                         SNA APPN Node MIB

Status of this Memo

   This memo provides information for the Internet community. This memo
   does not specify an Internet standard of any kind. Distribution of
   this memo is unlimited.

Abstract

   This RFC describes IBM's SNMP support for SNA Advanced Peer-to-Peer
   Networking (APPN) nodes.

Table of Contents

1.0 Introduction

   This module contains managed objects which describe the following:

       o   The APPN node (either an APPN network node or an APPN end node)

       o   The connections of the node to other SNA nodes

       o   The APPN network topology (as reflected in the network topology
            database that is replicated in each APPN network node.

   This module does not describe the SNA logical units (LUs) served by
   the APPN node nor does it describe the sessions between LUs. Managed
   objects for that information are under development.

2.0 Definitions

  IBM-6611-APPN-MIB DEFINITIONS   ::= BEGIN

  IMPORTS

          enterprises, Counter, IpAddress,
          Gauge, TimeTicks
                FROM RFC1155-SMI

          DisplayString
                FROM RFC1213-MIB

          OBJECT-TYPE
                FROM RFC-1212;

  -- **
  ibm   OBJECT IDENTIFIER ::= { enterprises 2 }
  ibmProd   OBJECT IDENTIFIER ::= { ibm 6 }
  ibm6611   OBJECT IDENTIFIER ::= { ibmProd 2 }
  ibmappn   OBJECT IDENTIFIER ::= { ibm6611 13 }

  -- ******************** The APPN Node Group ********************

  ibmappnNode   OBJECT IDENTIFIER ::= { ibmappn 1 }
  ibmappnGeneralInfoAndCaps OBJECT IDENTIFIER ::= { ibmappnNode 1 }
  ibmappnNnUniqueInfoAndCaps OBJECT IDENTIFIER ::= { ibmappnNode 2 }
  ibmappnEnUniqueCaps   OBJECT IDENTIFIER ::= { ibmappnNode 3 }
  ibmappnPortInformation   OBJECT IDENTIFIER ::= { ibmappnNode 4 }
  ibmappnLinkStationInformation OBJECT IDENTIFIER ::= { ibmappnNode 5 }
  ibmappnSnmpInformation   OBJECT IDENTIFIER ::= { ibmappnNode 6 }
  ibmappnMemoryUse   OBJECT IDENTIFIER ::= { ibmappnNode 7 }
  ibmappnXidInformation   OBJECT IDENTIFIER ::= { ibmappnNode 8 }

  -- This group provides global information about the
  -- APPN node, which is either a network node or an end node.

  -- The first section applies to all APPN nodes.
  -- The second section applies only to network nodes.
  -- The third section applies only to end nodes.
  -- The fourth section applies to Port information.
  -- The fifth section applies to SNA link station Information.
  -- The sixth section applies to SNMP traffic for this APPN sub-agent
  -- The seventh section applies to APPN memory usage.
  -- The eighth section applies to XID activities.

   -- APPN General Information
   -- This section applies to both network and end nodes.

   ibmappnNodeCpName   OBJECT-TYPE
        SYNTAX DisplayString (SIZE (3..17))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned network name
            for this node in the format NETID.CPNAME."

        ::= { ibmappnGeneralInfoAndCaps 1 }

   ibmappnNodeNetid   OBJECT-TYPE
        SYNTAX DisplayString (SIZE (1..8))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned APPN network identification,
             which can be from one to eight characters.
             This ID is used with the control point name
             to create a fully-qualified control point name."

        ::= { ibmappnGeneralInfoAndCaps 2 }

   ibmappnNodeBlockNum OBJECT-TYPE
        SYNTAX DisplayString   (SIZE (3))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
           "The block number is the first three digits of the node_id.
            These 3 hexadecimal digits identify the product and are not
            configurable."

        ::= { ibmappnGeneralInfoAndCaps 3 }

   ibmappnNodeIdNum OBJECT-TYPE
        SYNTAX DisplayString (SIZE (5))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
           "The ID number is the last 5 digits of the node_id.
            These 5 hexadecimal digits are administratively defined and
            combined with the 3 digit block number form the node_id.
            This node_id is used to identify the local node and is
            include in APPN alerts as well as being included in XIDs.
            A unique value is required for connections to SNA

```
        sub-area."

    ::=  { ibmappnGeneralInfoAndCaps 4 }

ibmappnNodeType  OBJECT-TYPE
    SYNTAX INTEGER {
                networkNode(1),
                endNode(2),
                len(4)
                }
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Type of APPN node, either network, len, or end node."

    ::=  { ibmappnGeneralInfoAndCaps 5 }

ibmappnNodeUpTime  OBJECT-TYPE
    SYNTAX TimeTicks
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Time (in hundredths of a second) since this APPN node
         was initialized."

    ::=  { ibmappnGeneralInfoAndCaps 6 }

ibmappnNodeNegotLs   OBJECT-TYPE
    SYNTAX INTEGER {yes(1), no(2)}
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Indicates whether this node supports negotiable
         link stations."

    ::=  { ibmappnGeneralInfoAndCaps 7 }

ibmappnNodeSegReasm OBJECT-TYPE
    SYNTAX INTEGER {yes(1), no(2)}
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Indicates whether this node supports segment
         reassembly.  This is only supported when
         segment generation is also supported."

    ::=  { ibmappnGeneralInfoAndCaps 8 }
```

   ibmappnNodeBindReasm OBJECT-TYPE
         SYNTAX INTEGER {yes(1), no(2)}
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
               "Indicates whether this node supports Bind segment
                reassembly. This will only be supported when Bind
                segment generation is also supported."

         ::= { ibmappnGeneralInfoAndCaps 9 }

   ibmappnNodeParallelTg   OBJECT-TYPE
         SYNTAX INTEGER {yes(1), no(2)}
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
               "Indicates whether this node supports parallel TGs."

         ::= { ibmappnGeneralInfoAndCaps 10 }

   ibmappnNodeService   OBJECT-TYPE
         SYNTAX INTEGER {yes(1), no(2)}
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
               "Indicates whether this node allows call-in from nodes not
                defined locally."

         ::= { ibmappnGeneralInfoAndCaps 11 }

   ibmappnNodeAdaptiveBindPacing OBJECT-TYPE
         SYNTAX INTEGER {yes(1), no(2)}
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
               "Indicates whether this node supports adaptive bind pacing."

         ::= { ibmappnGeneralInfoAndCaps 12 }

   -- **
   -- APPN Network Node Information
   -- This section provides global information about the
   -- APPN network node.

   ibmappnNodeNnRcvRegChar OBJECT-TYPE
         SYNTAX INTEGER {yes(1), no(2)}

          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Indicates whether this node supports receiving registered
               characteristics."

          ::= { ibmappnNnUniqueInfoAndCaps 1 }

    ibmappnNodeNnGateway   OBJECT-TYPE
          SYNTAX INTEGER {yes(1), no(2)}
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Indicates whether this is a gateway node."

          ::= { ibmappnNnUniqueInfoAndCaps 2 }

    ibmappnNodeNnCentralDirectory OBJECT-TYPE
          SYNTAX INTEGER {yes(1), no(2)}
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Indicates whether this node supports central directory
               cache."

          ::= { ibmappnNnUniqueInfoAndCaps 3 }

    ibmappnNodeNnTreeCache OBJECT-TYPE
          SYNTAX INTEGER {yes(1), no(2)}
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Indicates whether this node supports route tree cache."

          ::= { ibmappnNnUniqueInfoAndCaps 4 }

    ibmappnNodeNnTreeUpdate   OBJECT-TYPE
          SYNTAX INTEGER {yes(1), no(2)}
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Indicates whether this node supports
               incremental_tree_update, which is only
               supported when tree caching is supported."

          ::= { ibmappnNnUniqueInfoAndCaps 5 }

    ibmappnNodeNnRouteAddResist   OBJECT-TYPE

```
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Route addition resistance is a value that
            indicates the relative desirability
            of using this node for intermediate session traffic.
            The value, which can be any integer 0-255,
            is used in route computation.  The lower the value,
            the more desirable the node is for intermediate routing."

        ::=  { ibmappnNnUniqueInfoAndCaps 6 }

  ibmappnNodeNnIsr   OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Indicates whether the node supports intermediate
              session routing."

        ::=  { ibmappnNnUniqueInfoAndCaps 7 }

  ibmappnNodeNnFrsn            OBJECT-TYPE
        SYNTAX INTEGER (0..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Flow reduction sequence numbers (FRSNs) are associated
             with Topology Database Updates (TDUs) and are unique
             only within each APPN network node.  A TDU can be
             associated with multiple APPN resources. This object
             is the last FRSN sent in a topology update to
             adjacent network nodes."

        ::=  { ibmappnNnUniqueInfoAndCaps 8 }


  -- ************************************************************
  -- APPN End Node Information

  ibmappnNodeEnSegGen    OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether this end node supports segment generation."
```

          ::=   { ibmappnEnUniqueCaps 1 }

  ibmappnNodeEnModeCosMap   OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether this end node supports
             mode name to COS name mapping."

          ::=   { ibmappnEnUniqueCaps 2 }

  ibmappnNodeEnLocateCdinit OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether this end node supports Locate Cdinit."

          ::=   { ibmappnEnUniqueCaps 3 }

  ibmappnNodeEnSendRegNames OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the node will register its LUs with the
             adjacent serving network node:

                NO - do not register names
                YES - register names"

          ::=   { ibmappnEnUniqueCaps 4 }

  ibmappnNodeEnSendRegChar OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether this node supports
             send register characteristics, which is only
             supported when send registered names is also
             supported."

          ::=   { ibmappnEnUniqueCaps 5 }

```
     -- *********************************************************
     -- APPN Port information
     --


     ibmappnNodePortTable OBJECT-TYPE
            SYNTAX SEQUENCE OF IbmappnNodePortEntry
            ACCESS not-accessible
            STATUS mandatory
            DESCRIPTION
                "The Port table describes the configuration and current
                 status of the ports used by APPN.  The type of DLC is
                 included in this table as a pointer to the DLC port
                 specific tables."

            ::= { ibmappnPortInformation 1 }

     ibmappnNodePortEntry OBJECT-TYPE
            SYNTAX IbmappnNodePortEntry
            ACCESS not-accessible
            STATUS mandatory
            DESCRIPTION
                "The Port Name is used as the index to this table."

            INDEX
                  { ibmappnNodePortName }

            ::= { ibmappnNodePortTable 1 }

     IbmappnNodePortEntry ::= SEQUENCE {
            ibmappnNodePortName            DisplayString,
            ibmappnNodePortState           INTEGER,

            ibmappnNodePortDlcType         INTEGER,
            ibmappnNodePortPortType        INTEGER,
            ibmappnNodePortSIMRIM          INTEGER,
            ibmappnNodePortLsRole          INTEGER,
            ibmappnNodePortMaxRcvBtuSize   INTEGER,
            ibmappnNodePortMaxIframeWindow INTEGER,
            ibmappnNodePortDefLsGoodXids   Counter,
            ibmappnNodePortDefLsBadXids    Counter,
            ibmappnNodePortDynLsGoodXids   Counter,
            ibmappnNodePortDynLsBadXids    Counter,
            ibmappnNodePortSpecific        OBJECT IDENTIFIER
                                        }


     ibmappnNodePortName OBJECT-TYPE
```

```
        SYNTAX DisplayString (SIZE (1..8))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned name for this APPN port.
             The name can be from one to eight characters."

        ::=  { ibmappnNodePortEntry 1 }

  ibmappnNodePortState        OBJECT-TYPE
        SYNTAX INTEGER    {
                            inactive(1),
                            pendactive(2),
                            active(3),
                            pendinact(4)
                            }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "Indicates the current state of this port."

        ::=  { ibmappnNodePortEntry 2 }

  ibmappnNodePortDlcType OBJECT-TYPE
        SYNTAX INTEGER {
                        other(1),           -- none of the following
                        sdlc(2),
                        dls(3),
                        socket(4),
                        ethernet(5),
                        tokenRing(6)
                        }
            ACCESS  read-only
            STATUS  mandatory
            DESCRIPTION
                    "The type of DLC interface, distinguished according
                    to the protocol immediately 'below' this layer."

        ::=  { ibmappnNodePortEntry 3 }

  ibmappnNodePortPortType  OBJECT-TYPE
        SYNTAX INTEGER {
                        leased(1),
                        switched(2),
                        sharedAccessFacilities(3)
                }
        ACCESS read-only
        STATUS mandatory
```

```
       DESCRIPTION
            "Identifies the type of line used by this port."

       ::=  { ibmappnNodePortEntry 4 }

  ibmappnNodePortSIMRIM  OBJECT-TYPE
       SYNTAX INTEGER {yes(1), no(2)}
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
            "Indicates whether Set Initialization Mode (SIM) and
             Receive Initialization Mode (RIM) are supported."

       ::=  { ibmappnNodePortEntry 5 }

  ibmappnNodePortLsRole OBJECT-TYPE
       SYNTAX INTEGER {
                    primary(1),
                    secondary(2),
                    negotiable(3),
                    abm(4)
              }
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "Initial role for LSs activated through this port,
            where 'abm' indicates asynchronous balance mode."

       ::=  { ibmappnNodePortEntry 6 }

  ibmappnNodePortMaxRcvBtuSize OBJECT-TYPE
       SYNTAX INTEGER
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "Maximum Basic Transmission Size (BTU) that a
            link station on this port can receive."

       ::=  { ibmappnNodePortEntry 7 }

  ibmappnNodePortMaxIframeWindow OBJECT-TYPE
       SYNTAX INTEGER
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "Maximum number of I-frames that can be received
            by the XID sender before an acknowledgement is received."
```

```
         ::=  { ibmappnNodePortEntry 8 }

  ibmappnNodePortDefLsGoodXids    OBJECT-TYPE
      SYNTAX   Counter
      ACCESS   read-only
      STATUS   mandatory
      DESCRIPTION
             "The total number of successfull XIDs that have occurred
              on all defined link stations on this port since the last
              time this port was started."

         ::=  { ibmappnNodePortEntry 9 }

  ibmappnNodePortDefLsBadXids    OBJECT-TYPE
      SYNTAX   Counter
      ACCESS   read-only
      STATUS   mandatory
      DESCRIPTION
             "The total number of unsuccessfull XIDs that have occurred
              on all defined link stations on this port since the last
              time this port was started."

         ::=  { ibmappnNodePortEntry 10 }

  ibmappnNodePortDynLsGoodXids    OBJECT-TYPE
      SYNTAX   Counter
      ACCESS   read-only
      STATUS   mandatory
      DESCRIPTION
             "The total number of successfull XIDs that have occurred
              on all dynamic link stations on this port since the last
              time this port was started."

         ::=  { ibmappnNodePortEntry 11 }

  ibmappnNodePortDynLsBadXids    OBJECT-TYPE
      SYNTAX   Counter
      ACCESS   read-only
      STATUS   mandatory
      DESCRIPTION
             "The total number of unsuccessfull XIDs that have occurred
              on all dynamic link stations on this port since the last
              time this port was started."

         ::=  { ibmappnNodePortEntry 12 }

  ibmappnNodePortSpecific OBJECT-TYPE
       SYNTAX OBJECT IDENTIFIER
```

```
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Identifies the port specific OBJECT IDENTIFIER
             that can provide additional information."

        ::=  { ibmappnNodePortEntry 13 }



 -- *************************************************************
 --
 --

 ibmappnNodePortIpTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnNodePortIpEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Port table (TCP/IP specific)."

        ::= { ibmappnPortInformation 2 }

 ibmappnNodePortIpEntry OBJECT-TYPE
        SYNTAX IbmappnNodePortIpEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "The IP Name is used as the index to this table."

        INDEX
              {ibmappnNodePortIpName }

        ::= { ibmappnNodePortIpTable 1 }

 IbmappnNodePortIpEntry ::= SEQUENCE {
        ibmappnNodePortIpName         DisplayString,
        ibmappnNodePortIpPortNum      INTEGER
                                      }

 ibmappnNodePortIpName OBJECT-TYPE
        SYNTAX DisplayString (SIZE (1..8))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned name for this APPN port.
             The name can be from one to eight characters."
```

```
             ::=  { ibmappnNodePortIpEntry 1 }

  ibmappnNodePortIpPortNum OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Local TCP/IP port number."

        ::=  { ibmappnNodePortIpEntry 2 }




  -- ***********************************************************
  --
  --

  ibmappnNodePortDlsTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnNodePortDlsEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Port table (DLS specific)."

        ::= { ibmappnPortInformation 3 }

  ibmappnNodePortDlsEntry OBJECT-TYPE
        SYNTAX IbmappnNodePortDlsEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "The DLS Name is used as the index to this table."

        INDEX
              {ibmappnNodePortDlsName }

        ::= { ibmappnNodePortDlsTable 1 }

  IbmappnNodePortDlsEntry ::= SEQUENCE {
        ibmappnNodePortDlsName          DisplayString,
        ibmappnNodePortDlsMac           OCTET STRING,
        ibmappnNodePortDlsSap           OCTET STRING
                                    }

  ibmappnNodePortDlsName OBJECT-TYPE
        SYNTAX DisplayString (SIZE (1..8))
        ACCESS read-only
        STATUS mandatory
```

```
        DESCRIPTION
            "Administratively-assigned name for this APPN DLS port.
             The name can be from one to eight characters."

        ::=  { ibmappnNodePortDlsEntry 1 }

   ibmappnNodePortDlsMac OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (6))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Local DLS MAC address."

        ::=  { ibmappnNodePortDlsEntry 2 }

   ibmappnNodePortDlsSap OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (1))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Local DLS Sap address."

        ::=  { ibmappnNodePortDlsEntry 3 }



   -- ***********************************************************
   --
   --

   ibmappnNodePortTrTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnNodePortTrEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Port table (Token Ring specific)."

        ::= { ibmappnPortInformation 4 }

   ibmappnNodePortTrEntry OBJECT-TYPE
        SYNTAX IbmappnNodePortTrEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "The TR Name is used as the index to this table."

        INDEX
                {ibmappnNodePortTrName }
```

```
        ::= { ibmappnNodePortTrTable 1 }

IbmappnNodePortTrEntry ::= SEQUENCE {
        ibmappnNodePortTrName        DisplayString,
        ibmappnNodePortTrMac         OCTET STRING,
        ibmappnNodePortTrSap         OCTET STRING
                                        }

ibmappnNodePortTrName OBJECT-TYPE
        SYNTAX DisplayString (SIZE (1..8))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned name for this APPN port.
             The name can be from one to eight characters."

        ::=  { ibmappnNodePortTrEntry 1 }

ibmappnNodePortTrMac OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (6))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Local Token Ring MAC address."

        ::=  { ibmappnNodePortTrEntry 2 }

ibmappnNodePortTrSap OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (1))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Local Token Ring Sap address."

        ::=  { ibmappnNodePortTrEntry 3 }


-- ************************************************************
-- APPN generic DLC Trace
--

ibmappnNodePortDlcTraceTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnNodePortDlcTraceEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Port table generic DLC trace table."
```

```
             ::= { ibmappnPortInformation 5 }

   ibmappnNodePortDlcTraceEntry OBJECT-TYPE
         SYNTAX IbmappnNodePortDlcTraceEntry
         ACCESS not-accessible
         STATUS mandatory
         DESCRIPTION
              "The Port name and a dynamic integer are the index to
              this table."

         INDEX
               {ibmappnNodePortDlcTracPortName,
                ibmappnNodePortDlcTracIndex}

         ::= { ibmappnNodePortDlcTraceTable 1 }

   IbmappnNodePortDlcTraceEntry ::= SEQUENCE {
         ibmappnNodePortDlcTracPortName      DisplayString,
         ibmappnNodePortDlcTracIndex         INTEGER,
         ibmappnNodePortDlcTracDlcType       INTEGER,
         ibmappnNodePortDlcTracLocalAddr     DisplayString,
         ibmappnNodePortDlcTracRemoteAddr    DisplayString,
         ibmappnNodePortDlcTracMsgType       INTEGER,
         ibmappnNodePortDlcTracCmdType       INTEGER,
         ibmappnNodePortDlcTracUseWan        INTEGER
                                     }

   ibmappnNodePortDlcTracPortName OBJECT-TYPE
         SYNTAX  DisplayString
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
              "The Port name associated with this this trace table entry."

         ::=  { ibmappnNodePortDlcTraceEntry 1 }

   ibmappnNodePortDlcTracIndex OBJECT-TYPE
         SYNTAX INTEGER
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
              "This index value is updated every time a new trace entry
               is created which provides a means to retrieve only the
               updated entries and also provides a simple method of
               correlating the entries.  The table will wrap when the
               table is full, which will result in previous entries
               being written over.  The mangement station can over
               come this by retrieving the table using this index to
```

                retrieve only the new table entries."

          ::= { ibmappnNodePortDlcTraceEntry 2 }

   ibmappnNodePortDlcTracDlcType OBJECT-TYPE
        SYNTAX INTEGER {
                        other(1),   -- none of the following
                        sdlc(2),
                        dls(3),
                        socket(4),
                        ethernet(5),
                        tokenRing(6)
                       }
             ACCESS read-only
             STATUS mandatory
             DESCRIPTION
                     "The type of DLC interface, distinguished according
                     to the protocol immediately 'below' this layer."

          ::= { ibmappnNodePortDlcTraceEntry 3 }

   ibmappnNodePortDlcTracLocalAddr OBJECT-TYPE
        SYNTAX DisplayString
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Local address in format described below:

             other   = free form DisplayString
             ip   = ld. ld. ld. ld / 2d
             tr   = lx: lx: lx: lx: lx: lx . lx
             dlsw   = lx: lx: lx: lx: lx: lx . lx
             ethernet = lx: lx: lx: lx: lx: lx . lx
             "

          ::= { ibmappnNodePortDlcTraceEntry 4 }

   ibmappnNodePortDlcTracRemoteAddr OBJECT-TYPE
        SYNTAX DisplayString
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Remote Address in the format described below:
             other   = free form DisplayString
             ip   = ld. ld. ld. ld / 2d
             tr   = lx: lx: lx: lx: lx: lx . lx
             dlsw   = lx: lx: lx: lx: lx: lx . lx

```
            ethernet = lx: lx: lx: lx: lx: lx . lx
            "

      ::=  { ibmappnNodePortDlcTraceEntry 5 }


  ibmappnNodePortDlcTracMsgType OBJECT-TYPE
       SYNTAX INTEGER    {
--             enumeration values between 1 and 1999 are reserved
--             for potential undefined message types.
                        other(1),
                        unknown(2),
                        request(3),
                        confirm(4),
                        indication(5),
                        response(6)

--             enumeration values between 2000 and 3999 are reserved
--             for IP socket traces,



--             enumeration values between 4000 and 5999 are reserved
--             for DLS traces,



--             enumeration values between 6000 and 7999 are reserved
--             for TR  traces,


                        }
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "Indicates the type of trace record entry"

       ::=  { ibmappnNodePortDlcTraceEntry 6 }

  ibmappnNodePortDlcTracCmdType OBJECT-TYPE
       SYNTAX INTEGER    {
--             enumeration values between 1 and 1999 are reserved
--             for potential undefined message types.

                        testFrame(1),
                        respFrame(2),
                        curFrame(3),
                        icrFrame(4),
```

```
                                 respAck(5),
                                 dgrmFrame(6),
                                 xidFrame(7),
                                 contFrame(8),
                                 contedFrame(9),
                                 iFrame(10),
                                 enterBusy(12),
                                 exitBusy(13),
                                 haltFrame(14),
                                 lsHalted(15),
                                 restartLs(16),
                                 lsRestarted(17),
                                 netBioSnq(18),
                                 netBioSnr(19),
                                 gnetFrame(20),
                                 netdFrame(21),
                                 oobFrame(22),
                                 alterSap(23),
                                 testRsp(24),
                                 haltLsNow(25),
                                 testReq(26),

    --              enumeration values between 2000 and 3999 are reserved
    --              for IP socket traces.
                                 ipTestFrame(2001),
                                 ipRespFrame(2002),
                                 ipCurFrame(2003),
                                 ipIcrFrame(2004),
                                 ipRespAck(2005),
                                 ipDgrmFrame(2006),
                                 ipXidFrame(2007),
                                 ipContFrame(2008),
                                 ipContedFrame(2009),
                                 ipIFrame(2010),
                                 ipEnterBusy(2012),
                                 ipExitBusy(2013),
                                 ipHaltFrame(2014),
                                 ipLsHalted(2015),
                                 ipRestartLs(2016),
                                 ipLsRestarted(2017),
                                 ipNetBioSnq(2018),
                                 ipNetBioSnr(2019),
                                 ipGnetFrame(2020),
                                 ipNetdFrame(2021),
                                 ipOobFrame(2022),
                                 ipAlterSap(2023),
                                 ipTestRsp(2024),
                                 ipHaltLsNow(2025),
```

```
                                    ipTestReq(2026),

 --              enumeration values between 4000 and 5999 are reserved
 --              for DLS traces.

                             dlsIpm(4124),

 --              enumeration values between 6000 and 7999 are reserved for
 --              TR traces.
                             trTestFrame(6001),
                             trRespFrame(6002),
                             trCurFrame(6003),
                             trIcrFrame(6004),
                             trRespAck(6005),
                             trDgrmFrame(6006),
                             trXidFrame(6007),
                             trContFrame(6008),
                             trContedFrame(6009),
                             trIFrame(6010),
                             trEnterBusy(6012),
                             trExitBusy(6013),
                             trHaltFrame(6014),
                             trLsHalted(6015),
                             trRestartLs(6016),
                             trLsRestarted(6017),
                             trNetBioSnq(6018),
                             trNetBioSnr(6019),
                             trGnetFrame(6020),
                             trNetdFrame(6021),
                             trOobFrame(6022),
                             trAlterSap(6023),
                             trTestRsp(6024),
                             trHaltLsNow(6025),
                             trTestReq(6026)

                             }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates the command type of the trace entry."

        ::=  { ibmappnNodePortDlcTraceEntry 7 }

  ibmappnNodePortDlcTracUseWan OBJECT-TYPE
        SYNTAX INTEGER    {
                             other(1),
                             notApplicable(2),
                             useUnknown(3),
```

```
                              useWan(4),
                              useLan(5)
                              }
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
            "Indicates the type of connection of the trace entry.
            For example, token ring and ethernet ports will have
            useLan as connection.  For the dls port, it could be
            either useWan if connection is across Wan via dls
            sessions, or useLan if connection is to a local attached
            LAN."

      ::=  { ibmappnNodePortDlcTraceEntry 8 }




-- ************************************************************
-- APPN Link Station Information
--


ibmappnNodeLsTable OBJECT-TYPE
      SYNTAX SEQUENCE OF IbmappnNodeLsEntry
      ACCESS not-accessible
      STATUS mandatory
      DESCRIPTION
            "This table contains detail information about the
             link station configuration and current status."

      ::= { ibmappnLinkStationInformation 1 }

ibmappnNodeLsEntry OBJECT-TYPE
      SYNTAX IbmappnNodeLsEntry
      ACCESS not-accessible
      STATUS mandatory
      DESCRIPTION
            "This table is indexed by the link station name."

      INDEX
             { ibmappnNodeLsName }

      ::= { ibmappnNodeLsTable 1 }

  IbmappnNodeLsEntry ::= SEQUENCE {
      ibmappnNodeLsName            DisplayString,
      ibmappnNodeLsPortName        DisplayString,
      ibmappnNodeLsDlcType         INTEGER,
```

```
        ibmappnNodeLsDynamic          INTEGER,
        ibmappnNodeLsState            INTEGER,
 -- ls defined data   / xid info
        ibmappnNodeLsCpName           DisplayString,
        ibmappnNodeLsTgNum            INTEGER,
        ibmappnNodeLsLimResource      INTEGER,
        ibmappnNodeLsMigration        INTEGER,
        ibmappnNodeLsBlockNum         DisplayString,
        ibmappnNodeLsIdNum            DisplayString,
        ibmappnNodeLsCpCpSession      INTEGER,
 -- ls parms   (common) / xid info
        ibmappnNodeLsTargetPacingCount INTEGER,
        ibmappnNodeLsMaxSendBtuSize    INTEGER,
 -- tg characteristics
        ibmappnNodeLsEffCap           INTEGER,
        ibmappnNodeLsConnCost         INTEGER,
        ibmappnNodeLsByteCost         INTEGER,
        ibmappnNodeLsSecurity         INTEGER,
        ibmappnNodeLsDelay            INTEGER,
        ibmappnNodeLsUsr1             INTEGER,
        ibmappnNodeLsUsr2             INTEGER,
        ibmappnNodeLsUsr3             INTEGER,
 -- ls      (performance data)
        ibmappnNodeLsInXidBytes       Counter,
        ibmappnNodeLsInMsgBytes       Counter,
        ibmappnNodeLsInXidFrames      Counter,
        ibmappnNodeLsInMsgFrames      Counter,
        ibmappnNodeLsOutXidBytes      Counter,
        ibmappnNodeLsOutMsgBytes      Counter,
        ibmappnNodeLsOutXidFrames     Counter,
        ibmappnNodeLsOutMsgFrames     Counter,
 -- ls       (propgation delay)
        ibmappnNodeLsEchoRsps         Counter,
        ibmappnNodeLsCurrentDelay     INTEGER,
        ibmappnNodeLsMaxDelay         INTEGER,
        ibmappnNodeLsMinDelay         INTEGER,
        ibmappnNodeLsMaxDelayTime     TimeTicks,
 -- ls      (Xid Statistics)
        ibmappnNodeLsGoodXids         Counter,
        ibmappnNodeLsBadXids          Counter,
 -- Dlc specific
        ibmappnNodeLsSpecific         OBJECT IDENTIFIER,
        ibmappnNodeLsSubState         INTEGER,
        ibmappnNodeLsStartTime        TimeTicks,
        ibmappnNodeLsActiveTime       TimeTicks,
        ibmappnNodeLsCurrentStateTime TimeTicks
                                   }
```

   ibmappnNodeLsName OBJECT-TYPE
        SYNTAX DisplayString (SIZE (1..8))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned name for the link station.
             The name can be from one to eight characters."

        ::= { ibmappnNodeLsEntry 1 }

   ibmappnNodeLsPortName OBJECT-TYPE
        SYNTAX DisplayString (SIZE (1..8))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned name for the port.
             The name can be from one to eight characters."

        ::= { ibmappnNodeLsEntry 2 }

   ibmappnNodeLsDlcType OBJECT-TYPE
        SYNTAX INTEGER {
                        other(1),   -- none of the following
                        sdlc(2),
                        dls(3),
                        socket(4),
                        ethernet(5),
                        tokenRing(6)
                       }
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                    "The type of DLC interface, distinguished according
                     to the protocol immediately 'below' this layer."

        ::= { ibmappnNodeLsEntry 3 }

   ibmappnNodeLsDynamic OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Identifies whether this resource is a dynamic link station.
            Dynamic link stations are created when adjacent nodes
            that have not been locally defined establish a connection
            with this node."

```
        ::=  { ibmappnNodeLsEntry 4 }


  ibmappnNodeLsState         OBJECT-TYPE
        SYNTAX INTEGER     {
                             inactive(1),
                             pendactive(2),
                             active(3),
                             pendinact(4)
                             }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "State of this link station."

        ::=  { ibmappnNodeLsEntry 5 }

  ibmappnNodeLsCpName        OBJECT-TYPE
        SYNTAX DisplayString (SIZE (3..17))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Fully-qualified name of the adjacent node for this link
             station.  The name can be from three to seventeen
             characters.  Format is netid.cpname."

        ::=  { ibmappnNodeLsEntry 6 }

  ibmappnNodeLsTgNum         OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number associated with the TG to this link station."

        ::=  { ibmappnNodeLsEntry 7 }

  ibmappnNodeLsLimResource  OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the link station is
             a limited resource.  If it is, the TG
             is deactivated when there are no sessions."

        ::=  { ibmappnNodeLsEntry 8 }
```

    ibmappnNodeLsMigration OBJECT-TYPE
         SYNTAX INTEGER {yes(1), no(2)}
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
              "Indicates whether this link station will be used
               for connections to down-level or migration partners."

         ::= { ibmappnNodeLsEntry 9 }

   ibmappnNodeLsBlockNum OBJECT-TYPE
         SYNTAX DisplayString   (SIZE (3))
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
            "The block number is the first three digits of the node_id.
             These 3 hexideimal digits identify the product and are not
             configurable."

         ::= { ibmappnNodeLsEntry 10 }

   ibmappnNodeLsIdNum OBJECT-TYPE
         SYNTAX DisplayString (SIZE (5))
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
            "The ID number is the last 5 digits of the node_id.
             These 5 hexadecimal digits are administratively defined and
             combined with the 3 digit block number form the node_id.
             This node_id is used to identify the local node and is
             include in APPN alerts as well as being included in XIDs.
             A unique value is required for connections to SNA
             sub-area."

         ::= { ibmappnNodeLsEntry 11 }

   ibmappnNodeLsCpCpSession OBJECT-TYPE
         SYNTAX INTEGER {yes(1), no(2)}
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
              "Indicates whether CP-CP sessions are
               supported by this link station."

         ::= { ibmappnNodeLsEntry 12 }

   ibmappnNodeLsTargetPacingCount OBJECT-TYPE
         SYNTAX INTEGER

```
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Numeric value between 0 and 32767 inclusive indicating
             the desired pacing window size for BINDs on this TG.
             The number is significant only when fixed bind pacing
             is being performed."

        ::=  { ibmappnNodeLsEntry 13 }

  ibmappnNodeLsMaxSendBtuSize  OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Numeric value between 0 and 32767 inclusive indicating
             the desired number of bytes in a Basic Transmission Unit
             (BTU) that can be sent on this TG.
             This is an administratively assigned value."

        ::=  { ibmappnNodeLsEntry 14 }

  ibmappnNodeLsEffCap   OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
           "The effective capacity is an integer value that indicates
            the kilo bits per second.
            It is derived from the link bandwidth and maximum load
            factor with the range of 0 thru 603,979,776.
            This is an administratively assigned value associated
            with the TG using this link station."

        ::=  { ibmappnNodeLsEntry 15 }

  ibmappnNodeLsConnCost OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
           "Cost per connect time: a value representing
            the relative cost per unit of time to use
            the TG. Range is from 0, which means no cost,
            to 255, which indicates maximum cost.
            This is an administratively assigned value associated
            with the TG using this link station."
```

```
        ::=  { ibmappnNodeLsEntry 16 }

ibmappnNodeLsByteCost  OBJECT-TYPE
      SYNTAX INTEGER (0..255)
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
          "Relative cost of transmitting a byte over this link.
           Range is from 0 (lowest cost) to 255.
           This is an administratively assigned value associated
           with the TG using this link station."

        ::=  { ibmappnNodeLsEntry 17 }

ibmappnNodeLsSecurity  OBJECT-TYPE
      SYNTAX INTEGER {
                    nonsecure(1),                 --X'01'
                    publicSwitchedNetwork(32),    --X'20'
                    undergroundCable(64),         --X'40'
                    secureConduit(96),            --X'60'
                    guardedConduit(128),          --X'80'
                    encrypted(160),               --X'A0'
                    guardedRadiation(192)         --X'C0'
              }
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
          "The security is represented as an integer with a range of
           1 thru 255 with the most common values enumerated as
           defined above.
           This is an administratively assigned value associated
           with the TG using this link station."

        ::=  { ibmappnNodeLsEntry 18 }

ibmappnNodeLsDelay  OBJECT-TYPE
      SYNTAX INTEGER {
                    minimum(0),                   --X'00'
                    negligible(384),              --X'4C'
                    terrestrial(9216),            --X'71'
                    packet(147456),               --X'91'
                    long(294912),                 --X'99'
                    maximum(2013265920)           --X'FF'
              }
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
          "Relative amount of time that it takes for a signal to
```

                  travel the length of the logical link. This time is
                  represented in micro seconds, with some of the more
                  common values enumerated.
                  This is an administratively assigned value associated
                  with the TG using this link station."

             ::= { ibmappnNodeLsEntry 19 }

     ibmappnNodeLsUsr1 OBJECT-TYPE
          SYNTAX INTEGER (0..255)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "First user-defined TG characteristic for this TG with
               a range of 0-255.
               This is an administratively assigned value associated
               with the TG using this link station."

             ::= { ibmappnNodeLsEntry 20 }

     ibmappnNodeLsUsr2 OBJECT-TYPE
          SYNTAX INTEGER (0..255)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Second user-defined TG characteristic for this TG with
               a range of 0-255.
               This is an administratively assigned value associated
               with the TG using this link station."

             ::= { ibmappnNodeLsEntry 21 }

     ibmappnNodeLsUsr3 OBJECT-TYPE
          SYNTAX INTEGER (0..255)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Third user-defined TG characteristic for this TG with
               a range of 0-255.
               This is an administratively assigned value associated
               with the TG using this link station."

             ::= { ibmappnNodeLsEntry 22 }

     ibmappnNodeLsInXidBytes OBJECT-TYPE
          SYNTAX Counter
          ACCESS read-only
          STATUS mandatory

         DESCRIPTION
             "Number of XID bytes received."

         ::= { ibmappnNodeLsEntry 23 }

   ibmappnNodeLsInMsgBytes OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Number of message (I-frame) bytes received."

         ::= { ibmappnNodeLsEntry 24 }

   ibmappnNodeLsInXidFrames OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Number of XID frames received."

         ::= { ibmappnNodeLsEntry 25 }

   ibmappnNodeLsInMsgFrames OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Number of message (I-frame) frames received."

         ::= { ibmappnNodeLsEntry 26 }

   ibmappnNodeLsOutXidBytes OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Number of XID bytes sent."

         ::= { ibmappnNodeLsEntry 27 }

   ibmappnNodeLsOutMsgBytes OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Number of message (I-frame) bytes sent."

```
           ::=  { ibmappnNodeLsEntry 28 }

  ibmappnNodeLsOutXidFrames OBJECT-TYPE
          SYNTAX Counter
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of XID frames sent."

           ::=  { ibmappnNodeLsEntry 29 }

  ibmappnNodeLsOutMsgFrames OBJECT-TYPE
          SYNTAX Counter
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of message (I-frame) frames sent."

           ::=  { ibmappnNodeLsEntry 30 }

  ibmappnNodeLsEchoRsps     OBJECT-TYPE
          SYNTAX Counter
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of responses returned from adjacent link station.
               A response should be returned for each test frame sent by
               this node.
               Test frames are sent to adjacent nodes periodically to
               verify connectivity and to measure that actual round trip
               time, that is the time the test frame is sent until the
               response is received."

           ::=  { ibmappnNodeLsEntry 31 }

  ibmappnNodeLsCurrentDelay  OBJECT-TYPE
          SYNTAX INTEGER
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "The time that it took for the last test signal to be
               sent and returned from this link station to the
               adjacent links station.
               This time is represented in milliseconds."

           ::=  { ibmappnNodeLsEntry 32 }

  ibmappnNodeLsMaxDelay      OBJECT-TYPE
```

```
             SYNTAX INTEGER
             ACCESS read-only
             STATUS mandatory
             DESCRIPTION
                  "The longest time it took for a test signal
                   to be sent and returned from this link station to the
                   adjacent links station.
                   This time is represented in milliseconds ."

             ::=  { ibmappnNodeLsEntry 33 }

      ibmappnNodeLsMinDelay       OBJECT-TYPE
             SYNTAX INTEGER
             ACCESS read-only
             STATUS mandatory
             DESCRIPTION
                  "The shortest time it took for a test signal
                   to be sent and returned from this link station to the
                   adjacent links station.
                   This time is represented in milliseconds."

             ::=  { ibmappnNodeLsEntry 34 }

      ibmappnNodeLsMaxDelayTime  OBJECT-TYPE
             SYNTAX TimeTicks
             ACCESS read-only
             STATUS mandatory
             DESCRIPTION
                  "The time (since system up in hundredth of seconds)
                   when the longest delay occurred.
                   This time can be used to identify when this high
                   water mark occurred in relation to the last initialization
                   of the APPN node."

             ::=  { ibmappnNodeLsEntry 35 }

      ibmappnNodeLsGoodXids       OBJECT-TYPE
           SYNTAX  Counter
           ACCESS  read-only
           STATUS  mandatory
           DESCRIPTION
                    "The total number of successful XIDs that have occurred
                     on this link station since the time it was started."

             ::=  { ibmappnNodeLsEntry 36 }

      ibmappnNodeLsBadXids     OBJECT-TYPE
           SYNTAX  Counter
```

```
     ACCESS  read-only
     STATUS  mandatory
     DESCRIPTION
             "The total number of unsuccessful XIDs that have occurred
              on this link station since the time it was started."

     ::=  { ibmappnNodeLsEntry 37 }

 ibmappnNodeLsSpecific  OBJECT-TYPE
     SYNTAX OBJECT IDENTIFIER
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
           "Identifies the DLC specific OBJECT IDENTIFIER
            that can provide additional information."

     ::=  { ibmappnNodeLsEntry 38 }

 ibmappnNodeLsSubState     OBJECT-TYPE
     SYNTAX INTEGER    {
                        inactive(1),
                        sentReqOpnstn(2),
                        pendXidExch(3),
                        sentActAs(4),
                        sentSetMode(5),
                        active(6),
                        sentDeactAsOrd(7),
                        sentDiscOrd(8),
                        sentDestroyTg(9),
                        sentCreateTg(10),
                        sentConnReq(11),
                        pendRcvConnInd(12),
                        pendSendConnRsp(13),
                        sentConnRsp(14),
                        pendDeact(15)
                        }
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
           "State of this link station."

     ::=  { ibmappnNodeLsEntry 39 }

 ibmappnNodeLsStartTime     OBJECT-TYPE
     SYNTAX TimeTicks
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
```

          "The time (in hundredth of seconds) this link station
           has been active the last time since the time APPN was
           initialized."

       ::= { ibmappnNodeLsEntry 40 }

  ibmappnNodeLsActiveTime   OBJECT-TYPE
       SYNTAX TimeTicks
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "The time (in hundredth of seconds) this link station
            has been in the active state.
            A zero value indicates the link station has never been
            active."

       ::= { ibmappnNodeLsEntry 41 }

ibmappnNodeLsCurrentStateTime OBJECT-TYPE
       SYNTAX TimeTicks
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "The time (in hundredth of seconds) the link station is
            in the current state."

       ::= { ibmappnNodeLsEntry 42 }

    -- **
    -- Link station table (TCP/IP specific)
    --

    ibmappnNodeLsIpTable OBJECT-TYPE
         SYNTAX SEQUENCE OF IbmappnNodeLsIpEntry
         ACCESS not-accessible
         STATUS mandatory
         DESCRIPTION
             "Link station table (TCP/IP specific)."

         ::= { ibmappnLinkStationInformation 2 }

  ibmappnNodeLsIpEntry OBJECT-TYPE
         SYNTAX IbmappnNodeLsIpEntry
         ACCESS not-accessible
         STATUS mandatory
         DESCRIPTION
             "The IP Name is used as the index to this table."

```
     INDEX
           {ibmappnNodeLsIpName }

     ::= { ibmappnNodeLsIpTable 1 }

IbmappnNodeLsIpEntry ::= SEQUENCE {
     ibmappnNodeLsIpName            DisplayString,
     ibmappnNodeLsIpState           INTEGER,
     ibmappnNodeLsLocalIpAddr       IpAddress,
     ibmappnNodeLsLocalIpPortNum    INTEGER,
     ibmappnNodeLsRemoteIpAddr      IpAddress,
     ibmappnNodeLsRemoteIpPortNum   INTEGER
                                   }

ibmappnNodeLsIpName OBJECT-TYPE
     SYNTAX DisplayString (SIZE (1..8))
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Administratively-assigned name for this link station. The
          name can be from one to eight characters."

     ::=  { ibmappnNodeLsIpEntry 1 }

ibmappnNodeLsIpState        OBJECT-TYPE
     SYNTAX INTEGER    {
                        inactive(1),
                        pendactive(2),
                        active(3),
                        pendinact(4)
                        }
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "State of this link station."

     ::=  { ibmappnNodeLsIpEntry 2 }

ibmappnNodeLsLocalIpAddr OBJECT-TYPE
     SYNTAX IpAddress
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Local IP address."

     ::=  { ibmappnNodeLsIpEntry 3 }

ibmappnNodeLsLocalIpPortNum OBJECT-TYPE
```

```
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Local TCP/IP port number.
             The default listening port will be administratively
             assigned and will dynamically change if this node
             initiates a session with adjacent node."

        ::=  { ibmappnNodeLsIpEntry 4 }



  ibmappnNodeLsRemoteIpAddr OBJECT-TYPE
        SYNTAX IpAddress
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Remote IP address."

        ::=  { ibmappnNodeLsIpEntry 5 }

  ibmappnNodeLsRemoteIpPortNum OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Remote TCP/IP port number."

        ::=  { ibmappnNodeLsIpEntry 6 }



  -- ************************************************************
  -- Ls Table (DLS specific)
  --

  ibmappnNodeLsDlsTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnNodeLsDlsEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Ls Table (DLS specific)."

        ::= { ibmappnLinkStationInformation 3 }

  ibmappnNodeLsDlsEntry OBJECT-TYPE
        SYNTAX IbmappnNodeLsDlsEntry
```

```
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
             "The DLS Name is used as the index to this table."

        INDEX
              {ibmappnNodeLsDlsName }

        ::= { ibmappnNodeLsDlsTable 1 }

  IbmappnNodeLsDlsEntry ::= SEQUENCE {
        ibmappnNodeLsDlsName           DisplayString,
        ibmappnNodeLsDlsState          INTEGER,
        ibmappnNodeLsLocalDlsMac       OCTET STRING,
        ibmappnNodeLsLocalDlsSap       OCTET STRING,
        ibmappnNodeLsRemoteDlsMac      OCTET STRING,
        ibmappnNodeLsRemoteDlsSap      OCTET STRING
                                     }

  ibmappnNodeLsDlsName OBJECT-TYPE
        SYNTAX DisplayString (SIZE (1..8))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned name for this link station.
             The name can be from one to eight characters."

        ::=  { ibmappnNodeLsDlsEntry 1 }

  ibmappnNodeLsDlsState       OBJECT-TYPE
        SYNTAX INTEGER    {
                            inactive(1),
                            pendactive(2),
                            active(3),
                            pendinact(4)
                            }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "State of this link station."

        ::=  { ibmappnNodeLsDlsEntry 2 }

  ibmappnNodeLsLocalDlsMac OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (6))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
```

          "Local MAC address."

          ::= { ibmappnNodeLsDlsEntry 3 }

  ibmappnNodeLsLocalDlsSap OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (1))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Local SAP address."

          ::= { ibmappnNodeLsDlsEntry 4 }

  ibmappnNodeLsRemoteDlsMac OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (6))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Remote MAC address."

          ::= { ibmappnNodeLsDlsEntry 5 }

  ibmappnNodeLsRemoteDlsSap OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (1))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Remote SAP address."

          ::= { ibmappnNodeLsDlsEntry 6 }

  -- **
  -- Ls Table (Token Ring specific)
  --

  ibmappnNodeLsTrTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnNodeLsTrEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Ls Table (Token Ring specific)."

          ::= { ibmappnLinkStationInformation 4 }

  ibmappnNodeLsTrEntry OBJECT-TYPE
        SYNTAX IbmappnNodeLsTrEntry

```
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "The TR Name is used as the index to this table."
        INDEX
              {ibmappnNodeLsTrName }

        ::= { ibmappnNodeLsTrTable 1 }

  IbmappnNodeLsTrEntry ::= SEQUENCE {
        ibmappnNodeLsTrName          DisplayString,
        ibmappnNodeLsTrState         INTEGER,
        ibmappnNodeLsLocalTrMac      OCTET STRING,
        ibmappnNodeLsLocalTrSap      OCTET STRING,
        ibmappnNodeLsRemoteTrMac     OCTET STRING,
        ibmappnNodeLsRemoteTrSap     OCTET STRING
                                      }

  ibmappnNodeLsTrName OBJECT-TYPE
        SYNTAX DisplayString (SIZE (1..8))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned name for this link station.
             The name can be from one to eight characters."

        ::=  { ibmappnNodeLsTrEntry 1 }

  ibmappnNodeLsTrState          OBJECT-TYPE
        SYNTAX INTEGER    {
                           inactive(1),
                           pendactive(2),
                           active(3),
                           pendinact(4)
                           }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "State of this link station."

        ::=  { ibmappnNodeLsTrEntry 2 }

  ibmappnNodeLsLocalTrMac OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (6))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Local MAC address."
```

        ::= { ibmappnNodeLsTrEntry 3 }

  ibmappnNodeLsLocalTrSap OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (1))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Local SAP address."

        ::= { ibmappnNodeLsTrEntry 4 }

  ibmappnNodeLsRemoteTrMac OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (6))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Remote MAC address."

        ::= { ibmappnNodeLsTrEntry 5 }

  ibmappnNodeLsRemoteTrSap OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (1))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Remote SAP address."

        ::= { ibmappnNodeLsTrEntry 6 }

  -- **
  -- This table provides information about errors this node encountered
  -- with connections to adjacent nodes. This includes all exceptional
  -- conditions encountered establishing connections and all exceptional
  -- conditions that result in terminating the connection.
  -- **

  ibmappnNodeLsStatusTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnNodeLsStatusEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "This table contains information related to exceptional
             and potential exceptional conditions that occur during
             the activation, XID exchange, and termination of the
             connection."

        ::= { ibmappnLinkStationInformation 5 }

      ibmappnNodeLsStatusEntry OBJECT-TYPE
            SYNTAX IbmappnNodeLsStatusEntry
            ACCESS not-accessible
            STATUS mandatory
            DESCRIPTION
                "This table is indexed by the LsStatusIndex, which is an
                 integer that is continuously updated until it eventually
                 wraps. This provides the management station the ability
                 to retrieve only the updates to the table by using the
                 standard GET NEXT."

            INDEX
                 { ibmappnNodeLsStatusIndex }

            ::= { ibmappnNodeLsStatusTable 1 }

   IbmappnNodeLsStatusEntry ::= SEQUENCE {
            ibmappnNodeLsStatusIndex   INTEGER,
            ibmappnNodeLsStatusTime   TimeTicks,
            ibmappnNodeLsStatusLsName   DisplayString,
            ibmappnNodeLsStatusCpName   DisplayString,
            ibmappnNodeLsStatusNodeId   OCTET STRING,
            ibmappnNodeLsStatusTgNum   INTEGER,
            ibmappnNodeLsStatusGeneralSense   OCTET STRING,
            ibmappnNodeLsStatusNofRetry   INTEGER,
            ibmappnNodeLsStatusEndSense   OCTET STRING,
            ibmappnNodeLsStatusXidLocalSense   OCTET STRING,
            ibmappnNodeLsStatusXidRemoteSense   OCTET STRING,
            ibmappnNodeLsStatusXidByteInError   INTEGER,
            ibmappnNodeLsStatusXidBitInError   INTEGER,
            ibmappnNodeLsStatusDlcType   INTEGER,
            ibmappnNodeLsStatusLocalAddr   DisplayString,
            ibmappnNodeLsStatusRemoteAddr   DisplayString
                                     }

     ibmappnNodeLsStatusIndex   OBJECT-TYPE
            SYNTAX INTEGER
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                "This index is continuous index this table."

            ::= { ibmappnNodeLsStatusEntry 1 }

     ibmappnNodeLsStatusTime   OBJECT-TYPE
            SYNTAX TimeTicks
            ACCESS read-only

              STATUS mandatory
              DESCRIPTION
                  "Time (in hundreds of a second) since this node was last
                   initialized."

              ::= { ibmappnNodeLsStatusEntry 2 }

     ibmappnNodeLsStatusLsName   OBJECT-TYPE
              SYNTAX DisplayString (SIZE (1..8))
              ACCESS read-only
              STATUS mandatory
              DESCRIPTION
                  "Administratively-assigned name for this link station."

              ::= { ibmappnNodeLsStatusEntry 3 }

     ibmappnNodeLsStatusCpName   OBJECT-TYPE
              SYNTAX DisplayString (SIZE (3..17))
              ACCESS read-only
              STATUS mandatory
              DESCRIPTION
                  "Administratively-assigned fully-qualified name of the
                   adjacent node partner. This will be provided when the
                   adjacent node has been defined at this node or when the
                   XID sequence has proceeded far enough to to identify the
                   adjacent node. A blank CP name will indicate the name is
                   unknown."

              ::= { ibmappnNodeLsStatusEntry 4 }

     ibmappnNodeLsStatusNodeId   OBJECT-TYPE
              SYNTAX OCTET STRING
              ACCESS read-only
              STATUS mandatory
              DESCRIPTION
                  "Adjacent Node id"

              ::= { ibmappnNodeLsStatusEntry 5 }

     ibmappnNodeLsStatusTgNum   OBJECT-TYPE
              SYNTAX INTEGER (0..256)
              ACCESS read-only
              STATUS mandatory
              DESCRIPTION
                  "Number associated with the TG to this link station
                   with a range from 0 to 256. A value of 256 indicates

           the tg number has not been negotiated and is unknown at
           this time."

       ::= { ibmappnNodeLsStatusEntry 6 }

   ibmappnNodeLsStatusGeneralSense OBJECT-TYPE
       SYNTAX OCTET STRING
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "The error sense code associated with the start sequence of
            activation of a link up to the beginning of the XID
            sequence."

       ::= { ibmappnNodeLsStatusEntry 7 }

   ibmappnNodeLsStatusNofRetry OBJECT-TYPE
       SYNTAX INTEGER   {
                           retry(1),
                           noretry(2)
                          }
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "Indicates whether Node Operator Facility will retry the
            start request to activate the link."

       ::= { ibmappnNodeLsStatusEntry 8 }

   ibmappnNodeLsStatusEndSense OBJECT-TYPE
       SYNTAX OCTET STRING
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "The sense code associated with the termination of the link
            connection to adjacent node. This includes all sense
            information included in the disconnect recieved from the
            lower layer DLCs and also sense information indicating the
            link termination originated by upper layer APPN components."

       ::= { ibmappnNodeLsStatusEntry 9 }

   ibmappnNodeLsStatusXidLocalSense   OBJECT-TYPE
       SYNTAX OCTET STRING
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "The error sense code associated with the rejection of the

```
            XID."

        ::=   { ibmappnNodeLsStatusEntry 10 }

  ibmappnNodeLsStatusXidRemoteSense   OBJECT-TYPE
        SYNTAX OCTET STRING
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The error sense code adjacent node returned to this node
             indicating the reason the XID was rejected."

        ::=   { ibmappnNodeLsStatusEntry 11 }

  ibmappnNodeLsStatusXidByteInError      OBJECT-TYPE
        SYNTAX INTEGER    {
                         na(1000)
                         }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This identifies the actual byte in the XID that caused the
             error.  The value of zero (0) indicates that the variable
             has no meaning."

        ::=   { ibmappnNodeLsStatusEntry 12 }

  ibmappnNodeLsStatusXidBitInError       OBJECT-TYPE
        SYNTAX INTEGER    {
                         na(8)   -- not applicable
                         }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This identifies the actual bit within the error byte of the
             XID.  This only has meaning when the byte in error is
             greater than zero."

        ::=   { ibmappnNodeLsStatusEntry 13 }

  ibmappnNodeLsStatusDlcType  OBJECT-TYPE
        SYNTAX INTEGER    {
                         other(1),
                         sdlc(2),
                         dls(3),
                         socket(4),
                         ethernet(5),
                         tr(6)
```

```
                              }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This identifies DLC type that was being used when error
             occurred.  This also is used to the format of the
             local and remote address provided.

             other   = free form DisplayString

             ip      = 1d. 1d. 1d. 1d / 2d

             tr      = 1x: 1x: 1x: 1x: 1x: 1x . 1x

             dlsw    = 1x: 1x: 1x: 1x: 1x: 1x . 1x

             ethernet = 1x: 1x: 1x: 1x: 1x: 1x . 1x

             "

        ::=  { ibmappnNodeLsStatusEntry 14 }

  ibmappnNodeLsStatusLocalAddr   OBJECT-TYPE
        SYNTAX DisplayString
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This contains a displayable string that identifies the
             DLC type and appropriate address.  See DlcType above for
             details of the format."

        ::=  { ibmappnNodeLsStatusEntry 15 }

  ibmappnNodeLsStatusRemoteAddr  OBJECT-TYPE
        SYNTAX DisplayString
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This contains a displayable string that identifies the
             DLC type and appropriate address.  See DlcType above for
             details of the format."

        ::=  { ibmappnNodeLsStatusEntry 16 }



  -- ***********************************************************
  -- APPN SNMP Performance Information
```

      --

   ibmappnSnmpInPkts OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
           "Total number of messages delivered to the APPN SNMP sub-agent."

         ::= { ibmappnSnmpInformation 1 }

   ibmappnSnmpInGetRequests OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Total number of GET requests delivered to the APPN SNMP
              sub-agent."

         ::= { ibmappnSnmpInformation 2 }

   ibmappnSnmpInGetNexts OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Total number of GETNEXT requests delivered to the APPN SNMP
              sub-agent."

         ::= { ibmappnSnmpInformation 3 }

   ibmappnSnmpInSetRequests OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Total number of SET requests delivered to the APPN SNMP
              sub-agent."

         ::= { ibmappnSnmpInformation 4 }

   ibmappnSnmpInTotalVars OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Total number of VARIABLES included in both
              GET and GETNEXT requests to the APPN SNMP sub-agent."

         ::= { ibmappnSnmpInformation 5 }

  ibmappnSnmpInGetVars OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Total number of VARIBLES included in all
             GET requests to the APPN SNMP sub-agent."

         ::= { ibmappnSnmpInformation 6 }

  ibmappnSnmpInGetNextVars OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Total number of VARIABLES included in all
             GETNEXT requests to the APPN SNMP sub-agent."

         ::= { ibmappnSnmpInformation 7 }

  ibmappnSnmpInSetVars OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Total number of VARIBLES included in all
              SET requests to the APPN SNMP sub-agent."

         ::= { ibmappnSnmpInformation 8 }

  ibmappnSnmpOutNoSuchNames OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Total number of VARIABLES that could not
             be found by the APPN SNMP sub-agent."

         ::= { ibmappnSnmpInformation 9 }

  ibmappnSnmpOutGenErrs OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Total number of undefined errors that

              occurred processing SNMP request to the
              APPN SNMP sub-agent."

        ::= { ibmappnSnmpInformation 10 }

   -- ***

   -- This group provides global information about the
   -- APPN node performance.

   -- The first section applies to the APPN control point
   -- storage utilization.

   ibmappnMemorySize OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Size of the shared storage segment, as obtained
             by storage management from the underlying operating
             system."

        ::= { ibmappnMemoryUse 1 }

   ibmappnMemoryUsed OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of bytes in the segment that are currently
             allocated to process."

        ::= { ibmappnMemoryUse 2 }

   ibmappnMemoryWarnThresh OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Allocation threshold beyond which storage
             management considers the storage resources
             to be constrained."

        ::= { ibmappnMemoryUse 3 }

   ibmappnMemoryCritThresh OBJECT-TYPE

```
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Allocation threshold beyond which storage
              management considers the storage resources
              to be critically constrained."

        ::=  { ibmappnMemoryUse 4 }


-- **********************************************************
-- The following are Counters maintained by the APPN CS component that
-- relate to total overall XID activity.
-------------------------------------------------------------------------
ibmappnNodeDefLsGoodXids     OBJECT-TYPE
     SYNTAX   Counter
     ACCESS   read-only
     STATUS   mandatory
     DESCRIPTION
             "The current number of successfull XIDs that have occurred
              on all defined link stations since the last time this
              node was initialized."

        ::= { ibmappnXidInformation 1 }

ibmappnNodeDefLsBadXids      OBJECT-TYPE
     SYNTAX   Counter
     ACCESS   read-only
     STATUS   mandatory
     DESCRIPTION
             "The current number of unsuccessfull XIDs that have
              occurred on all defined link stations since the last
              time this node was initialized."

        ::= { ibmappnXidInformation 2 }

ibmappnNodeDynLsGoodXids     OBJECT-TYPE
     SYNTAX   Counter
     ACCESS   read-only
     STATUS   mandatory
     DESCRIPTION
             "The current number of successfull XIDs that have
              occurred on all dynamic link stations since the last
              time this node was initialized."

        ::= { ibmappnXidInformation 3 }
```

    ibmappnNodeDynLsBadXids   OBJECT-TYPE
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                "The current number of unsuccessfull XIDs that have
                 occurred on all dynamic link stations since the last
                 time this node was initialized."

        ::= { ibmappnXidInformation 4 }

    -- ************** The APPN Topology Group **********************

    ibmappnNn   OBJECT IDENTIFIER ::= { ibmappn 2 }
    ibmappnNnTopo   OBJECT IDENTIFIER ::= { ibmappnNn 1 }
    ibmappnNnTopology   OBJECT IDENTIFIER ::= { ibmappnNn 3 }

    -- This group will be used to represent the entire APPN network
    -- topology, including Network nodes, virtual nodes and
    -- all TGs associated with these nodes.
    --

    -- Network nodes
    -- The APPN topology database consists of information about every
    -- APPN network node. This information is learned over time
    -- as each network node exchanges topology information with
    -- each of its adjacent network nodes. The database consists
    -- of information about each node and all of the transmissions
    -- groups used by each node.

    -- Virtual nodes
    -- Information about virtual nodes (connection networks) is treated
    -- the same as information about network node
    -- and is replicated at each network node.
    -- The node name is the only meaningful information. The other
    -- node objects use default values. Each node that has defined
    -- a TG with this virtual node as the destination also defines a
    -- TG on this virtual node. There is a TG record for each node
    -- that uses this virtual node.
    --
    --
    -- The APPN node table represents the APPN topology
    -- database with the APPN CP fully-qualified name
    -- being used as the index to this table.
    -- This entire table could be retrieved using the GET NEXT command,

```
        -- however, due to the dynamics of APPN, nodes could come and
        -- go and status could change as the table is being
        -- retrieved.  Although in most cases the data retrieved will be valid,
        -- missing and invalid status could cause problems for
        -- a management application that was graphically displaying
        -- this data.
        -- This potential problem can be eliminated by
        -- retrieving the FRSN before and after completion
        -- of retrieval of the APPN topology table.
        -- If the FRSN has changed, then repeat the
        -- retrieval of the entire topology table
        -- until the FRSN remains unchanged.
        -- Object 'appnNnFrsn' represents the last
        -- change or update to this node's topology
        -- database.
        --
        --
        -- The format of the actual database is as follows:
        --
        -- Node table (entry for each node in network)
        --   TG table (entry for each TG owned by node)
        --
        -- Due to SNMP ASN.1 limitations, we cannot represent
        -- the TG table within the node table.  We define
        -- separate tables for nodes and TGs, adding the node
        -- name to each TG entry to provide a means of
        -- correlating each TG with its originating node.



    ibmappnNnTopoMaxNodes    OBJECT-TYPE
          SYNTAX INTEGER
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Maximum number of nodes allowed in the APPN topology
              database.  This administratively assigned value must be
              equal to or greater than the maximum total number of end
              nodes and network nodes.
              If the number of nodes exceeds this value, APPN will issue
              an Alert and the node can no longer participate as a network
              node."

          ::=  { ibmappnNnTopo 1 }

    ibmappnNnTopoCurNumNodes OBJECT-TYPE
          SYNTAX Gauge
          ACCESS read-only
```

```
                STATUS  mandatory
                DESCRIPTION
                    "Current number of nodes in this node's topology database.
                     If this value exceeds the maximum number of nodes allowed
                     (NnTopoMaxNodes), APPN alert CPDB002 is
                     issued."

                ::=  { ibmappnNnTopo 2 }

        ibmappnNnTopoInTdus OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                    "Total number of TDUs received from
                     all adjacent NN since last initialization."

                ::=  { ibmappnNnTopo 3 }

        ibmappnNnTopoOutTdus OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                    "Total number of TDUs built by this node to be sent to
                     all adjacent NN since last initialization."

                ::=  { ibmappnNnTopo 4 }

        ibmappnNnTopoNodeLowRsns        OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                    "Total number of topology node updates received by this
                     node with a RSN less than the current RSN.  Both even and
                     odd RSN are included in this count.
                     These TDUs are not errors, but result when TDUs are
                     broadcast to all adjacent network nodes.  No update to
                     this node's topology database occurs, but this node will
                     send a TDU with it's higher RSN to the adjacent node that
                     sent this low RSN."

                ::=  { ibmappnNnTopo 5 }

        ibmappnNnTopoNodeEqualRsns      OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
```

```
       STATUS mandatory
       DESCRIPTION
            "Total number of topology node updates received by this
            node with a RSN equal to the current RSN.  Both even and
            odd RSN are included in this count.
            These TDUs are not errors, but result when TDUs are
            broadcast to all adjacent network nodes.  No update to
            this node's topology database occurs."

       ::=  { ibmappnNnTopo 6 }

   ibmappnNnTopoNodeGoodHighRsns        OBJECT-TYPE
       SYNTAX Counter
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
            "Total number of topology node updates received by this
            node with a RSN greater than the current RSN.
            This results in updating this nodes topology and
            broadcasting a TDU to all adjacent network nodes.  It is
            not required to send a TDU to the sender of this update
            because that node already has the update."

       ::=  { ibmappnNnTopo 7 }




   ibmappnNnTopoNodeBadHighRsns         OBJECT-TYPE
       SYNTAX Counter
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
            "Total number of topology node updates received by this
            node with an odd RSN greater than the current RSN.
            These updates represent a topology inconsistency detected
            by one of the APPN network nodes.
            This results in updating this nodes topology and broadcasting
            a TDU to all adjacent network nodes."

       ::=  { ibmappnNnTopo 8 }


   ibmappnNnTopoNodeStateUpdates  OBJECT-TYPE
       SYNTAX Counter
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
            "Total number of topology Node records built as a result
```

            of internally detected node state changes that affect APPN
            topology and routing. Updates are sent via TDUs to all
            adjacent network nodes."

         ::= { ibmappnNnTopo 9 }

   ibmappnNnTopoNodeErrors   OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Total number of topology node records inconsistencies
              detected by this node. This occurs when this node attempts
              to update its topology database and detects a data
              inconsistency. This node will create a TDU with the
              current RSN incremented to the next odd number and
              broadcast it to all adjacent NNs."

         ::= { ibmappnNnTopo 10 }

   ibmappnNnTopoNodeTimerUpdates OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Total number of topology node records built for this
              node's resource due to timer updates. Updates are sent via
              TDUs to all adjacent network nodes. These updates insure
              other network nodes do not delete this node's resources
              from their topology database."

         ::= { ibmappnNnTopo 11 }

   ibmappnNnTopoNodePurges   OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Total number of topology node records purged from this
              node's topology database. This occurs when a node has not
              been updated in a specified amount of time. The owning
              node is responsible for broadcasting updates for its
              resource that it wants kept in the network topology."

         ::= { ibmappnNnTopo 12 }

   ibmappnNnTopoTgLowRsns   OBJECT-TYPE

```
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Total number of topology TG updates received by this
            node with a RSN less than the current RSN.  Both even and
            odd RSN are included in this count.
            These TDUs are not errors, but result when TDUs are
            broadcast to all adjacent network nodes.  No update to
            this node's topology database occurs, but this node will
            send a TDU with it's higher RSN to the sender of the low
            RSN."

        ::=  { ibmappnNnTopo 13 }

  ibmappnNnTopoTgEqualRsns      OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Total number of topology TG updates received by this
            node with a RSN equal to the current RSN.  Both even and
            odd RSN are included in this count.
            These TDUs are not errors, but result when TDUs are
            broadcast to all adjacent network nodes.  No update to
            this node's topology database occurs."

        ::=  { ibmappnNnTopo 14 }

  ibmappnNnTopoTgGoodHighRsns      OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Total number of topology TG updates received by this
            node with a RSN greater than the current RSN.
            This results in updating this nodes topology and
            broadcasting the update to all adjacent network nodes."

        ::=  { ibmappnNnTopo 15 }


  ibmappnNnTopoTgBadHighRsns      OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Total number of topology TG updates received by this
```

                node with an odd RSN greater than the current RSN.
                These updates represent a topology inconsistency detected
                by one of the APPN network nodes.
                This results in updating this nodes topology and
                broadcasting a TDU to all adjacent network nodes."

           ::=   { ibmappnNnTopo 16 }

     ibmappnNnTopoTgStateUpdates OBJECT-TYPE
           SYNTAX Counter
           ACCESS read-only
           STATUS mandatory
           DESCRIPTION
                "Total number of topology TG records built as a result
                 of internally detected node state changes that affect APPN
                 topology and routing. Updates are sent via TDUs to all
                 adjacent network nodes."

           ::=   { ibmappnNnTopo 17 }

     ibmappnNnTopoTgErrors   OBJECT-TYPE
           SYNTAX Counter
           ACCESS read-only
           STATUS mandatory
           DESCRIPTION
                "Total number of topology TG records inconsistencies
                 detected by this node. This occurs when this node
                 attempts to update its topology database and detects a
                 data inconsistency. This node will create a TDU with
                 the current RSN incremented to the next odd number and
                 broadcast it to all adjacent NNs."

           ::=   { ibmappnNnTopo 18 }

     ibmappnNnTopoTgTimerUpdates OBJECT-TYPE
           SYNTAX Counter
           ACCESS read-only
           STATUS mandatory
           DESCRIPTION
                "Total number of topology TG records built for this
                 node's resource due to timer updates. Updates are sent via
                 TDUs to all adjacent network nodes. These updates insure
                 other network nodes do not delete this node's resources
                 from their topology database."

           ::=   { ibmappnNnTopo 19 }

```
ibmappnNnTopoTgPurges     OBJECT-TYPE
      SYNTAX Counter
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
          "Total number of topology TG records purged from this
           node's topology database.  This occurs when a TG has not
           been updated in a specified amount of time.  The owning
           node is responsible for broadcasting updates for its
           resource that it wants to keep in the network topology."

      ::=  { ibmappnNnTopo 20 }


ibmappnNnTopoTotalRouteCalcs OBJECT-TYPE
      SYNTAX Counter
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
          "Number of routes calculated  for all class of services
           since the last initialization."

      ::=  { ibmappnNnTopo 21 }

ibmappnNnTopoTotalRouteRejs OBJECT-TYPE
      SYNTAX Counter
      ACCESS read-only
      STATUS mandatory
      DESCRIPTION
          "Number of route requests for all class of services that
           could not be calculated since last initialization."

      ::=  { ibmappnNnTopo 22 }


ibmappnNnTopoRouteTable OBJECT-TYPE
      SYNTAX SEQUENCE OF IbmappnNnTopoRouteEntry
      ACCESS not-accessible
      STATUS mandatory
      DESCRIPTION
          "Table containing an entry for every Class of Service
           that it has calculated a route for."

      ::= { ibmappnNnTopo 23 }


  ibmappnNnTopoRouteEntry OBJECT-TYPE
```

          SYNTAX IbmappnNnTopoRouteEntry
          ACCESS not-accessible
          STATUS mandatory
          DESCRIPTION
               "The Class of Service name is the index for this table."

          INDEX
               {ibmappnNnTopoRouteCos}

          ::= { ibmappnNnTopoRouteTable 1 }

     IbmappnNnTopoRouteEntry ::= SEQUENCE {
          ibmappnNnTopoRouteCos   DisplayString,
          ibmappnNnTopoRouteTrees   Counter,
          ibmappnNnTopoRouteCalcs   Counter,
          ibmappnNnTopoRouteRejs   Counter
     }

     ibmappnNnTopoRouteCos   OBJECT-TYPE
          SYNTAX DisplayString
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
               "The Class of Service for the route."

          ::= { ibmappnNnTopoRouteEntry 1 }

     ibmappnNnTopoRouteTrees OBJECT-TYPE
          SYNTAX Counter
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
               "Number of routes tree caches built for this Class of
                Service since the last initialization."

          ::= { ibmappnNnTopoRouteEntry 2 }

    ibmappnNnTopoRouteCalcs OBJECT-TYPE
          SYNTAX Counter
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
               "Number of routes calculated since last initialization."

          ::= { ibmappnNnTopoRouteEntry 3 }

   ibmappnNnTopoRouteRejs OBJECT-TYPE
         SYNTAX Counter
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
               "Number of route requests that could not
               be calculated since last initialization."

         ::= { ibmappnNnTopoRouteEntry 4 }

   --Adjacent node table
   -- Node name (only applies to adjacent nodes)
   -- Number of out of sequence TDUs
   -- Status of CP-CP sessions (ConWinner/ConLoser)
   -- Last FRSN sent
   -- Last FRSN received

   ibmappnNnAdjNodeTable OBJECT-TYPE
         SYNTAX SEQUENCE OF IbmappnNnAdjNodeEntry
         ACCESS not-accessible
         STATUS mandatory
         DESCRIPTION
               "Table containing an entry for every node. The information
                kept in this table is the last FRSN sent and received,
                the status of the CP-CP sessions, and a gauge that
                indicates the number of outstanding TDUs."

         ::= { ibmappnNn 2 }

   ibmappnNnAdjNodeEntry OBJECT-TYPE
         SYNTAX IbmappnNnAdjNodeEntry
         ACCESS not-accessible
         STATUS mandatory
         DESCRIPTION
               "The adjacent node name is the index for this table."

         INDEX
               {ibmappnNnAdjNodeAdjName}

         ::= { ibmappnNnAdjNodeTable 1 }

   IbmappnNnAdjNodeEntry ::= SEQUENCE {
         ibmappnNnAdjNodeAdjName   DisplayString,
         ibmappnNnAdjNodeCpCpSessStatus   INTEGER,
         ibmappnNnAdjNodeOutOfSeqTdus   Gauge,

        ibmappnNnAdjNodeLastFrsnSent   INTEGER,
        ibmappnNnAdjNodeLastFrsnRcvd   INTEGER
                                    }

  ibmappnNnAdjNodeAdjName   OBJECT-TYPE
        SYNTAX DisplayString (SIZE (3..17))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "An administratively-assigned fully-qualified
             name of this node's adjacent network node."

        ::= { ibmappnNnAdjNodeEntry 1 }

  ibmappnNnAdjNodeCpCpSessStatus   OBJECT-TYPE
        SYNTAX INTEGER {
                    active(1),
                    conLoserActive(2),
                    conWinnerActive(3),
                    inactive(4)
                    }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates the state of CP-CP sessions between this node
             and adjacent network and end nodes. Incative indicates no
             CP-CP sessions exists between this node and the adjacent
             node. Active indicates CP-CP sessons are active using both
             the ConWinner and ConLoser sessions. The session initiated
             by this node is refered to as the ConWinner session and is
             used by this node to send to the adjacent node. The
             ConLoserr session is initiated by the adjacent node and
             is used by this node to receive from the adjacent node."

        ::= { ibmappnNnAdjNodeEntry 2 }

  ibmappnNnAdjNodeOutOfSeqTdus OBJECT-TYPE
        SYNTAX Gauge
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of out of sequence Topology Database
            Updates (TDUs). In a quiesced state, this value is
            zero. In normal operation, the value varies
            depending on the network environment."

        ::= { ibmappnNnAdjNodeEntry 3 }

    ibmappnNnAdjNodeLastFrsnSent OBJECT-TYPE
          SYNTAX INTEGER (0..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Flow reduction sequence numbers (FRSNs) are associated
               with Topology Database Updates (TDUs) and are unique
               only within each APPN network node. A TDU can be
               associated with multiple APPN resources. This FRSN
               indicates the last TDU sent to this adjacent node."

          ::= { ibmappnNnAdjNodeEntry 4 }

    ibmappnNnAdjNodeLastFrsnRcvd OBJECT-TYPE
          SYNTAX INTEGER (0..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Flow reduction sequence numbers (FRSNs) are associated
               with Topology Database Updates (TDUs) and are unique
               only within each APPN network node. A TDU can be
               associated with multiple APPN resources. This FRSN
               indicates the last TDU received from this adjacent node."

          ::= { ibmappnNnAdjNodeEntry 5 }

    --APPN Node Topology table

    -- This table describes every known APPN Network node
    -- and Virtual node.

    ibmappnNnTopologyTable OBJECT-TYPE
          SYNTAX SEQUENCE OF IbmappnNnTopologyEntry
          ACCESS not-accessible
          STATUS mandatory
          DESCRIPTION
              "Portion of the APPN routing table
               that describes all of the APPN network nodes
               and virtual nodes known to this node."

          ::= { ibmappnNnTopology 1 }

    ibmappnNnTopologyEntry OBJECT-TYPE
          SYNTAX IbmappnNnTopologyEntry
          ACCESS not-accessible
          STATUS mandatory

```
        DESCRIPTION
             "The fully-qualified node name is used to
              index this table."

        INDEX
              {ibmappnNnNodeName}

        ::= { ibmappnNnTopologyTable 1 }

   IbmappnNnTopologyEntry  ::= SEQUENCE {

        ibmappnNnNodeName                   DisplayString,
        ibmappnNnNodeFrsn                   INTEGER,
        ibmappnNnNodeEntryTimeLeft          INTEGER,
        ibmappnNnNodeType                   INTEGER,

        ibmappnNnNodeRsn                    INTEGER,
        ibmappnNnNodeRouteAddResist         INTEGER,
        ibmappnNnNodeCongested              INTEGER,
        ibmappnNnNodeIsrDepleted            INTEGER,
        ibmappnNnNodeEndptDepleted          INTEGER,
        ibmappnNnNodeQuiescing              INTEGER,
        ibmappnNnNodeGateway                INTEGER,
        ibmappnNnNodeCentralDirectory       INTEGER,
        ibmappnNnNodeIsr                    INTEGER,
        ibmappnNnNodeChainSupport       INTEGER
   }

   ibmappnNnNodeName    OBJECT-TYPE
        SYNTAX DisplayString (SIZE (3..17))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned network name that is locally
             defined at each network node in the format NETID.CPNAME."

            ::=  { ibmappnNnTopologyEntry 1 }

   ibmappnNnNodeFrsn             OBJECT-TYPE
        SYNTAX INTEGER (0..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Flow reduction sequence numbers (FRSNs) are associated
             with Topology Database Updates (TDUs) and are unique
             only within each APPN network node.  A TDU can be
             associated with multiple APPN resources. This FRSN
             indicates the last time this resource was updated at
```

                this node."

        ::= { ibmappnNnTopologyEntry 2 }

   ibmappnNnNodeEntryTimeLeft   OBJECT-TYPE
        SYNTAX INTEGER (0..31)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of days before deletion of this
             network node entry. Range is 0-31."

        ::= { ibmappnNnTopologyEntry 3 }

   ibmappnNnNodeType   OBJECT-TYPE
        SYNTAX INTEGER {
                    networknode(1),
                    virtualnode(3)
                    }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Type of APPN node."

        ::= { ibmappnNnTopologyEntry 4 }

   ibmappnNnNodeRsn   OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Resource sequence number that is assigned and
             controlled by the network node that owns this
             resource. This is always an even 32-bit number
             unless an error has occurred."

        ::= { ibmappnNnTopologyEntry 5 }

   ibmappnNnNodeRouteAddResist   OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Route addition resistance
            indicates the relative desirability
            of using this node for intermediate session traffic.
            The value, which can be any integer 0-255,
            is used in route computation. The lower the value,

          the more desirable the node is for intermediate routing."

        ::= { ibmappnNnTopologyEntry 6 }

   ibmappnNnNodeCongested   OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether this node is congested.
             This node is not be included in route selection
             by other nodes when this congestion exists."

         ::= { ibmappnNnTopologyEntry 7 }

   ibmappnNnNodeIsrDepleted OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether intermediate session
             routing resources are depleted. This node is
             not included in intermediate route selection
             by other nodes when resources are depleted."

        ::= { ibmappnNnTopologyEntry 8 }

   ibmappnNnNodeEndptDepleted OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Indicates whether session endpoint resources are depleted."

        ::= { ibmappnNnTopologyEntry 9 }

   ibmappnNnNodeQuiescing   OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the node is quiescing.
             This node is not included in route selection
             by other nodes when the node is quiescing."

        ::= { ibmappnNnTopologyEntry 10 }

   ibmappnNnNodeGateway   OBJECT-TYPE

```
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Indicates whether the node provide gateway functions."

        ::=  { ibmappnNnTopologyEntry 11 }

  ibmappnNnNodeCentralDirectory OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Indicates whether the node is central directory."

        ::=  { ibmappnNnTopologyEntry 12 }

  ibmappnNnNodeIsr   OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Indicates whether the node supports intermediate session
              routing (ISR)."

        ::=  { ibmappnNnTopologyEntry 13 }

  ibmappnNnNodeChainSupport OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Indicates whether the node supports chaining."

        ::=  { ibmappnNnTopologyEntry 14 }


  --APPN transmission group (TG) table

  -- This table describes the TGs associated with
  -- the APPN network nodes.
  -- The originating node is repeated here to provide a
  -- means of correlating the TGs with the nodes.


  ibmappnNnTgTopologyTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnNnTgTopologyEntry
        ACCESS not-accessible
```

         STATUS mandatory
         DESCRIPTION
              "Portion of the APPN topology database
              that describes all of the APPN transmissions groups
              used by the APPN network nodes."

         ::= { ibmappnNnTopology 2 }

  ibmappnNnTgTopologyEntry OBJECT-TYPE
         SYNTAX IbmappnNnTgTopologyEntry
         ACCESS not-accessible
         STATUS mandatory
         DESCRIPTION
              "This table requires three indexes to provide a
               unique index. The indexes are the owning or originating
               CPname, the destination CPname, and the TG number."

         INDEX
               {ibmappnNnTgOwner,
                ibmappnNnTgDest,
                ibmappnNnTgNum}

         ::= { ibmappnNnTgTopologyTable 1 }

  IbmappnNnTgTopologyEntry ::= SEQUENCE {

         ibmappnNnTgOwner   DisplayString,
         ibmappnNnTgDest   DisplayString,
         ibmappnNnTgNum   INTEGER,
         ibmappnNnTgFrsn   INTEGER,
         ibmappnNnTgEntryTimeLeft INTEGER,

         ibmappnNnTgDestVirtual INTEGER,
         ibmappnNnTgDlcData   OCTET STRING,

         ibmappnNnTgRsn   INTEGER,
         ibmappnNnTgOperational INTEGER,
         ibmappnNnTgQuiescing   INTEGER,
         ibmappnNnTgCpCpSession INTEGER,
         ibmappnNnTgEffCap   INTEGER,
         ibmappnNnTgConnCost   INTEGER,
         ibmappnNnTgByteCost   INTEGER,
         ibmappnNnTgSecurity   INTEGER,
         ibmappnNnTgDelay   INTEGER,
         ibmappnNnTgModemClass INTEGER,
         ibmappnNnTgUsr1   INTEGER,
         ibmappnNnTgUsr2   INTEGER,
         ibmappnNnTgUsr3   INTEGER}

    ibmappnNnTgOwner OBJECT-TYPE
         SYNTAX DisplayString (SIZE (3..17))
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Administratively-assigned name for the
             originating node for this TG. The format
             is NETID.CPNAME and is the same name
             specified in the node table."

         ::= { ibmappnNnTgTopologyEntry 1 }

    ibmappnNnTgDest OBJECT-TYPE
         SYNTAX DisplayString (SIZE (3..17))
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Administratively-assigned fully-qualified
             network name for the destination node for this TG."

         ::= { ibmappnNnTgTopologyEntry 2 }

    ibmappnNnTgNum OBJECT-TYPE
         SYNTAX INTEGER (0..255)
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Number associated with this
             transmission group. Range is 0-255."

         ::= { ibmappnNnTgTopologyEntry 3 }

    ibmappnNnTgFrsn   OBJECT-TYPE
         SYNTAX INTEGER (0..65535)
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Flow reduction sequence numbers (FRSNs) are associated
              with Topology Database Updates (TDUs) and are unique
              only within each APPN network node. A TDU can be
              associated with multiple APPN resources. This FRSN
              indicates the last time this resource was updated at
              this node."

         ::= { ibmappnNnTgTopologyEntry 4 }

    ibmappnNnTgEntryTimeLeft   OBJECT-TYPE
         SYNTAX INTEGER (0..31)

```
           ACCESS read-only
           STATUS mandatory
           DESCRIPTION
                "Number of days before deletion of this
                 network node TG entry. Range is 0-31."

           ::=  { ibmappnNnTgTopologyEntry 5 }

     ibmappnNnTgDestVirtual  OBJECT-TYPE
           SYNTAX INTEGER {yes(1), no(2)}
           ACCESS read-only
           STATUS mandatory
           DESCRIPTION
                "Indicates whether the destination node is
                 a virtual node."

           ::=  { ibmappnNnTgTopologyEntry 6 }

     ibmappnNnTgDlcData  OBJECT-TYPE
           SYNTAX OCTET STRING  (SIZE (0..9))
           ACCESS read-only
           STATUS mandatory
           DESCRIPTION
                "DLC specific data related to the link connection
                 network.
                 Token-Ring    - MAC/SAP
                 X.25 Switched - dial digits
                 X.21 Switched - dial digits
                 Circuit Swtch - dial digits"

           ::=  { ibmappnNnTgTopologyEntry 7 }

     ibmappnNnTgRsn      OBJECT-TYPE
           SYNTAX INTEGER
           ACCESS read-only
           STATUS mandatory
           DESCRIPTION
                "Current owning node's resource sequence number
                 for this resource."

           ::=  { ibmappnNnTgTopologyEntry 8 }

     ibmappnNnTgOperational OBJECT-TYPE
           SYNTAX INTEGER {yes(1), no(2)}
           ACCESS read-only
           STATUS mandatory
           DESCRIPTION
                "Indicates whether the transmission group
```

```
        is operational."

    ::=  { ibmappnNnTgTopologyEntry 9 }

ibmappnNnTgQuiescing OBJECT-TYPE
    SYNTAX INTEGER {yes(1), no(2)}
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Indicates whether the transmission group
        is quiescing."

    ::=  { ibmappnNnTgTopologyEntry 10 }

ibmappnNnTgCpCpSession OBJECT-TYPE
    SYNTAX INTEGER {yes(1), no(2)}
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Indicates whether CP-CP sessions are supported on this TG."

    ::=  { ibmappnNnTgTopologyEntry 11 }


ibmappnNnTgEffCap    OBJECT-TYPE
    SYNTAX INTEGER
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "The effective capacity is an integer value that indicates
        the kilo bits per second.
        It is derived from the link bandwidth and maximum load
        factor with the range of 0 thru 603,979,776.
        This is an administratively assigned value associated
        with this TG."

    ::=  { ibmappnNnTgTopologyEntry 12 }

ibmappnNnTgConnCost OBJECT-TYPE
    SYNTAX INTEGER (0..255)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Cost per connect time: a value representing
        the relative cost per unit of time to use
        the TG. Range is from 0, which means no cost,
        to 255, which indicates maximum cost.
        This is an administratively assigned value associated
```

          with this TG."

        ::= { ibmappnNnTgTopologyEntry 13 }

  ibmappnNnTgByteCost OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Relative cost of transmitting a byte over this link.
             Range is from 0 (lowest cost) to 255.
             This is an administratively assigned value associated
             with this TG."

        ::= { ibmappnNnTgTopologyEntry 14 }

  ibmappnNnTgSecurity OBJECT-TYPE
        SYNTAX INTEGER {
                    nonsecure(1),   --X'01'
                    publicSwitchedNetwork(32),   --X'20'
                    undergroundCable(64),   --X'40'
                    secureConduit(96),   --X'60'
                    guardedConduit(128),   --X'80'
                    encrypted(160),   --X'A0'
                    guardedRadiation(192)   --X'C0'
               }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The security is represented as an integer with a range of
             1 thru 255 with the most common values enumerated as
             defined above.
             This is an administratively assigned value associated
             with this TG."

        ::= { ibmappnNnTgTopologyEntry 15 }

  ibmappnNnTgDelay OBJECT-TYPE
        SYNTAX INTEGER {
                    minimum(0),   --X'00'
                    negligible(384),   --X'4C'
                    terrestrial(9216),   --X'71'
                    packet(147456),   --X'91'
                    long(294912),   --X'99'
                    maximum(2013265920)   --X'FF'
               }
        ACCESS read-only

```
          STATUS mandatory
          DESCRIPTION
               "Relative amount of time that it takes for a signal to
                travel the length of the logical link.  This time is
                represented in micro seconds, with some of the more
                common values enumerated.
                This is an administratively assigned value associated
                with this TG."


          ::=  { ibmappnNnTgTopologyEntry 16 }

   ibmappnNnTgModemClass        OBJECT-TYPE
          SYNTAX INTEGER (0..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
               "This is used to have multiple images for a
                connection network.  For a connection network
                it is the same as in the TG vector; for
                a non-connection network it is X'00'."

          ::=  { ibmappnNnTgTopologyEntry 17 }

   ibmappnNnTgUsr1  OBJECT-TYPE
          SYNTAX INTEGER (0..255)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
             "First user-defined TG characteristic for this TG with
              a range of 0-255.
              This is an administratively assigned value associated
              with this TG."

          ::=  { ibmappnNnTgTopologyEntry 18 }

   ibmappnNnTgUsr2  OBJECT-TYPE
          SYNTAX INTEGER (0..255)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
             "Second user-defined TG characteristic for this TG with
              a range of 0-255.
              This is an administratively assigned value associated
              with this TG."

          ::=  { ibmappnNnTgTopologyEntry 19 }
```

   ibmappnNnTgUsr3 OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Third user-defined TG characteristic for this TG with
             a range of 0-255.
             This is an administratively assigned value associated
             with this TG."

        ::= { ibmappnNnTgTopologyEntry 20 }

   --APPN Node Topology table (using FRSN as index)

   -- This table describes every known APPN Network node
   -- and Virtual node.

   ibmappnNnTopologyFRTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnNnTopologyFREntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Portion of the APPN routing table
             that describes all of the APPN network nodes
             and virtual nodes known to this node."

        ::= { ibmappnNnTopology 3 }

   ibmappnNnTopologyFREntry OBJECT-TYPE
        SYNTAX IbmappnNnTopologyFREntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "This table is indexed by two columns:
             FRSN, followed by fully-qualified node name."

        INDEX
              {ibmappnNnNodeFRFrsn,
               ibmappnNnNodeFRName}

        ::= { ibmappnNnTopologyFRTable 1 }

   IbmappnNnTopologyFREntry ::= SEQUENCE {
        ibmappnNnNodeFRName   DisplayString,
        ibmappnNnNodeFRFrsn   INTEGER,
        ibmappnNnNodeFREntryTimeLeft   INTEGER,

```
        ibmappnNnNodeFRType                      INTEGER,

        ibmappnNnNodeFRRsn                       INTEGER,
        ibmappnNnNodeFRRouteAddResist            INTEGER,
        ibmappnNnNodeFRCongested                 INTEGER,
        ibmappnNnNodeFRIsrDepleted               INTEGER,
        ibmappnNnNodeFREndptDepleted             INTEGER,
        ibmappnNnNodeFRQuiescing                 INTEGER,
        ibmappnNnNodeFRGateway                   INTEGER,
        ibmappnNnNodeFRCentralDirectory          INTEGER,
        ibmappnNnNodeFRIsr                       INTEGER,
        ibmappnNnNodeFRChainSupport              INTEGER
  }

  ibmappnNnNodeFRName    OBJECT-TYPE
        SYNTAX DisplayString (SIZE (3..17))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned network name that is locally
             defined at each network node in the format NETID.CPNAME."

        ::=  { ibmappnNnTopologyFREntry 1 }

  ibmappnNnNodeFRFrsn             OBJECT-TYPE
        SYNTAX INTEGER (0..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Flow reduction sequence numbers (FRSNs) are associated
             with Topology Database Updates (TDUs) and are unique
             only within each APPN network node.  A TDU can be
             associated with multiple APPN resources. This FRSN
             indicates the last time this resource was updated at
             this node."

        ::=  { ibmappnNnTopologyFREntry 2 }

  ibmappnNnNodeFREntryTimeLeft    OBJECT-TYPE
        SYNTAX INTEGER (0..31)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of days before deletion of this
             network node entry. Range is 0-31."

        ::=  { ibmappnNnTopologyFREntry 3 }
```

```
ibmappnNnNodeFRType    OBJECT-TYPE
     SYNTAX INTEGER {
                    networknode(1),
                    virtualnode(3)
                    }
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Type of APPN node."

     ::=  { ibmappnNnTopologyFREntry 4 }

ibmappnNnNodeFRRsn       OBJECT-TYPE
     SYNTAX INTEGER
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Resource sequence number that is assigned and
          controlled by the network node that owns this
          resource. This is always an even 32-bit number
          unless an error has occurred."

     ::=  { ibmappnNnTopologyFREntry 5 }

ibmappnNnNodeFRRouteAddResist   OBJECT-TYPE
     SYNTAX INTEGER
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Route addition resistance
         indicates the relative desirability
         of using this node for intermediate session traffic.
         The value, which can be any integer 0-255,
         is used in route computation.  The lower the value,
         the more desirable the node is for intermediate routing."

     ::=  { ibmappnNnTopologyFREntry 6 }

ibmappnNnNodeFRCongested       OBJECT-TYPE
     SYNTAX INTEGER {yes(1), no(2)}
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Indicates whether this node is congested.
          This node is not be included in route selection
          by other nodes when this congestion exists."

      ::= { ibmappnNnTopologyFREntry 7 }
```

    ibmappnNnNodeFRIsrDepleted OBJECT-TYPE
          SYNTAX INTEGER {yes(1), no(2)}
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Indicates whether intermediate session
               routing resources are depleted. This node is
               not included in intermediate route selection
               by other nodes when resources are depleted."

          ::= { ibmappnNnTopologyFREntry 8 }

    ibmappnNnNodeFREndptDepleted OBJECT-TYPE
          SYNTAX INTEGER {yes(1), no(2)}
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Indicates whether session endpoint resources are depleted."

          ::= { ibmappnNnTopologyFREntry 9 }

    ibmappnNnNodeFRQuiescing   OBJECT-TYPE
          SYNTAX INTEGER {yes(1), no(2)}
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Indicates whether the node is quiescing.
               This node is not included in route selection
               by other nodes when the node is quiescing."

          ::= { ibmappnNnTopologyFREntry 10 }

    ibmappnNnNodeFRGateway   OBJECT-TYPE
          SYNTAX INTEGER {yes(1), no(2)}
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Indicates whether the node provide gateway functions."

          ::= { ibmappnNnTopologyFREntry 11 }

    ibmappnNnNodeFRCentralDirectory OBJECT-TYPE
          SYNTAX INTEGER {yes(1), no(2)}
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Indicates whether the node is central directory."
          ::= { ibmappnNnTopologyFREntry 12 }

   ibmappnNnNodeFRIsr   OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the node supports intermediate session
             routing (ISR)."

        ::= { ibmappnNnTopologyFREntry 13 }

   ibmappnNnNodeFRChainSupport OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the node supports chaining."

        ::= { ibmappnNnTopologyFREntry 14 }

   --APPN transmission group (TG) table

   -- This table describes the TGs associated with
   -- the APPN network nodes.
   -- The originating node is repeated here to provide a
   -- means of correlating the TGs with the nodes.

   ibmappnNnTgTopologyFRTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnNnTgTopologyFREntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Portion of the APPN topology database
             that describes all of the APPN transmissions groups
             used by the APPN network nodes."

        ::= { ibmappnNnTopology 4 }

   ibmappnNnTgTopologyFREntry OBJECT-TYPE
        SYNTAX IbmappnNnTgTopologyFREntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "This table is indexed by four columns:
             FRSN, TG owner fully-qualified node name,
             TG destination fully-qualified node name, and TG number."
        INDEX

```
                {ibmappnNnTgFRFrsn,
                 ibmappnNnTgFROwner,
                 ibmappnNnTgFRDest,
                 ibmappnNnTgFRNum}

           ::= { ibmappnNnTgTopologyFRTable 1 }

     IbmappnNnTgTopologyFREntry ::= SEQUENCE {

           ibmappnNnTgFROwner       DisplayString,
           ibmappnNnTgFRDest        DisplayString,
           ibmappnNnTgFRNum         INTEGER,
           ibmappnNnTgFRFrsn        INTEGER,
           ibmappnNnTgFREntryTimeLeft INTEGER,

           ibmappnNnTgFRDestVirtual INTEGER,
           ibmappnNnTgFRDlcData     OCTET STRING,

           ibmappnNnTgFRRsn         INTEGER,
           ibmappnNnTgFROperational INTEGER,
           ibmappnNnTgFRQuiescing   INTEGER,
           ibmappnNnTgFRCpCpSession INTEGER,
           ibmappnNnTgFREffCap      INTEGER,
           ibmappnNnTgFRConnCost    INTEGER,
           ibmappnNnTgFRByteCost    INTEGER,
           ibmappnNnTgFRSecurity    INTEGER,
           ibmappnNnTgFRDelay       INTEGER,
           ibmappnNnTgFRModemClass  INTEGER,
           ibmappnNnTgFRUsr1        INTEGER,
           ibmappnNnTgFRUsr2        INTEGER,
           ibmappnNnTgFRUsr3        INTEGER}


     ibmappnNnTgFROwner  OBJECT-TYPE
           SYNTAX DisplayString (SIZE (3..17))
           ACCESS read-only
           STATUS mandatory
           DESCRIPTION
               "Administratively-assigned name for the
               originating node for this TG. The format
               is NETID.CPNAME and is the same name
               specified in the node table."

           ::=  { ibmappnNnTgTopologyFREntry 1 }

     ibmappnNnTgFRDest  OBJECT-TYPE
           SYNTAX DisplayString (SIZE (3..17))
           ACCESS read-only
```

```
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned fully-qualified
            network name for the destination node for this TG."

        ::=  { ibmappnNnTgTopologyFREntry 2 }

  ibmappnNnTgFRNum  OBJECT-TYPE
        SYNTAX INTEGER  (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number associated with this
            transmission group. Range is 0-255."

        ::=  { ibmappnNnTgTopologyFREntry 3 }

  ibmappnNnTgFRFrsn           OBJECT-TYPE
        SYNTAX INTEGER (0..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Flow reduction sequence numbers (FRSNs) are associated
             with Topology Database Updates (TDUs) and are unique
             only within each APPN network node.  A TDU can be
             associated with multiple APPN resources.  This FRSN
             indicates the last time this resource was updated at
             this node."

        ::=  { ibmappnNnTgTopologyFREntry 4 }

  ibmappnNnTgFREntryTimeLeft    OBJECT-TYPE
        SYNTAX INTEGER (0..31)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of days before deletion of this
             network node TG entry. Range is 0-31."

        ::=  { ibmappnNnTgTopologyFREntry 5 }

  ibmappnNnTgFRDestVirtual  OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the destination node is
             a virtual node."
```

        ::= { ibmappnNnTgTopologyFREntry 6 }

  ibmappnNnTgFRDlcData OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (0..9))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "DLC specific data related to the link connection
            network.
            Token-Ring   - MAC/SAP
            X.25 Switched - dial digits
            X.21 Switched - dial digits
            Circuit Swtch - dial digits"

        ::= { ibmappnNnTgTopologyFREntry 7 }

  ibmappnNnTgFRRsn   OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Current owning node's resource sequence number
             for this resource."

        ::= { ibmappnNnTgTopologyFREntry 8 }

  ibmappnNnTgFROperational OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the transmission group
            is operational."

        ::= { ibmappnNnTgTopologyFREntry 9 }

  ibmappnNnTgFRQuiescing OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the transmission group
            is quiescing."

        ::= { ibmappnNnTgTopologyFREntry 10 }

  ibmappnNnTgFRCpCpSession OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}

```
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether CP-CP sessions are supported on this TG."

        ::=  { ibmappnNnTgTopologyFREntry 11 }

  ibmappnNnTgFREffCap   OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The effective capacity is an integer value that indicates
             the kilo bits per second.
             It is derived from the link bandwidth and maximum load
             factor with the range of 0 thru 603,979,776.
             This is an administratively assigned value associated
             with this TG."

        ::=  { ibmappnNnTgTopologyFREntry 12 }

  ibmappnNnTgFRConnCost OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Cost per connect time: a value representing
             the relative cost per unit of time to use
             the TG. Range is from 0, which means no cost,
             to 255, which indicates maximum cost.
             This is an administratively assigned value associated
             with this TG."


        ::=  { ibmappnNnTgTopologyFREntry 13 }

  ibmappnNnTgFRByteCost  OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Relative cost of transmitting a byte over this link.
             Range is from 0 (lowest cost) to 255.
             This is an administratively assigned value associated
             with this TG."

        ::=  { ibmappnNnTgTopologyFREntry 14 }
```

   ibmappnNnTgFRSecurity OBJECT-TYPE
        SYNTAX INTEGER {
                       nonsecure(1),   --X'01'
                       publicSwitchedNetwork(32),   --X'20'
                       undergroundCable(64),   --X'40'
                       secureConduit(96),   --X'60'
                       guardedConduit(128),   --X'80'
                       encrypted(160),   --X'A0'
                       guardedRadiation(192)   --X'C0'
                }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The security is represented as an integer with a range of
             1 thru 255 with the most common values enumerated as
             defined above.
             This is an administratively assigned value associated
             with this TG."

        ::= { ibmappnNnTgTopologyFREntry 15 }

   ibmappnNnTgFRDelay OBJECT-TYPE
        SYNTAX INTEGER {
                       minimum(0),   --X'00'
                       negligible(384),   --X'4C'
                       terrestrial(9216),   --X'71'
                       packet(147456),   --X'91'
                       long(294912),   --X'99'
                       maximum(2013265920)   --X'FF'
                }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Relative amount of time that it takes for a signal to
             travel the length of the logical link. This time is
             represented in micro seconds, with some of the more
             common values enumerated.
             This is an administratively assigned value associated
             with this TG."

        ::= { ibmappnNnTgTopologyFREntry 16 }

   ibmappnNnTgFRModemClass   OBJECT-TYPE
        SYNTAX INTEGER (0..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This is used to have multiple images for a

              connection network. For a connection network
            it is the same as in the TG vector; for
            a non-connection network it is X'00'."

        ::= { ibmappnNnTgTopologyFREntry 17 }

   ibmappnNnTgFRUsr1 OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "First user-defined TG characteristic for this TG with
            a range of 0-255.
            This is an administratively assigned value associated
            with this TG."

        ::= { ibmappnNnTgTopologyFREntry 18 }

   ibmappnNnTgFRUsr2 OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Second user-defined TG characteristic for this TG with
            a range of 0-255.
            This is an administratively assigned value associated
            with this TG."

        ::= { ibmappnNnTgTopologyFREntry 19 }

   ibmappnNnTgFRUsr3 OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Third user-defined TG characteristic for this TG with
            a range of 0-255.
            This is an administratively assigned value associated
            with this TG."

        ::= { ibmappnNnTgTopologyFREntry 20 }

   -- ************** The APPN Local Topology Group ****************

   ibmappnLocalTopology   OBJECT IDENTIFIER ::= { ibmappn 3 }
   ibmappnLocalThisNode   OBJECT IDENTIFIER ::= { ibmappnLocalTopology 1 }
   ibmappnLocalGeneral   OBJECT IDENTIFIER ::= { ibmappnLocalThisNode   1}

  ibmappnLocalNnSpecific OBJECT IDENTIFIER ::= { ibmappnLocalThisNode   2}
  ibmappnLocalTg   OBJECT IDENTIFIER ::= { ibmappnLocalThisNode   3}
  ibmappnLocalEnTopology OBJECT IDENTIFIER ::= { ibmappnLocalTopology 2 }

  -- The LocalEnNodeTable and LocalEnTgTable will replace these OIs
  --ibmappnLocalEnNode   OBJECT IDENTIFIER ::= { ibmappnLocalEnTopology 1}
  --ibmappnLocalEnTg   OBJECT IDENTIFIER ::= { ibmappnLocalEnTopology 2}

  --This MIB Group represents the local topology
  --maintained in both APPN end nodes and network nodes.
  --Although the same control vectors are used for both network
  --and local topology, many of the attributes only apply to network
  --nodes. This MIB group defines the required objects for retrieval
  --of information about this node and the objects that represent
  --the local topology about end nodes.
  --
  --This node could be either an network node or an end node. The
  --definition must address both cases.
  --
  --1 Information about this node
  --   a General information about this node, both NN and ENs.
  --   b Information about this node that applies only to NNs.
  --   c TG table   (repeated for each TG this node owns)
  --
  --2 Information about the end nodes known to this network node
  --   (THIS SECTION ONLY APPLIES TO NETWORK NODES)
  --   a End node table (entry for each end node)
  --   b TG table   (repeated for each TG owned by the end nodes)
  --
  --

  -- General information section

  ibmappnLocalNodeName   OBJECT-TYPE
       SYNTAX DisplayString (SIZE (3..17))
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "Administratively-assigned fully-qualified name
           for this node. Format is NETID.CPNAME."

       ::= { ibmappnLocalGeneral 1 }

  ibmappnLocalNodeType   OBJECT-TYPE

```
        SYNTAX INTEGER {
                    networknode(1),
                    endnode(2),
                    len(4)
                    }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Type of APPN node."

        ::=  { ibmappnLocalGeneral 2 }


  -- Network node unique information
  --

  ibmappnLocalNnRsn        OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Resource sequence number is assigned and
             controlled by the network node that owns this
             resource.  This is always an even unsigned
             number unless an error has occurred."

        ::=  { ibmappnLocalNnSpecific  1 }

  ibmappnLocalNnRouteAddResist   OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Route addition resistance
            indicates the relative desirability
            of using this node for intermediate session traffic.
            The value, which can be any integer 0-255,
            is used in route computation.  The lower the value,
            the more desirable the node is for intermediate routing."

        ::=  { ibmappnLocalNnSpecific 2 }

  ibmappnLocalNnCongested        OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether this node is congested.
```

           Other network nodes stop routing traffic to
           this node while this flag is on."

        ::= { ibmappnLocalNnSpecific 3 }

  ibmappnLocalNnIsrDepleted OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicate whether intermediated session
             routing resources are depleted.
             Other network nodes stop routing traffic through
             this node while this flag is on."

        ::= { ibmappnLocalNnSpecific 4 }

  ibmappnLocalNnEndptDepleted OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether session endpoint resources
             are depleted."

        ::= { ibmappnLocalNnSpecific 5 }

  ibmappnLocalNnQuiescing   OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the node is quiescing."

        ::= { ibmappnLocalNnSpecific 6 }

  ibmappnLocalNnGateway   OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the node is a gateway."

        ::= { ibmappnLocalNnSpecific 7 }

  ibmappnLocalNnCentralDirectory OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only

```
        STATUS  mandatory
        DESCRIPTION
            "Indicates whether the node is a central directory."

        ::=  { ibmappnLocalNnSpecific 8 }

  ibmappnLocalNnIsr   OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the node supports intermediate
             session routing."

        ::=  { ibmappnLocalNnSpecific 9 }

  ibmappnLocalNnChainSupport OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the node supports chaining."

        ::=  { ibmappnLocalNnSpecific 10 }

  ibmappnLocalNnFrsn      OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Flow reduction sequence numbers (FRSNs) are associated
             with Topology Database Updates (TDUs) and are unique
             only within each APPN network node.  A TDU can be
             associated with multiple APPN resources. This object
             is the last FRSN sent in a topology update to
             adjacent network nodes."

        ::=  { ibmappnLocalNnSpecific 11 }


  -- Local TG information
  -- APPN Transmission Group (TG) Table

  -- This table describes the TGs associated with
  -- this node only.

  ibmappnLocalTgTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnLocalTgEntry
```

```
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
             "TG Table describes all of the TGs owned by this
              node.  The TG destination can be a virtual
              node, network node, len, or end node."

        ::= { ibmappnLocalTg 1 }

  ibmappnLocalTgEntry OBJECT-TYPE
        SYNTAX IbmappnLocalTgEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
             "This table is indexed by the destination CPname
              and the TG number."

        INDEX
              {ibmappnLocalTgDest,
               ibmappnLocalTgNum}

        ::= { ibmappnLocalTgTable 1 }

  IbmappnLocalTgEntry ::= SEQUENCE {

        ibmappnLocalTgDest        DisplayString,
        ibmappnLocalTgNum         INTEGER,
        ibmappnLocalTgDestVirtual INTEGER,
        ibmappnLocalTgDlcData     OCTET STRING,

        ibmappnLocalTgRsn         INTEGER,
        ibmappnLocalTgQuiescing   INTEGER,
        ibmappnLocalTgOperational INTEGER,
        ibmappnLocalTgCpCpSession INTEGER,
        ibmappnLocalTgEffCap      INTEGER,
        ibmappnLocalTgConnCost    INTEGER,
        ibmappnLocalTgByteCost    INTEGER,
        ibmappnLocalTgSecurity    INTEGER,
        ibmappnLocalTgDelay       INTEGER,
        ibmappnLocalTgModemClass  INTEGER,
        ibmappnLocalTgUsr1        INTEGER,
        ibmappnLocalTgUsr2        INTEGER,
        ibmappnLocalTgUsr3        INTEGER
                                       }

  ibmappnLocalTgDest  OBJECT-TYPE
        SYNTAX DisplayString (SIZE (3..17))
        ACCESS read-only
```

```
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned name for the
            destination node for this TG.
            This is the fully-qualified network node
            name."

        ::=  { ibmappnLocalTgEntry 1 }

  ibmappnLocalTgNum  OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number associated with this transmission group."

        ::=  { ibmappnLocalTgEntry 2 }

  ibmappnLocalTgDestVirtual  OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the destination node is
            a Virtual node."
        ::=  { ibmappnLocalTgEntry 3 }

  ibmappnLocalTgDlcData  OBJECT-TYPE
        SYNTAX OCTET STRING  (SIZE (0..9))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "DLC specific data related to the link connection
            network.
            Token-Ring    - MAC/SAP
            X.25 Switched - dial digits
            X.21 Switched - dial digits
            Circuit Swtch - dial digits"

        ::=  { ibmappnLocalTgEntry 4 }

  ibmappnLocalTgRsn       OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The resource sequence number is assigned and
             controlled by the network node that owns this
```

               resource. This is always an even unsigned
               number unless an error has occurred."

          ::= { ibmappnLocalTgEntry 5 }

   ibmappnLocalTgQuiescing OBJECT-TYPE
         SYNTAX INTEGER {yes(1), no(2)}
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Indicates whether the Transmission Group
             is quiescing."

          ::= { ibmappnLocalTgEntry 6 }

   ibmappnLocalTgOperational OBJECT-TYPE
         SYNTAX INTEGER {yes(1), no(2)}
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Indicates whether the Transmission Group
             is operational."

          ::= { ibmappnLocalTgEntry 7 }

   ibmappnLocalTgCpCpSession OBJECT-TYPE
         SYNTAX INTEGER {yes(1), no(2)}
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Indicates whether the CP-CP Sessions are
             supported on this TG."

          ::= { ibmappnLocalTgEntry 8 }

   ibmappnLocalTgEffCap   OBJECT-TYPE
         SYNTAX INTEGER
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "The effective capacity is an integer value that indicates
             the actual kilo bits per second.
             It is derived from the link bandwidth and maximum load
             factor with the range of 0 thru 603,979,776."

          ::= { ibmappnLocalTgEntry 9 }

   ibmappnLocalTgConnCost OBJECT-TYPE

```
     SYNTAX INTEGER (0..255)
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Cost per connect time: a value representing
         the relative cost per unit of time to use
         the TG. Range is from 0, which means no cost,
         to 255."

     ::= { ibmappnLocalTgEntry 10 }

 ibmappnLocalTgByteCost  OBJECT-TYPE
     SYNTAX INTEGER (0..255)
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Relative cost of transmitting a byte over this link.
         Range is from 0 (lowest cost) to 255."

     ::= { ibmappnLocalTgEntry 11 }

 ibmappnLocalTgSecurity  OBJECT-TYPE
     SYNTAX INTEGER {
                  nonsecure(1),                 --X'01'
                  publicSwitchedNetwork(32),    --X'20'
                  undergroundCable(64),         --X'40'
                  secureConduit(96),            --X'60'
                  guardedConduit(128),          --X'80'
                  encrypted(160),               --X'A0'
                  guardedRadiation(192)         --X'C0'
            }
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Security level for this TG."

     ::= { ibmappnLocalTgEntry 12 }

 ibmappnLocalTgDelay  OBJECT-TYPE
     SYNTAX INTEGER {
                  minimum(0),                   --X'00'
                  negligible(384),              --X'4C'
                  terrestrial(9216),            --X'71'
                  packet(147456),               --X'91'
                  long(294912),                 --X'99'
                  maximum(2013265920)           --X'FF'
            }
     ACCESS read-only
```

```
            STATUS mandatory
            DESCRIPTION
                "Relative amount of time that it takes for a signal to
                 travel the length of the logical link.  This time is
                 represented in micro seconds, with some of the more
                 common values enumerated."

            ::=  { ibmappnLocalTgEntry 13 }

    ibmappnLocalTgModemClass  OBJECT-TYPE
            SYNTAX INTEGER
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                "This is used to have multiple images for a
                 connection network.  For a connection network
                 it is the same as in the TG vector and for
                 a non-connection network it is zero."

            ::=  { ibmappnLocalTgEntry 14 }

    ibmappnLocalTgUsr1  OBJECT-TYPE
            SYNTAX INTEGER (0..255)
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                "Value of the first user-defined TG
                 characteristic for this TG.
                 Range is 0-255."

            ::=  { ibmappnLocalTgEntry 15 }

    ibmappnLocalTgUsr2  OBJECT-TYPE
            SYNTAX INTEGER (0..255)
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                "Value of the second user-defined TG
                 characteristic for this TG.
                 Range is 0-255."

            ::=  { ibmappnLocalTgEntry 16 }

    ibmappnLocalTgUsr3  OBJECT-TYPE
            SYNTAX INTEGER (0..255)
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
```

```
              "Value of the third user-defined TG
               characteristic for this TG.
               Range is 0-255."

          ::=  { ibmappnLocalTgEntry 17 }



  -- This section applies only to network nodes.
  -- It contains end node topology information known to serving
  -- network node.
  -- The first table contains information about all end nodes
  -- known to this node.
  --
  --  The TG  table contains information about all of the TGs owned
  --  by these end nodes.


  ibmappnLocalEnTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnLocalEnEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Portion of the APPN topology
             database that describes the end
             nodes known to this node."

        ::= { ibmappnLocalEnTopology 1 }

  ibmappnLocalEnEntry OBJECT-TYPE
        SYNTAX IbmappnLocalEnEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "This table is indexed by the end node CPname."

        INDEX
             {ibmappnLocalEnName}
        ::= { ibmappnLocalEnTable 1 }

  IbmappnLocalEnEntry ::= SEQUENCE {

        ibmappnLocalEnName                        DisplayString,
        ibmappnLocalEnEntryTimeLeft           INTEGER,
        ibmappnLocalEnType                    INTEGER
                            }

  ibmappnLocalEnName     OBJECT-TYPE
        SYNTAX DisplayString (SIZE (3..17))
```

```
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "Administratively-assigned fully-qualified
            name of end node in the format NETID.CPNAME."

       ::=  { ibmappnLocalEnEntry 1 }

  ibmappnLocalEnEntryTimeLeft   OBJECT-TYPE
       SYNTAX INTEGER (0..31)
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "Number of days before deletion of this
            end node entry. Range is 0-31."

       ::=  { ibmappnLocalEnEntry 2 }

  ibmappnLocalEnType    OBJECT-TYPE
       SYNTAX INTEGER {
                     endnode(2),
                     len(4)
                     }
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "Type of APPN node (must always be a len or end node)."

       ::=  { ibmappnLocalEnEntry 3 }


  --APPN Local End node Transmission Group (TG) table

  -- This table describes the TGs associated with
  -- all of the end nodes known to this node.

  ibmappnLocalEnTgTable OBJECT-TYPE
       SYNTAX SEQUENCE OF IbmappnLocalEnTgEntry
       ACCESS not-accessible
       STATUS mandatory
       DESCRIPTION
           "Table describing all of the TGs owned by the
            end nodes known to this node.
            The TG destination can be a virtual
            node, network node, or end node."

       ::= { ibmappnLocalEnTopology 2 }
```

   ibmappnLocalEnTgEntry OBJECT-TYPE
        SYNTAX IbmappnLocalEnTgEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "This table requires multiple indexes to uniquely
             identify each TG. They are originating CPname,
             destination CPname, and the TG number."

        INDEX
             {ibmappnLocalEnTgOrigin,
              ibmappnLocalEnTgDest,
              ibmappnLocalEnTgNum}

        ::= { ibmappnLocalEnTgTable 1 }

   IbmappnLocalEnTgEntry ::= SEQUENCE {
        ibmappnLocalEnTgOrigin   DisplayString,
        ibmappnLocalEnTgDest   DisplayString,
        ibmappnLocalEnTgNum   INTEGER,
        ibmappnLocalEnTgEntryTimeLeft INTEGER,

        ibmappnLocalEnTgDestVirtual INTEGER,
        ibmappnLocalEnTgDlcData   OCTET STRING,

        ibmappnLocalEnTgOperational INTEGER,
        ibmappnLocalEnTgCpCpSession INTEGER,
        ibmappnLocalEnTgEffCap   INTEGER,
        ibmappnLocalEnTgConnCost   INTEGER,
        ibmappnLocalEnTgByteCost   INTEGER,
        ibmappnLocalEnTgSecurity   INTEGER,
        ibmappnLocalEnTgDelay   INTEGER,
        ibmappnLocalEnTgModemClass INTEGER,
        ibmappnLocalEnTgUsr1   INTEGER,
        ibmappnLocalEnTgUsr2   INTEGER,
        ibmappnLocalEnTgUsr3   INTEGER
                                     }

   ibmappnLocalEnTgOrigin   OBJECT-TYPE
        SYNTAX DisplayString (SIZE (3..17))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
           "Administratively-assigned name for the
            origination node for this TG.
            This is the fully-qualified network name."

        ::= { ibmappnLocalEnTgEntry 1 }

   ibmappnLocalEnTgDest   OBJECT-TYPE
        SYNTAX DisplayString (SIZE (3..17))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned name for the
             destination node for this TG.
             This is the fully-qualified network name."

        ::= { ibmappnLocalEnTgEntry 2 }

   ibmappnLocalEnTgNum OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number associated with this transmission group."

        ::= { ibmappnLocalEnTgEntry 3 }

   ibmappnLocalEnTgEntryTimeLeft   OBJECT-TYPE
        SYNTAX INTEGER (0..31)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of days before deletion of this
             end node TG entry. Range is 0-31."

        ::= { ibmappnLocalEnTgEntry 4 }

   ibmappnLocalEnTgDestVirtual OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether the destination node is
             a virtual node."

        ::= { ibmappnLocalEnTgEntry 5 }

   ibmappnLocalEnTgDlcData OBJECT-TYPE
        SYNTAX OCTET STRING
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "DLC specific data related to the link connection
             network.
             Token-Ring   - MAC/SAP

```
             X.25 Switched - dial digits
             X.21 Switched - dial digits
             Circuit Swtch - dial digits"

       ::=  { ibmappnLocalEnTgEntry 6 }

 ibmappnLocalEnTgOperational OBJECT-TYPE
       SYNTAX INTEGER {yes(1), no(2)}
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "Indicates whether the Transmission Group is operational."

       ::=  { ibmappnLocalEnTgEntry 7 }

 ibmappnLocalEnTgCpCpSession OBJECT-TYPE
       SYNTAX INTEGER {yes(1), no(2)}
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "Indicates whether CP-CP sessions are supported on this TG."

       ::=  { ibmappnLocalEnTgEntry 8 }

 ibmappnLocalEnTgEffCap   OBJECT-TYPE
       SYNTAX INTEGER
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "The effective capacity is an integer value that indicates
            the actual kilo bits per second.
            It is derived from the link bandwidth and maximum load
            factor with the range of 0 thru 603,979,776."

       ::=  { ibmappnLocalEnTgEntry 9 }

 ibmappnLocalEnTgConnCost OBJECT-TYPE
       SYNTAX INTEGER (0..255)
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
           "Cost per connect time: a value representing
            the relative cost per unit of time to use
            the TG. Range is from 0, which means no cost,
            to 255."

       ::=  { ibmappnLocalEnTgEntry 10 }
```

```
   ibmappnLocalEnTgByteCost  OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Relative cost of transmitting a byte over this link.
             Range is from 0, which means no cost, to 255."

        ::=  { ibmappnLocalEnTgEntry 11 }

   ibmappnLocalEnTgSecurity  OBJECT-TYPE
        SYNTAX INTEGER {
                    nonsecure(1),              --X'01'
                    publicSwitchedNetwork(32), --X'20'
                    undergroundCable(64),      --X'40'
                    secureConduit(96),         --X'60'
                    guardedConduit(128),       --X'80'
                    encrypted(160),            --X'A0'
                    guardedRadiation(192)      --X'C0'
                    }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Security level for this TG."

        ::=  { ibmappnLocalEnTgEntry 12 }

   ibmappnLocalEnTgDelay  OBJECT-TYPE
        SYNTAX INTEGER {
                    minimum(0),                --X'00'
                    negligible(384),           --X'4C'
                    terrestrial(9216),         --X'71'
                    packet(147456),            --X'91'
                    long(294912),              --X'99'
                    maximum(2013265920)        --X'FF'
                }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Relative amount of time that it takes for a signal to
             travel the length of the logical link.  This time is
             represented in micro seconds, with some of the more
             common values enumerated."

        ::=  { ibmappnLocalEnTgEntry 13 }

   ibmappnLocalEnTgModemClass  OBJECT-TYPE
        SYNTAX INTEGER (0..65535)
```

```
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This is used to have multiple images for a
             connection network.  For a connection network
             it is the same as in the TG vector and for
              a non connection network it is zero."

        ::=  { ibmappnLocalEnTgEntry 14 }

 ibmappnLocalEnTgUsr1  OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "First user-defined TG characteristic
             for this TG. Range of values is 0-255."

        ::=  { ibmappnLocalEnTgEntry 15 }

 ibmappnLocalEnTgUsr2  OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Second user-defined TG characteristic
             for this TG. Range of values is 0-255."

        ::=  { ibmappnLocalEnTgEntry 16 }

 ibmappnLocalEnTgUsr3  OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Third user-defined TG characteristic
             for this TG. Range of values is 0-255."

        ::=  { ibmappnLocalEnTgEntry 17 }


-- ************** The APPN Directory group *********************
 ibmappnDir      OBJECT IDENTIFIER ::= { ibmappn 5  }
 ibmappnDirPerf  OBJECT IDENTIFIER ::= { ibmappnDir 1 }

 -- The APPN Directory Group

 -- The APPN Directory Database
```

   -- Each APPN network node maintains directories containing
   -- information on which LUs (applications) are available and
   -- where they are located. LUs can be located within an APPN
   -- network node or in any of the attached end nodes.

   -- Max Cache Directory Entries
   -- Current Number of Cache Entries
   -- Current Number Home Entries
   -- Current Number of Registered Entries
   -- number of directed locates sent
   -- number of directed locates received
   -- number of broadcast locates sent
   -- number of broadcast locates received
   -- Number of locates returned with a found
   -- Number of locates returned with a not found
   -- Number of outstanding Locates
   -- Directory table (Repeated for each Serving NN)

     -- Serving Network Node Fully Qualified CP Name

   -- LU Groups within Directory table (one for each LU)

     -- Fully-qualified LU Name
     -- Owning fully-qualified CP Name
    -- TP Name
     -- Resource location   (local/domain/cross-domain)
     -- Entry type (home,Register/cache)
     -- Wildcard   (yes/no)

   ibmappnDirMaxCaches OBJECT-TYPE
         SYNTAX INTEGER
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Maximum number of cache entries allowed. This
             is an administratively assigned value."

         ::= { ibmappnDirPerf 1 }

   ibmappnDirCurCaches OBJECT-TYPE
         SYNTAX Gauge
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Current number of cache entries."

         ::= { ibmappnDirPerf 2 }

```
ibmappnDirCurHomeEntries  OBJECT-TYPE
     SYNTAX Gauge
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Current number of home entries."

     ::=  { ibmappnDirPerf 3 }

ibmappnDirRegEntries OBJECT-TYPE
     SYNTAX Gauge
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Current number of registered entries."

     ::=  { ibmappnDirPerf 4 }

ibmappnDirInLocates    OBJECT-TYPE
     SYNTAX Counter
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Number of directed locates received."

     ::=  { ibmappnDirPerf 5 }

ibmappnDirInBcastLocates  OBJECT-TYPE
     SYNTAX Counter
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Number of broadcast locates received."

     ::=  { ibmappnDirPerf 6 }

ibmappnDirOutLocates   OBJECT-TYPE
     SYNTAX Counter
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Number of directed locates sent."

     ::=  { ibmappnDirPerf 7 }

ibmappnDirOutBcastLocates   OBJECT-TYPE
     SYNTAX Counter
     ACCESS read-only
```

```
        STATUS mandatory
        DESCRIPTION
            "Number of broadcast locates sent."

        ::=  { ibmappnDirPerf 8 }

  ibmappnDirNotFoundLocates   OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of directed locates returned with a 'not found'."

        ::=  { ibmappnDirPerf 9 }

  ibmappnDirNotFoundBcastLocates OBJECT-TYPE
        SYNTAX Counter
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of broadcast locates returned with
            a not found."

        ::=  { ibmappnDirPerf 10 }

  ibmappnDirLocateOutstands   OBJECT-TYPE
        SYNTAX Gauge
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Current number of outstanding locates,
            both directed and broadcast.  This value
            varies. A value of zero indicates
            that no locates are unanswered."

        ::=  { ibmappnDirPerf 11 }


  --APPN Directory table

  -- This table contains information about all known
  -- LUs and TPs.

  ibmappnDirTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnDirEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
```

```
             "Table containing information about
              all known LUs and TPs."

          ::= { ibmappnDir 2 }

    ibmappnDirEntry OBJECT-TYPE
          SYNTAX IbmappnDirEntry
          ACCESS not-accessible
          STATUS mandatory
          DESCRIPTION
              "This table is indexed by the LU name."

          INDEX
                {ibmappnDirLuName}

          ::= { ibmappnDirTable 1 }

    IbmappnDirEntry ::= SEQUENCE {
          ibmappnDirLuName                    DisplayString,
          ibmappnDirServerName                DisplayString,
          ibmappnDirLuOwnerName               DisplayString,
          ibmappnDirLuLocation                INTEGER,
          ibmappnDirType                      INTEGER,
          ibmappnDirWildCard                  INTEGER
                               }

    ibmappnDirLuName         OBJECT-TYPE
          SYNTAX DisplayString  (SIZE (3..17))
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Fully-qualified network LU name in the
               domain of the serving network node."

          ::=  { ibmappnDirEntry 1 }

    ibmappnDirServerName         OBJECT-TYPE
          SYNTAX DisplayString (SIZE (3..17))
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Fully-qualified control point (CP) name of the
               network node server.  For unassociated end node
               entries, the end node fully-qualified name
               is returned."

          ::=  { ibmappnDirEntry 2 }
```

```
ibmappnDirLuOwnerName    OBJECT-TYPE
     SYNTAX DisplayString (SIZE (3..17))
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Fully-qualified CP name of the node at which
          the LU is located.  This name is the same as the
          serving NN name when the LU is located at a
          network node or an unassociated end node.  It is
          also the same as the fully-qualified LU name
          when this is the control point LU for this node."

     ::=  { ibmappnDirEntry 3 }


ibmappnDirLuLocation        OBJECT-TYPE
     SYNTAX INTEGER {
                 local(1),     --Local
                 domain(2),    --Domain
                 xdomain(3)    --Cross Domain
                 }
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Specifies the location of the LU."

     ::=  { ibmappnDirEntry 4 }

ibmappnDirType              OBJECT-TYPE
     SYNTAX INTEGER {
                 home(1),      --defined as home entry
                 cache(2),     --learned over time
                 registered(3) --registered by end node
                 }
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Directory types are:
          1 - Home
                The LU is in the domain of the local network node
                and the LU information has been configured at the
                local node.

          2 - Cache
                The LU has previously been located by a broadcast
                search and the location information has been saved.

          3 - Register
```

                   The LU is at an end node that is in the domain
                   of the local network node. Registered entries
                   are registered by the served end node."

        ::= { ibmappnDirEntry 5 }

  ibmappnDirWildCard   OBJECT-TYPE
        SYNTAX INTEGER {
                       other(1),
                       explicit-entry(2),
                       partial-wildcard(3),
                       full-wildcard(4)
                      }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
           "1 - Other means unknown type of LU entry.
            2 - Expliced-entry means the full LUNAME will be used
                 for locating this LU.
            3 - Partial-wildcard means only the non-blank portions
                 of the LUNAME will be used for locating this LU.
            4 - Full-wildcard means all LUNAMES will be directed
                 to this LU."

        ::= { ibmappnDirEntry 6 }

  -- ************** The APPN Class of Service group **************

  ibmappnCos OBJECT IDENTIFIER ::= { ibmappn 6 } --APPN COS

  -- The APPN Class of Service (COS)

  -- Class of Service is a means of expressing the quality of the routes
  -- and the transmission priority of traffic which flows on these routes.
  -- The quality of routes is specified by two tables, a COS weight table
  -- for TGs and a COS weight table for nodes. These COS tables are
  -- administratively assigned at each APPN node. Seven default tables

  -- for TGs and a COS weight table for Nodes. These COS tables are
  -- administratively assigned at each APPN node with seven default tables
  -- being provided by IBM.
  --
  --
  --   COS Name
  --   Unqualified name identifying the class of service.
  --   Transmission priority

```
--           Transmission priority associated with this class of service
--    COS Node Row Table
--           At least one node row must be specified. The default
--           COS tables specify 8 rows.
--      Node Row Weight
--             Numeric value between 0 and 255 inclusive indicating
--             the weight associated with this row.
--      Route addition resist (min)
--             Numeric value between 0 and 255 inclusive indicating
--             the minimum route addition resistance for this row.
--      Route addition resist (max)
--             Numeric value between 0 and 255 inclusive indicating
--             the maximum route addition resistance for this row.
--      Congestion        (min)
--             Indicates whether this class of service for this row
--             will accept congestion. Yes or No must be specified.
--      Congestion        (max)
--             Indicates whether this Class of Service for this row
--             will accept congestion. Yes or No must be specified.
--
--    COS TG Row table
--           At least one TG row must be specified with the defaults
--           COS tables specify 8 rows.
--      TG Row Weight
--             Numeric value between 0 and 255 inclusive indicating
--             the weight associated with this row.
--      Effective capacity  (min)
--             Indicates the lowest acceptable value for this row.
--      Effective capacity  (max)
--             Indicates the highest required value for this row.
--      Cost per connect time  (min)
--             Indicates the lowest connect cost per unit time value
--             for this row.  This value is between 0 and 255 inclusive.
--      Cost per connect time  (max)
--             Indicates the highest connect cost per unit time value
--             for this row.  This value is between 0 and 255 inclusive.
--      Cost per byte       (min)
--             Indicates the lowest cost per byte value
--             for this row.  This value is between 0 and 255 inclusive.
--      Cost per byte       (max)
--             Indicates the highest cost per byte value
--             for this row.  This value is between 0 and 255 inclusive.
--      Security          (min)
--             Indicates the lowest acceptable value for security
--             for this row.  This value is one of seven values.
--      Security          (max)
--             Indicates the highest acceptable value for security
--             for this row.  This value is one of seven values.
```

```
--       Propagation delay   (min)
--             Indicates the lowest acceptable propagation delay value
--             for this row.
--       Propagation delay   (max)
--             Indicates the highest acceptable propagation delay value
--             for this row.
--       User defined 1      (min)
--             Indicates the lowest acceptable value
--             for this row.  This value is between 0 and 255 inclusive.
--       User defined 1      (max)
--             Indicates the highest acceptable value
--             for this row.  This value is between 0 and 255 inclusive.
--       User defined 2      (min)
--             Same as user defined 1
--       User defined 2      (max)
--             Same as user defined 1
--       User defined 3      (min)
--             Same as user defined 1
--       User defined 3      (max)
--             Same as user defined 1
--
--
--
--Due to SNMP ASN.1 limitations the COS table is defined
--in the following format.
--
-- MODE name table
--  MODE Name (index)
--  COS Name
--
-- COS name table
--  COS Name (index)
--  Transmission priority
--
-- COS node row table
--  COS Name (index1)
--  Index2
--  Node Row Weight
--  Rte addition resist (min)
--  Rte addition resist (max)
--  Congestion          (min)
--  Congestion          (max)
--
-- COS TG row table
--  COS Name (index1)
--  Index
--  TG Row Weight
--  Effective capacity  (min)
```

```
   --  Effective capacity  (max)
   --  Cost per conn time  (min)
   --  Cost per conn time  (max)
   --  cost per byte       (min)
   --  cost per byte       (max)
   --  Security            (min)
   --  Security            (max)
   --  Propagation delay   (min)
   --  Propagation delay   (max)
   --  User defined 1      (min)
   --  User defined 1      (max)
   --  User defined 2      (min)
   --  User defined 2      (max)
   --  User defined 3      (min)
   --  User defined 3      (max)
   --
   -- ************************************************************


   ibmappnCosModeTable OBJECT-TYPE
         SYNTAX SEQUENCE OF IbmappnCosModeEntry
         ACCESS not-accessible
         STATUS mandatory
         DESCRIPTION
             "Table representing all of the defined
             mode names for this node.  The table
             contains the matching COS name."

         ::= { ibmappnCos 1 }

   ibmappnCosModeEntry OBJECT-TYPE
         SYNTAX IbmappnCosModeEntry
         ACCESS not-accessible
         STATUS mandatory
         DESCRIPTION
              "This table is indexed by the Mode Name."

         INDEX
               {ibmappnCosModeName}

         ::= { ibmappnCosModeTable 1 }

   IbmappnCosModeEntry ::= SEQUENCE {
         ibmappnCosModeName                 DisplayString,
         ibmappnCosModeCosName              DisplayString
                                     }

   ibmappnCosModeName             OBJECT-TYPE
```

```
     SYNTAX DisplayString (SIZE (1..8))
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Administratively-assigned name for this
          mode entry."

     ::=  { ibmappnCosModeEntry 1 }

 ibmappnCosModeCosName    OBJECT-TYPE
     SYNTAX DisplayString (SIZE (1..8))
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "An administratively assigned name for this
          Class of Service."

     ::=  { ibmappnCosModeEntry 2 }



 -- ***********************************************************

 ibmappnCosNameTable OBJECT-TYPE
     SYNTAX SEQUENCE OF IbmappnCosNameEntry
     ACCESS not-accessible
     STATUS mandatory
     DESCRIPTION
         "Table representing all of the defined class-of-service
          names for this node.  The COS node and TG tables are
          accessed using the same index, which is the COS name."

     ::= { ibmappnCos 2 }

 ibmappnCosNameEntry OBJECT-TYPE
     SYNTAX IbmappnCosNameEntry
     ACCESS not-accessible
     STATUS mandatory
     DESCRIPTION
         "The COS name is the index to this table."

     INDEX
           {ibmappnCosName}

     ::= { ibmappnCosNameTable 1 }

 IbmappnCosNameEntry ::= SEQUENCE {
     ibmappnCosName                   DisplayString,
     ibmappnCosTransPriority          INTEGER
```

```
                                }


   ibmappnCosName              OBJECT-TYPE
        SYNTAX DisplayString (SIZE (1..8))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned name for this
             class of service."

        ::=  { ibmappnCosNameEntry 1 }

   ibmappnCosTransPriority OBJECT-TYPE
        SYNTAX INTEGER {
                    low(1),              --X'01'
                    medium(2),           --X'02'
                    high(3),             --X'03'
                    network(4)           --X'04'
                    }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Transmission priority for this
             class of service.  Values are:
               Low
               Medium
               High
               Network                                      "

        ::=  { ibmappnCosNameEntry 2 }


   ibmappnCosNodeRowTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnCosNodeRowEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "This table contains all node-row information for all
             class of service in this node."

        ::= { ibmappnCos 3 }

   ibmappnCosNodeRowEntry OBJECT-TYPE
        SYNTAX IbmappnCosNodeRowEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
```

```
            "The COS name is the first index and a integer
             is the second index to insure a unique index."

        INDEX
              {ibmappnCosNodeRowName,
               ibmappnCosNodeRowIndex}

        ::= { ibmappnCosNodeRowTable 1 }

  IbmappnCosNodeRowEntry ::= SEQUENCE {
        ibmappnCosNodeRowName                 DisplayString,
        ibmappnCosNodeRowIndex                INTEGER,
  --Node Row Group
        ibmappnCosNodeRowWgt                  DisplayString,
        ibmappnCosNodeRowResistMin            INTEGER,
        ibmappnCosNodeRowResistMax            INTEGER,
        ibmappnCosNodeRowMinCongestAllow      INTEGER,
        ibmappnCosNodeRowMaxCongestAllow      INTEGER
                                    }

  ibmappnCosNodeRowName             OBJECT-TYPE
        SYNTAX DisplayString (SIZE (1..8))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned name for this
            class of service."

        ::=  { ibmappnCosNodeRowEntry 1 }

  ibmappnCosNodeRowIndex      OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Index of COS name.  This same value is used
             to access the node and TG COS tables.
             Range of values is 0-255."

        ::=  { ibmappnCosNodeRowEntry 2 }

  --Node Row Group

  ibmappnCosNodeRowWgt      OBJECT-TYPE
        SYNTAX DisplayString
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
```

```
            "Weight to be associated with the nodes
             that fit the criteria specified by this node row."

        ::=  { ibmappnCosNodeRowEntry 3 }

  ibmappnCosNodeRowResistMin       OBJECT-TYPE
        SYNTAX INTEGER   (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Minimum route addition resistance value
             for this node. Range of values is 0-255.
             The lower the value, the more desirable
             the node is for intermediate routing."

        ::=  { ibmappnCosNodeRowEntry 4 }

  ibmappnCosNodeRowResistMax  OBJECT-TYPE
        SYNTAX INTEGER   (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Maximum route addition resistance value
             for this node. Range of values is 0-255.
             The lower the value, the more desirable
             the node is for intermediate routing."

        ::=  { ibmappnCosNodeRowEntry 5 }

  ibmappnCosNodeRowMinCongestAllow OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether low congestion will be
             tolerated.  The minimum and maximum parameters
             will allow specifying either low-congested,
             high-congested, or either to be used."

        ::=  { ibmappnCosNodeRowEntry 6 }

  ibmappnCosNodeRowMaxCongestAllow OBJECT-TYPE
        SYNTAX INTEGER {yes(1), no(2)}
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Indicates whether high congestion will be
             tolerated.  The minimum and maximum parameters
```

```
              will allow specifying either low-congested,
              high-congested, or either to be used."

        ::=  { ibmappnCosNodeRowEntry 7 }



  -- COS TG row table
  --  Index
  --  TG Row Weight
  --  Effective capacity   (min)
  --  Effective capacity   (max)
  --  Cost per conn time   (min)
  --  Cost per conn time   (max)
  --  cost per byte        (min)
  --  cost per byte        (max)
  --  Security             (min)
  --  Security             (max)
  --  Propagation delay    (min)
  --  Propagation delay    (max)
  --  User defined 1       (min)
  --  User defined 1       (max)
  --  User defined 2       (min)
  --  User defined 2       (max)
  --  User defined 3       (min)
  --  User defined 3       (max)
  --

  ibmappnCosTgRowTable OBJECT-TYPE
        SYNTAX SEQUENCE OF IbmappnCosTgRowEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Table containing all the Tg-row information for all
             class of service defined in this node."

        ::= { ibmappnCos 4 }

  ibmappnCosTgRowEntry OBJECT-TYPE
        SYNTAX IbmappnCosTgRowEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "The TgRowName and the TgRowIndex are the index
            for this table."

        INDEX
              {ibmappnCosTgRowName,
               ibmappnCosTgRowIndex}
```

        ::= { ibmappnCosTgRowTable 1 }

  IbmappnCosTgRowEntry ::= SEQUENCE {
        ibmappnCosTgRowName   DisplayString,
        ibmappnCosTgRowIndex   INTEGER,
  --TG Row Group
        ibmappnCosTgRowWgt   DisplayString,
        ibmappnCosTgRowEffCapMin   INTEGER,
        ibmappnCosTgRowEffCapMax   INTEGER,
        ibmappnCosTgRowConnCostMin   INTEGER,
        ibmappnCosTgRowConnCostMax   INTEGER,
        ibmappnCosTgRowByteCostMin   INTEGER,
        ibmappnCosTgRowByteCostMax   INTEGER,
        ibmappnCosTgRowSecurityMin   INTEGER,
        ibmappnCosTgRowSecurityMax   INTEGER,
        ibmappnCosTgRowDelayMin   INTEGER,
        ibmappnCosTgRowDelayMax   INTEGER,
        ibmappnCosTgRowUsr1Min   INTEGER,
        ibmappnCosTgRowUsr1Max   INTEGER,
        ibmappnCosTgRowUsr2Min   INTEGER,
        ibmappnCosTgRowUsr2Max   INTEGER,
        ibmappnCosTgRowUsr3Min   INTEGER,
        ibmappnCosTgRowUsr3Max   INTEGER
                              }

  ibmappnCosTgRowName   OBJECT-TYPE
        SYNTAX DisplayString (SIZE (1..8))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Administratively-assigned name for this
            class of service."

        ::= { ibmappnCosTgRowEntry 1 }

  ibmappnCosTgRowIndex   OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Index of COS name. This same value is used
             to access the node and TG COS tables."

        ::= { ibmappnCosTgRowEntry 2 }

  --TG Row

  ibmappnCosTgRowWgt   OBJECT-TYPE

        SYNTAX DisplayString
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Weight to be associated with the nodes
             that fit the criteria specified by this tg-row."

        ::= { ibmappnCosTgRowEntry 3 }

  ibmappnCosTgRowEffCapMin   OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Minimum acceptable speed for this Class of Service.
             The effective capacity is an integer value that indicates
             the actual kilo bits per second.
             It is derived from the link bandwidth and maximum load
             factor with the range of 0 thru 603,979,776."

        ::= { ibmappnCosTgRowEntry 4 }

  ibmappnCosTgRowEffCapMax   OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Maximum acceptable speed for this Class of Service.
             The effective capacity is an integer value that indicates
             the actual kilo bits per second.
             It is derived from the link bandwidth and maximum load
             factor with the range of 0 thru 603,979,776."

        ::= { ibmappnCosTgRowEntry 5 }

  ibmappnCosTgRowConnCostMin OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Minimum acceptable cost per connect time
             for this Class of Service.
             Cost per connect time: a value representing
             the relative cost per unit of time to use
             the TG. Range is from 0, which means no cost,
             to 255."

        ::= { ibmappnCosTgRowEntry 6 }

```
   ibmappnCosTgRowConnCostMax OBJECT-TYPE
        SYNTAX  INTEGER (0..255)
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
            "Maximum acceptable cost per connect time
             for this Class of Service.
             Cost per connect time: a value representing
             the relative cost per unit of time to use
             the TG. Range is from 0, which means no cost,
             to 255."

        ::=  { ibmappnCosTgRowEntry 7 }

   ibmappnCosTgRowByteCostMin  OBJECT-TYPE
        SYNTAX  INTEGER (0..255)
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
            "Minimum acceptable cost per byte
              for this Class of Service."

        ::=  { ibmappnCosTgRowEntry 8 }

   ibmappnCosTgRowByteCostMax  OBJECT-TYPE
        SYNTAX  INTEGER (0..255)
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
            "Maximum acceptable cost per byte
              for this Class of Service."

        ::=  { ibmappnCosTgRowEntry 9 }

   ibmappnCosTgRowSecurityMin  OBJECT-TYPE
        SYNTAX  INTEGER {
                    nonsecure(1),                --X'01'
                    publicSwitchedNetwork(32),   --X'20'
                    undergroundCable(64),        --X'40'
                    secureConduit(96),           --X'60'
                    guardedConduit(128),         --X'80'
                    encrypted(160),              --X'A0'
                    guardedRadiation(192)        --X'C0'
                }
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
            "Minimum acceptable security
```

               for this Class of Service."

          ::= { ibmappnCosTgRowEntry 10 }

   ibmappnCosTgRowSecurityMax OBJECT-TYPE
        SYNTAX INTEGER {
                     nonsecure(1),   --X'01'
                     publicSwitchedNetwork(32),   --X'20'
                     undergroundCable(64),   --X'40'
                     secureConduit(96),   --X'60'
                     guardedConduit(128),   --X'80'
                     encrypted(160),   --X'A0'
                     guardedRadiation(192)   --X'C0'
               }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Maximum acceptable security
             for this Class of Service."

          ::= { ibmappnCosTgRowEntry 11 }

   ibmappnCosTgRowDelayMin OBJECT-TYPE
        SYNTAX INTEGER {
                     minimum(0),   --X'00'
                     negligible(384),   --X'4C'
                     terrestrial(9216),   --X'71'
                     packet(147456),   --X'91'
                     long(294912),   --X'99'
                     maximum(2013265920)   --X'FF'
               }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "Minimum acceptable propagation delay for this class of service.
           Relative amount of time that it takes for a signal to travel
           the length of the logical link. This time is represented in
           micro seconds, with the more values enumerated."

          ::= { ibmappnCosTgRowEntry 12 }

   ibmappnCosTgRowDelayMax OBJECT-TYPE
        SYNTAX INTEGER {
                     minimum(0),   --X'00'
                     negligible(384),   --X'4C'
                     terrestrial(9216),   --X'71'
                     packet(147456),   --X'91'
                     long(294912),   --X'99'

```
                     maximum(2013265920)      --X'FF'
              }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "Maximum acceptable propagation delay for this class of service.
           Relative amount of time that it takes for a signal to travel
           the length of the logical link.  This time is represented in
           micro seconds, with the more values enumerated."

        ::=  { ibmappnCosTgRowEntry 13 }

   ibmappnCosTgRowUsr1Min  OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Minimum acceptable value for this
             user defined characteristic.
             Range of values is 0-255."

        ::=  { ibmappnCosTgRowEntry 14 }

   ibmappnCosTgRowUsr1Max  OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Maximum acceptable value for this
             user defined characteristic.
             Range of values is 0-255."

        ::=  { ibmappnCosTgRowEntry 15 }

   ibmappnCosTgRowUsr2Min  OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Minimum acceptable value for this
             user defined characteristic.
             Range of values is 0-255."

        ::=  { ibmappnCosTgRowEntry 16 }

   ibmappnCosTgRowUsr2Max  OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
```

```
        STATUS  mandatory
        DESCRIPTION
             "A Maximum acceptable value for this
              user defined characteristic."

        ::=  { ibmappnCosTgRowEntry 17 }

  ibmappnCosTgRowUsr3Min  OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Minimum acceptable value for this
              user defined characteristic.
              Range of values is 0-255."

        ::=  { ibmappnCosTgRowEntry 18 }

  ibmappnCosTgRowUsr3Max  OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
             "Maximum acceptable value for this
              user defined characteristic.
              Range of values is 0-255."

        ::=  { ibmappnCosTgRowEntry 19 }

   END
```

3.0 Acknowledgements

   Thanks go to David Chen, Leo Temoshenko, and Mike Allen for their
   contribution and support through the development process.

4.0 Security Considerations

   Security issues are not discussed in this memo.

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