.addr)

The ADDR fully defines the device parameters. It tells the program how many registers are there in the device, how many bytes are there per register and the register address of the device. This file initializes the internal memory of the software. The COMMAND TOOL will not work without this file resident in the same directory as the COMMAND TOOL.
This file is read by the Command Tool on start-up. It provides the following information:

- The I2C address for the part
- The name and instance of the part
- The I2C sub-address register map including the number of bytes per register
- The track bar I2C register address
- The track bar parameters including Track bar Position, The Track bar Readout / Volume (in dB), and the 5.23 hex value written to the volume registers.

4.3.1 I2C Address of the Part

Syntax:

@ 0x68 TAS3108_0

Where:

@ is the address keyword

0x68 is the I2C address of the Part

TAS3108_0 is the Name of the Part and the Instance

4.3.2 I2C Sub-Address and Size

Syntax:

```
//Addr Bytes
# 0 0x00   4
# 1 0x01   4
# 2 0x02   4
# 3 0x03   12

      ......

# 250 0xFA  4
# 251 0xFB  4
# 252 0xFC  4
# 253 0xFD  4
# 254 0xFE   4
# 255 0xFF   4
```

Example: # 253 0xFD 4

Where:

// indicates a comment

# indicates begin of I2C sub-address

253 is the I2C Sub-Address in decimal (total of 256 sub-addresses supported)

0xFD is I2C Sub-Address in hex

4 is the number of bytes for this particular Sub-Address (Current max is 20)

4.3.3 Track bar Setup

Syntax:

```
&0 0xB5     //track bar 0 Address
&1 0xB6     //track bar 1 Address
&2 0xB7     //track bar 2 Address
&3 0xB8     //track bar 3 Address
&4 0xB9     //track bar 4 Address
&5 0xBA      //track bar 5 Address
```

Example &0 0xB5 //track bar 0 Address

Where:

&0 indicates Track bar 0

0xB5 indicates the Sub-Address for the Volume associated with the Track bar

4.3.4 Track bar Parameters

Syntax:

```
//Trackbar Readout Value
|0       24.0   0x07ECA9CD
|1       23.5   0x077B2E7F
|2       23.0   0x07100C4D
|3       22.5   0x06AAE84D
|4       22.0   0x064B6CAD
|5       21.5   0x05F14868
|6       21.0   0x059C2F01
|7       20.5   0x054BD842
          .........

|268     -110.0   0x0000001A
|269     -110.5   0x00000019
|270     -111.0   0x00000017
|271     -111.5   0x00000017
```

Example: 2 23.0 0x07100C4D

Where:

2 is the Track bar position

23.0 is the Volume in dB

0x07100C4D is the 5.23 hex value written to the Volume Register

4.4 Configuration file (.cfg)

The COMMAND TOOL has the ability to load and save files which represent the configuration of the registers within the device. The files are called configuration files and have the extension of “.cfg”. These are just text files and can be viewed using the Notepad editor available in Windows.
The Configuration files are used to setup specific devices. The filenames are not case sensitive but the program converts them to all capitals.

The Configuration file format requires both Sub-Address and data. Each Sub-Address line must start with an “X”. The Data starts on the line after the Sub-Address. The Data is partitioned into 4 byte words per line. The format allows a comment within the file. Each comment line must start with “//”or “!” and it must be on the line before the Sub-Address. The configuration file supports a delay command.
The syntax is:

D1000000

where D indicates delay and the integer value is in micro-seconds.

The following is an example configuration file:

```
Xe3 00 00 00 00
D1000000
XE4 00 A0 7a 92
D1000000
XE4 00 A0 83 38
D1000000
Xe3 00 00 00 00
D1000000
XE4 00 A0 7d 6A
D1000000
```

5. QUIT

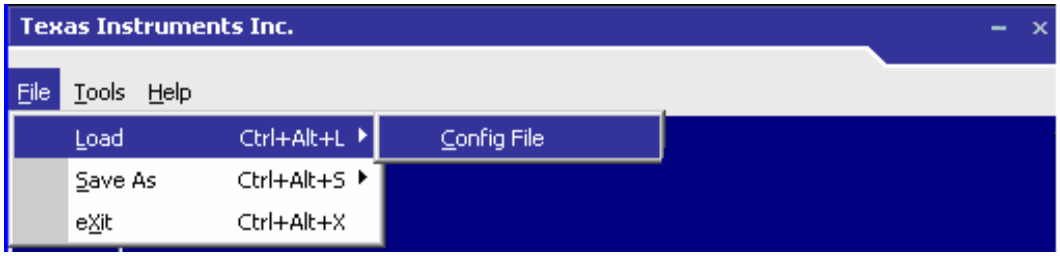
The Quit Button closes down all windows and issues a RESET before exiting. If you power down the device before exiting you may get an ACK Error.

6. RESET

The Reset Button toggles the USB port Pin 4, which is Data Register bit 2 on the USB port. The Reset button removes all manually entered values in registers. All the default values including the volume adjustments will be restored.

7. Menu Options

7.1 File

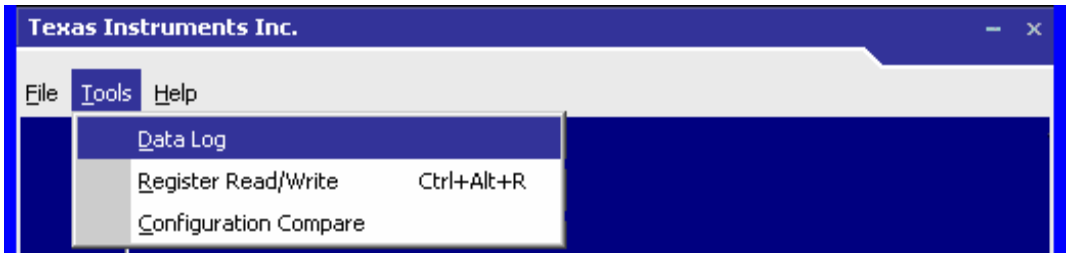


The File menu has 3 sub menus

- Load
- Save As
- Exit

Load is used to load the selected configuration files among the available list of configuration files.
Save is used save the device current configuration into a file in .cfg format.
Exit is used for exiting from the CommandTool Application.

7.2 Tools

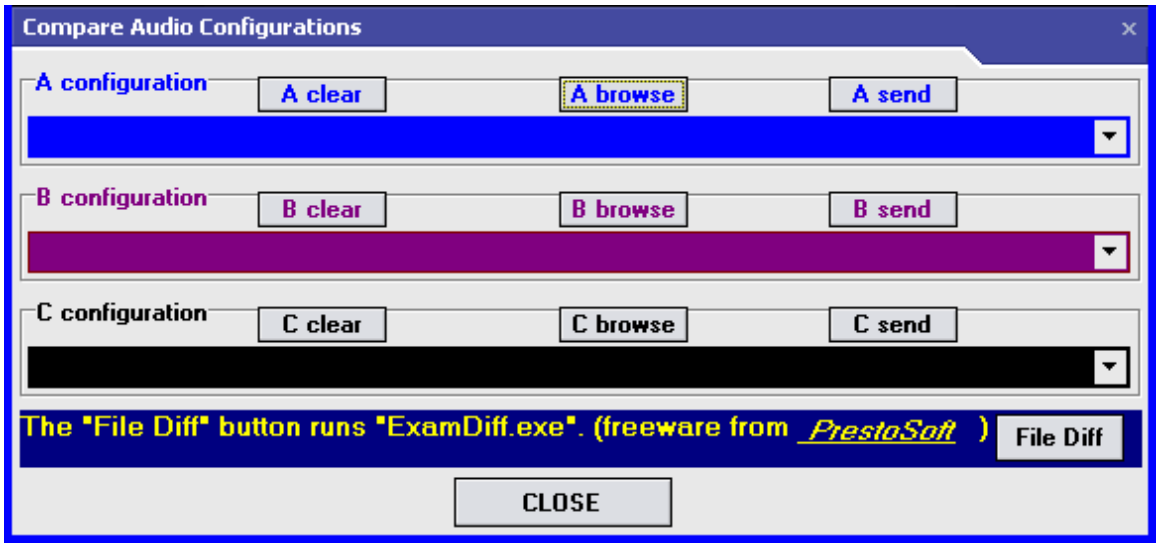


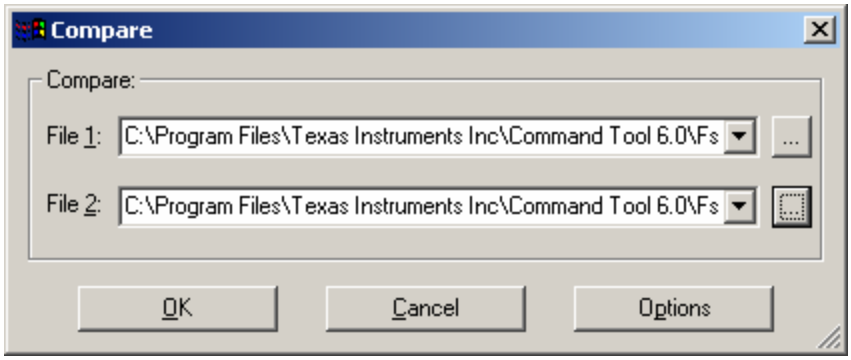
The Tools menu has 3 sub menus

- Data Log
- Register Read/Write
- Configuration Compare

This feature can help debug an application. To use this feature Tools->Data Log is selected (this turns ON the logging function). After a series of I2C commands are sent to the part then the logging function is turned off by selecting Tools-> Data Log to toggle off writes to DataLog.txt.

Register Read/Write is the menu option provided to Write or Read data from any I2C device. It is already explained in Section 4.

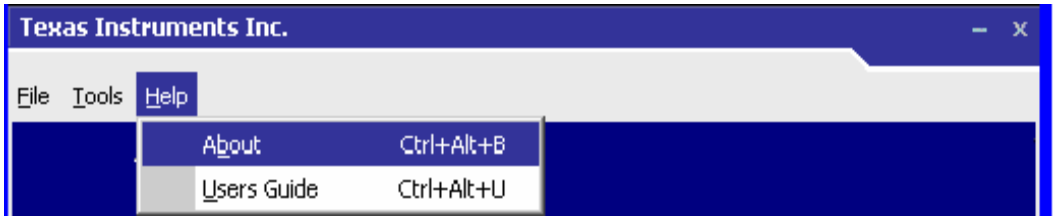




This feature is activated by clicking on the File Diff button.

Configuration Compare is the menu option provided to compare the Audio configurations of the available configuration files.
The A, B, and C configuration menu allow the user to do an audio listening test by associating three different configuration files (e.g. with different filter coefficients) to "A send", "B send", and "C send". When the audio is playing, these three buttons can be clicked to check the sound of the audio for each configuration.

7.3 Help



The Help menu has 2 sub menus

- About
- Users Guide

The About menu option gives the Version and Date of the CommandTool

The Users Guide option opens the User Manual for the CommandTool.

8. I2C Error Messages

The Command Tool error messages are only visible during error conditions.

9. USB Port Pin Connections

9.1 Reset Pulse

It resets the TAS3108 device, when the device gets reset all the default settings are restored.

9.2 ACK and WAIT

These two signals are used for Acknowledgement and Wait in I2C communication.

9.3 SCL and SDA

These two signals are used as Clock and Data in I2C communication.