

# CTP Series Circuit to Packet Platform

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## Multiservice Interface Module Configuration Guide

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# 1

CHAPTER

## Multiservice Interface Module Overview

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# CTP150 Multiservice Interface Module

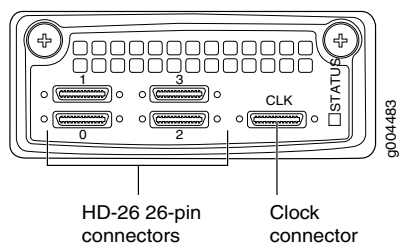
The Juniper Networks CTP150 Circuit to Packet platform optionally includes a Serial Multiservice Interface module CTP150-IM-SER-MS. The module provides 4-KHz or high quality analog audio, or interranging instrumentation group (IRIG) signals.

The multiservice card enables an IRIG time code (IRIG-B) signal to be transported through an IP network. The IRIG-B standard consists of a family of rate-scaled serial time codes with formats containing up to three coded expressions or words. The IRIG-B pulse code contains one frame of 100 elements per second for the time of the year and GPS receiver status. IRIG-B encodes day of year, hour, minute, and second data on a 1-KHz carrier frequency, with an update rate of once per second.

**NOTE:** Only ports 0 and 2 (the bottom two ports) on the front of the serial module can be used for the multiservice features. You can configure direction, output high and low levels, and data range for this module.

The four-port serial interface module supports individual cabling for each port. The CTP150 ports have small serial ports for HD-26 26-pin connectors (see [Figure 1 on page 7](#)). The lowest-numbered port (marked 0) is at the bottom left, and the highest-numbered port (marked 3) is at the top right.

**Figure 1: CTP150 Serial Multiservice Interface Module**



The software-selectable interfaces for the module on all ports are RS-232/V.24, EIA530/X.21, EIA530A, V.35, and IRIG. Software-selectable rates range from 50 bps to 12.228 Mbps. On ports 0 and 2 there are also options for 4KHz (4WTO) analog, or high quality analog.

The module also includes an external clock reference port for an HD-26 connector. Note that only one external clock reference is required even if there are two interface modules, serial or T1/E1.

On the CLK port, differential clock signals are output on the pins 4 and 17 of the HD-26 connector. When an EIA-530A DCE-F serial cable (CTP150-CBL-DB25-DCE-F) is connected to the CLK port, the TT pins 24 and 11 of the DB25 connector output clock signals. If you configure a 32 kHz reference output, an RS-422 32 kHz clock signal is generated on the pins. Even if you disable the 32 kHz reference output and

configure an external clock reference, the module expects an RS-422 clock input (of the configured frequency) on the same pins.

**NOTE:** The external clock reference port must be the one in module slot 0, the left-most slot in the front of the CTP150 chassis.

## RELATED DOCUMENTATION

*CTP150 Serial Interface Module*

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*CTP150 Interface Module HD-26 Connector Cable Pinouts*

# CTP2000 Multiservice Interface Module

The Juniper Networks CTP2000 Circuit to Packet platform optionally includes an 8-port Serial Multiservice Interface module (CTP2000-IM-8p-MS) as shown in [Figure 2 on page 8](#).

**Figure 2: CTP2000 Serial Multiservice Interface Module**



The cable used with the Serial Multiservice Interface module is CTP-CBL-4Q.

The module can operate in the following modes:

- **Audio**—Provides single and dual channel audio support for varying quality audio from 8-bit, 8-KHz quality to 8-bit up to 16-bit, 48-KHz quality (CD quality).
- **4WTO**—Provides single and dual channel audio support for 8-bit, 8-KHz quality with squelch support for radio backhaul. In 4WTO mode, the Multiservice interface module is interoperable with 4WTO daughter cards.
- **IRIG**—Enables an interranger instrumentation group time code (IRIG-B) signal to be transported through an IP network.
- **TDC**—Provides combined time-correlated support for IRIG/NRZ data for telemetry applications.



The interface module is supported on CTP bundles; You use the bundles to configure the modes of operation.

#### RELATED DOCUMENTATION

| [Serial Multiservice Interface Module Overview](#)

## Serial Multiservice Interface Module Overview

CTP bundles are supported on the Serial Multiservice Interface module. CTP bundles on Multiservice Interface modules can operate with the following modes:

- Audio—Provides single and dual channel audio support for varying quality audio from 8-bit, 8-KHz quality to 8-bit up to 16-bit, 48-KHz quality (CD quality).
- 4WTO—Provides single and dual channel audio support for 8-bit, 8-KHz quality with squelch support for radio backhaul. In 4WTO mode, the Multiservice Interface module is interoperable with 4WTO daughter cards.
- IRIG—Enables an interranger instrumentation group time code (IRIG-B) signal to be transported through an IP network.
- TDC—Provides combined time-correlated support for IRIG/NRZ data for telemetry applications.

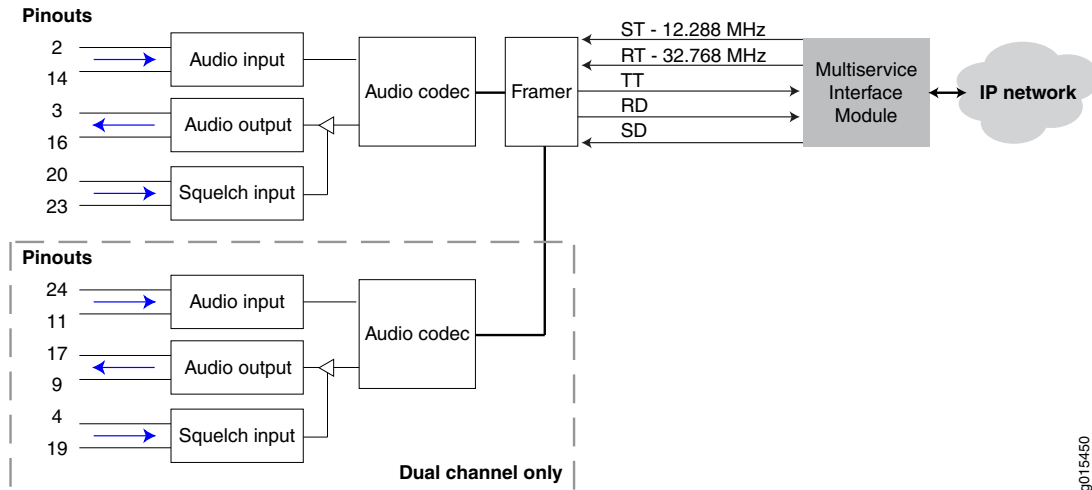
### Audio Mode

Audio mode provides a high-quality audio (CD quality) interface. Audio mode supports the following features:

- One or two simultaneous channels.
- Codec sampling rates up to 48 KHz.
- Optional  $\mu$ -law encoding and decoding.
- Embedded frame requiring no additional bandwidth.
- Configurable output level from 0x to 2x.
- Signaling capability with talk squelch.

Figure 3 on page 10 shows the cable pinouts and the data flow when the Multiservice Interface module operates in audio mode.

Figure 3: Cable Pinouts and Data Flow When the Multiservice Interface Module Operates in Audio Mode



## 4WTO Mode

The CTP 4-wire trunk only (4WTO) analog option provides encoding for one or two analog voice channels into a single CTP IP data stream.

4WTO mode supports the following features:

- One or two simultaneous channels.
- Codec sampling rate of 8 KHz.
- Optional  $\mu$ -law encoding.
- Signaling capability with talk squelch.
- Configurable output level from 0x to 2x.
- Interoperability with a 4WTO daughter card. Interoperability is supported only on daughter cards that have firmware revision 4 or later. You enable interoperability in the 4WTO daughter card configuration by setting MS interwork to enabled.

## IRIG Mode

The Multiservice Interface module enables an interrange instrumentation group time code (IRIG-B) signal to be transported through an IP network. The IRIG-B standard consists of a family of rate-scaled serial time codes with formats containing up to three coded expressions or words. The IRIG-B pulse code contains one frame of 100 elements per second for the time of the year and GPS receiver status. IRIG-B encodes day of year, hour, minute, and second data on a 1-KHz carrier frequency, with an update rate of once per second.

IRIG-B mode supports the following features:

- IRIG-B transported at rates between 1 Kbps and 25.5 Kbps.
- Configurable output level from 0 to 7.85 volts peak-to-peak based on a 50-ohm termination.

## TDC Mode

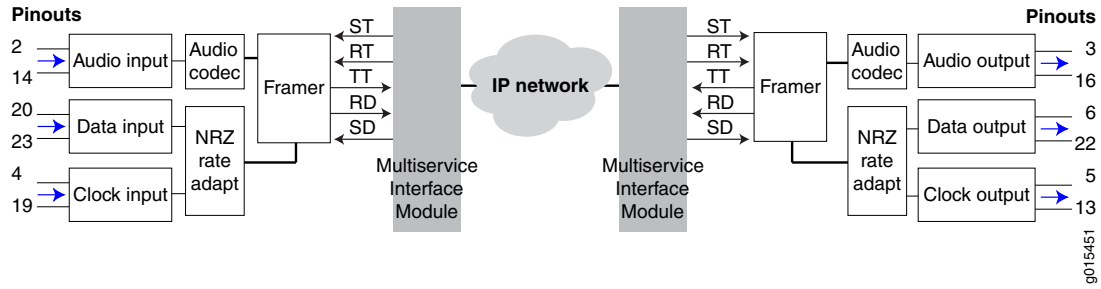
Time domain correlation (TDC) mode supports special applications in which digital data (NRZ) needs to be closely time correlated with a timing signal (IRIG-B). In TDC mode, the IRIG-B signal is transported on an 8-KHz audio path, and the NRZ data is transported using RTS/DTR (NRZ input) and CTS/DSR (NRZ output). Circuitry on the Multiservice Interface module accepts these two streams and combines them into a single digital data stream that is carried through the IP network in one direction, while making sure that the time relationship between the two signals is closely maintained.

Here is a list of the features of the TDC transport function:

- IRIG-B transported at 8-KHz with 16-bit samples; that is, no companding.
- NRZ data rates supported from 0.5 KHz to 5000 KHz in 0.5 KHz steps.
- Embedded frame requiring no additional bandwidth.
- Configurable IRIG-B output level from 0x to 2x.

[Figure 4 on page 12](#) shows the cable pinouts and the data flow when the Multiservice Interface module operates in TDC mode.

Figure 4: Cable Pinouts and Data Flow When the Multiservice Interface Module Operates in TDC Mode



# 2

CHAPTER

## Configuring Multiservice Port Parameters for CTP Bundles (CTPView)

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# Configuring Multiservice Audio Mode Port Parameters for CTP Bundles (CTPView)

Before you begin:

- Log in to the CTPView software at least at the Net\_Admin level.
- Connect the CTPView server to the CTP device for which you want to configure bundles.

To configure Multiservice audio mode port parameters using CTPView:

1. In the side pane, select **Bundle > Configuration**.
2. Run your mouse over the **Display and Select an Existing Bundle** bar.
3. In the table of bundles, select the bundle that you want to modify.
4. Under **Bundle Options**, configure the parameters as described in [Table 1 on page 15](#) and click **Click to Submit Bundle AND Port Changes**.

Table 1: CTP Bundle Multiservice Audio Port Parameter Settings in CTPView

Field	Function	Your Action
Port Description	Specifies a description for the port.	Enter a description of up to 64 alphanumeric characters. Do not use the following characters:  ( ; ' " ) ]
I/F Type	Specifies the daughter card as the interface type.	Select DCARD.
Multi-Service Mode	Specifies that the bundle will run in audio mode.	Select Audio.
Audio Mode	Specifies whether this end of the circuit provides clocking or uses adaptive clocking.  If the CTP devices at both ends of the circuit are synchronized, you can configure both ends as Master.	Select one: <ul style="list-style-type: none"> <li>• Master—This end of the circuit provides clocking.</li> <li>• Slave—This end of the circuit uses adaptive clocking.</li> </ul>

Table 1: CTP Bundle Multiservice Audio Port Parameter Settings in CTPView (*continued*)

Field	Function	Your Action
Audio Channel	Specifies the channel or channels to enable.	Select one: <ul style="list-style-type: none"> <li>• Channel 0—Enables only channel 0.</li> <li>• Dual Channel—Enables both channel 0 and channel 1.</li> </ul>
Audio Sample Rate [ KHz ]	Specifies the sample rate for audio circuits in kilohertz. The sample rate determines the audio quality and the network bandwidth needed. Higher sample rates create an IP data flow that requires higher bandwidth.  8 KHz corresponds to standard toll quality voice.  48 KHz corresponds to CD quality audio.	Select one: <ul style="list-style-type: none"> <li>• 8</li> <li>• 12</li> <li>• 16</li> <li>• 24</li> <li>• 32</li> <li>• 48</li> </ul>
Audio $\mu$ -law Encoding	Enables or disables $\mu$ -law encoding. Standard audio code samples are 16 bits. If you enable $\mu$ -law encoding, the 16-bit samples are converted to 8 bits, consuming half of the bandwidth without significant audio degradation.	Select one: <ul style="list-style-type: none"> <li>• DISABLED (16 bit samples)—Generates 16-bit audio samples.</li> <li>• ENABLED (8 bit samples)—Generates 8-bit audio samples.</li> </ul>
Audio Squelch	Enables or disables the active squelch function on the circuit.  If enabled, specifies whether the squelch is active or inactive.  The squelch function gates local audio output when DSR-A (channel 0) or RTS-A (channel 1) inputs are active or inactive.	Select one: <ul style="list-style-type: none"> <li>• DISABLED—Disables the active squelch function on the circuit (audio output is always enabled).</li> <li>• ENABLED/ACTIVE—Squelch input is grounded and analog output is disabled.</li> <li>• ENABLED/INACTIVE—No signal is applied to the squelch input. Input is open and analog output is possible.</li> </ul>
Audio Channel 0 Output Level	Specifies the output level for channel 0.  Note the following information about the values: <ul style="list-style-type: none"> <li>• 0—There is no output.</li> <li>• 128—Unity gain, which means there is no attenuation or gain.</li> <li>• 255—Gain is 2:1.</li> </ul>	Enter a number from 0 through 255.



Table 1: CTP Bundle Multiservice Audio Port Parameter Settings in CTPView (*continued*)

Field	Function	Your Action
Audio Channel 1 Output Level	<p>Specifies the output level for channel 1.</p> <p>Note the following information about the values:</p> <ul style="list-style-type: none"> <li>• 0—There is no output.</li> <li>• 128—Unity gain, which means there is no attenuation or gain.</li> <li>• 255—Gain is 2:1.</li> </ul>	Enter a number from 0 through 255.

## RELATED DOCUMENTATION

| [Serial Multiservice Interface Module Overview](#) | 9

## Configuring Multiservice IRIG-B Mode Port Parameters for CTP Bundles (CTPView)

Before you begin:

- Log in to the CTPView software at least at the Net\_Admin level.
- Connect the CTPView server to the CTP device for which you want to configure bundles.

To configure Multiservice IRIG-B mode port parameters using CTPView:

1. In the side pane, select **Bundle > Configuration**.
2. Run your mouse over the **Display and Select an Existing Bundle** bar.
3. In the table of bundles, select the bundle that you want to modify.
4. Under **Bundle Options**, configure the parameters as described in [Table 2 on page 18](#) and click **Click to Submit Bundle AND Port Changes**.

Table 2: CTP Bundle Multiservice IRIG-B Port Parameter Settings in CTPView

Field	Function	Your Action
Port Description	Specifies a description for the port.	Enter a description of up to 64 alphanumeric characters. Do not use the following characters:  ( ; ' " ) ]
I/F Type	Specifies the daughter card as the interface type.	Select DCARD.
Multi-Service Mode	Specifies that the bundle will run in IRIG-B mode.	Select IRIG-B.
IRIG-B Source	<p>Specifies the direction of the circuit. Although the IP circuit connection through the network is full duplex, an IRIG-B circuit is a simplex application, and the interface can operate only in Rx or Tx mode and not both at the same time.</p> <p>(Although the bundle is by default a full duplex IP connection, you can configure it for simplex to save network bandwidth.)</p> <p>If the autonegotiation setting of the CTP Ethernet media and the far-end switch or router do not match, it is possible for the CTP Ethernet ports to be in a half-duplex state, although the duplex setting is not configurable and always assumed to be full-duplex on the CTP device. Starting with CTPOS Release 7.2, the half-duplex state at CTP network interface card (NIC) ports are acquired, regardless of the duplex setting configured on the far-end node. After the autonegotiation process is completed, if the CTP NIC cannot acquire full-duplex mode, then the interfaces are considered to be down and a log message is recorded in both the <code>/var/log/messages</code> directory and the syslog file stating that the interface is down due to a non-full duplex condition. You are prompted to verify the cable connection, speed, and duplex settings because the NIC link might be down.</p>	<p>Select one:</p> <ul style="list-style-type: none"> <li>• TX (signal enters CTP)—The end of the circuit that accepts IP packets, extracts the IRIG-B data codes, and transmits IRIG-B signaling output onto the cable.</li> <li>• RX (signal exits CTP)—The end of the circuit that recovers IRIG-B from the attached cable and generates IP packets toward the network.</li> </ul>

Table 2: CTP Bundle Multiservice IRIG-B Port Parameter Settings in CTPView *(continued)*

Field	Function	Your Action
IRIG-B Data Rate	<p>Specifies the data rate on the IP connection.</p> <p>Note the following about setting the IRIG rate:</p> <ul style="list-style-type: none"> <li>• Unless network bandwidth is at a premium, we do not recommend that you change this value from the default of 16,000 bps.</li> <li>• Although the IRIG information can be transported through the network at the minimum configured rate (1000 bps), a CTP bundle running at this rate is subject to high latency.</li> </ul>	Enter a number from 1000 through 25,500 bps. The port speed must be a multiple of 100 bps.
Output High Volts Level	<p>This option appears only if you set the direction of the port to Tx.</p> <p>Specifies the high output level, which is measured in peak-to-peak voltage. This setting is based on a 50-ohm termination</p>	Enter a number from 0.00 through 7.85 volts peak-to-peak.
Output Low Volts Level	<p>This option appears only if you set the direction of the port to Tx.</p> <p>Specifies the low output level, which is measured in peak-to-peak voltage. This setting is based on a 50-ohm termination.</p>	Enter a number from 0.00 through 7.85 volts peak-to-peak.

## RELATED DOCUMENTATION

| [Serial Multiservice Interface Module Overview](#) | 9

## Configuring Multiservice TDC Mode Parameters for CTP Bundles (CTPView)

Before you begin:

- Log in to the CTPView software at least at the Net\_Admin level.
- Connect the CTPView server to the CTP device for which you want to configure bundles.

To configure Multiservice TDC mode port parameters using CTPView:

1. In the side pane, select **Bundle > Configuration**.
2. Run your mouse over the **Display and Select an Existing Bundle** bar.
3. In the table of bundles, select the bundle that you want to modify.
4. Under **Bundle Options**, configure the parameters as described in [Table 3 on page 20](#) and click **Click to Submit Bundle AND Port Changes**.

**Table 3: CTP Bundle Multiservice TDC Port Parameter Settings in CTPView**

Field	Function	Your Action
Port Description	Specifies a description for the port.	Enter a description of up to 64 alphanumeric characters. Do not use the following characters:  ( ; ' " ) ]
I/F Type	Specifies the daughter card as the interface type.	Select DCARD.
Multi-Service Mode	Specifies that the bundle will run in TDC mode.	Select TDC.
TDC Source	Specifies the direction of the circuit.	Select one: <ul style="list-style-type: none"> <li>• Source (signal enters CTP)—End of the circuit that receives NRZ/IRIG data.</li> <li>• Destination (signal exits CTP)—End of the circuit that sends NRZ/IRIG data toward the network.</li> </ul>
TDC NRZ Rate	Specifies the NRZ data rate on the IP connection.	Enter a number from 500 through 5,000,000 bps in multiples of 500.
TDC IRIG Output Level	Specifies the output level.  Note the following information about the values: <ul style="list-style-type: none"> <li>• 0—There is no output.</li> <li>• 128—Unity gain, which means there is no attenuation or gain.</li> <li>• 255—Gain is 2:1.</li> </ul>	Enter a number from 0 through 255.

## RELATED DOCUMENTATION

[Serial Multiservice Interface Module Overview](#) | 9

## Configuring Multiservice 4WTO Mode Port Parameters for CTP Bundles (CTPView)

Before you begin:

- Log in to the CTPView software at least at the Net\_Admin level.
- Connect the CTPView server to the CTP device for which you want to configure bundles.

To configure Multiservice 4WTO mode port parameters using CTPView:

1. In the side pane, select **Bundle > Configuration**.
2. Run your mouse over the **Display and Select an Existing Bundle** bar.
3. In the table of bundles, select the bundle that you want to modify.
4. Under **Bundle Options**, configure the parameters as described in [Table 4 on page 21](#).
5. Click **Click to Submit Bundle AND Port Changes**.

Table 4: CTP Bundle Multiservice 4WTO Mode Port Parameter Settings in CTPView

Field	Function	Your Action
Port Description	Specifies a description for the port.	Enter a description of up to 64 alphanumeric characters. Do not use the following characters:  ( ; ' " ) ]
I/F Type	Specifies the daughter card as the interface type.	Select DCARD.
Multi-Service Mode	Specifies that the bundle will run in 4WTO mode.	Select 4WTO

Table 4: CTP Bundle Multiservice 4WTO Mode Port Parameter Settings in CTPView (continued)

Field	Function	Your Action
4WTO Mode	<p>Specifies whether this end of the circuit provides clocking or uses adaptive clocking.</p> <p>If the CTP devices at both ends of the circuit are synchronized, you can configure both ends as Master.</p>	<p>Select one:</p> <ul style="list-style-type: none"> <li>• Master—This end of the circuit provides clocking.</li> <li>• Slave—This end of the circuit uses adaptive clocking.</li> </ul>
4WTO Channel	<p>Specifies the channel or channels to enable.</p> <p>Each CTP bundle can support either one or two channels.</p>	<p>Select one:</p> <ul style="list-style-type: none"> <li>• Channel 0—Enables only channel 0.</li> <li>• Dual Channel—Enables both channel 0 and channel 1.</li> </ul>
4WTO Sample Rate [ KHz ]	<p>Sample rate for audio circuits in kilohertz. The sample rate determines the audio quality and the network bandwidth needed.</p>	<p>Sample rate is fixed at 8 KHz, which corresponds to standard toll quality voice.</p>
4WTO $\mu$ -law Encoding	<p>4WTO <math>\mu</math>-law encoding is not configurable.</p>	<p>4WTO <math>\mu</math>-law encoding is fixed at DISABLED.</p>
4WTO Squelch	<p>Enables or disables the active squelch function on the circuit.</p> <p>If enabled, specifies whether the squelch is active or inactive.</p> <p>The squelch function gates local audio output when DSR-A (channel 0) or RTS-A (channel 1) inputs are active or inactive.</p>	<p>Select one:</p> <ul style="list-style-type: none"> <li>• DISABLED—Disables the active squelch function on the circuit</li> <li>• ENABLED/ACTIVE—Squelch input is grounded and analog output is disabled.</li> <li>• ENABLED/INACTIVE—No signal is applied to the squelch input. Input is open and analog output is possible.</li> </ul>

Table 4: CTP Bundle Multiservice 4WTO Mode Port Parameter Settings in CTPView (*continued*)

Field	Function	Your Action
4WTO Channel 0 Output Level	<p>Specifies the output level for channel 0.</p> <p>Note the following information about the values:</p> <ul style="list-style-type: none"> <li>• 0—There is no output.</li> <li>• 128—Unity gain, which means there is no attenuation or gain.</li> <li>• 255—Gain is 2:1.</li> </ul>	Enter a number from 0 through 255.
4WTO Channel 1 Output Level	<p>Specifies the output level for channel 1.</p> <p>Note the following information about the values:</p> <ul style="list-style-type: none"> <li>• 0—There is no output.</li> <li>• 128—Unity gain, which means there is no attenuation or gain.</li> <li>• 255—Gain is 2:1.</li> </ul>	Enter a number from 0 through 255.

## RELATED DOCUMENTATION

[Serial Multiservice Interface Module Overview | 9](#)
[Configuring 4WTO Port Parameters for CTP Bundles \(CTPView\)](#)

# 3

CHAPTER

## Configuring Multiservice Port Parameters for CTP Bundles (CTP Menu)

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# Configuring Multiservice Audio Mode Port Parameters for CTP Bundles (CTP Menu)

Before you begin:

- Disable the bundle before you modify the bundle options.

To configure Multiservice audio mode port parameters using the CTP Menu:

1. From the CTP Main Menu, select **1) Bundle Operations**.
2. Select **1) CTP**.
3. Select a bundle from the list.  
If you select an active bundle, you are prompted to disable the bundle before configuring it.
4. Select **3) Port Config**.
5. Select **2) Interface**.
6. Select **1) Type**, and set the type to **Optional Interface: MultiSvc**.
7. Follow the onscreen instructions and configure the options as described in [Table 5 on page 27](#).

Table 5: CTP Bundle Multiservice Audio Mode Port Parameter Settings in the CTP Menu

Field	Function	Your Action
Mode	Specifies that the bundle will run in audio mode.	Select AUDIO.
Master/Slave	Specifies whether this end of the circuit provides clocking or uses adaptive clocking.  If the CTP devices at both ends of the circuit are synchronized, you can configure both ends as Master.	Select one: <ul style="list-style-type: none"><li>• Master—This end of the circuit provides clocking.</li><li>• Slave—This end of the circuit uses adaptive clocking.</li></ul>

Table 5: CTP Bundle Multiservice Audio Mode Port Parameter Settings in the CTP Menu *(continued)*

Field	Function	Your Action
Dual Channel	<p>Two channels are supported—channel 0 and channel 1.</p> <p>Enables or disables the use of both channels.</p>	<p>Select one:</p> <ul style="list-style-type: none"> <li>• Disable—Channel 0 is the only active channel.</li> <li>• Enable—Both channel 0 and channel 1 are active.</li> </ul>
Audio Sample Rate	<p>Specifies the sample rate for audio circuits in kilohertz. The sample rate determines the audio quality and the network bandwidth needed. Higher sample rates create an IP data flow that requires higher bandwidth.</p> <p>8 KHz corresponds to standard toll quality voice.</p> <p>48 KHz corresponds to CD quality audio.</p>	<p>Select one:</p> <ul style="list-style-type: none"> <li>• 8</li> <li>• 12</li> <li>• 16</li> <li>• 24</li> <li>• 32</li> <li>• 48</li> </ul>
μ-law Encoding:	<p>Enables or disables μ-law encoding. Standard audio code samples are 16 bits. If you enable μ-law encoding, the 16-bit samples are converted to 8 bits, consuming half of the bandwidth without significant audio degradation.</p>	<p>Select one:</p> <ul style="list-style-type: none"> <li>• Disable—Generates 16-bit audio samples.</li> <li>• Enable—Generates 8-bit audio samples.</li> </ul>
Talk Squelch	<p>Enables or disables the active squelch function on the circuit.</p> <p>If enabled, specifies whether the squelch is active or inactive.</p> <p>The squelch function gates local audio output when DSR-A (channel 0) or RTS-A (channel 1) inputs are active or inactive.</p>	<p>Select one:</p> <ul style="list-style-type: none"> <li>• Disable—Disables the active squelch function on the circuit (audio output is always enabled).</li> <li>• Enable and active—Squelch input is grounded and analog output is disabled.</li> <li>• Enable and inactive—No signal is applied to the squelch input. Input is open and analog output is possible.</li> </ul>

Table 5: CTP Bundle Multiservice Audio Mode Port Parameter Settings in the CTP Menu (*continued*)

Field	Function	Your Action
Ch 0 Output Level: 1.00x (decimal 128)	<p>Specifies the output level for channel 0.</p> <p>Note the following information about the values:</p> <ul style="list-style-type: none"> <li>• 0—There is no output.</li> <li>• 128—Unity gain, which means there is no attenuation or gain.</li> <li>• 255—Gain is 2:1.</li> </ul>	Enter a number from 0 through 255.
Ch 1 Output Level: 1.00x (decimal 128)	<p>Specifies the output level for channel 1.</p> <p>Note the following information about the values:</p> <ul style="list-style-type: none"> <li>• 0—There is no output.</li> <li>• 128—Unity gain, which means there is no attenuation or gain.</li> <li>• 255—Gain is 2:1.</li> </ul>	Enter a number from 0 through 255.

## RELATED DOCUMENTATION

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## Configuring Multiservice IRIG-B Mode Port Parameters for CTP Bundles (CTP Menu)

Before you begin:

- Disable the bundle before you modify the bundle options.

To configure Multiservice IRIG-B mode port parameters using the CTP Menu:

1. From the CTP Main Menu, select **1) Bundle Operations**.
2. Select **1) CTP**.

3. Select a bundle from the list.

If you select an active bundle, you are prompted to disable the bundle before configuring it.

4. Select **3) Port Config**.

5. Select **2) Interface**.

6. Select **1) Type** and set the type to **Optional Interface: MultiSvc**.

7. Follow the onscreen instructions and configure the options as described in [Table 6 on page 30](#).

**Table 6: CTP Bundle Multiservice IRIG-B Port Parameter Settings in the CTP Menu**

Field	Function	Your Action
Mode	Specifies that the bundle will run in IRIG-B mode.	Select IRIG.

Table 6: CTP Bundle Multiservice IRIG-B Port Parameter Settings in the CTP Menu (*continued*)

Field	Function	Your Action
Src/Dest	<p>Specifies the direction of the circuit. Although the IP circuit connection through the network is full duplex, an IRIG-B circuit is a simplex application, and the interface can operate only in Rx or Tx mode and not both at the same time.</p> <p>(Although the bundle is by default a full duplex IP connection, you can configure it for simplex to save network bandwidth.)</p>	<p>Specify yes or no to the question: Is this an IRIG-B source end (IRIG-B signal enters CTP)?</p> <ul style="list-style-type: none"> <li>• Yes (y)—Sets direction to Rx. This end of the circuit recovers IRIG-B from the attached cable and generates IP packets toward the network.</li> <li>• No (n)—Sets the direction to Tx. This end of the circuit accepts IP packets, extracts the IRIG-B data codes, and transmits IRIG-B signaling output onto the cable.</li> </ul> <p>If the autonegotiation setting of the CTP Ethernet media and the far-end switch or router do not match, it is possible for the CTP Ethernet ports to be in a half-duplex state, although the duplex setting is not configurable and always assumed to be full-duplex on the CTP device. Starting with CTPOS Release 7.2, the half-duplex state at CTP network interface card (NIC) ports are acquired, regardless of the duplex setting configured on the far-end node. After the autonegotiation process is completed, if the CTP NIC cannot acquire full-duplex mode, then the interfaces are considered to be down and a log message is recorded in both the <b>/var/log/messages</b> directory and the syslog file stating that the interface is down due to a non-full duplex condition. You are prompted to verify the cable connection, speed, and duplex settings because the NIC link might be down.</p>

Table 6: CTP Bundle Multiservice IRIG-B Port Parameter Settings in the CTP Menu (*continued*)

Field	Function	Your Action
IRIG Rate	<p>Specifies the data rate on the IP connection.</p> <p>Note the following about setting the IRIG rate:</p> <ul style="list-style-type: none"> <li>• Unless network bandwidth is at a premium, we do not recommend that you change this value from the default of 16,000 bps.</li> <li>• Although the IRIG information can be transported through the network at the minimum configured rate (1000 bps), a CTP bundle running at this rate is subject to high latency.</li> </ul>	Enter a number from 1000 through 25,500 bps. The port speed must be a multiple of 100 bps.
Output High Level	<p>This setting applies only if you set the direction of the port to Tx.</p> <p>Specifies the high output level, which is measured in peak-to-peak voltage. This setting is based on a 50-ohm termination.</p>	Enter a number from 0.00 through 7.85 volts peak-to-peak.
Output Low Level	<p>This setting applies only if you set the direction of the port to Tx.</p> <p>Specifies the low output level, which is measured in peak-to-peak voltage. This setting is based on a 50-ohm termination.</p>	Enter a number from 0.00 through 7.85 volts peak-to-peak.

## RELATED DOCUMENTATION

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# Configuring Multiservice TDC Mode Parameters for CTP Bundles (CTP Menu)

Before you begin:

- Disable the bundle before you modify the bundle options.

To configure Multiservice TDC mode port parameters using the CTP Menu:

1. From the CTP Main Menu, select **1) Bundle Operations**.

2. Select **1) CTP**.

3. Select a bundle from the list.

If you select an active bundle, you are prompted to disable the bundle before configuring it.

4. Select **3) Port Config**.

5. Select **2) Interface**.

6. Select **1) Type** and set the type to **Optional Interface: MultiSvc**.

7. Follow the onscreen instructions and configure the options as described in [Table 7 on page 33](#).

**Table 7: CTP Bundle Multiservice TDC Port Parameter Settings in the CTP Menu**

Field	Function	Your Action
Mode	Specifies that the bundle will run in TDC mode.	Select TDC/IRIG.
Src/Dst	Specifies the direction of the circuit.	Select one: <ul style="list-style-type: none"> <li>• Src (signal enters CTP)—End of the circuit that receives NRZ/IRIG data.</li> <li>• Dst (signal exits CTP)—End of the circuit that sends NRZ/IRIG data toward the network.</li> </ul>
NRZ/Rate	Specifies the data rate on the IP connection.	Enter a number from 500 through 5,000,000 bps. The port speed must be a multiple of 500 bps.



Table 7: CTP Bundle Multiservice TDC Port Parameter Settings in the CTP Menu (*continued*)

Field	Function	Your Action
IRIG Output Level	<p>Specifies the output level.</p> <p>Note the following information about the values:</p> <ul style="list-style-type: none"> <li>• 0—There is no output.</li> <li>• 128—Unity gain, which means there is no attenuation or gain.</li> <li>• 255—Gain is 2:1.</li> </ul>	Enter a number from 0 through 255.

## RELATED DOCUMENTATION

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## Configuring Multiservice 4WTO Mode Port Parameters for CTP Bundles (CTP Menu)

Before you begin:

- Disable the bundle before you modify the bundle options.

To configure Multiservice 4WTO mode port parameters using the CTP Menu:

1. From the CTP Main Menu, select **1) Bundle Operations**.
2. Select **1) CTP**.
3. Select a bundle from the list. The bundle port must have a 4WTO daughter card installed.  
If you select an active bundle, you are prompted to disable the bundle before configuring it.
4. Select **3) Port Config**.
5. Select **2) Interface**.

6. Select **1) Type** and set the type to **Optional Interface: MultiSvc**.

7. Configure the options as described in [Table 8 on page 35](#).

**Table 8: CTP Bundle Multiservice 4WTO Port Parameter Settings in the CTP Menu**

Field	Function	Your Action
Mode	Specifies that the bundle will run in 4WTO mode.	Select 4WTO-Em.
Master/Slave	Specifies whether this end of the circuit provides clocking or uses adaptive clocking.  If the CTP devices at both ends of the circuit are synchronized, you can configure both ends as Master.	Select one: <ul style="list-style-type: none"> <li>• Master—This end of the circuit provides clocking.</li> <li>• Slave—This end of the circuit uses adaptive clocking.</li> </ul>
Dual Channel	Two channels are supported—channel 0 and channel 1.  Enables or disables the use of both channels.	Select one: <ul style="list-style-type: none"> <li>• Disable—Channel 0 is the only active channel.</li> <li>• Enable—Both channel 0 and channel 1 are active.</li> </ul>
Talk Squelch	Enables or disables the active squelch function on the circuit.  If enabled, specifies whether the squelch is active or inactive.  The squelch function gates local audio output when DSR-A (channel 0) or RTS-A (channel 1) inputs are active or inactive.	Select one: <ul style="list-style-type: none"> <li>• Disable—Disables the active squelch function on the circuit.</li> <li>• Enable and active—Squelch input is grounded and analog output is disabled.</li> <li>• Enable and inactive—No signal is applied to the squelch input. Input is open and analog output is possible.</li> </ul>

Table 8: CTP Bundle Multiservice 4WTO Port Parameter Settings in the CTP Menu (*continued*)

Field	Function	Your Action
Ch 0 Output Level: 1.00x (decimal 128)	<p>Specifies the output level for channel 0.</p> <p>Note the following information about the values:</p> <ul style="list-style-type: none"> <li>• 0—There is no output.</li> <li>• 128—Unity gain, which means there is no attenuation or gain.</li> <li>• 255—Gain is 2:1.</li> </ul>	Enter a number from 0 through 255.
Ch 1 Output Level: 1.00x (decimal 128)	<p>Specifies the output level for channel 1.</p> <p>Note the following information about the values:</p> <ul style="list-style-type: none"> <li>• 0—There is no output.</li> <li>• 128—Unity gain, which means there is no attenuation or gain.</li> <li>• 255—Gain is 2:1.</li> </ul>	Enter a number from 0 through 255.

## RELATED DOCUMENTATION

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# 4

CHAPTER

## Configuring 4WTO Daughter Cards to Interoperate with Multiservice Interface Modules (CTPView)

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# Configuring 4WTO Daughter Cards to Interoperate with Multiservice Interface Modules (CTPView)

Interoperability of Multiservice Interface modules with 4WTO daughter cards requires the following:

- Firmware revision 4 or higher on the 4WTO daughter card.
- CTPView releases 3.4R4 or 4.x.
- CTPOS release 6.0 or higher.
- Channel 1 cannot be configured as the channel option.

When you enable interoperability of the 4WTO daughter card with Multiservice Interface modules, the port speed for the bundle is set as follows:

- 64 when only channel 0 is enabled.
- 128 when dual channel is enabled.

Before you begin:

- Log in to the CTPView software at least at the Net\_Admin level.
- Connect the CTPView server to the CTP device for which you want to configure bundles.

To configure 4WTO daughter cards to interoperate with Multiservice Interface module using CTPView:

1. In the side pane, select **Bundle > Configuration**.
2. Run your mouse over the **Display and Select an Existing Bundle** bar.
3. In the table of bundles, select the bundle that you want to modify.
4. Under **Port Options**, configure the **MS Interwork** parameter as described in [Table 9 on page 40](#).
5. Click **Click to Submit Bundle AND Port Changes**.

Table 9: CTP Bundle 4WTO Interoperability Parameter Setting in CTPView

Field	Function	Your Action
MS Interwork	Enables or disables interoperability of the 4WTO daughter card with Multiservice Interface modules.	<ul style="list-style-type: none"><li>• ENABLED—Interoperability with the Multiservice Interface module is enabled.</li><li>• DISABLED—Interoperability with the Multiservice Interface module is disabled.</li></ul>

# 5

CHAPTER

## Configuring 4WTO Daughter Cards to Interoperate with Multiservice Interface Modules (CTP Menu)

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# Configuring 4WTO Daughter Cards to Interoperate with Multiservice Interface Modules (CTP Menu)

To interoperate with Multiservice Interface modules, your 4WTO daughter card must have firmware revision 4 or higher and you must be using CTPOS 6.0 or higher.

Interoperability of Multiservice Interface modules with 4WTO daughter cards requires the following:

- Firmware revision 4 or higher on the 4WTO daughter card.
- CTPView releases 3.4R4 or 4.x.
- CTPOS release 6.0 or higher.
- Channel 1 cannot be the enabled channel.

When you enable interoperability of the 4WTO daughter card with Multiservice Interface modules, the port speed for the bundle is set as follows:

- 64 when only channel 0 is enabled.
- 128 when dual channel is enabled.

Before you begin:

- Disable the bundle before you modify the bundle options.

To configure 4WTO daughter cards to interoperate with Multiservice Interface module using the CTP Menu:

1. From the Main Menu, select **1) Bundle Operations**.
2. Select **1) CTP**.
3. Select a bundle from the list. The bundle port must have a 4WTO daughter card installed.  
If you select an active bundle, you are prompted to disable the bundle before configuring it.
4. Select **3) Port Config**.
5. Select **2) Interface**.
6. Select **1) Type**, and set the type to **Optional Interface: Voice 4W/TO**.

7. Follow the onscreen instructions.
8. Configure the **Ms interwork** option as described in [Table 10 on page 44](#).

**Table 10: CTP Bundle 4WTO Port Parameter Settings in the CTP Menu**

Field	Function	Your Action
Ms interwork	Enables or disables interoperability of the 4WTO daughter card with Multiservice Interface modules.	<ul style="list-style-type: none"><li>● Enabled—Interoperability with the Multiservice Interface module is enabled.</li><li>● Disabled—Interoperability with the Multiservice Interface module is disabled.</li></ul>