Tenor BX Configuration

ISDN BRI (Basic Rate Interface) is a standard intended for the home office or small enterprise. BRI is the kind of ISDN interface most likely to be found in residential service. It consists of two 64-Kbps B channels that carry voice or data, and one 16-Kbps D channel that carries signaling information.

NOTE: The Tenor BX is designed as a Multipath Gateway for a PABX and/or PSTN termination. There is no support for ISDN Multipoint, nor ISDN supplementary services. Also, no power is provided to ISDN devices, except pass-through phantom power from the PSTN. The Tenor BX is not intended for direct connection of ISDN telephones.

Set up Ports

Quintum offers the Tenor BX with a choice of either 2, 4 or 8 S/T ports. The S/T interface breaks the signal into two paths: one transmit, one receive.

The Tenor BX ports can be independently configured as either the NT (network termination) or TE (terminal equipment) interface.

Figure 1 Sample BRI Configuration
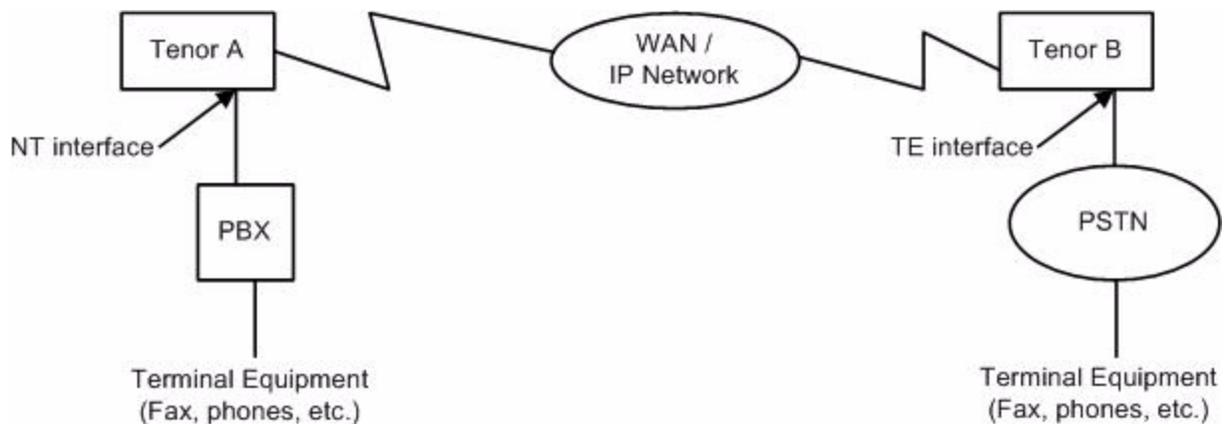
Configure the Tenor BX

The configuration described in this section can be accomplished either through the Command Line Interface (CLI) or through the *Tenor Configuration Manager*. Both methods are provided here.

Provision the Line

You should accomplish these steps before starting to configure the BRI parameters.

1. The first step is to obtain BRI service from your telecommunications provider. Your provider must provision the BRI line at the switch to support voice calls.

2. Assign an IP network address to your Tenor BX. Typically, you do this on installation.

Configure Digital Interface Level - Termination

Depending on your network requirements, Termination can be enabled/disabled on a port-by-port basis on the Tenor, at the Digital Interface level. By default, Termination is enabled on all ports. When the port is configured as a TE device, Termination may be enabled in a Point-to-Point configuration, when NT1 and the Tenor TE port are the only 2 devices on the bus. When the port is configured as NT (connecting to a PBX), Termination should always be enabled.

1. Follow these steps to turn off Termination.
   a. To disable Termination via the CLI, type the following at the Digital Interface prompt:
   config DigitalInterface-SL1DV1DI3# **set t 0**

   b. To disable Termination in *Configuration Manager*, follow these steps:
   - Navigate to *BRI Configuration - Digital Interface-n > Channels tab.*
   - Click the checkbox in front of **Termination**.

Configure ISDN Signaling Group - Orientation, BRI Protocol, and Terminal Endpoint Identifier (TEI)

You can create a customized ISDN Signaling Group for your BRI application.

1. Set the Orientation of the ISDN Signaling Group to be NT (Network/Master - toward the PBX). TE (User/Slave - toward the PSTN) is the default.
   a. To change the Orientation to NT via the CLI, type this command at the ISDNSG prompt:
   config- ISDNSignalingGroup -1# **set or 1**

   b. To change the Orientation in *Configuration Manager*, follow these steps:
   - Navigate to *Circuit Configuration > Signaling Configuration > ISDN Signaling Groups > ISDN Signaling Group-n > General tab*.
   - From the Orientation drop-down box, select **NT**.

2. Select the BRI switch protocol suggested by your provider. A list of all supported PRI and BRI protocols can be found in the *Command Line Interface Guide* under the Protocol command. The examples below select the NTT BRI protocol (Japan).
a. To change the switch via the CLI, type this command at the ISDNSG prompt:
config- ISDNSignalingGroup -1# **set prot 21**

b. To change the switch in *Configuration Manager*, follow these steps:
- Navigate to *Circuit Configuration > Signaling Configuration > ISDN Signaling Groups > ISDN Signaling Group-n > General tab*.
- From the Protocol drop-down box, select **BRI NTT**.

3. You may assign a unique TEI to a port in TE mode. This helps the NT interface manage multiple TEs. Valid values are 0-63. The default setting of 64 allows TEI to be automatically generated.
a. To change the TEI via the CLI, type the following command at the ISDNSG prompt:
config- ISDNSignalingGroup-1# **set tei 24**

b. To change the TEI in *Configuration Manager*, follow these steps:
- Navigate to *Circuit Configuration > Signaling Configuration > ISDN Signaling Groups > ISDN Signaling Group-n > Advanced tab*.
- In the TEI field, enter the numeric value for the identifier.

Configure Clocking

The Tenor BX can either derive clocking from a port configured as TE, or act as master and provide clocking to its NT interfaces (to a PBX). PrimaryClockSource is set to Digital Line by default, with PrimaryClockLineID defaulting to DI1. When you set PrimaryClockLineID to a port configured as TE, the Tenor BX is synched up to that port. Generally, if there is at least one TE port configured (to the PSTN), you should set PrimaryClockLineID to that port. The SecondaryClockSource setting allows you to specify a backup clock source. By default, the SecondaryClockSource is set to Internal.

1. Set the PrimaryClockSource to Internal.
a. To change the clocking via the CLI, type the following at the MasterChassis prompt:
config-MasterChassis-1# **set pcs 0**

b. To change the clocking in *Configuration Manager*, follow these steps:
- Navigate to *Systemwide Configuration > System Clock > Clock Source tab*.
- From the Primary Clock Source drop-down box, select **Internal**.

2. When PrimaryClockSource is set to Digital Line, the PrimaryClockLineID command is exposed. These examples set the source to Slot 1, Device 1, Digital Interface 3.
a. To set a PrimaryClockLineID via the CLI, type the following at the MasterChassis prompt:
config-MasterChassis-1# **set pclid SL1DV1DI3**

b. To set a PrimaryClockLineID in *Configuration Manager*, follow these steps:
- Navigate to *Systemwide Configuration > System Clock > Clock Source tab > Primary Clock Source (set to **Digital Line**)*.
- From the Primary Clock Line ID drop-down box, select **SL1DV1DI3** from the available Digital Interfaces.

Configure Slot Level - Enable Power Off Bypass and Phantom Power Passthru

Some BRI devices require power to be passed through the line in order to operate. You must enable PhantomPowerPassthru for a pair of ports. This is used to pass line power (Phantom Power) from an NT1 device to TE1 devices connected to an adjacent port on the Tenor. Phantom power is provided by connecting the phantom power signal from the PSTN to the respective PBX port.

In order for the power to be passed when the Tenor BX is Offline, PowerOffBypass must also be enabled. Generally, PhantomPower comes into play with a multipath solution (adjacent ports are configured, one as NT and the other TE).

NOTE: The Tenor BX is not intended for direct connection to ISDN telephones. PhantomPowerPassthru is supported on a BRI port operating in NT mode only when:
- An NT1 supplying PhantomPower is connected to an adjacent TE port (linked by RJ-45 connector).
- POB and PPP are enabled for that port pair.
A BRI port operating in TE mode is automatically disabled as a source of line power.

1. Enable PowerOffBypass and PhantomPowerPassthru for the pairs of ports that must support the power passthrough. The example enables the commands for the first pair of ports.
   a. To enable PowerOffBypass and PhantomPowerPassthru via the CLI, type the following at the Slot prompt:
   config-SLot-SL2#**set pob[1] 1**
   config-SLot-SL2#**set ppp[1] 1**

   b. To enable PowerOffBypass and PhantomPowerPassthru in *Configuration Manager*, follow these steps:
    - Navigate to *BRI Configuration*.
    - At the BRI Online/Power Off Bypass/Phantom Power Pass Through panel, for the first pair of BRI lines, click the checkboxes in front of Power Off Bypass and Phantom Power Pass Through to enable them.