CHAPTER 5

Service Configuration

Setting up a Frame Relay Connection

Via StrataView Plus

Setting up a frame relay connection is normally performed from StrataView Plus using the Connection Manager graphical user interface. An example of the StrataView Plus screen used for making an AXIS frame relay connection is shown below. For full details of how to set up a connection, refer to the *StrataView Plus User's Manual*.

Figure 5-1 StrataView Plus Connection Manager Screen for AXIS

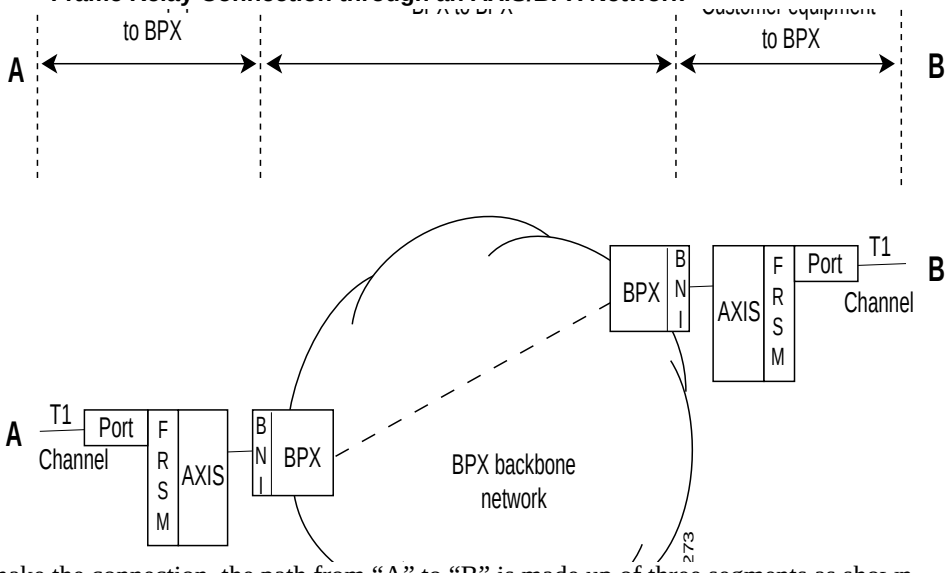
Via the Command Line Interface (CLI)

FRSM Network Interworking Connections

The following paragraphs describe how to establish an end-to-end frame relay connection assuming network interworking and AXIS FRSM end points.

Figure 5-2 shows two BPX nodes in a BPX network in which each of these two nodes is connected to an AXIS shelf via an BNI card. User frame relay equipment, located at “A”, is attached to one of the AXIS shelves via a port on the shelf’s FRSM card. Likewise, user frame relay equipment, located at “B”, is attached to the other AXIS shelf. This chapter describes how a frame relay connection can to be established to permit bidirectional communication between the frame relay equipment at “A” and “B”.

Figure 5-2 Frame Relay Connection through an AXIS/BPX Network



In order to make the connection, the path from "A" to "B" is made up of three segments as shown in Figure 5-2. When using CLI, each segment must be established and configured separately.

Two segments span from the FRSM to the BNM on the AXIS shelves. These segments are part ATM and part frame relay with the conversion being made in the AXIS shelves.

There is also an ATM trunk segment that spans the BPX backbone network from one of the BPX nodes to the other BPX node, this segment terminates on a BNI feeder trunk in each node. This segment may include intermediary BPX nodes (not shown in the diagram).

The links between the segments must be configured properly so that the three segments make up one complete end to end connection from "A" to "B". This process consists primarily of ensuring that the VPI between the AXIS and it colocated BPX must contain the AXIS slot number of the FRSM and the VCI must contain the logical channel number assigned to the virtual circuit.

To establish an end to end frame relay connection, perform the following steps:

Establish the Customer Equipment to BPX Segments

This step must be performed on the AXIS at BOTH ends of the connection ("A" and "B").

On the AXIS:

1. Login to the FRSM that is to be used for the frame relay connection.
2. If not already enabled, enable the T1 line to be used for the frame relay connection by performing an **addln** command using the physical FRSM connector number (1 to 4)connected to the T1 line.
3. If not already configured, configure the T1 line to the frame relay equipment using the **cnfln** command. Specify parameters as appropriate.

   If not already enabled, enable the port to the frame relay equipment by performing an addport command using the parameters as follows:

   For port number, specify an unused port number (1 to 96).

   For line number, specify the FRSM line used to connect to the frame relay equipment (1 to 4, with 1 being the top line).

   For DS0 speed, specify either "1" for 56K or "2" for 64K bits per second.

   For beginning timeslot, specify the beginning timeslot in the T1 or E1 line.

For number of timeslot, specify the number of consecutive T1 or E1 timeslots to be used for the connection.

4 Enable the frame relay channel by performing an **addchan** command.

Select network interworking or service interworking in the chan_type parameter. 1 is for network interworking.

For channel number, enter a value between 16 and 271. THIS WILL BE THE SAME NUMBER SPECIFIED IN THE VCI FIELD TO/FROM THE BPX.

For port number, enter the port number previously enabled

For DLCI, enter a DLCI number to be used in communicating with the frame relay equipment

Note Once a service module channel is started in the AXIS shelf, the T3 line to the BPX is automatically up, configured and started by AXIS and no action is required by the operator.

Note Remember that this process must be repeated at the remote end to establish the segment at that end.

At this point the AXIS segment is up with default parameters.

Establish the BPX to BPX Segment

1 Perform an **addcon** command at one of the BPX nodes (not both) with the following parameters.

For slot number and port number, specify slot and port of the BNI port connected to AXIS.

For VPI, specify the slot number in the AXIS shelf that contains the FRSM attached to the BPX

For VCI, specify the LCN (logical channel number) of the frame relay connection configured on the local AXIS shelf.

For Nodename, specify the nodename of the BPX at the other end of the connection

For Remote Channel, specify the BNI slot and port number of the BNI port attached to AXIS at the remote end. Specify the VPI as the slot number of the remote AXIS FRSM connected to the BPX and specify VCI as the LCN (logical channel number) of the frame relay connection at the remote AXIS.

Specify the type of connection. ATFR when ForeSight is not being used and ATFST when ForeSight is being used.

2 Specify the other **addcon** parameters of bandwidth, etc.

Table 5-1 Addcon parameters

Parameter	Description
MCR	Minimum Cell Rate
PCR	Peak Cell Rate
% Util	Percentage utilization of channel

Minimum Cell Rate (MCR) is only used with Foresight (ATFST).

MCR and Peak Cell Rated (PCR) should be specified according to the following formulae.

MCR = CIR *3/800 cells per second

PCR =AR * 3/800 cells per second but less than or equal to 6000
AR = Frame relay port speed in bps.

For example: AR equals 64K, PCR = 237, or
AR speed equals 256K, PCR = 950, or
AR speed equals 1536K, PCR = 5703

The above MCR and PCR formulae assume a fairly pessimistic frame size of 100 octects, however, even smaller frame sizes can result in worse case scenarios. For example:

For a frame size of 64 octects the PCR formula becomes PCR = AR * 2/512 cells per sec

For a frame size of 43 octects the PCR formula becomes PCR = AR * 2/344 cells per sec

% Util should normally be set to the same value as that used for the frame relay segments of the connection.

FRSM Service Interworking Connections

FRSM service interworking connections are made in the same manner as the network interworking connections except that chan_type in the AXIS addchan command is specified as service interworking (transparent or translation) and the connection end that is remote from the AXIS is an ATM UNI.

FUNI and Frame Forwarding

These services are setup the same as frame relay except the for port_type in the addchan command which is set as 2 for FUNI or 3 for frame forwarding.

AUSM Connections

Via StrataView Plus

Setting up an AUSM connection is normally performed from StrataView Plus using the Connection Manager graphical user interface. An example of the StrataView Plus screen used for making an AXIS ATM to ATM connection is shown below. For full details of how to set up a connection, refer to the *StrataView Plus User's Manual*.

Figure 5-3 ATM-ATM Connection Manager Screen

Via the Command Line Interface (CLI)

Use the following sequence of commands to establish an ATM UNI/NNI connection using the AUSM card. The connection is between a T1 or E1 ATM UNI on the AUSM card and an ATM service interface elsewhere in the IPX/BPX network.

1. Login to AUSM
2. Issue **addln** command, specifying the line/port number (between 1 and 4), 1 being the top line/port
3. If required, use **cnfln** command specifying line code, line length and clock source
4. Issue **upport** command specifying the port to be upped

5 Use **cnfportq** to setup egress queues. Other than defaults you need to specify:
port number (1–4)
queue number (1–16)
queue priority
0 = disable queue
1 = high priority, always serve
2 = best available
3 = Min. guaranteed bandwidth
4 = Min. guaranteed bandwidth with max. rate shaping
5 =CBR with smoothing
service sequence number (1–16)
max. queue depth (1–8000)
CLP low threshold (1–8000)
CLP high threshold (1–8000)
EFCI threshold (1–8000)

6 Use **addcon** command to add the connection, specifying:
logical connection (LCN 16-271)
connection type (1 = vpc, 2 = vcc)
port number (1-4)
vpi (0–255)
vci (0–65535)
service type (1 = cbr, 2 = vbr, 3 = abr)
queue number (1–16)

7 For configuring UPC, use one of
cnfupc cbr
cnfupc vbr
cnfupc abr

8 Use **cnfchanfst** to configure Foresight

9 If queue depths need to be changed, use **cnfchanq** command

BPX to BPX Segment

For the BPX segment, set up the connection in the same manner as that for FRSM. The connection type should be specified as ABR, CBR, or VBR to match the connection type used at the connection endpoint (e.g., AUSM). The parameter values map directly from those specified at the connection endpoint.