Cisco Unity Tone Definitions and Learn Tones

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Introduction

This document covers how Cisco Unity handles disconnect events, call progress, and message recording with PBX integration. You can use the information in this document in order to optimize Cisco Unity with PBX integration through the use of the Learn Tones tool.

Note: Learn Tones probably does not work correctly in early versions of Cisco Unity with Windows 2000. Cisco bug ID CSCdz72630 (registered customers only) : Learn Tones is not correctly saving cadence tones or Cisco bug ID CSCae06189 (registered customers only) : Learn Tones Failure on W2K discusses the workarounds.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document applies to all versions of Cisco Unity for Exchange that use Dialogic cards for integration.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Tones Overview

There are five different tones that you can define in the Cisco Unity switch configuration file. These can be split into two categories.

The first three tones are used during call progress. Cisco Unity listens for these tones when it performs a transfer or makes an outgoing call. However Cisco Unity does not listen for these tones at the time of the voice mail conversation or at the time of recording. These tones are:

- Switch Dial Tone
- Switch Ringback Tone
- Switch Busy Tone

The other two are disconnect tones. Cisco Unity always listens for these tones at the time of voice mail conversation and at the time of recording. If one of these tones is detected, this indicates that the caller has hung up and Cisco Unity also hangs up. These tones are:

- Switch Disconnect Tone
- CO Disconnect Tone

There are usually no tone definitions in the switch configuration file when you install Cisco Unity. It is often unnecessary to define any tones in the switch configuration file because Cisco Unity uses a default set of definitions for tones that have no definition in the switch configuration file. When you determine that you must define a particular tone (or tones) in the switch configuration file, define only those tones. If you define tones that are not necessary for Cisco Unity to perform properly with a particular switch, it can limit the ability of the voice mail system to handle scenarios where unexpected tones occur, such as unexpected disconnect tones sent from a central office.

Advantages of Learn Tones

Learn Tones solve some problems, but not all. Before you run Learn Tones, it is important to understand in what scenarios Learn Tones can make a difference. This document outlines the most common scenarios in which the Learn Tones makes a difference:

Callers Report a Disconnection (hung up on) While They Record a Voice Message

The default disconnect tone definitions in Cisco Unity have very large frequency and cadence deviations defined. While this allows the system to detect disconnect tones from a wide range of central offices, switches, and countries, it also increases the chances that the voice of a caller is mistakenly detected as a disconnect tone. This causes the voice mail system to hang up on the call. This is not Silence Detection where there is a prompt for the caller to enter 1 or 2 in order to disconnect or keep recording. In this case, the call is disconnected unexpectedly. If you learn the disconnect tones specific to the switch in use, it can remedy this problem. Once the tone definition is in the switch configuration file, you can manually edit and adjust the deviations if there is a need for fine tuning. Back up or do a screen shot of the values in the Learn Tone window in case you have to enter the same value for that tone again.

Callers Report a Disconnection During a Supervised Transfer

Some phone systems can play an unusual tone to indicate that an extension rings at the time of an internal transfer. For instance, if this tone is sent to the voice mail extension when the transfer destination rings, it probably does not fit the default Ringback tone and deviation definition that the Dialogic on Cisco Unity uses.

```
Frequency1=500
Frequency2=750
TimeOn1=100
TimeOff1=1200
```

If this happens, the tone can be mistaken for someone answering the phone. This causes the voice mail port to go on hook, which releases the transfer or disconnects the caller.

The location of the switch configuration .ini files is the \Commserver\Intlib folder on the Cisco Unity server. The active switch configuration file depends on the selections made in the switch selection screen at the time of Cisco Unity installation, or by any subsequent changes you select in the SA > Switch page or through the Edit Switch utility. In order to determine the exact file Cisco Unity uses as the active switch configuration file, view the Switch Configuration File value in the registry at **HKLM > SOFTWARE > Active Voice > MIU > 1.0 > Initialization > Switch 0**.

The two disconnect tones are important for the Message Recording Termination and Message Trimming section.

Message Recording Termination and Message Trimming

An important feature of Cisco Unity is its ability to determine that recording needs to stop, and to trim the end of the recording so the tone or silence that indicates this are not present at the end of the message when played back. There are many ways that a caller can terminate message recording and Cisco Unity can differentiate between them.

You can group the events that cause Cisco Unity to terminate recording into two basic categories called *caller initiated record termination* and *record termination due to disconnect*.

Caller Initiated Record Termination

A caller can select a specified digit or stop the conversation in order to initiate termination. Cisco Unity does not need any special configuration in order to successfully handle message recording termination that the caller initiates.

Termination Digit (DTMF) Entered by Caller

An example of this is when a caller records a message, then presses "#", "1", or some other digit in order to stop the recording and moves to the next part of the conversation. When Cisco Unity detects that the caller has entered a termination digit, it stops the recording process. The termination digit is audible at the end of the recording since Cisco Unity was still recording when the digit was pressed. Cisco Unity calculates the amount of time from when it receives the termination digit to when the recording process actually stops. Cisco Unity trims this amount of time from the end of the recording. This process is automatic and does not require the activation of any special setting in the switch configuration file.

Silence Detection

Cisco Unity disconnects after it hears a specified amount of silence. Cisco Unity recognizes that the caller has

stopped the conversation. You can set silence detection settings on the SA in the **System > Configuration > Recordings** page. By default, Cisco Unity stops recording when it detects two seconds of silence at the time of recordings shorter than ten seconds in length, and three seconds when a recording is longer than ten seconds. Cisco Unity prompts the caller to press 1 or 2 in order to disconnect or continue to record. When Cisco Unity ends the recording process due to silence detection, it trims the silence at the end of the message. This process is automatic and does not require the activation of any special setting in the switch configuration file.

Record Termination Due to Disconnect

When a caller records a message, and then hangs up the phone to disconnect, Cisco Unity goes through a multi−step process in order to identify the disconnect and trim any unwanted sounds from the message. First, Cisco Unity detects the fact that the caller has hung up. Then, Cisco Unity stops the recording. Finally, Cisco Unity trims the unwanted tones from the end of the message. With a dependence on the phone system Cisco Unity is connected to, a number of ways indicate a disconnect to Cisco Unity.

Hangup DTMF and In−Band Hangup Packet

Two types of dual tone multifrequency (DTMF) digits or packets can be sent by the phone system to Cisco Unity. You must specifically define each DTMF digit. The definition of Hang up DTMF is "HangUpTone" in the Cisco Unity switch configuration file. The definition of In−Band Hangup packets is "HANGUP" in the Cisco Unity avanalog.avd integration file (only applies to switches where Integration=Analog).

When a caller hangs up, some switches send a DTMF tone or group of DTMF tones (a hangup "packet") to Cisco Unity in order to indicate that the caller has disconnected. At this point, it is important to make a distinction between Cisco Unity and Dialogic. Cisco Unity and Dialogic send messages to each other through the Telephony Application Programming Interface (TAPI). In the case of a hangup DTMF or a hangup packet, Dialogic sends events to Cisco Unity that indicate the reception of DTMFs. Cisco Unity determines that these DTMFs represent a disconnect event. Cisco Unity then tells Dialogic to hang up the call. When this happens at the time of message recording, Cisco Unity records these tones at the end of the message. If "TrimDisconnectTonesOnRecordings" is set to "1" (true) in the active switch configuration file, Cisco Unity then calculates the amount of time that elapses between the receipt of the first (or only) hangup DTMF and when the recording process actually stops. Cisco Unity trims that amount of time from the end of the message. "TrimDisconnectTonesOnRecordings" must be set to "1" (true) in the active switch configuration file for this to happen. This setting is in the registry under HK_Local_Machine\Software\ActiveVoice\MIU\1.0\Initialization for versions 2.4.x and not in the switch configuration file.

Positive Disconnect and Disconnect Tone

Positive disconnect is sent by the phone system. The actual type of positive disconnect varies and depends on the type of phone system. For example, a loop current reversal on analog lines, disconnect bit signal on T1 lines, and more. Disconnect tone is sent by either the phone system or the Central Office in the form of a reorder tone, busy tone or dial tone.

When the phone system sends positive disconnect or a disconnect tone, Dialogic interprets these signals as disconnect, and sends a LINECALLSTATE_DISCONNECTED message to Cisco Unity. This is an important limitation of TAPI. The problem here is that Cisco Unity receives the same disconnect message from Dialogic through TAPI whether positive disconnect is immediately detected or if disconnect tone is recorded for a period of time before Dialogic determines that it hears a disconnect tone. Also, different disconnect tones can take different periods of time for detection. Therefore different durations of these tones can be present at the end of recordings. Cisco Unity cannot distinguish between these scenarios. "TrimDisconnectTonesOnRecordings" is an all or nothing proposition. If a site reports dial tone or reorder

tone present at the end of some, but not all, message recordings, disable "TrimDisconnectTonesOnRecordings" (set to "0") in order to avoid chopping off the end of messages where no disconnect tone is present. Also, since Dialogic on Cisco Unity systems uses two different disconnect tone definitions , these tones can take different periods of time for detection. This results in different durations of tones that can be present at the end of recordings.

Two settings are necessary for Cisco Unity to trim disconnect tones such as dial tone and reorder from the end of recorded messages. The first is setting "TrimDisconnectTonesOnRecordings" to "1" in the active switch configuration file. The second is the presence of a Switch Disconnect Tone definition in the active switch configuration file. The Switch Disconnect Tone definition is what Cisco Unity uses in order to calculate the amount of time to trim from a recorded message when there is a termination of recording due to a disconnect event from Dialogic through TAPI (LINECALLSTATE_DISCONNECTED). The best way to illustrate this is through these examples.

Example 1

Switch configuration files settings include:

```
TrimDisconnectTonesOnRecordings=1
  [Switch Disconnect Tone]
  Frequency1=480
  FrequencyDeviation1=50
  Frequency2=620
  FrequencyDeviation2=50
  TimeOn1=250
  TimeOnDeviation1=50
  TimeOff1=250
  TimeOffDeviation1=50
  Cycles=8
  [CO Disconnect Tone]
  Frequency1=350
  FrequencyDeviation1=50
  Frequency2=440
  FrequencyDeviation2=50
  TimeOn1=4000

!--- TimeOn1=4000 defines a tone as  continuous, such as dial tone.

  TimeOnDeviation1=0
  TimeOff1=0
  TimeOffDeviation1=0
  Cycles=0

!--- Cycles must be "0" when you define a continuous tone.
```

The amount of milliseconds Cisco Unity trims when there is a termination of recording due to a caller hang up and a disconnect event is sent from Dialogic through TAPI (LINECALLSTATE_DISCONNECTED) =(TimeOn1=**250** + TimeOff1=**250**) x Cycles=**8** = **4000**ms (four seconds)

In this example:

If Dialogic detects disconnect due to	then	and then
tone matches [Switch	Eight cycles (or four seconds) of	Cisco Unity trims the last four seconds of the

Disconnect Tone]	tone have been recorded at the end of the message	message. This results in desired trimming
tone matches [CO Disconnect Tone]	4000 ms (or four seconds) of tone have been recorded at the end of the message	Cisco Unity trims the last four seconds of the message. This results in desired trimming
Positive disconnect	no tone has been recorded at the end of the message	Cisco Unity trims the last four seconds of the message. This results in the end of the actual message being chopped off

Example 2

Switch configuration files settings include:

```
TrimDisconnectTonesOnRecordings=0
[Switch Disconnect Tone]
Frequency1=480
FrequencyDeviation1=50
Frequency2=620
FrequencyDeviation2=50
TimeOn1=250
TimeOnDeviation1=50
TimeOff1=250
TimeOffDeviation1=50
Cycles=8
[CO Disconnect Tone]
Frequency1=350
FrequencyDeviation1=50
Frequency2=440
FrequencyDeviation2=50
TimeOn1=4000

!--- TimeOn1=4000 defines a tone as  continuous, such as dial tone.

TimeOnDeviation1=0
TimeOff1=0
TimeOffDeviation1=0
Cycles=0

!--- Cycles must be "0" when you define a continuous tone.
```

The amount of milliseconds Cisco Unity trims when there is a termination of recording due to a caller hang up and a disconnect event is sent from Dialogic through TAPI (LINECALLSTATE_DISCONNECTED) = (TimeOn1=**250** + TimeOff1=**250**) x Cycles=**8** = **4000** ms (four seconds).

In this example:

If Dialogic detects disconnect due to	then	and then

tone matches [Switch Disconnect Tone]	Eight cycles (or four seconds) of tone have been recorded at the end of the message	**disconnect tones remain present in recorded message** because "TrimDisconnectTonesOnRecordings" is set to "0" (disabled)
tone matches [CO Disconnect Tone]	4000 ms (or four seconds) of tone have been recorded at the end of the message	**disconnect tones remain present in recorded message** because "TrimDisconnectTonesOnRecordings" is set to "0" (disabled)
Positive disconnect	no tone has been recorded at the end of the message	entire message remains intact and no disconnect tones are present in the recording

Example 3

Switch configuration files settings include:

```
TrimDisconnectTonesOnRecordings=1
[Switch Disconnect Tone]
Frequency1=480
FrequencyDeviation1=50
Frequency2=620
FrequencyDeviation2=50
TimeOn1=250
TimeOnDeviation1=50
TimeOff1=250
TimeOffDeviation1=50
Cycles=4
[CO Disconnect Tone]
Frequency1=350
FrequencyDeviation1=50
Frequency2=440
FrequencyDeviation2=50
TimeOn1=4000

!--- TimeOn1=4000 defines a tone as  continuous, such as dial tone.

TimeOnDeviation1=0
TimeOff1=0
TimeOffDeviation1=0
Cycles=0
```

```
!--- Cycles must be "0" when you define a continuous tone.
```

The amount of milliseconds Cisco Unity trims when there is a termination of recording due to a caller hang up and a disconnect event is sent from Dialogic through TAPI (LINECALLSTATE_DISCONNECTED) = (TimeOn1=**250** + TimeOff1=**250**) x Cycles=**4** = **2000** ms (**four** seconds).

If Dialogic detects disconnect due to	then	and then
tone matches [Switch Disconnect Tone]	Four cycles (or two seconds) of tone have been recorded at the end of the message	Cisco Unity trims the last two seconds of the message. This results in desired trimming
tone matches [CO Disconnect Tone]	4000 ms (or four seconds) of tone have been recorded at the end of the message	Cisco Unity trims the last two seconds of the message. This results in **two seconds of disconnect tone still present at the end of the message**
Positive disconnect	no tone has been recorded at the end of the message	Cisco Unity trims the last two seconds of the message. This **results in the end of the actual message being chopped off**

Example 4

Switch configuration files settings include:

```
TrimDisconnectTonesOnRecordings=1
[Switch Disconnect Tone]
Frequency1=350
FrequencyDeviation1=50
Frequency2=440
FrequencyDeviation2=50
TimeOn1=4000

!--- TimeOn1=4000 defines a tone as  continuous, such as dial tone.

TimeOnDeviation1=0
TimeOff1=0
TimeOffDeviation1=0
Cycles=0

!--- Cycles must be "0" when you define a continuous tone.

[CO Disconnect Tone]
Frequency1=480
FrequencyDeviation1=50
Frequency2=620
FrequencyDeviation2=50
TimeOn1=250
```

```
TimeOnDeviation1=50
TimeOff1=250
TimeOffDeviation1=50
Cycles=8
```

The amount of milliseconds Cisco Unity trims when there is a termination of recording due to a caller hang up and a disconnect event is sent from Dialogic through TAPI (LINECALLSTATE_DISCONNECTED) = (TimeOn1=**4000** + TimeOff1=**0**) x Cycles=**0** = **0**ms (**0** seconds)

In this example:

If Dialogic detects disconnect due to	then	and then
tone matches [Switch Disconnect Tone]	4000 ms (or four seconds) of tone have been recorded at the end of the message	**disconnect tones remain present in recorded message** because 0 ms is trimmed
tone matches [CO Disconnect Tone]	Eight cycles (or four seconds) of tone have been recorded at the end of the message	**disconnect tones remain present in recorded message** because 0 ms is trimmed
Positive disconnect	no tone has been recorded at the end of the message	entire message remains intact and no disconnect tones are present in the recording

Therefore, when a switch sends reorder, busy, dial tone or other tones in order to indicate disconnect on an analog voice mail port:

- "TrimDisconnectTonesOnRecordings" needs to be set to "1" in the active switch configuration file, only if positive disconnect is never (or almost never) expected.
- You need to define [Switch Disconnect Tone] as a cadence tone with Cycles > 0 in the switch configuration file. If the switch sends a continuous tone as disconnect, define the continuous tone as [CO Disconnect Tone] and define a [Switch Disconnect Tone] that results in four seconds of trimming. When in doubt, use the standard US reorder tone defined as [Switch Disconnect Tone] from Example 1 with Cycles=8.

Learn Tones

Cisco Unity comes with template files for a variety of phone systems. These template files work with most phone systems without modification. However, problems with transfers, message waiting indication, and message notification can arise if Cisco Unity does not understand the phone system tones. If any of these problems occur, and basic troubleshooting procedures do not correct the problem, run the Learn Tones utility in order to modify the phone system template file. The Learn Tones utility learns the frequency and cadence of the phone system tones, such as busy and ring back, and teaches them Cisco Unity. Once you start the utility, the process is automatic. One voice messaging port calls other ports in order to generate the tones. The utility then adds the tone information to the phone system template file.

The Learn Tones utility runs on systems that have Dialogic cards only. The Learn Tones utility also requires exclusive access to the ports. Do not run Learn Tones unless Cisco Unity is shut down. Cisco recommends to backup the current values that you have for the different tones, and learn a tone at a time.

Run the Learn Tones Utility (Systems Equipped with Dialogic Cards Only)

These steps describe how to run the Learn Tones utility.

1. In the Cisco Unity Administrator, select **System** > **Switch**.
2. In the Set Active Switch Type section, verify all values. Correct any incorrect values for the phone system.
3. If you change values in step 2, click the **Save** icon.
4. Shut down Cisco Unity.
5. On the Windows Start menu, select **Programs** > **Cisco Unity** > **Learn Tones**.
6. Confirm that all ports and extensions are correct. Do not use a hunt group for the helper extensions.

By default, Learn Tones runs in "Automatic Mode." When Learn Tones uses Automatic Mode, two additional voice mail ports are necessary to act as "Helper" ports. You always use Port 1 of the system as the Primary learning port. By default, Learn Tones uses voice mail ports 2 and 3. Verify that you enter the correct extensions for each Helper port. Import the extensions from the System\Ports page of the SA if they are present there. Otherwise, you need to enter the extension numbers now. Enter the necessary port numbers and their extension numbers in the Helper Ports section in order to designate voice mail ports other than 2 and 3 as Helper ports.

Use manual mode when you want the primary port to call a specified extension rather than a helper port. You also use manual mode when some aspect of the phone system programming, such as forwarding when a line is busy, conflicts with the tone−learning process. In order to run in "Manual Mode," check the "Manual Mode" checkbox in the "Settings" section and enter the extension of a phone near you as the "Manual Ext". Make sure that Manual Ext phone is close enough to the voice mail server so that you can see prompts on the screen and operate the phone at the same time. Manual mode requires you to respond to system prompts for some tones.

If there are any tone settings already present in your switch configuration file, those settings appear when you start Learn Tones. Any tones or settings that are not currently present in the active switch configuration file are set to default values.

- "Delay between calls (ms)" is the number of milliseconds that Learn Tones delays before it makes a subsequent call to either learn or verify a tone. The default is 4000 ms.
- "Deviation Threshold (%)" sets the deviation that is accepted when learning each individual tone. When Dialogic learns a tone, part of the tone description is not only the frequencies and the times it thinks it heard for that tone, but a deviation is detected during the course of detecting that tone. If the deviation for any single field (freq1, freq2, on, off) exceeds the "throw away threshold", then that tone is thrown away. The default is fifteen percent.
- You can adjust the "Calls" and "Frames" setting for each tone if you desire. However, the use of the default settings of "1" for Calls and "5" for Frames is always sufficient.
- The "Delay (ms)" setting for each tone is the amount of time (in milliseconds) that the utility waits between the completion of the action to cause a tone, and when actual learning begins. This is often helpful to avoid detection of stray events on the line when the switch transitions between line states that can hamper the learning of the necessary tone. The default for this setting is 1500 milliseconds.

In order to learn Dial tone, click **Learn** in the Dial tone section. In Automatic mode, Learn Tones uses these steps in order to learn Dial tone:

1. Goes off hook on port 1.
2. Waits the amount of milliseconds defined as "Delay (ms)" for Dial tone.
3. Listens to and **learns** the tone on port 1.
4. Goes on hook on port 1.
5. Waits the amount of milliseconds defined as "Delay between calls (ms)".
6. Goes off hook on port 1.
7. Listens to and **verifies** the tone on port 1.
8. Goes on hook on port 1.

In order to learn Busy tone, click **Learn** in the Busy section. In Automatic mode, Learn Tones uses these steps in order to learn Busy tone:

1. Goes off hook on port 2.
2. Dials the extension of port 3.
3. Goes off hook on port 3 in order to answer the call from port 2.
4. Goes off hook on port 1.
5. Dials the extension of port 2.
6. Waits the amount of milliseconds defined as "Delay (ms)" for Busy tone.
7. Listens to and **learns** the tone on port 1.
8. Goes on hook on port 1, 2 and 3.
9. Waits the amount of milliseconds defined as "Delay between calls (ms)".
10. Goes off hook on port 2.
11. Dials the extension of port 3.
12. Goes off hook on port 3 in order to answer the call from port 2.
13. Goes off hook on port 1.
14. Dials the extension of port 2.
15. Listens to and **verifies** the tone on port 1.
16. Goes on hook on port 1, 2 and 3.

In order to learn switch disconnect tone, click **Learn** in the Disconnect section. In Automatic mode, Learn Tones uses these steps in order to learn Disconnect tone:

1. Waits the amount of milliseconds defined as "Delay between calls (ms)".
2. Goes off hook on port 1.
3. Dials the extension of port 2.
4. Goes off hook on port 2 in order to answer the call from port 1.
5. Delays for 2000 ms (2 seconds).
6. Goes on hook on port 2.
7. Waits the amount of milliseconds defined as "Delay (ms)" for Disconnect tone.
8. Listens to and **learns** the tone on port 1.
9. Goes on hook on port 1.
10. Waits the amount of milliseconds defined as "Delay between calls (ms)".
11. Goes off hook on port 1.
12. Dials the extension of port 2.
13. Goes off hook on port 2 in order to answer the call from port 1.
14. Delays for 2000 ms (2 seconds).
15. Goes on hook on port 2.
16. Listens to and **verifies** the tone on port 1.
17. Goes on hook on port 1.

In Automatic mode, Learn Tones uses these steps in order to learn CO Disconnect tone:

1. Goes off hook on port 1.
2. Dials "9".

3. Waits the amount of milliseconds defined as "Delay (ms)" for CO Disconnect tone.
4. Listens to and **learns** the tone on port 1.
5. Goes on hook on port 1.
6. Waits the amount of milliseconds defined as "Delay between calls (ms)".
7. Goes off hook on port 1.
8. Dials "9".
9. Listens to and **verifies** the tone on port 1.
10. Goes on hook on port 1.

In order to learn ringback tone, click **Learn** in the Ringback section. In Automatic mode, Learn Tones uses these steps in order to learn Ringback tone:

1. Goes off hook on port 1.
2. Dials the extension of port 2.
3. Waits the amount of milliseconds defined as "Delay (ms)" for Ringback tone.
4. Listens to and learns the tone on port 1.
5. Goes on hook on port 1.
6. Waits the amount of milliseconds defined as "Delay between calls (ms)".
7. Goes off hook on port 1.
8. Dials the extension of port 2.
9. Listens to and **verifies** the tone on port 1.
10. Goes on hook on port 1.

The Learn Tones utility automatically verifies tones after it learns them. Therefore, there is no need to click the Verify All button before you save the learned tones. After you save learn tones, in the dialog box that appears, check only the boxes of those tones you wish to update in the switch configuration file, and then click **OK**.

If you wish to save the new tones directly to the active switch configuration file now, accept the default file name, and click **Open**. If you want to save the tones to a different file so you can compare them first and manually copy them to the active switch configuration file later, change the file name and click **Open**.

Determine How the Cycles Section Works

All cadence tones that are learned that do not have a preexisting value for Cycles are saved with Cycles=4. All continuous tones that are learned are saved with a value of Cycles=0, regardless of the preexisting Cycles value. Continuous tones should never have any value other than zero for Cycles. A non−zero Cycles value for a continuous tone can result in Dialogic TAPI problems and the system does not run properly.

Note: On cadence based tones that are learned, any preexisting Cycles values are not edited. This includes Cycles=0. Unless it is manually changed, any system that ran Learn Tones prior to 2.4.0.74 has a value of Cycles=0 for cadence tones. You have to change this manually. This example demonstrates how this works:

```
Tone         *           BeginValue*TypeLearn*ValueAfterSave
[Switch Dial Tone]*Cycles=3*Continuous*Cycles=0
[Switch Busy Tone]*Cycles=0*Cadence*Cycles=0
[Switch RingbackTone]*Cycles=*Cadence*Cycles=4
[Switch Disconnect Tone]*Cycles=3*Cadence*Cycles=3
[CODisconnectTone]*Cycles=*Continuous*Cycles=0
```

Troubleshoot the Learn Tones Utility

This section outlines some troubleshooting steps when the Learn Tones utility is not successful.

Delay: Adjust the Delay (ms) setting for the tone you have trouble with. 500 to 2000 milliseconds is usually sufficient. Be careful not to make this delay too long, as it can cause the learning of a tone to fail, or even cause it to learn the wrong tone. For example, on a switch that only sends dial tone for a limited time − for example ten seconds − before changing to reorder tone, if the Delay (ms) setting is set too large, the utility sometimes hears both tones and fails to learn dial tone, or misses the dial tone altogether.

Mode: If "Automatic Mode" does not work, try "Manual Mode", or the other way around.

Listen: Unplug the line cord from port 1 of the voice mail system and plug it into an analog phone. Use the same steps as the Learn Tones utility uses in order to manually recreate the condition that Learn Tones listens to.

Continuous cadence: You probably notice one or more tones learned with this cadence:

```
On(ms) dev      Off(ms) dev
2000 −2000 0 0
```

This indicates that the learned tone is continuous. When a tone with this cadence (continuous) is saved to the switch configuration file, the cadence looks like this:

```
TimeOn1=4000
TimeOnDeviation1=0
TimeOff1=0
TimeOffDeviation1=0
Cycles=0
```

This is intentional. In order to support voice board manufacturers other than Dialogic, you must use the latter method when you define a continuous tone in the switch configuration file. When you restart Cisco Unity, the Miu component takes care of the translation of the cadence back to the original settings if Dialogic boards are installed in the system.

This section explains a problem that can occur after Learning Tones.

Problem: Cisco Unity does not answer calls after a restart. Several AvMiu_MC and AvCs_MC errors appear in the event log at the time of startup.

1. Check the active switch file for a defined continuous tone with a non−zero value for cycles. For example:

   ```
   [CO Disconnect Tone]
   TimeOn1=4000
   TimeOnDeviation1=0
   TimeOff1=0
   TimeOffDeviation1=0
   Cycles=4
   ```
2. Check the Advanced Dialogic TSP configuration.

   a. Select **Control Panel** > **Telephony** > **Telephony Drivers** tab.
   b. Highlight **Dialogic Generation 2 Service Provider for NT** and press **Configure**.
   c. Press **Advanced**.
   d. Check Disc Tone tabs for continuous tone defined while cycles have non−zero value. If this is the case, set cycles to zero in both the Active Switch File and Advanced Dialogic TSP Configuration. Restart Cisco Unity.

Related Information

- **Voice Technology Support**
- **Voice and IP Communications Product Support**
- **Recommended Reading: Troubleshooting Cisco IP Telephony**
- **Technical Support − Cisco Systems**

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