Passport 7400, 15000, 20000

Configuring Non-Switched Packet Voice Gateway

241-5701-781

Passport 7400, 15000, 20000

Configuring Non-Switched Packet Voice Gateway

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About this document

This guide contains information about configuring and maintaining non-switched PVG. To use this guide effectively, see the following sections:

- "Who should read this guide" (page 13)

- "How this guide is organized" (page 13)

- "What's new in this document" (page 13)

- "What you need to know" (page 14)

- "Text conventions" (page 14)

- "Procedure conventions" (page 15)

- "Related documents" (page 18)

Who should read this guide

This guide is useful for anyone who installs, configures, and maintains non-switched ATM packet voice gateway (PVG) on Passport.

How this guide is organized

See the "Non-switched PVG configuration task flow" (page 19) for information about the organization of the 241-5701-781 *Passport 7400, 15000, 20000 Configuring Non-Switched Packet Voice Gateway*.

What's new in this document

There were no new features added to this document.

Other changes made to this document include the following:

*   The sections "Supporting information for configuring signaling for non-switched PVG" (page 59) and "Supporting information for configuring common channel signaling" (page 59) were updated with release notes information regarding lack of CCST traffic support on the 12mVspAal FP.

What you need to know

In order to understand and configure non-switched PVG on Passport, you need a basic understanding of the following areas:

*   Passport hardware, including installation and maintenance procedures

*   Passport operations and maintenance procedures, including how to configure a node

*   Passport ATM services

Text conventions

There are a number of documentation conventions you should know about.

*   `nonproportional spaced plain type`

    Nonproportional spaced plain type represents system generated text or text that appears on your screen.

*   **`nonproportional spaced bold type`**

    Nonproportional spaced bold type represents words that you should type or that you should select on the screen.

*   *italics*

    Statements that appear in italics in a procedure explain the results of a particular step and appear immediately following the step.

    Words that appear in italics in text are for naming.

*   `[optional_parameter]`

    Words in square brackets represent optional parameters. The command can be entered with or without the words in the square brackets.

- `<general_term>`

    Words in angle brackets represent variables which are to be replaced with specific values.

- UPPERCASE, lowercase
    Passport commands are not case-sensitive and do not have to match commands and parameters exactly as shown in this document, with the exception of string options values (for example, file and directory names) and string attribute values.

- ...

    Three dots in a command indicate that the parameter can be repeated more than once in succession.

- |

    This symbol separates items from which you can select one; for example, ON|OFF indicates that you may specify ON or OFF. If you do not make a choice, a default ON is assumed.

The term absolute pathname refers to the full specification of a path starting from the root directory. Absolute pathnames always begin with the slash (/) symbol. A relative pathname takes the current directory as its starting point, and starts with any alphanumeric character (other than /).

Procedure conventions

This document uses the following procedure conventions:

- You can enter commands using full component and attribute names, or you can abbreviate them. The commands used in the procedures contain the full component and attribute names in the first instance. In the second instance, the component and attribute names are abbreviated. For more information on abbreviating component and attribute names, see 241-5701-060 *Passport 7400, 15000, 20000 Components*. All component and attribute names are formatted in italics.

- The introduction of every procedure states whether you must perform the procedure in operational mode or provisioning mode. For more information on these modes, see "Operational mode" (page 16) or "Provisioning mode" (page 16).

- When you complete a procedure, you can verify your changes and then activate them as the new node configuration. For more information on completing configuration changes and exiting provisioning mode, see "Activating configuration changes" (page 17).

Operational mode

Procedures contained within this document can either be performed in operational mode or provisioning mode. When you initially log into a Passport node, you are in operational mode. Passport uses the following command prompt when you are in operational mode:

        #>

where:
is the current command number

In operational mode, you work with operational components and attributes. In operational mode, you can

- list operational components and display operational attributes to determine the current operating parameters for the node

- control the state of parts of the node by locking and unlocking components

- set certain operational attributes and enter commands to perform diagnostic tests

Provisioning mode

To change from operational mode to provisioning mode, type the following command at the operator prompt:

        start Prov

Only one user can be in provisioning mode at a time. Passport uses the following command prompt whenever you are in provisioning mode:

        PROV #>

where:

is the current command number

In provisioning mode, you work with the provisionable components and attributes that contain the current and future configurations of the node. You can add and delete components, and display and set provisionable attributes. For information on completing the configuration changes, exiting provisioning mode, and returning to operational mode see "Activating configuration changes" (page 17).

For information on operational and provisionable attributes, see 241-5701-060 *Passport 7400, 15000, 20000 Components*.

Activating configuration changes

Several procedures in this document ask that you complete the configuration changes. When you complete the configuration changes, you are activating the configuration changes, confirming that you want to activate them, and saving the changes. You are instructed to complete the configuration changes only at the end of procedures that you perform in provisioning mode.

> **CAUTION**
> **Activating a provisioning view can affect service**
> Activating a provisioning view can result in a CP reload or restart, causing all services on the Passport node to fail. See 241-5701-050 *Passport 7400, 15000, 20000 Commands*, for more information.

1   Verify that the provisioning changes you have made are acceptable:

    `check Prov`

    Correct any errors and then verify the provisioning changes again.

2   If you want to store the provisioning changes in a file, save the provisioning view:

    `save Prov`

3   If you want these changes as well as other changes made in the edit view to take effect immediately, activate, confirm, and commit the provisioning changes:

```
activate Prov

confirm Prov

commit Prov
```

4   End the provisioning session:

```
end Prov
```

Related documents

This guide makes reference to several documents. Some procedures require you to use one or more documents in conjunction with a given procedure. Other documents are sources of more detailed or related information.

- 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*

- 241-7401-240 *Passport 7400 Hardware Installation, Maintenance and Upgrade*

- 241-1501-240 *Passport 15000, 20000 Hardware Installation, Maintenance and Upgrade*

- 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*

- 241-5701-615 *Passport 7400, 15000, 20000 FP Configuration Reference*

- 241-5701-700 *Passport 7400, 15000, 20000 ATM Overview*

Chapter 1
Non-switched PVG configuration task flow

The non-switched PVG configuration task flow is based on the Open Systems Interconnection (OSI) reference model. This book deals with non-switched PVG configuration on Passport at the Transport Layer. See the figure "Non-switched PVG on Passport configuration according to the OSI reference model" (page 20).

For a detailed view of the sequence of tasks you perform to configure non-switched PVG on Passport see the figure "Non-switched PVG configuration task flow" (page 21). Each box in the task flow represents a task that comprises one or more procedures. Each task has a corresponding section in this guide that contains the relevant procedures. To link to any task, go to the list that follows the task flow.

Prerequisites to non-switched PVG configuration

- Install the required PVG hardware. See the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals* and 241-1501-240 *Passport 15000, 20000 Hardware Installation, Maintenance and Upgrade* or 241-7401-240 *Passport 7400 Hardware Installation, Maintenance and Upgrade*.

- Configure the required base Passport software. See the 241-5701-270 *Passport 7400, 15000, 20000 Software Installation Guide*.

- Configure the required ATM software. See the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals* and 241-5701-710 *Passport 7400, 15000, 20000 ATM Configuration Guide*

- Install the PVG software. See the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*, 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*, and 241-5701-270 *Passport 7400, 15000, 20000 Software Installation Guide*.

- See the non-switched PVG functionality section in 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Figure 1
Non-switched PVG on Passport configuration according to the OSI reference model
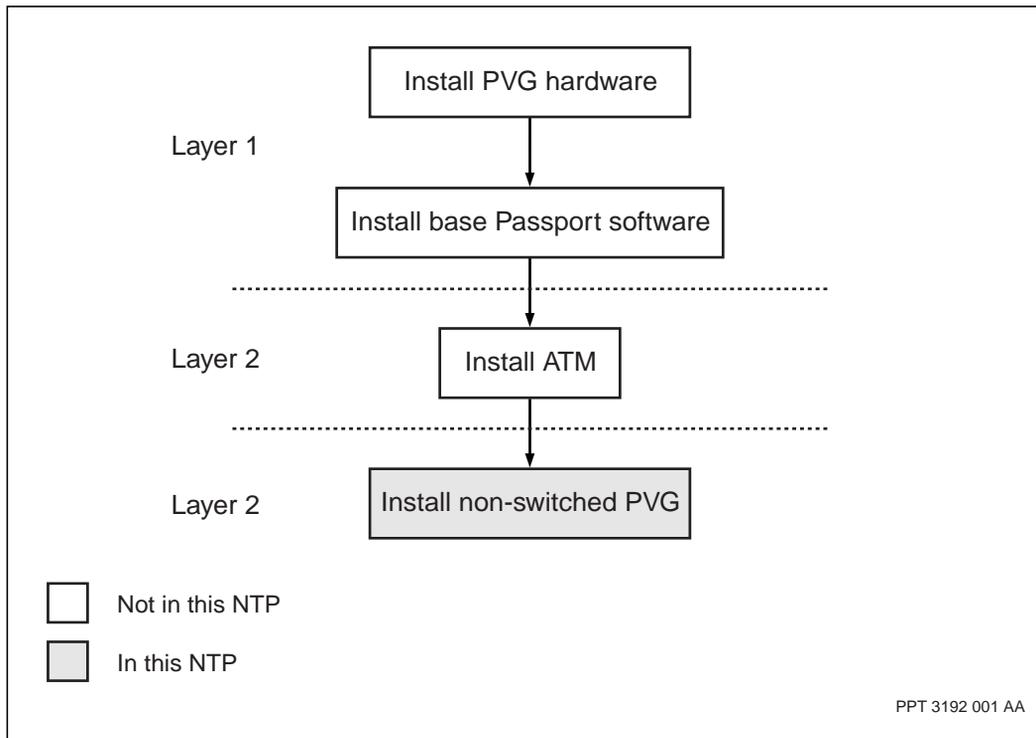
Figure 2
Non-switched PVG configuration task flow

PPT 3343 001 AA
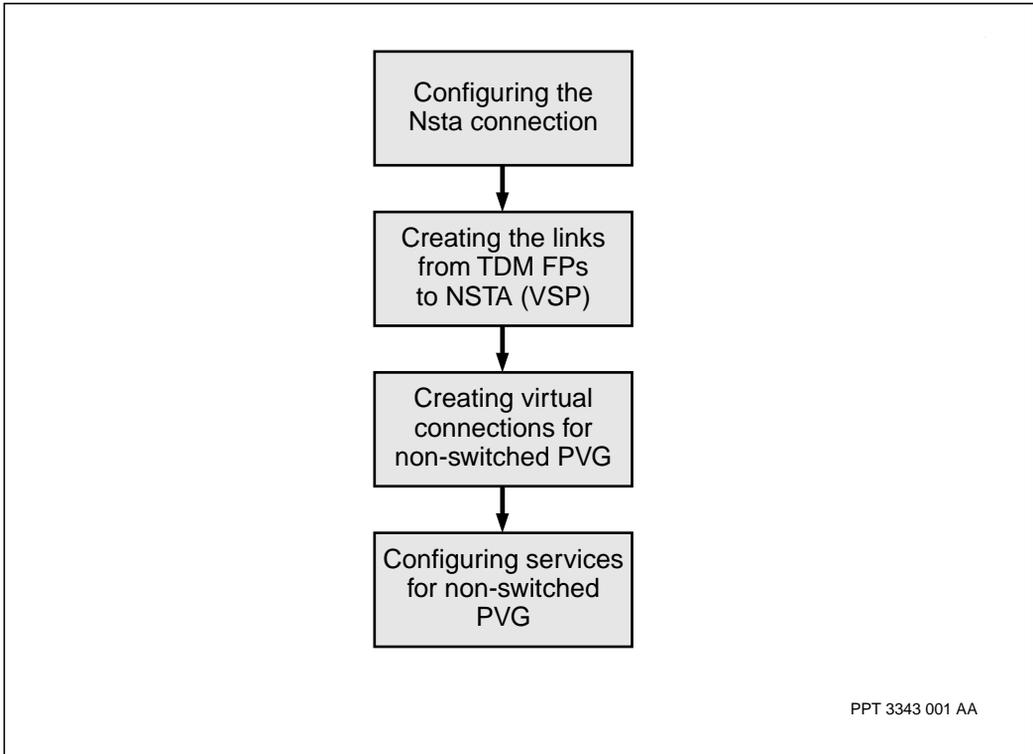
Navigation links

- "Configuring the Nsta Connection" (page 23)

- "Creating links from TDM FPs to NSTA (VSP)" (page 25)

- "Creating virtual connections for non-switched PVG" (page 35)

- "Configuring services for non-switched PVG" (page 47)

Chapter 2
Configuring the Nsta Connection

Configure the *NarrowbandServicesTrunkOverATM (Nsta)* and *Connection (Conn)* components to establish the BasicRateGroup and the attributes necessary to configure non-switched PVG services and the link to ATM.

Prerequisites

- Perform the prerequisites required for this task. See "Prerequisites to non-switched PVG configuration" (page 19).

Procedure steps

1   Add the *NarrowbandServicesTrunkOverATM (Nsta)* component. You need one *Nsta* for each voice services FP:

```
add Nsta/<n>
```

2   Add an AAL2 connection beneath the *Nsta* component:

```
add Nsta/<n> Connection/<m>
```

Note: The system automatically adds the subcomponents *BasicRateGroup/0 (Brag)* and *NailedupAdaptionPoint* (*Nap*). The system dynamically creates a *BasicRateChannel* (*Brac*) component for each *Connection* component identified by the system when you activate the provisioning changes.

Note: You can configure a different instance value for the *Brag* component if you delete *Brag/0* and add a new instance. You can configure only one *Brag* component for each *Connection* component.

Variable definitions

Variable	Value
<n>	is the value for the *Nsta* component
<m>	is the value for a *Connection* component

Procedure job aid

Figure 3
Configuring Nsta Connection component hierarchy

```
Em
  └── NarrowbandServicesTrunkOverAtm (Nsta)
        └── Connection (Conn)
              ── AtmConnection (AtmCon)
              ── ActiveAccessPoint (Aap)
              ── BasicRateGroup (Brag)
                    ── BasicRateChannel (Brac)
                    ── ChannelAssocSignalingTransport (Cast)
                    ── CommonChannelSignalingTransport (Ccst)
                          └── NailedUpAdaptionPoint (Nap)
                    ── PassiveAccessPoint (Pap)
                    ── AtmConnection (AtmCon)
              ── NailedUpAdaptionPoint (Nap)
              ── PassiveAccessPoint (Pap)
              ── SpvcAccessPoint (SpvcAp)
```

PPT 3135 005 AA

Chapter 3
Creating links from TDM FPs to NSTA (VSP)

Create links from the TDM FPs to the narrowband services trunk over ATM (NSTA), also known as the voice services processor (VSP). For information about configuring the ATM part of the connection, see "Creating virtual connections for non-switched PVG" (page 35).

- "Prerequisites to creating links from TDM FPs to NSTA (VSP)" (page 25)

- "Creating links from TDM FPs to NSTA (VSP) task flow" (page 26)

Prerequisites to creating links from TDM FPs to NSTA (VSP)

- The logical processor types and logical processors required for PVG are installed and configured as described in 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

- For supporting information for the procedures in this section, see 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

- This task may require the provisioning of line automatic protection switching (LAPS) for the 4-port OC-3/STM-1 Ch TDM/CES FP. If you choose this configuration you will need the procedure "Configuring line and equipment protection for Passport 15000 or 20000 optical interfaces" in 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Creating links from TDM FPs to NSTA (VSP) task flow

This task flow shows you the sequence of procedures you perform to create links from TDM FPs to NSTA (VSP). To link to any procedure, go to the list that follows the task flow.

Figure 4
Creating links from TDM FPs to NSTA (VSP) task flow
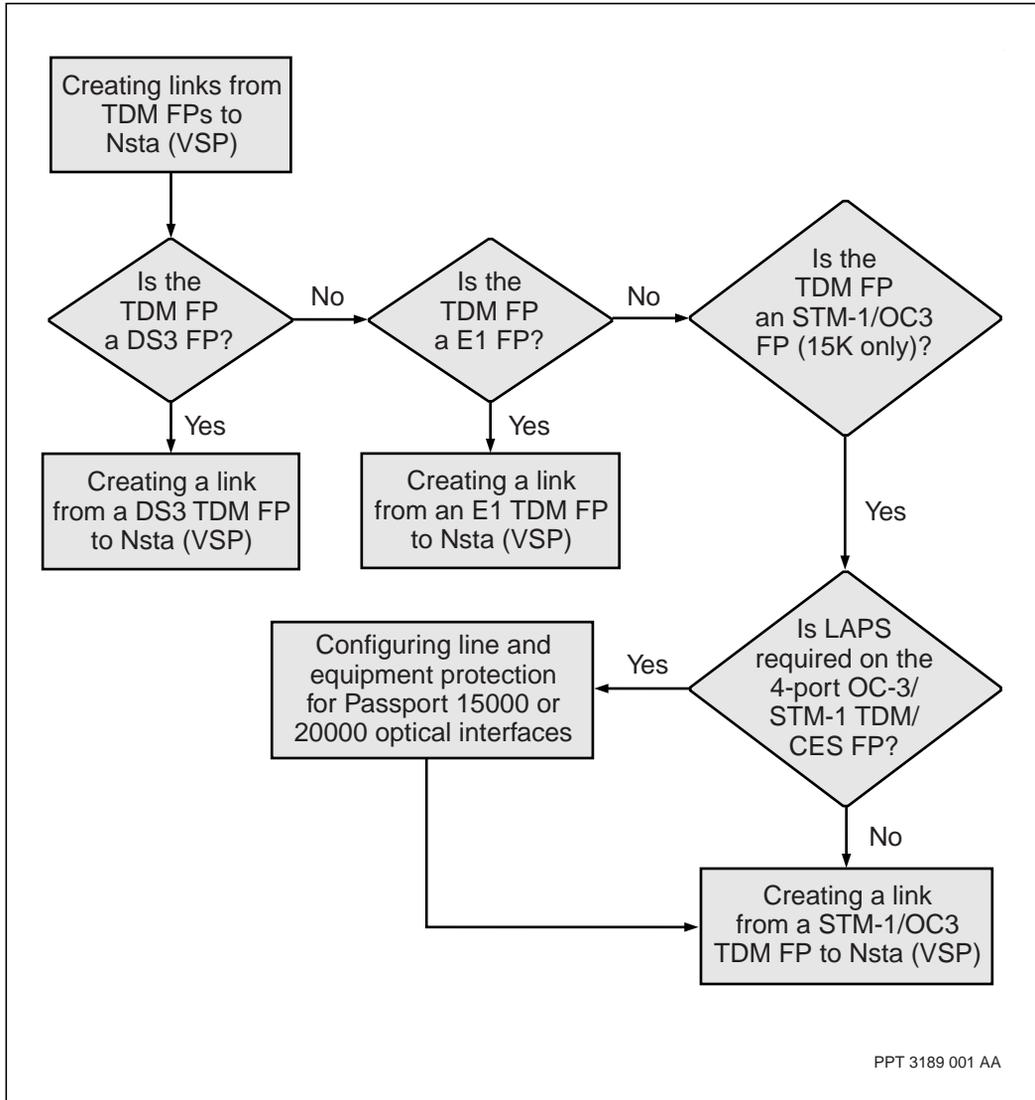
Navigation links

- "Creating a link from an E1 TDM FP to NSTA (VSP)" (page 31)

- "Configuring line and equipment protection for Passport 15000 or 20000 optical interfaces" in 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*

- "Creating a link from an STM-1/OC3 TDM FP to NSTA (VSP)" (page 32)

Creating a link from a DS3 TDM FP to NSTA (VSP)

Create a link from DS3 TDM FPs to NSTA to associate the Nsta services to an interface on the 2-port DS3 TDM FP.

Prerequisites

- The logical processor types and logical processors for the DS3 FP have been configured as described in 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Procedure steps

1 Set the card's *cardtype* attribute to *2pDS3cAal*.

2 Add to the associated LP any required interface components. For the 2-port DS3C TDM, you would add *DS3* and *DS1* components under the LP component.

    ```
    add Lp/<p> DS3/<x> DS1/<y>
    ```

3 Set the *clockingSource* attribute of the DS1 tributary port to module.

    ```
    set Lp/<o> DS3/<x> DS1/<y> clockingSource module
    ```

4 Connect the NSTA AAL2 connection to a port.

    ```
    set Nsta/<n> Connection/<m> Brag/0 interfaceName
    Lp/<p> <path>
    ```

5 Link the *Nsta* component to the logical processor you defined for the voice services FP.

    ```
    set Nsta/<n> linktoserver lp/<p> vsp
    ```

Variable definitions

Variable	Value
<m>	is the value for the *Connection* component.
<n>	is the value for the *Nsta* component
<p>	is the value for the LP
<path>	is the path for the DS1 channel, for example, DS3/0 DS1/1 Channel/0.
(Sheet 1 of 2)	

Variable	Value
<x>	is the value of the DS3
<y>	is the value of the DS1
(Sheet 2 of 2)	

Creating a link from an E1 TDM FP to NSTA (VSP)

Create a link from an E1 TDM FPs to NSTA to associate the Nsta services to an interface on the 32-port E1 TDM FP.

Prerequisites

- The logical processor types and logical processors for the E1 FP have been configured as described in 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Procedure steps

1   Set the card's *cartype* attribute to *32pE1Aal*.

2   Add to the associated LP any required interface components. For a 32-port E1 TDM FP, you would add the *E1* component under the *Lp* component.

set Lp/<p> E1/<x>

3   Connect the Nsta AAL2 connection to a port on the 32-port E1 TDM FP.

set Nsta/<n> Connection/<m> Brag/0 interfaceName Lp/<p> <path>

4   Link the *Nsta* component to the logical processor you defined for the voice services FP.

set Nsta/<n> linktoserver lp/<p> vsp

Variable definitions

Variable	Value
<n>	is the value for the *Nsta* component
<p>	is the value for the LP
<path>	is the path for the E1 channel, for example, E1/8 Channel/0
<x>	is the value for the E1 instance

Creating a link from an STM-1/OC3 TDM FP to NSTA (VSP)

Create a link from an STM-1/OC3 FPs to NSTA to associate the Nsta services to an interface on the 4-port OC-3/STM-1 Ch TDM/CES FP.

Prerequisites

- The logical processor types and logical processors for the STM-1/OC3 FP have been configured as described in 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Procedure steps

1 Set the card's *cardtype* attribute to *4pOC3ChSmIr*.

2 Add to the associated LP the AAL1 CES components and subcomponents.

```
set Lp/<p> sdh/<z> vc4/0 vc12/<k.l,m>
```

3 For the 4-port OC-3/STM-1Ch TDM/CES FP, connect the AAL1CES component to the port.

```
set aal1ces/x interfacename lp/q sdh/<z> vc4/0
vc12/<k,l,m> E1 chan/0
```

4 For the 4-port OC-3/STM-1Ch TDM/CES FP, add an aep component under the AAL1CES component.

```
add aal1ces/<x> aep
```

5 For the 4-port OC-3/STM-1Ch TDM/CES FP, set the aep component

```
set aal1ces/<x> aep addresstocall <v>
```

Note: Ensure the *trafficChannelIdentifierList* under the *NSTA Conn Brag* has the equivalent number of AAL2 channels to the number of timeslots under the *E1 chan/0 timeslot* list.

6 Link the *Nsta* component to the logical processor you defined for the voice services FP.

```
set Nsta/<n> linktoserver lp/<p> vsp
```

Variable definitions

Variable	Value
<k,l,m>	are the instance of the low order path
<m>	is the value for the *Connection* component
<n>	is the value for the *Nsta* component
<p>	is the value for the logical processor of an FP.
<path>	is the path for the DS1 or E1 channel, for example, DS3/0 DS1/1 Channel/0 or E1/8 Channel/0
<v>	is the *Pap* localaddress value
<x>	is the instance number of the *aal1ces* component
<z>	is the value of the port

Chapter 4
Creating virtual connections for non-switched PVG

Create the ATM virtual connections required for non-switched PVG. For information about configuring the TDM and VSP parts of the connection, see "Creating links from TDM FPs to NSTA (VSP)" (page 25).

- "Creating virtual connections for non-switched PVG task flow" (page 35)

Creating virtual connections for non-switched PVG task flow

This task flow shows you the sequence of procedures you perform to create virtual connections for non-switched PVG. To link to any procedure, go to the list that follows the task flow.

Figure 5
Creating virtual connections for non-switched PVG task flow
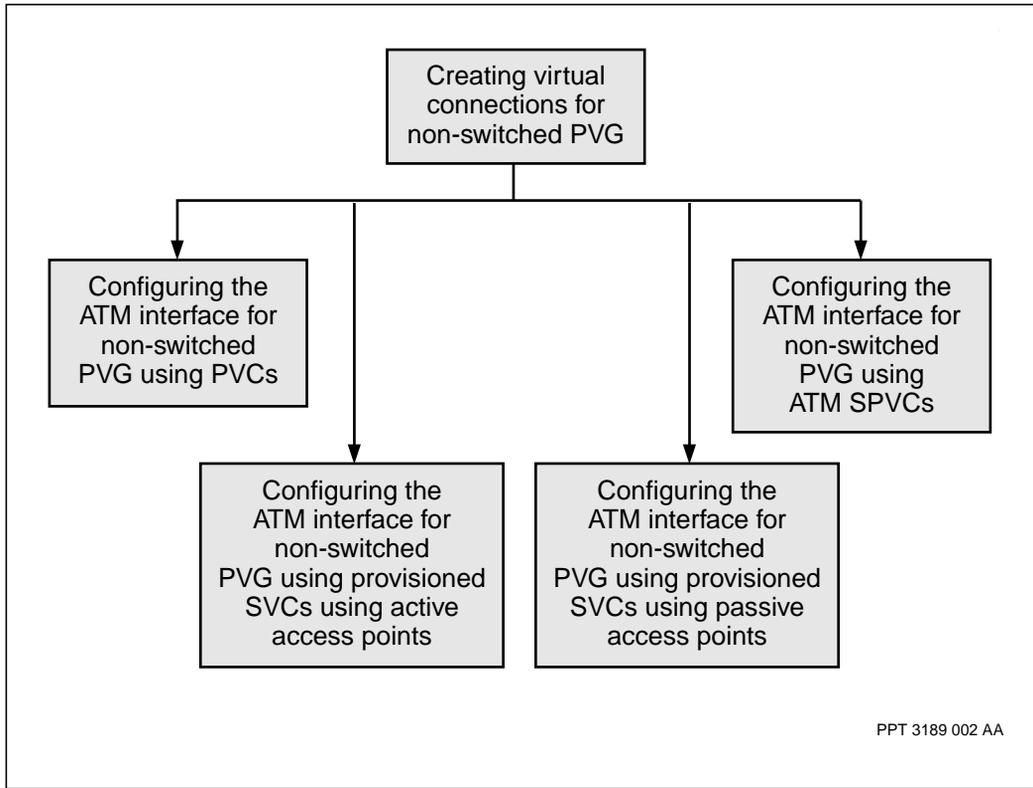
Navigation links

Configuring the ATM interface for non-switched PVG using PVCs

Create the PVC virtual channel connections (VCCs) and link them to the ports on the ATM FPs in the shelf. For additional information about how to configure ATM connections for Passport, see 241-5701-710 *Passport 7400, 15000, 20000 ATM Configuration Guide*.

Procedure steps

1   Add an ATM interface.

   add AtmIf/<n>

2   Add a VCC to the ATM interface.

   add AtmIf/<n> Vcc/<VPI.VCI>

   Permitted values depend on the connection map for the *AtmIf* component. You may need to edit the *ConnectionAdminstrator* or *ConnectionMapping* component. See 241-5701-700 *Passport 7400, 15000, 20000 ATM Overview*.

3   Add a *NailedUpEndPoint* component to the VCC.

   add AtmIf/<n> Vcc/<VPI.VCI> Nep

4   Configure ATM traffic management.

   set AtmIf/<n> Vcc/<VPI.VCI> Vcd Tm <attribute> <attributevalue>

   Set the traffic management attributes as required. For more information, see the traffic management section in the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

5   Link the ATM interface to an ATM port.

   set AtmIf/<n> interfaceName lp/<m> <port>

6   Optionally, if you plan to oversubscribe the connection pool capacity for the ATM interface, edit the connection administrator to accommodate the appropriate bandwidth.

   set AtmIf/<n> Ca bandwidthPool 1 <percentage>

7   Add a permanent access point to the AAL2 connection.

   add Nsta/<p> Connection/<r> Nap

8   Map a *Nap* component to a *Nep* component.

```
set Nsta/<p> Connection/<r> Nap atmConnection
AtmIf/<n> Vcc/<VPI.VCI> Nep
```

9   Configure signaling. For details, see "Configuring services for non-switched PVG" (page 47).

Variable definitions

Variable	Value
<n>	is the instance value of the *AtmIf* component and can be any value from 1 to 1024
<VPI,VCI>	is the instance value of the VCC. The VPI value can be from 0 to 255. The VCI value can be from 32 to 65535
<attribute>	is any of the configurable attributes
<attributevalue>	is a permitted value for the attribute
<m>	is the LP number
<port>	is the port type and instance value, for example, *E1/1* or *Sonet/0 Path/0* or *DS3/0*. If the FP is channelized, include the channel instance as well, for example, *DS1/1 Channel/0*.
<percentage>	is the percentage of the pool, between 0 and 1000, that is reserved for pool1. For more information about bandwidth pools, see 241-5701-700 *Passport 7400, 15000, 20000 ATM Overview*
<p>	is the value for the *Nsta* component
<r>	is the value for a *Connection* component

Configuring the ATM interface for non-switched PVG using provisioned SVCs using active access points

Create basic ATM interfaces, link them to the ports on the ATM FPs in the shelf, and configure bearer channels to use ATM provisioned SVCs with active access points. For additional information about how to configure ATM connections for Passport, see 241-5701-710 *Passport 7400, 15000, 20000 ATM Configuration Guide*.

Prerequisites

- The ATM network and the ATM interfaces must be configured to provide switched ATM connections (provisioned SVCs or SPVCs). Refer to 241-5701-702 *Passport 7400, 15000, 20000 ATM Routing and Signaling Fundamentals* for a description of switched ATM connections. Refer to 241-5701-710 *Passport 7400, 15000, 20000 ATM Configuration Guide* for procedures on configuring the connections.

Procedure steps

1   Add an ATM interface.

   add AtmIf/<n>

2   Link the ATM interface to an ATM port.

   set AtmIf/<n> interfaceName lp/<m> <port>

3   Optionally, if you plan to oversubscribe the connection pool capacity for the ATM interface, edit the *ConnectionAdministrator* component to accommodate the appropriate bandwidth.

   set AtmIf/<n> Ca bandwidthPool 1 <percentage>

4   Add an active access point to the AAL2 connection.

   add Nsta/<p> Connection/<r> Aap

5   Specify the ATM service category.

   set Nsta/<p> Connection/<r> Aap atmServiceCategory <cat>

6   Specify the peak cell rate.

   set Nsta/<p> Connection/<r> Aap pcr <p_cell_rate>

7   Specify the sustained cell rate.

```
set Nsta/<p> Connection/<r> Aap scr <s_cell_rate>
```

8 Specify the maximum burst size.

```
set Nsta/<p> Connection/<r> Aap mbs <max_burst_size>
```

9 Specify the retry limit.

```
set Nsta/<p> Connection/<r> Aap limit <max_retry>
```

10 Configure signaling. For details, see "Configuring services for non-switched PVG" (page 47).

Variable definitions

Variable	Value
<n>	is the instance value of the *AtmIf* component and can be any value from 1 to 1024
<VPI,VCI>	is the instance value of the VCC. The VPI value can be from 0 to 255. The VCI value can be from 32 to 65535
<attribute>	is any of the configurable attributes
<cat>	is either *constantBitRate* or *rtVariableBitRate* (the value *rtVariableBitRate* is recommended for real-time voice data through the *Nsta Conn* component)
<attributevalue>	is a permitted value for the attribute
<m>	is the LP number
<port>	is the port type and instance value, for example, *E1/1* or *Sonet/0 Path/0* or *DS3/0*. If the FP is channelized, include the channel instance as well, for example, *DS1/1 Channel/0*.
<percentage>	is the percentage of the pool, between 0 and 1000, that is reserved for pool1. For more information about bandwidth pools, see 241-5701-700 *Passport 7400, 15000, 20000 ATM Overview*
<p>	is the value for the *Nsta* component
<r>	is the value for a *Connection* component
<p_cell_rate>	is a number representing the peak cell rate
(Sheet 1 of 2)	

Variable	Value
<s_cell_rate>	is a number representing the sustained cell rate. It must be zero if the ATM service category is *constantBitRate*. It must not be zero if the ATM service category is something other than *constantBitRate*. The number of the sustained cell rate must not equal the number of the peak cell rate.
<max_burst_size>	is a number representing the maximum burst size. It must be zero if the ATM service category is *constantBitRate*. It must not be zero if the ATM service category is something other than *constantBitRate*. Nortel Networks recommends a value of about 2000.
<max_retry>	is a number representing the maximum number of retry rounds the application tries to connect to the far end before setting an alarm and forcing manual intervention. A value of 0 indicates that the application tries indefinitely to connect to the far end.
(Sheet 2 of 2)	

Configuring the ATM interface for non-switched PVG using provisioned SVCs using passive access points

Create basic ATM interfaces, link them to the ports on the ATM FPs in the shelf, and configure bearer channels to use ATM provisioned SVCs with passive access points. For additional information about how to configure ATM connections for Passport, see 241-5701-710 *Passport 7400, 15000, 20000 ATM Configuration Guide*.

Prerequisites

- The ATM network and the ATM interfaces must be configured to provide switched ATM connections (provisioned SVCs or SPVCs). Refer to 241-5701-702 *Passport 7400, 15000, 20000 ATM Routing and Signaling Fundamentals* for a description of switched ATM connections. Refer to 241-5701-710 *Passport 7400, 15000, 20000 ATM Configuration Guide* for procedures on configuring the connections.

Procedure steps

1   Add an ATM interface.

   `add AtmIf/<n>`

2   Link the ATM interface to an ATM port.

   `set AtmIf/<n> interfaceName lp/<m> <port>`

3   Optionally, if you plan to oversubscribe the connection pool capacity for the ATM interface, edit the *ConnectionAdministrator* component to accommodate the appropriate bandwidth.

   `set AtmIf/<n> Ca bandwidthPool 1 <percentage>`

4   Add a passive access point to the AAL2 connection.

   `add Nsta/<p> Connection/<r> Pap`

5   Configure signaling. For details, see "Configuring services for non-switched PVG" (page 47).

Variable values

Variable	Value
<n>	is the instance value of the *AtmIf* component and can be any value from 1 to 1024
<m>	is the LP number
<port>	is the port type and instance value, for example, *E1/1* or *Sonet/0 Path/0* or *DS3/0*. If the FP is channelized, include the channel instance as well, for example, *DS1/1 Channel/0*.
<percentage>	is the percentage of the pool, between 0 and 1000, that is reserved for pool1. For more information about bandwidth pools, see 241-5701-700 *Passport 7400, 15000, 20000 ATM Overview*
<p>	is the value for the *Nsta* component
<r>	is the value for a *Connection* component

Configuring the ATM interface for non-switched PVG using ATM SPVCs

Create basic ATM interfaces, link them to the ports on the ATM FPs in the shelf, and configure SPVCs. For additional information about how to configure ATM connections for Passport, see 241-5701-710 *Passport 7400, 15000, 20000 ATM Configuration Guide*.

Prerequisites

- The ATM network and the ATM interfaces must be configured to provide switched ATM connections (provisioned SVCs or SPVCs). Refer to 241-5701-702 *Passport 7400, 15000, 20000 ATM Routing and Signaling Fundamentals* for a description of switched ATM connections. Refer to 241-5701-710 *Passport 7400, 15000, 20000 ATM Configuration Guide* for procedures on configuring the connections.

Procedure steps

1   Add an ATM interface.

   add AtmIf/<n>

2   Link the ATM interface to an ATM port.

   set AtmIf/<n> interfaceName lp/<m> <port>

3   Optionally, if you plan to oversubscribe the connection pool capacity for the ATM interface, edit the *ConnectionAdministrator* component to accommodate the appropriate bandwidth.

   set AtmIf/<n> Ca bandwidthPool 1 <percentage>

4   Add a SPVC access point to the AAL2 connection.

   add Nsta/<p> Connection/<r> SpvcAp

5   Specify the remote address of the ATM interface to call.

   set Nsta/<p> Connection/<r> SpvcAp addrToCall <rem_addr>

6   Specify the remote VPI VCI combination of the ATM interface to call.

   set Nsta/<p> Connection/<r> SpvcAp rVpiVci <VPI.VCI>

7   Specify the ATM service category.

   set Nsta/<p> Connection/<r> SpvcAp service <cat>

8   Specify the peak cell rate.

```
set Nsta/<p> Connection/<r> SpvcAp pcr <p_cell_rate>
```

9   Specify the sustained cell rate.

```
set Nsta/<p> Connection/<r> SpvcAp scr <s_cell_rate>
```

10   Specify the maximum burst size.

```
set Nsta/<p> Connection/<r> SpvcAp mbs
<max_burst_size>
```

11   Specify the retry limit.

```
set Nsta/<p> Connection/<r> SpvcAp limit <max_retry>
```

12   Configure signaling. For details, see "Configuring services for non-switched PVG" (page 47).

Variable values

Variable	Value
<n>	is the instance value of the *AtmIf* component and can be any value from 1 to 1024
<VPI,VCI>	is the instance value of the VCC. The VPI value can be from 0 to 255. The VCI value can be from 32 to 65535
<attribute>	is any of the configurable attributes
<cat>	is either *constantBitRate* or *rtVariableBitRate* (the value *rtVariableBitRate* is recommended for real-time voice data through the *Nsta Conn* component)
<attributevalue>	is a permitted value for the attribute
<m>	is the LP number
<port>	is the port type and instance value, for example, *E1/1* or *Sonet/0 Path/0* or *DS3/0*. If the FP is channelized, include the channel instance as well, for example, *DS1/1 Channel/0*.
<percentage>	is the percentage of the pool, between 0 and 1000, that is reserved for pool1. For more information about bandwidth pools, see 241-5701-700 *Passport 7400, 15000, 20000 ATM Overview*
(Sheet 1 of 2)	

Variable	Value
<p>	is the value for the *Nsta* component
<r>	is the value for a *Connection* component
<p_cell_rate>	is a number representing the peak cell rate
<s_cell_rate>	is a number representing the sustained cell rate. It must be zero if the ATM service category is *constantBitRate*. It must not be zero if the ATM service category is something other than *constantBitRate*. The number of the sustained cell rate must not equal the number of the peak cell rate.
<max_burst_size>	is a number representing the maximum burst size. It must be zero if the ATM service category is *constantBitRate*. It must not be zero if the ATM service category is something other than *constantBitRate*. Nortel Networks recommends a value of about 2000.
<max_retry>	is a number representing the maximum number of retry rounds the application tries to connect to the far end before setting an alarm and forcing manual intervention. A value of 0 indicates that the application tries indefinitely to connect to the far end.
<rem_addr>	is the address of the remote ATM interface
(Sheet 2 of 2)	

Chapter 5
Configuring services for non-switched PVG

Configure services for non-switched PVG to define PVG behavior for services such as, signaling, clear channel data, echo cancellation, voice band data, packet delay variation tolerance, and congestion management.

- "Configuring services for non-switched PVG task flow" (page 47)

Configuring services for non-switched PVG task flow

This task flow shows you the sequence of procedures you perform to configure services for non-switched PVG. To link to any procedure, go to the list that follows the task flow.

Figure 6
Configuring services for non-switched PVG task flow
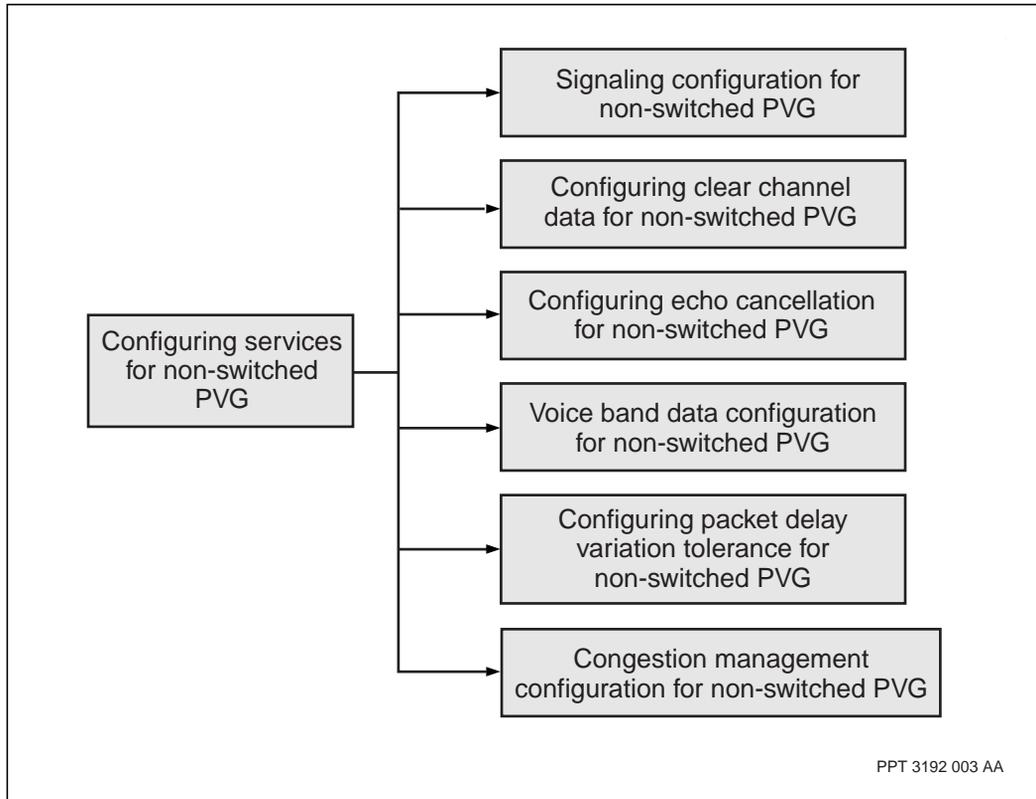
PPT 3192 003 AA

Navigation links

Chapter 6
Signaling configuration for non-switched PVG

Configure signaling for non-switched PVG to define the type of signaling in the network.

- "Prerequisites to signaling configuration for non-switched PVG" (page 49)

- "Signaling configuration for non-switched PVG task flow" (page 49)

Prerequisites to signaling configuration for non-switched PVG

- See "Supporting information for configuring signaling for non-switched PVG" (page 59) for additional information about this task.

- See the sections on signaling and unsignaled trunks in 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Signaling configuration for non-switched PVG task flow

This task flow shows you the sequence of procedures you perform to configure signaling for non-switched PVG. To link to any procedure, go to the list that follows the task flow.

Figure 7
Signaling configuration for non-switched PVG task flow
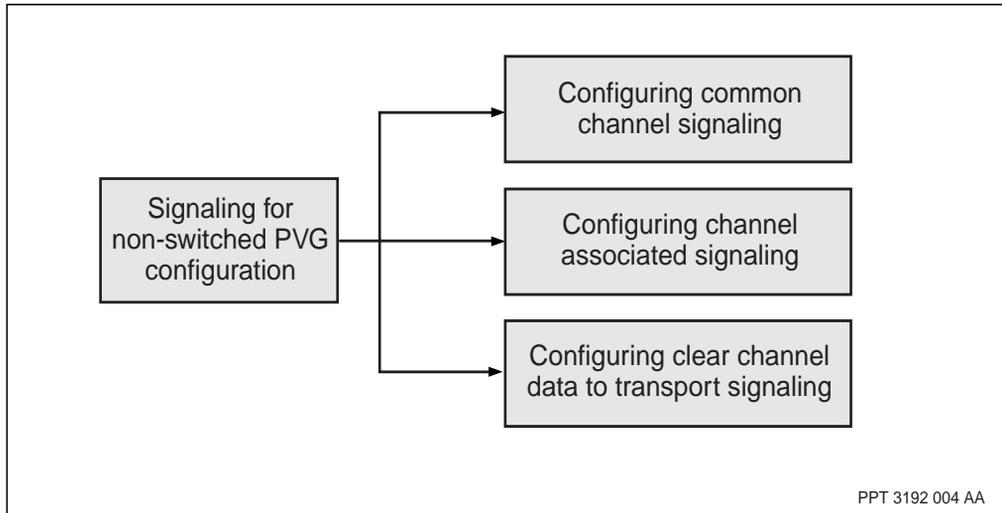
Navigation links

- "Configuring common channel signaling" (page 51)

- "Configuring channel associated signaling" (page 54)

- "Configuring clear channel data to transport signaling" (page 57)

Configuring common channel signaling

Configure common channel signaling to define how signaling information is passed through the network.

Prerequisites

- See "Supporting information for configuring common channel signaling" (page 59) for additional information

Procedure steps

1   Add a *CommonChannelSignalingTransport* (*Ccst*) component to an *Nsta Connection* component.

add Nsta/<n> Connection/<m> Brag/0 Ccst

2   Set the configurable attributes for the *Ccst* component.

set Nsta/<n> Connection/<m> Brag/0 Ccst <attribute> <attribute value>

If you set the *ccsMonitoring* attribute to enabled, the connection uses all time slots. If you set the *ccsMonitoring* attribute to disabled, you can delete time slots from the connection. Passport PVG software does not support CCS monitoring for E1 or OC3/STM-1 interfaces.

3   If you do not want to use all time slots, you must remove channel identifiers (CID) from the *cidList* attribute.

set Nsta/<n> Connection/<m> Brag/0 cidList ~<t>

If you delete time slots from the *cidList* attribute, you must also delete time slots from the channel on the FP. This is done by modifying the *timeslot* attribute of the appropriate port and channel. For example:

set lp/<x> <port> chan/0 timeslot ~<tt>

4   Add a *Nap* component beneath the *Ccst* component.

add Nsta/<n> Connection/<m> Brag/0 Ccst Nap

5   Add a VCC to carry the signaling for the PVG connection.

add AtmIf/<p> Vcc/<VPI.VCI>

Permitted values depend on the connection map for the *AtmIf* component. You may have to edit the *ConnectionAdminstrator* or *ConnectionMapping* components. For details, see 241-5701-700 *Passport 7400, 15000, 20000 ATM Overview*.

6 Configure ATM traffic management.

```
set AtmIf/<p> Vcc/<VPI.VCI> Vcd Tm <attribute>
<attributevalue>
```

7 Add a *NailedUpEndPoint* component to the VCC.

```
add AtmIf/<p> Vcc/<VPI.VCI> Nep
```

8 Connect the *Ccst Nap* component to the VCC.

```
set Nsta/<n> Connection/<m> Brag/0 Ccst Nap
atmConnection AtmIf/<p> Vcc/<VPI.VCI> Nep
```

Variable definitions

Variable	Value
<n>	is the value for the *Nsta* component
<m>	is the value for a *Connection* component
<attribute>	is any of the configurable attributes
<attributevalue>	is a permitted value for that attribute
<t>	is a value assigned to a time slot you want to remove. The default mapping for time slots is fixed as explained in 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*. Ensure that the number of time slots and the channel identifiers to which they are mapped match the device on the far end.
<x>	is the LP number
<port>	is the port type and instance value, for example *E1/1* or *DS3/1 DS1/1*
<tt>	is a the value of the time slot you want to delete
<p>	is the value of an *AtmIf* component
<VPI,VCI>	is the instance value of the VCC. The VPI value can be from 0 to 255. The VCI value can be from 32 to 65,535

Procedure job aid

Figure 8
Configuring common channel signaling component hierarchy

Em
    └── **NarrowbandServicesTrunkOverAtm (Nsta)**
          └── **Connection (Conn)**
               └── **BasicRateGroup (Brag)**
                      trafficChannelIdentifierList (cidList)
                      └── **CommonChannelSignalingTransport (Ccst)**
                              timeslot (tSlot)
                              ccsMonitoring (ccsMonitor)
                              aalType
                              └── **NailedUpAdaptionPoint (Nap)**
                                          atmConnection (atmConn)

PPT 3213 009 AA
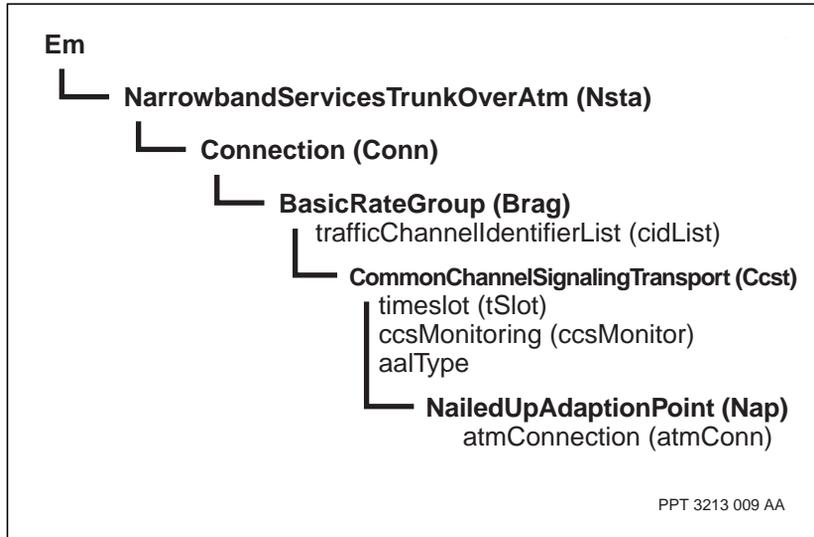
Configuring channel associated signaling

Configure channel associated signaling to define how signaling information is passed through the network.

Prerequisites

- See "Supporting information for configuring channel associated signaling" (page 60) for additional information

Procedure steps

1   Add a *ChannelAssociatedsignalingTransport* (*Cast*) component to an *Nsta Connection* component.

```
add Nsta/<n> Connection/<m> Brag/0 Cast
```

2   Set configurable CAS attributes.

```
set Nsta/<n> Connection/<m> Brag/0 Cast <attribute>
<attributevalue>
```

If you leave the *casMonitoring* attribute set to enabled (enabled is the default setting) the system adds the *CasStats* component under the *Brac* component when you activate the provisioning.

3   If you do not want to use all time slots, remove channel identifiers (CID) from the *cidList* attribute.

```
set Nsta/<n> Connection/<m> Brag/0 cidList ~<t>
```

If you delete time slots from the *cidList* attribute, you must also delete time slots from the channel on the FP. This is done by modifying the *timeslot* attribute of the appropriate port and channel. For example:

```
set lp/<x> <port> chan/0 timeslot ~<tt>
```

4   For CAS signaling for E1 interfaces, specify the time slot for clear channel data channel.

```
set Nsta/<n> Connection/<m> Brag/0 ccdTimeslotList
<ccdList_value>
```

Variable definitions

Variable	Value
<n>	is the value for the *Nsta* component
<m>	is the value for a *Connection* component
<attribute>	is any of the configurable attributes
<attributevalue>	is a permitted value for that attribute
<t>	is a value assigned to a time slot you want to remove. The default mapping for time slots is fixed as explained in 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*. Ensure that the number of time slots and the channel identifiers to which they are mapped match the device on the far end.
<x>	is the LP number
<port>	is the port type and instance value, for example *E1/1* or *DS3/1 DS1/1*
<tt>	is a the value of the time slot you want to delete
<ccdList_value>	is the value of the *ccdTimeslotList* attribute. There is no default value. For E1, use timeslot 15, 16, or 31.

Procedure job aid

Figure 9
Configuring channel associated signaling component hierarchy

```
Em
    └── NarrowbandServicesTrunkOverAtm (Nsta)
            └── Connection (Conn)
                    └── BasicRateGroup (Brag)
                        │  trafficChannelIdentifierList (cidList)
                        │  ccdTimeslotList (ccdList)
                        └── ChannelAssocSignalingTransport (Cast)
                               casMonitoring (casMonitor)
                               signalingBits (sigBits)
                               ingressIdle (idle)
                               egressIdle (edle)
                               disconnectTime (disTime)
```

PPT 3213 008 AA
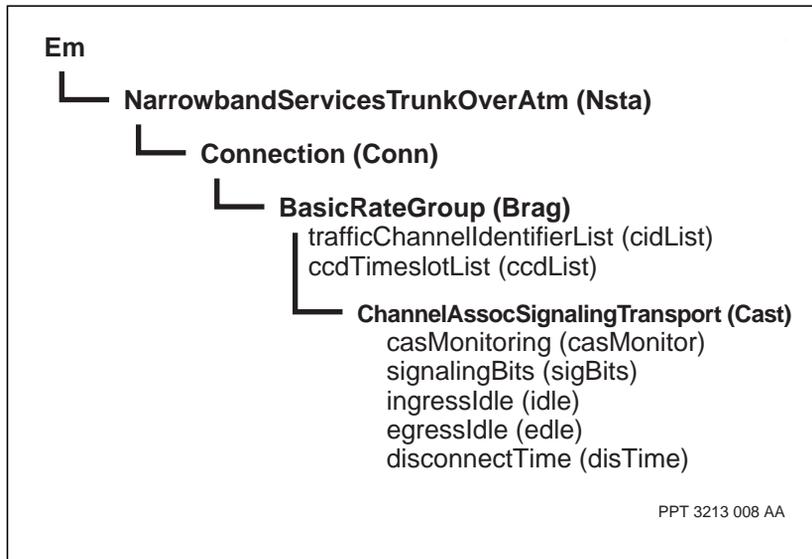
Configuring clear channel data to transport signaling

Configure clear channel data to define non-switched PVG signaling using clear channel data timeslots.

Prerequisites

- See the section on data calls in the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Procedure steps

1   Set the timeslots to be transported as clear channel data:

   ```
   set Nsta/<n> Connection/<m> BasicRateGroup/0
   ccdTimeslotList <ccdList_value>
   ```

2   Set the maximum number of channels permitted to transport clear data during congestion:

   ```
   set Nsta/<n> Connection/<m> BasicRateGroup/0
   ccsClearDataMaxChannels <clrDataMaxChan_value>
   ```

Variable definitions

Variable	Value
<n>	is the value for the *Nsta* component
<m>	is the value for a *Connection* component
<ccdList_value>	is the value for the *ccdTimeslotList* attribute. There is no default value.
<clrDataMaxChan_value>	is the value for the *ccsClearDataMaxChannels* attribute. The default is 64kG711.

Procedure job aid

Figure 10
Configuring clear channel data signaling component hierarchy

```
Em
   └── NarrowbandServicesTrunkOverAtm (Nsta)
          └── Connection (Conn)
                 └── BasicRateGroup (Brag)
                      ccdTimeslotList (ccdList)
                      ccsClearDataMaxChannels (clrDataMaxChan)



                                                    PPT 3213 007 AA
```
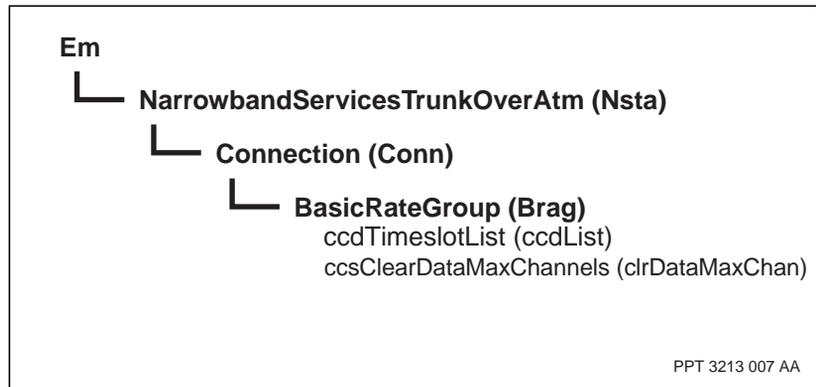
Supporting information for configuring signaling for non-switched PVG

For each *Connection* component, you can configure signaling. PVG provides three signaling choices: common channel signaling (CCS), channel associated signaling (CAS), or unsignaled trunks. For overview information about signaling, see the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

If you do not configure any signaling, all the channels for the PVG connection are automatically unsignaled and therefore unmonitored. Because the system does not monitor signaling, unsignaled trunks do not suppress idle channels.

Regardless of the type of signaling you configure, you can specify that a number of channels are to be carried as clear channel data. The *ccdTimeslotList* attribute of the *Brag* component enables you to specify which time slots you want the system to carry as clear channel data. The system transports these time slots as clear channel data, regardless of the signaling monitoring status (enabled or disabled for the PVG connection), and regardless of the type of information transported on that time slot.

> *Note:* CCST traffic is not supported on the 12mVspAal FP. The Ccst or Cast components are also not available if provisioned SVCs, provisioned SPVCs, or the 4-port OC-3/STM-1Ch TDM/CES FP are used.

Supporting information for configuring common channel signaling

To configure common channel signaling (CCS) for each non-switched PVG connection, you must create and configure the *Ccst* component and then create and map a *Ccst Nap* component to a separate ATM VCC.

The *timeslot* attribute of the *Ccst* component specifies which time slot carries the signaling information. By default, PVG sets the *timeslot* attribute to autoConfigure, which means that the type of TDM interface determines the signaling time slot. For DS1 interfaces, the system uses time slot 24. For E1 interfaces, the system uses time slot 16.

For CCS, you must set the *lineType* attribute for DS1 ports to *d4* or *esf*. You must set the *linetype* attribute for E1 ports to *ccs*.

Note: CCST traffic is not supported on the 12mVspAal FP. The Ccst components are also not available if provisioned SVCs, provisioned SPVCs, or the 4-port OC-3/STM-1Ch TDM/CES FP are used.

Supporting information for configuring channel associated signaling

For channel associated signaling (CAS) with AB signaling, the *lineType* attribute for the DS1 port must be set to *d4Cas*. For CAS with ABCD signaling, the *lineType* attribute for the DS1 port must be set to *esfCas*.

E1 CAS information is transported in time slot 16. For E1 interfaces PVG transports CAS information as clear channel data. Therefore, to configure PVG to support E1 CAS, configure time slot 16 as a clear channel data channel. Clear channel data channels are transported at 64 kbit/s.

Note: The Cast component is not available for DS1 or E1 interfaces if provisioned SVCs, provisioned SPVCs, or the 4-port OC-3/STM-1Ch TDM/CES FP are used.

Note: The 4-port OC-3/STM-1Ch TDM/CES FP can only be configured for DS1 or E1, it cannot support both interface types at the same time.

Chapter 7
Configuring clear channel data for non-switched PVG

Configure clear channel data to define the number of timeslots to be transported as clear channel data.

Prerequisites

- See the section about data calls in the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Procedure steps

1   Set the timeslots to be transported as clear channel data:

    ```
    set Nsta/<n> Connection/<m> BasicRateGroup/0
    ccdTimeslotList <ccdList_value>
    ```

2   Set the maximum number of channels permitted to transport clear data during congestion:

    ```
    set Nsta/<n> Connection/<m> BasicRateGroup/0
    ccsClearDataMaxChannels <clrDataMaxChan_value>
    ```

Variable definitions

Variable	Value
<n>	is the value for the *Nsta* component
<m>	is the value for a *Connection* component
(Sheet 1 of 2)	

Variable	Value
<ccdList_value>	is the value for the *ccdTimeslotList* attribute. There is no default value.
<clrDataMaxChan_value>	is the value for the *ccsClearDataMaxChannels* attribute. The default is 64kG711.
(Sheet 2 of 2)	

Procedure job aid

Figure 11
Configuring clear channel data component hierarchy

Em

　　└── **NarrowbandServicesTrunkOverAtm (Nsta)**

　　　　└── **Connection (Conn)**

　　　　　　└── **BasicRateGroup (Brag)**
　　　　　　　　ccdTimeslotList (ccdList)
　　　　　　　　ccsClearDataMaxChannels (clrDataMaxChan)

PPT 3213 007 AA
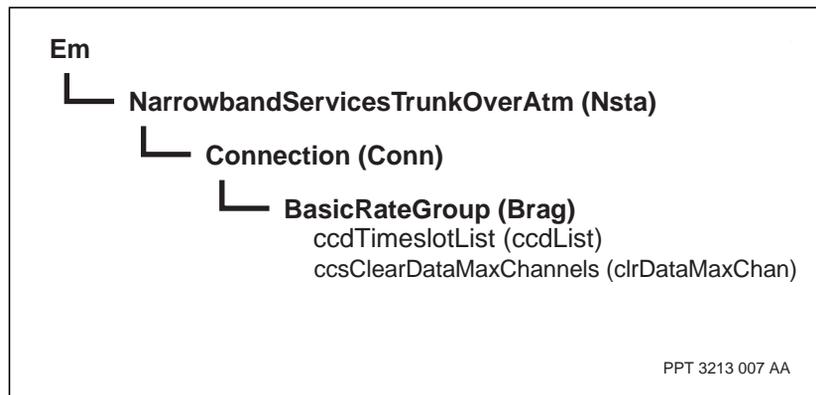
Chapter 8
Configuring echo cancellation for non-switched PVG

Configure echo cancellation to define how PVG deals with echo within the network.

Prerequisites

* See the sections on echo cancellation for non-switched PVG and echo canceller options in the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Procedure steps

1 Set the value for echo cancellation that determines whether echo cancellation will be on or off when a 2100Hz tone is detected:

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
echoCancellation <eCan_value>
```

2 Set the value for the minimum echo return loss expected on the line.

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
minimumEchoReturnLoss <minEchoRetLoss_value>
```

3 Set the comfort noise generation as enabled or disabled. If the *echoCancellation* attribute is set to disabled this attribute has no affect.

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
echoCancelComfortNoiseGeneration
<eCanComNoiseGen_value>
```

Variable definitions

Variable	Value
<n>	is the value for the *Nsta* component
<m>	is the value for the *Connection* component
<eCan_value>	is the value for the *echoCancellation* attribute. The default value is g165Mode.
<minEchoRetLoss_value>	is the value for the *minimumEchoReturnLoss* attribute. The default value is 6 dB.
<eCanComNoiseGen_value>	is the value for the *echoCancelComfortNoiseGeneration* attribute. The default value is enabled.

Procedure job aid

Figure 12
Configuring echo cancellation component hierarchy

Em
└── **NarrowbandServicesTrunkOverAtm (Nsta)**
     └── **Connection (Conn)**
          └── **BasicRateGroup (Brag)**
               echoCancellation (eCan)
               minimumEchoReturnLoss (minEchoRetLoss)
               echoCancelComfortNoiseGeneration
               (eCanComNoiseGen)

PPT 3213 006 AA
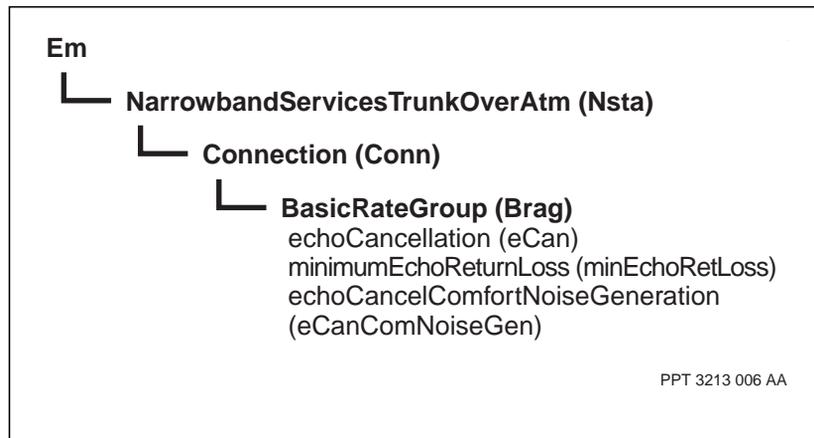
Chapter 9
Voice band data configuration for non-switched PVG

Configure voice band data to determine how non-switched PVG will handle data calls.

- "Prerequisites to voice band data configuration" (page 65)

- "Voice band data configuration task flow" (page 65)

Prerequisites to voice band data configuration

- See the section on fax and modem calls in the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*

Voice band data configuration task flow

This task flow shows you the sequence of procedures you perform to configure voice band data. To link to any procedure, go to the list that follows the task flow.

Figure 13
Voice band data configuration for non-switched PVG task flow
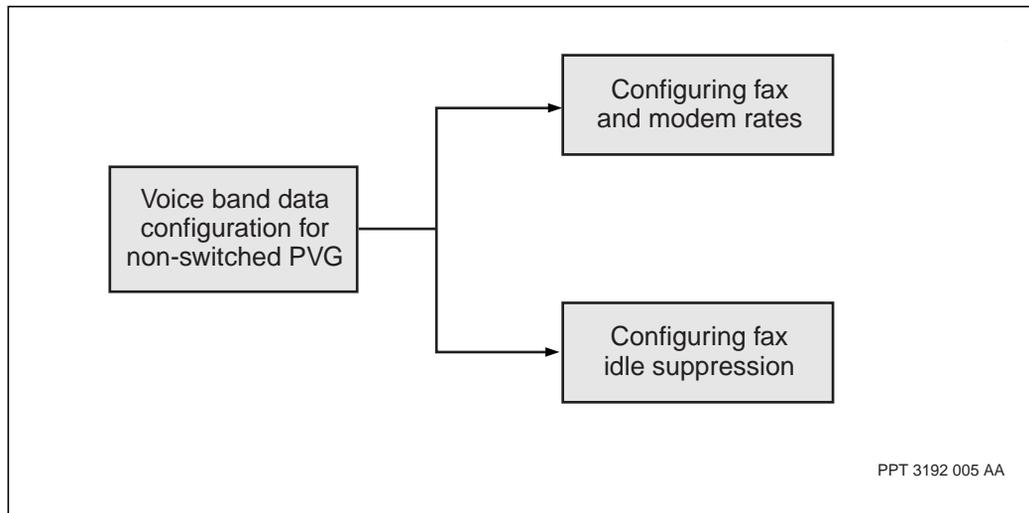
Navigation links

Configuring fax and modem rates

Configure fax and modem rates to define how non-switched PVG deals with data calls during compression situations.

Procedure steps

1   Set the value for the encoding algorithm to be used for AAL2 channels when a 2100Hz tone is detected:

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
tone2100Rate <toneRate_value>
```

2   Set the maximum number of voice band data channels that are permitted at modem rate during congestion:

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
voicebandDataMaxChannels <vbdMaxChan_value>
```

Variable definitions

Variable	Value
<n>	is the value for the *Nsta* component
<m>	is the value for the *Connection* component
<toneRate_value>	is the value for the *tone2100Rate* attribute. The default value is 64kG711.
<vbdMaxChan_value>	is the value for the voicebandDataMaxChannels attribute. The default value is 12.

Procedure job aid

Figure 14
Configuring fax and modem rates component hierarchy

Em
└── **NarrowbandServicesTrunkOverAtm (Nsta)**
    └── **Connection (Conn)**
        └── **BasicRateGroup (Brag)**
            tone2100Rate (toneRate)
            voicebandDataMaxChannels (vbdMaxChan)

PPT 3213 005 AA
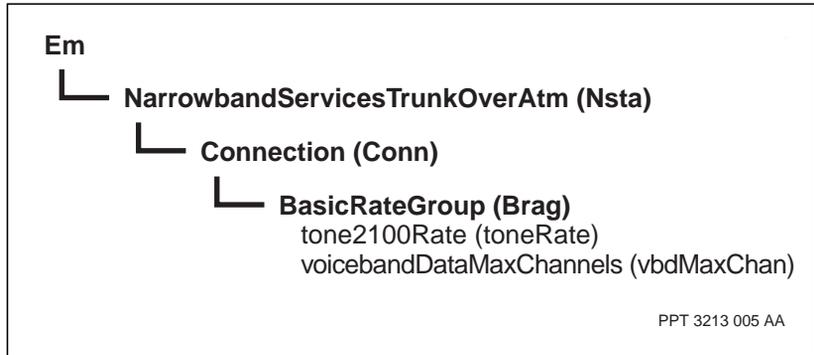
Configuring fax idle suppression

Configure fax idle suppression to reduce the amount of bandwidth used during fax transmission.

Prerequisites

- See the section on silence suppression in the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Procedure steps

1 Set the value for fax idle suppression:

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
faxIdleSuppression <faxSup_value>
```

Variable definitions

Variable	Value
<n>	is the value for the *Nsta* component
<m>	is the value for the *Connection* component
<faxSup_value>	is the value for the *faxIdleSuppression* attribute. The default value is enabled.

Procedure job aid

Figure 15
Configuring fax idle suppression component hierarchy
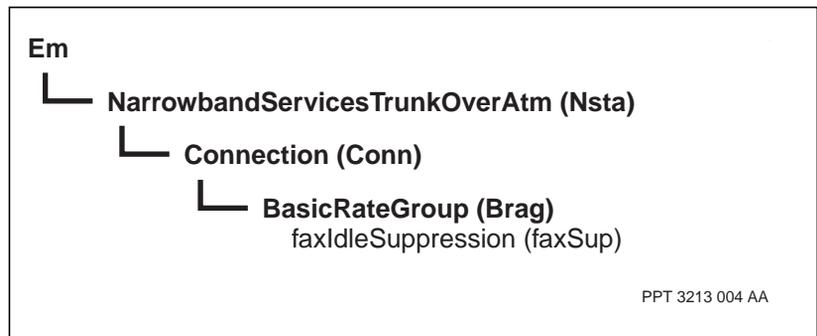
Chapter 10
Configuring packet delay variation tolerance for non-switched PVG

Configure packet delay variation tolerance to determine the size of the packet buffer and the amount of delay before data transmission.

Prerequisites

- See the section on packet delay variation tolerance and the de-jitter buffer in the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Procedure steps

1   Set the capacity of the packet delay variation buffer:

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
buffersize <bufsize_value>
```

2   Set the initial delay that occurs before any data is transmitted:

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
packetDelayVariationTolerance <pdvt_value>
```

Variable definitions

Variable	Value
<n>	is the value for the *Nsta* component
<m>	is the value for a *Connection* component
(Sheet 1 of 2)	

Variable	Value
<bufsize_value>	is the value for the *buffersize* attribute. The default value is 40 msec, however, Nortel Networks recommends a value of 50 msec on all connections to reduce the risk of overflow.
<pdvt_value>	is the value of the *packetDelayVariationTolerance* attribute. The default is 20 msec.
(Sheet 2 of 2)	

Procedure job aid

Figure 16
Configuring packet delay variation tolerance component hierarchy

Em
   └── **NarrowbandServicesTrunkOverAtm (Nsta)**
         └── **Connection (Conn)**
               └── **BasicRateGroup (Brag)**
                     buffersize (buffsize)
                     packetDelayVariationTolerance (pdvt)

PPT 3213 003 AA
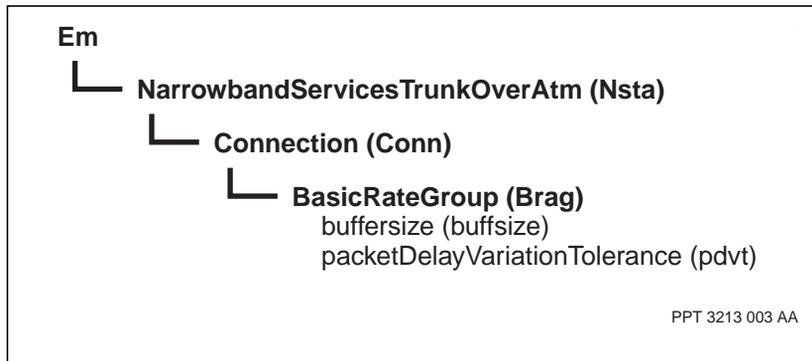
Chapter 11
Congestion management configuration for non-switched PVG

Configure congestion management to define voice compression rates and silence suppression levels.

- "Prerequisites to congestion management configuration" (page 73)

- "Congestion management configuration task flow" (page 73)

Prerequisites to congestion management configuration

- See the sections on congestion management, voice compression and silence suppression in the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

- Set the maximum number of clear channel data channels and voice band data for congestion management see "Configuring clear channel data for non-switched PVG" (page 61) and "Configuring fax and modem rates" (page 67).

Congestion management configuration task flow

This task flow shows you the sequence of procedures you perform to configure congestion management. To link to any procedure, go to the list that follows the task flow.

Figure 17
Congestion management configuration for non-switched PVG task flow
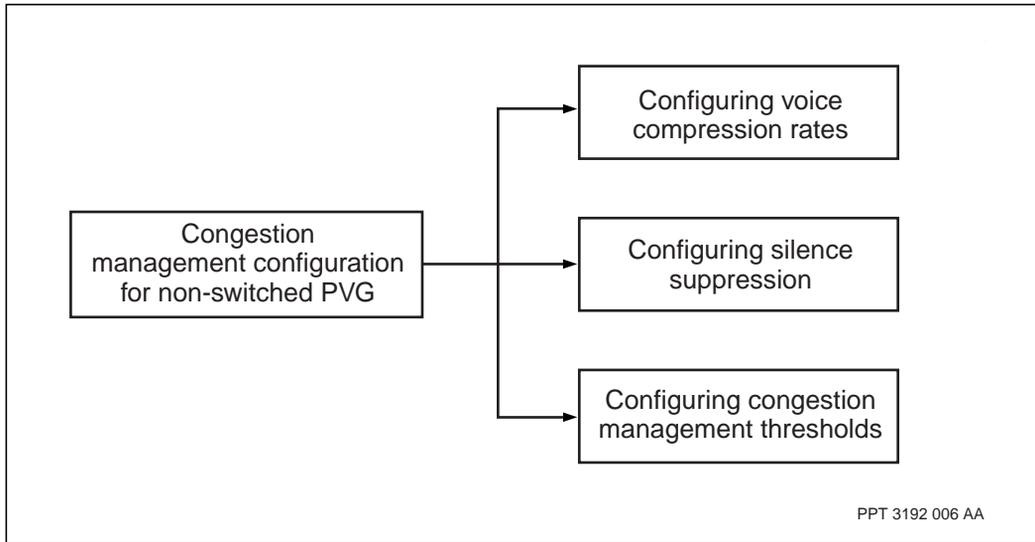
Navigation links

- "Configuring voice compression rates" (page 75)

- "Configuring silence suppression" (page 78)

- "Configuring congestion management thresholds" (page 80)

Configuring voice compression rates

Configure voice rates to define how non-switched PVG deals with voice calls during compression situations.

Prerequisites

- You must set the value for the *maxVoiceRate* attribute to be equal or higher than the value for the *minVoiceRate* attribute.

- Configuring the *dtmfTransport* attribute is required because the 8kG729AB rate cannot reliably transport DTMF tones.

- See the sections on considerations for congestion management for non-switched PVG, voice compression for non-switched PVG in the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Procedure steps

The attribute values for this procedure can be found in the table "Compression rates and attribute values" (page 77).

1   Set the value for the maximum voice rate, this attribute selects the encoding algorithm to be used on voice channels:

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
maxVoiceRate <maxVRate_value>
```

2   Set the value for the minimum voice rate, this attribute selects the encoding algorithm to be used during periods of congestion:

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
minVoiceRate <minVRate_value>
```

3   Set how DTMF tones are handled during voice compression:

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
dtmfTransport <dtmf_value>
```

Variable definitions

Variable	Value
<n>	is the value for the *Nsta* component
<m>	is the value for the *Connection* component
<maxVRate_value>	is the value for the *maxVoiceRate* attribute. The default value is 32kG726.
<minVRate>	is the value for the *minVoiceRate* attribute. The default value is 16kG726.
<dtmf_value>	is the value for the *dtmfTransport* attribute. There is no default value.

Procedure job aid

Figure 18
Configuring voice rates component hierarchy

Em

  NarrowbandServicesTrunkOverAtm (Nsta)

    Connection (Conn)

      BasicRateGroup (Brag)
      maxVoiceRate (maxVRate)
      minVoiceRate (minVRate)
      dtmfTransport (dtmf)

PPT 3213 002 AA
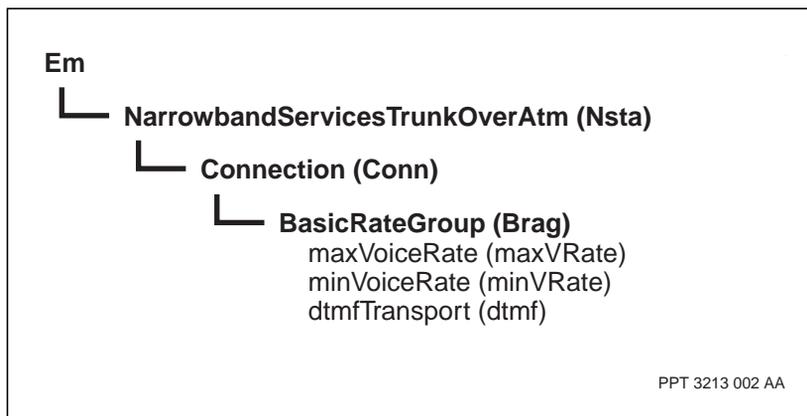
Table 1
Compression rates and attribute values

Attributes	Compression Rates		
	G.711	**G.726**	**G.729 Annex A and B**
maxVoiceRate	64kG711	32kG726, 24kG726, 16kG726	8kG729AB
minVoiceRate	64kG711	32kG726, 24kG726, 16kG726	8kG729AB
dtmfTransport	disabled	disabled	upspeed
Note 1: The *maxVoiceRate* attribute must be equal to or higher than the value for the *minVoiceRate* attribute.			
Note 2: The compression rate of 16kG726 should only be used under periods of congestion. DTMF tones cannot be reliably transported at this rate and voice quality can be poor.			

Configuring silence suppression

Configure silence suppression to define when suppression will be applied, the maximum level for silence suppression, and the amount of time before silence suppression is applied.

Prerequisites

- See the section on silence suppression in the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Procedure steps

1 Set the value for silence suppression to specify when silence suppression is performed:

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
silenceSuppression <silSup_value>
```

2 Set the value for the silence suppression threshold to specify the level above which silence suppression is not performed:

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
silenceSuppressionThreshold <silSupThresh_value>
```

3 Set the value for the amount of time a timeslot speech path is left alone before suppression is applied:

```
set Nsta/<n> Connection/<m> BasicRateGroup/0
silenceDetectionHangOverTime <silDetTime_value>
```

Variable definitions

Variable	Value
<n>	is the value for the *Nsta* component
<m>	is the value for the *Connection* component
<silSup_value>	is the value for the *silenceSuppression* attribute. The default value is enabled.
<silSupTresh_value>	is the value for the *silenceSuppressionThreshold* attribute. The default value is -40.
<silDetTime_value>	is the value for the *silenceDetectionHangOverTime* attribute. The default value is 200 msec.

Procedure job aid

Figure 19
Configuring silence suppression component hierarchy

Em
└── **NarrowbandServicesTrunkOverAtm (Nsta)**
        └── **Connection (Conn)**
                └── **BasicRateGroup (Brag)**
                    silenceSuppression (silSup)
                    silenceSuppressionThreshold (silSupThresh)
                    silenceDetectionHangOverTime(silDetTime)

PPT 3213 001 AA
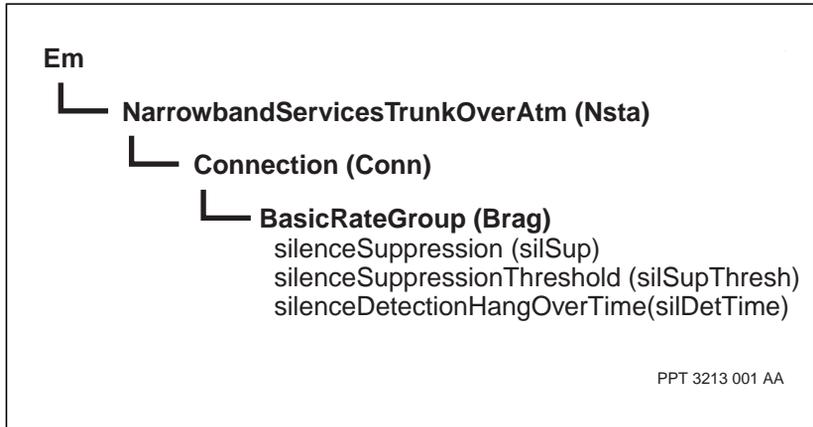
Configuring congestion management thresholds

Configure congestion management thresholds to define the threshold levels for when congestion management will be applied.

Prerequisites

- See the section on congestion management in the 241-5701-780 *Passport 7400, 15000, 20000 Packet Voice Gateway Technology Fundamentals*.

Procedure steps

1 Specify the cell rate above which the most severe congestion management measures will take effect.

   ```
   set Nsta/<n> Connection/<m> pcrHighCongThreshold
   <phct_level>
   ```

2 Specify the upper cell rate threshold of normally acceptable operation for the PCR-based congestion control mechanism.

   ```
   set Nsta/<n> Connection/<m> pcrLowCongThreshold
   <plct_level>
   ```

3 Specify how often the cell rate is sampled by the PCR congestion management algorithm.

   ```
   set Nsta/<n> Connection/<m>
   basicTrafficManagementInterval <basTrafManInt_level>
   ```

Variable definitions

Variable	Value
<basTrafManInt_level>	is the value for the *basicTrafficManagementInterval* attribute. The default value is 100 msec. The value range is 50-100 msec.
<m>	is the value for the *Connection* component
<n>	is the value for the *Nsta* component
<phct_level>	is the value for the *pcrHighCongThreshold* attribute. The default value is 90%. The value range is 50-100%.
<plct_level>	is the value for the *pcrLowCongThreshold* attribute. The default value is 80%. The value range is 10-100%.

Procedure job aid

Figure 20
Configuring silence suppression component hierarchy

Em

└── **NarrowbandServicesTrunkoverAtm (Nsta)**

└── **Connection (Conn)**
pcrHighCongThreshold (phct)
pcrLowCongThreshold (plct)
basicTrafficManangementInterval (basTrafManInt)

PPT 3359 002 AA
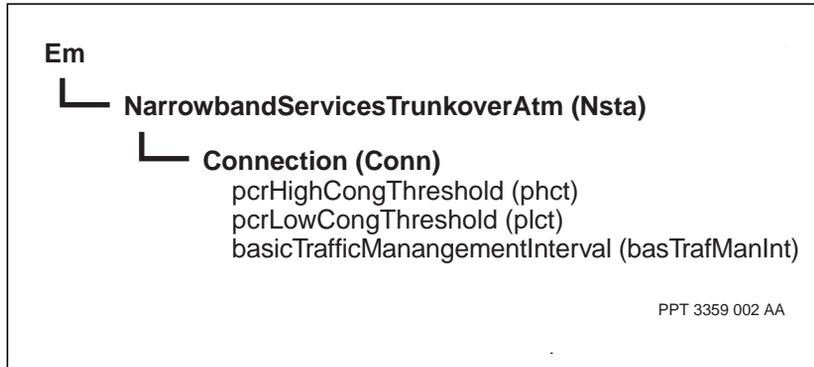
Chapter 12
Monitoring non-switched PVG

Monitor non-switched PVG to display operational and statistics attributes and OSI states. Use the operational commands, unlock, lock, add, delete, display, and list, to monitor component and attribute states.

Displaying operational and statistics attributes for non-switched PVG

Display operational and statistics attributes for non-switched PVG to view information about the state of your node. You can display operational attributes or statistics at any time.

Prerequisites

- For information about ATM operational attributes, see 241-5701-700 *Passport 7400, 15000, 20000 ATM Overview*.

- For information about all Passport components and attributes, see 241-5701-060 *Passport 7400, 15000, 20000 Components*.

- For more information about using Passport commands to monitor your node, see 241-5701-050 *Passport 7400, 15000, 20000 Commands*.

Procedure steps

ATTENTION	Do not use wildcards to display the *BasicRateChannel* (*Brac*) component. SPM overload may occur.

1   To display the names and values for all operational attributes associated with a *Connection* component, enter

    display Nsta/<n> Connection/<m>

2   To display the value of a specific operational attribute for a connection, enter

    display Nsta/<n> Connection/<m> <attribute>

3   To list all of the subcomponents of a connection, enter

    list Nsta/<n> Connection/<m>

Variable definitions

Variable	Value
<m>	is the connection you want to display
<n>	is the instance value for the Nsta component

Procedure job aid

Figure 21
Displaying operational and statistics attributes for non-switched PVG component hierarchy—Part1

```
Root
    │
    └── NarrowbandServicesTrunkOverATM (Nsta)
            │
            └── Connection (Conn)
                    aal2CpLossStatus (cpLossStatus)
                    aal2StartFieldErrors (stErr)
                    aal2SequenceErrors (seqErr)
                    │
                    ── NailedUpAdaptionPoint (Nap)
                    │
                    └── BasicRateGroup (Brag)
                            failureCause (failCause)
                            tdmResponse (tRsp)
                            │
                            ── BasicRateChannel (Brac)
                                    timeslots (tslots)
                                    packetLossStatus (pkStat)
                                    echoCancellationStatus (eCanStat)
                                    faxIdleSuppressionStatus (faxStat)
                                    silenceSuppressionStatus (silStat)
                                    currentEncoding (coding)
                                    voiceProcessingBlocks (vpBlocks)
                                    callStatus (callStat)
                                    aal2TxPackets (txPkt)
                                    aal2RxPackets (rxPkt)
                                    aal2LossPackets (lostPkt)
                                    aal2SequenceErrors (seqErr)
                                    aal2SizeErrors (sizeErr)
                                    aal2BufferUnderflows (buffUFlow)
                                    aal2BufferOverflows (buffOFlow)
                                    aal2ReassembledPackets (reassPkt)
                                    │
                                    └── ChannelAssocSignalingStatistics
                                        (CasStats)
                                            aal2TxPackets (txPkt)
                                            aal2RxPackets (rxPkt)
                                            aal2LossPackets (lostPkt)
                                            aal2SequenceErrors (seqErr)
                                            aal2SizeErrors (sizeErr)
                            │
                            └── continued...
```

PPT 3143 001 AA

Figure 22
Displaying operational and statistics attributes for non-switched PVG operational and statistics attribute—Part 2

continued...

BasicRateGroup (Brag)

ChannelAsscoSignalingTransport (Cast)
signalingProcessingBlock (SigProcBlock)

CommonChannelSignalingTransport (Ccst)
aaI2TxPackets (txPkt)
aaI2RxPackets (rxPkt)
aaI2LostPackets (losPkt)
aaI2SequenceErrors (seqErr)
aaI2SizeErrors (sizeErr)
layer2Status (l2stat)
hdlcTxFrames (txFrm)
hdlcRxFrames (rxFrm)
hdlcErroredFrames (errorFrm)
atmRxMessages (atmRxMesg)
atmTxMessages (atmTxMesg)
atmErroredMessages (atmErrorMesg)
signalingProcessingBlock

PassiveAccessPoint (Pap)
expectedRemoteAddress (expectedAddr)
localAddress (localAddr)
svcStatus (status)
remoteAddress (rAddr)
lastTearDownCause (cause)
lastTearDownDiagnostic (diagn)
remoteChannelDetail
remoteChannelStatus

PPT 3135 003 AA

Displaying OSI states for non-switched PVG

Display OSI states for non-switched PCG to view the component state definitions according to OSI standards. You can display the OSI state of any component that supports OSI states, at any time.

Prerequisites

- For information about OSI states for Passport hardware, see 241-5701-615 *Passport 7400, 15000, 20000 FP Configuration Reference*.

- For information about OSI states for ATM components, see 241-5701-700 *Passport 7400, 15000, 20000 ATM Overview*.

Procedure steps

1   Display the OSI state for the *Nsta* component:

    ```
    display Nsta/<n> OsiState
    ```

2   Display the OSI state for a *Connection* component:

    ```
    display Nsta/<n> Connection/<m> OsiState
    ```

3   Display the OSI state for a *BasicRateGroup* (*Brag*) component:

    ```
    display Nsta/<n> Connection/<m> Brag/<x> OsiState
    ```

4   Display the OSI state for a *BasicRateChannel* (*Brac*) component:

    ```
    display Nsta/<n> Connection/<m> Brag/<x> Brac/<y>
    OsiState
    ```

Variable definitions

Variable	Value
<m>	is the instance value of the *Connection* component
<n>	is the instance value of the *Nsta* component
<x>	is the instance value of the Brag component
<y>	is the channel identification of the Brac component

Procedure job aid

Table 2
State combinations for the *Nsta* component

Combination (Administrative, Operational, Usage)	Details
Unlocked, Disabled, Idle	The component is unlocked, but the voice services FP to which it links is disabled, or all of the *Connection* subcomponents are disabled.
Unlocked, Enabled, Active	At least one connection is configured.
Locked, Disabled, Idle	The component is locked.

Table 3
State combinations for the *Connection* component

Combination (Administrative, Operational, Usage)	Details
Unlocked, Disabled, Idle	The *Nsta* component is disabled. The connection is not transferring any data or collecting any traffic statistics.
Unlocked, Enabled, Active	The connection is receiving and transmitting data. The connection is also collecting traffic statistics.
	If there is no traffic for a period of time, the component remains in this state as it can still gather operational statistics.
Locked, Disabled, Idle	The component is locked. The connection carries no traffic and collects no traffic statistics.

Table 4
State combinations for the *BasicRateGroup* component

Combination (Administrative, Operational, Usage)	Details
Unlocked, Disabled, Idle	Channels in the group are not being processed due to a problem in the path (for example, the *Channel* component is disabled or locked) or because the *Connection* component is locked.
Unlocked, Enabled, Active	At least one channel is carrying and processing data.
Locked, Disabled, Idle	The operator has locked the channel group.

Table 5
State combinations for the *BasicRateChannel* component

Combination (Administrative, Operational, Usage)	Details
Unlocked, Disabled, Idle	The channel is not carrying traffic because the channel group is locked or disabled.
Unlocked, Enabled, Active	The channel is carrying and processing data.

Passport 7400, 15000, 20000
Configuring Non-Switched Packet Voice Gateway

Release 5.2

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