

Application Note:

Testing Dialogic T1 Cards with the TSP

This application note provides information for setting up the Telecom Simulation Platform (TSP) to connect to Dialogic T1 cards in minimal time. Dialogic's default robbed bit signaling in many cases does not match the TSP's default settings. This note provides essential information to get the Dialogic T1 cards configured and running in wink start mode (which is one of the more common signaling types) and accepting calls from the TSP using the MFC Inbound Demo program provided by Dialogic. This note also addresses changing the signaling bit states for the Dialogic T1 card.

Background

The standards for digital A&B robbed-bit signaling are defined in the EIA/TIA *Requirements for Private Branch Exchange (PBX) Switching Equipment* (Standard EIA/TIA-464-B). This standard contains tables defining the transmit and receive bit patterns for all common robbed-bit signaling types. For some signaling types, the received B bit is defined with an X, where *“an X indicates that the received signaling bit is not required for determining the signaling state and, depending on the terminating equipment, may be an unreliable source of such information. Therefore it should be ignored.”* (EIA/TIA-464-B, page 147, Section 6.2.1.3).

Once a protocol is selected on the TSP's templates screen, variations of the signaling can be selected on the Signaling tab. The default signaling-bit settings on the TSP comply with the standard except they **do not** ignore the B bit. This ensures that designers of new equipment can test that their systems are properly transmitting the signaling per the standard.

The EIA/TIA-464B selection on the TSP Signaling tab is more forgiving, ignoring unnecessary signaling bits. This selection is best for initially connecting to equipment if you do not know the details about the equipment's signaling. Other selections may be available for specific equipment that has been tested with the TSP, and users can define their own signaling patterns if needed.

The Dialogic T1 card does not transmit the B bit by default. The TSP can ignore the B bit by setting its signaling to the EIA/TIA-464-B standard.

Setup and Test

This test assumes that you have correctly installed a Dialog T1 Card into your PC, and also have installed the Dialogic System Software and SDK.

Testing Dialogic T1 Cards with the TSP (Cont.)

You will need the following items:

- TSP base unit with a Single or Dual T1
- Dialogic T1 Card
- Dialogic Configuration Manager software (used to control card operation). This software is part of the Dialogic SDK.
- MFC Inbound Demo software (`mfcansr.exe`, obtained from the Dialogic support website at http://support.dialogic.com/appnotes/MFC_Inbound.htm)

Setting Up the TSP Program

1. Connect from the TSP T1/E1 module port to the Dialogic T1 port with the yellow T1/E1 cable provided.
2. Launch the Telecom Simulation Platform program and create a Unit.
 - a. Ensure the Slot 2 on the Units screen is set for either the Single or Dual T1/E1 card type (matching card in unit) and the Card Mode is set to T1.
 - b. Set the T1 Parameters of the TSP as follows to match the Dialogic card's default parameters:

Clock:	Internal
Framing:	D4
Line Coding:	AMI
PCM Encoding:	mu-law
 - c. Go to the Channels Tab and program the Transmit Digits field with ANI and/or DNIS that will be sent to the channels being tested. Use the Wizard button to do all channels at once, using the defaults provided.
 - d. If there are other cards installed in the TSP, ensure that they are properly set in the appropriate Slot tabs.
3. Create a new Template using T1 Wink Start channel protocol.
 - a. Use all the defaults on the Type and Timings tabs.
 - b. Go to the Signaling tab and choose *EIA/TIA-464B by clicking the arrow under "T1 Wink Start". The * indicates this is a default protocol provided by Teltone.



Note: TSP Clock is set for Internal (provides the timing reference) since the Dialogic card's default is set for external timing.

Testing Dialogic T1 Cards with the TSP (Cont.)

4. Create a new control set using Call Originate control set type with the TSP Configuration Software.
 - a. Choose the T1 Wink Start template created earlier by clicking the arrow for the Template field and selecting the name it was given.
 - b. Choose the channel to be tested by clicking the Edit Channels button and moving an Available Channel to the field on the right side. Start by choosing only channel 1 of the T1.
 - c. Click OK.
 - d. Leave the Start set to Manual (default).
 - e. Click the radio button for Number of calls in the Stop section and program for 1 call.
 - f. Click OK on the Control Set screen.

The TSP is ready to test, but the Dialogic T1 card needs to be programmed first.

Setting Up the Dialogic T1 Card

1. Install the Dialogic T1 Card and Configuration Manager Software.
2. Install MFC Inbound Demo software.
3. Launch the Dialogic Configuration Manager to configure and activate the Dialogic card. A green light indication appears when the T1 is in sync with the TSP. The TSP shows green light on the module port.
4. Launch MFC Demo program. Click OK to close any message boxes during initialization.
5. Note the three boxes at the top left. The third one to the right should say dtiB1T1 which stands for board 1 channel 1 of the T1. Leave the default for now.
6. Use all default bit states for calls.
7. Ensure “Send wink on seizure” is checked.
8. Check the “Receive ANI and DNIS” box. Enter 11 for the “# of digits” field.

Testing

Ensure that testing is done in the following order:

1. Activate MFC Inbound Demo program by clicking the “Wait for call” button. The Dialogic card is ready to receive calls.

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2. Activate the Control Set on the TSP by clicking the button at the right of the Telecom Simulation Platform screen under “Control Set Enables”.
The TSP immediately places a call to the Dialogic card on channel 1 of the T1.
The MFC Demo Inbound program indicates a call and the digits received from the TSP.
3. Click the “Hang up” button on the MFC Inbound Demo program prior to 20 seconds (the default call length on the template for the TSP). If this is not done, the TSP will hang up first and the MFC Inbound Demo program will not recognize the disconnect. It is suspected that this is a limitation of the MFC Inbound Demo program.
4. Repeat these steps each time a call is to be placed into the Dialogic card from the TSP.

Changing the T1 Channel for the Test Call

1. Edit the Control Set for the TSP.
 - a. Click the Edit Channels button.
 - b. Highlight and Remove the T1 channel that was under test.
 - c. Highlight and Add the next T1 channel to be tested.
2. Change the channel on the MFC Inbound Demo program
 - a. At the top left of the screen, click the arrow for the third field to the right populated with dtiB1T1.
 - b. Choose the next channel to be tested. The number after the “T” in dtiB1T1 corresponds to the T1 channel. This will be the same channel chosen on step 1.
3. Start the test (see “Testing”).

Changing the Dialogic Card Signaling Bits

The Dialogic T1 card can be configured to send the B bits according to the TIA/EIA-464-B standard. This is done by programming these bits on both the MFC Inbound Demo program and on a `spandti.prm` file located in the Dialogic Configuration Manager program.

The following steps are necessary to change the Dialogic signaling bits.

1. The Dialogic Configuration Manager will need the Wink bit states defined.
 - a. Exit the MFC Inbound Demo program.
 - b. Deactivate the Dialogic card on the Dialogic Configuration Manager.

Testing Dialogic T1 Cards with the TSP (Cont.)

- c. Do a find for the file `spandti.prm`, which is used to define the wink bit states.
 - d. Open it in edit mode.
 - e. Find line “000C” which will show 10 as the default. This is the hex equivalent of the A bit high and B bit low.
 - f. Change the 10 to 30 which changes the hex value to both the A and B bits high. If this line has a semicolon at the beginning, delete the semicolon.
 - g. Save the file under a different name but with the `.prm` extension in the same directory.
2. Assign the new `.prm` file for defining the Wink Bit states to be used by the Dialogic Configuration Manager.
 - a. On the Dialogic Configuration Manager screen, click Dialogic HD.
 - b. Select Card.
 - c. Go to Action, Configure device.
 - d. Click the Misc tab.
 - e. Choose the new Parameter File created by typing in the name in the Value field.
3. Activate Dialogic Card with Dialogic Configuration Manager.
4. Define Digital Parameters on MFC Inbound Demo program.
 - a. Restart the MFC Inbound Demo program.
 - b. Ensure “Send wink on seizure” is checked.
 - c. Check the “Receive ANI and DNIS” box. Enter 11 for the “# of digits” field
 - d. Under “CO will indicate incoming call with:” check both A and B bit On.
 - e. Under “We will indicate off-hook by:”, also check both A and B bit On.
5. Click Wait for call button on MFC Inbound Demo.

The Dialogic card is now set to send signaling bits according to TIA/EIA-464-B.