



How To: Load Call Progress Tones

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1.0 Overview

This document provides instructions and information on how to customize the Call Progress Tone (CPT) file.

The following topics are presented in this document:

- Understand the format of the Call Progress Tone *.ini* file
- Understand the format of the Ringing Definition (Tone Forms)
- Configuration examples of some Call Progress Tones
- Configuration example of a tone with amplitude modulation
- How to convert the Call Progress Tone *.ini* file to a *.dat* file
- Loading *.dat* files to the AudioCodes boards

NOTE: This document has been written using the v4.8 software.

2.0 Understanding the Call Progress Tone *.ini* file

When the AudioCodes' SDK is installed, a copy of a default Call Progress Tone *.ini* file is copied to the following location, when the SDK is installed into the default target install directory:

C:\Program Files \ AudioCodes Ltd \ AudioCodes IPM/TPM SDK \ Auxiliary Files \ Sample Call Progress Files

This file contains the following parameter at the beginning. This field identifies the total number of CPTs defined in this file.

[NUMBER OF CALL PROGRESS TONES]
Number of Call Progress Tones=9

The following parameters are used to define a Call Progress Tone:

Parameter	Description
Call Progress Tone #N	This defines the tone definition. This value begins with '0', and does not exceed the total number of tones defined by the NUMBER OF CALL PROGRESS TONES limit.
Tone Type	This defines the tone type (acTToneType): 1 = dial tone 2 = ringback 3 = busy, a complete list is available in the VDef.h file.
Tone Modulation Type	Set to 0 – no modulation or 1 – AM modulation
Tone Form	Options include: 1 – continuous 2 – cadence

Low Freq {Hz}	3 - burst The frequency, in Hertz, of the lower tone component in the case of a dual frequency tone. In the case of a single tone, it is the frequency of the tone.
High Freq {Hz}	The frequency, in Hertz, of the higher tone component in the case of a dual frequency tone. In the case of a single tone, this parameter is set to zero (0).
Low Freq Level {-dBm}	Generation level: 0 dBm to -31 dBm.
High Freq Level	Generation level: 0 dBm to -31 dBm. In the case of a single tone, this parameter should be set to '32'.
First Signal On Time {10 msec}*	The period of time the first cadence period of the signal is 'On'. In the event, this signal is a continuous signal (i.e. – dial tone) then this is the only signal parameter defined.
First Signal Off Time {10 msec}*	The period of time the first cadence period of the signal is 'Off'. In the event, this signal is a continuous signal (i.e. – dial tone) then this parameter is set to '0'.
Second Signal On Time {10 msec}*	The period of time the second cadence period of the signal is 'On'. In the event, this signal is a continuous signal (i.e. – dial tone) then this parameter is set to '0'. If this tone only rings with a steady On/Off cadence pattern, then this field is set to '0'.
First Signal Off Time {10 msec}*	The period of time the second cadence period of the signal is 'Off'. In the event, this signal is a continuous signal (i.e. – dial tone) then this parameter is set to '0'. If this tone only rings with a steady On/Off cadence pattern, then this field is set to '0'.

* Up to four cadences can be defined.

3.0 Understanding Ring Definitions (Tone Forms)

The following tone forms can be defined in the Call Progress Tone *.ini* file.

- 1 – continuous. Used for steady tones such as a dial tone that are played without a cadence (ringing pattern)
- 2 – cadence. Used for tones such as busy or ringback tones, that are played with a On/Off cadence pattern (up to four cadences can be defined).
- 3 – burst. Burst rings are not part of the cycle, but are only generated once (before the cycle begins).



4.0 Configuration Examples

The following section showcases how to configure the *.ini* file for specified Call Progress Tones.

4.1 Dial Tone (Single Tone, with Continuous Cadence)

```
#Dial tone  
[CALL PROGRESS TONE #6]  
Tone Type=1  
Low Freq [Hz]=440  
High Freq [Hz]=0  
Low Freq Level [-dBm]=22  
High Freq Level [-dBm]=0  
First Signal On Time [10msec]=300  
First Signal Off Time [10msec]=0  
Second Signal On Time [10msec]=0  
Second Signal Off Time [10msec]=0
```

4.2 Ringback (Dual Tone with Cadence)

```
#Ringback  
[CALL PROGRESS TONE #2]  
Tone Type=2  
Low Freq [Hz]=440  
High Freq [Hz]=480  
Low Freq Level [-dBm]=13  
High Freq Level [-dBm]=13  
First Signal On Time [10msec]=0  
First Signal Off Time [10msec]=0  
Second Signal On Time [10msec]=200  
Second Signal Off Time [10msec]=400
```



5.0 Amplitude Modulated Tones

When the Tone Modulation Type parameter is set to '1' – AM modulation, then the following parameters must be included in the *.ini* file for this particular signal.

Parameter	Description
Carrier Freq [Hz]	The Carrier signal frequency in case the tone is Amplitude Modulated
Modulation Freq [Hz]	The Modulated signal frequency in case the tone is Amplitude Modulated (valid range from 1 Hz to 128 Hz)
Signal Level [-dBm]	The tone level in case the tone is Amplitude Modulated
AM Factor [steps of 0.02]	Amplitude modulation factor. Valid values: 1 to 50. Recommended values: 10 to 25

5.1 AM Tone Configuration Example

```
### example for continuous AM tone. ###
#Dial Tone
[CALL PROGRESS TONE #8]
Tone Type=1
Tone Modulation Type=1 //0-No Modulation, 1-AM modulation.
Tone Form= 1 //1=CONTINUOUS, 2=CADENCE, 3=BURST.
Carrier Freq [Hz]=500
Modulation Freq [Hz]=30
Signal Level [-dbm]=13
AM Factor [in steps of 0.02]=20
First Signal On Time [10msec]=500
First Signal Off Time [10msec]=0
```

6.0 Converting the *.ini* file to *.dat* format

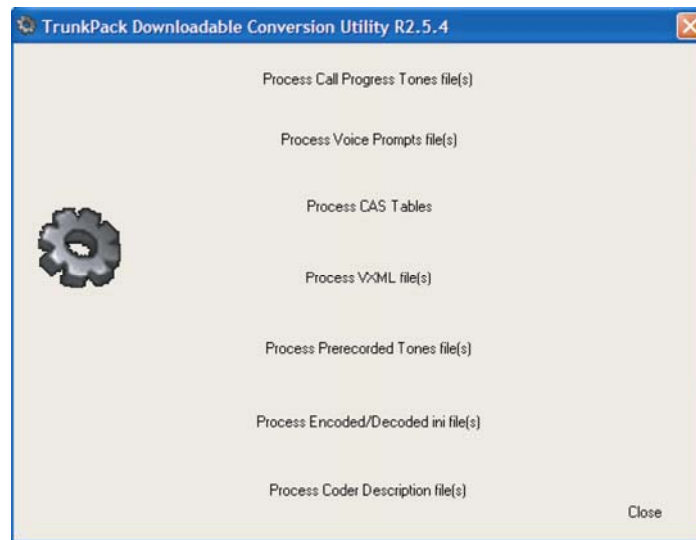
All CPM configuration *.ini* files must be converted to a *.dat* file format before loading onto the products for use. A DConvert utility is included in the AudioCodes SDK.

The DConvert utility is located in the following location:

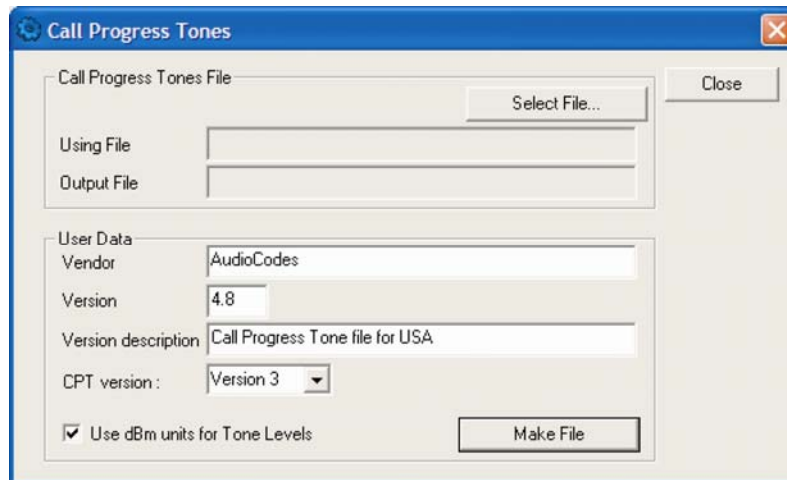
C:\Program Files \ AudioCodes Ltd \ AudioCodes IPM/TPM SDK \ Utilities \ DConvert



When the utility is executed, the following screen is presented:



Select Call Progress Tones file(s) to begin:



1. Use the “Select File” button to navigate to the .ini file that you wish to convert.
2. Enter the Vender Name, Version Number, and Version Description in the required fields. (You can copy from the image above).
3. Check the box next to the “Use dBm units for Tone Levels.
4. Use the “Make File” button to begin the conversion. You will be prompted when the conversion has been successfully completed.



7.0 Loading .dat files to AudioCodes Boards

When a .dat file has been successfully generated, then you can now load it onto the board. There are two methods.

7.1 Application Control

When `acOpenBoard()` is invoked, the user application can point to the name of the Call Progress Tone .dat file:

`acTBoardParam.acTBoardDownloadableFileSettings.CallProgressSetupFile`

7.2 Web Server

If you have remote control of the board, log into the Board's Web Server and use the following links to browse to the correct page:

Software Updates > Load Auxiliary Files

NOTE: Once the file is loaded, the board must be restarted for the settings to take effect.