DECnet Phase IV MIB Extensions

Status of this Memo

   This document specifies an Internet standards track protocol for the
   Internet community, and requests discussion and suggestions for
   improvements. Please refer to the current edition of the "Internet
   Official Protocol Standards" (STD 1) for the standardization state
   and status of this protocol. Distribution of this memo is unlimited.

Table of Contents

1. Introduction

   This memo defines a set of DECnet Phase IV extensions that have been
   created for the Internet MIB. It reflects changes which are the
   result of operational experience based on RFC 1289.

   When used in conjunction with the structure of management information
   (STD 16, RFC 1155), the management information base for network
   management of TCP/IP-based internets (STD 17, RFC 1213) and the
   Simple Network Management Protocol (STD 15, RFC 1157), it will be
   possible to provide integrated network management of combined TCP/IP
   and DECnet Phase IV based internets. This document was produced by
   the DECnet Phase IV MIB working group of the Internet Engineering
   Task Force (IETF).

   With the adoption of The Simple Network Management Protocol (STD 15,
   RFC 1157), the management information base for network management of
   TCP/IP-based internets (STD 17, RFC 1213), and the structure of

   management information (STD 16, RFC 1155), by the Internet, and a
   large number of vendor implementations of these standards in
   commercially available products, it became possible to provide a
   higher level of effective network management in TCP/IP-based
   internets than previously available. With the growth in the use of
   these standards, network managers desired to use this environment as
   a base for providing integrated network management of multi-protocol
   networks.

   DECnet Phase IV is one widely used protocol which often coexists in
   IP-based internets. This memo provides the mechanisms by which IP-
   based management stations can effectively manage DECnet Phase IV
   based systems (especially router products) in an integrated fashion
   through the use of the standard Internet SMI, MIB and Simple Network
   Management Protocol.

   DECnet Phase IV objects have been defined to be used in conjunction
   with the Internet MIB to allow access and control of these new
   objects by the Internet community. Additional support for other
   DECnet-based protocols such as RBMS (Remote Bridge Management
   Software) or other Digital Equipment Corporation specific hardware
   platforms is not included in this document.

2. The Network Management Framework

   The Internet-standard Network Management Framework consists of three
   components. They are:

   o STD 16, RFC 1155 which defines the SMI, the mechanisms used for
     describing and naming objects for the purpose of management.
     STD 16, RFC 1212 defines a more concise description mechanism,
     which is wholly consistent with the SMI.

   o STD 17, RFC 1213 defines MIB-II, the core set of managed objects
     for the Internet suite of protocols.

   o STD 15, RFC 1157 which defines the SNMP, the protocol used for
     network access to managed objects.

   The Framework permits new objects to be defined for the purpose of
   experimentation and evaluation.

2.1 Object Definitions

   Managed objects are accessed via a virtual information store, termed
   the Management Information Base or MIB. Objects in the MIB are
   defined using the subset of Abstract Syntax Notation One (ASN.1)
   defined in the SMI. In particular, each object type is named by an

OBJECT IDENTIFIER, an administratively assigned name. The object
type together with an object instance serves to uniquely identify a
specific instantiation of the object. For human convenience, we
often use a textual string, termed the descriptor, to refer to the
object type.

[3](#). Selected Objects

The objects included in this memo have been created from the DIGITAL
Network Architecture Network Management Functional Specification
Version 4.0.0, dated July 1983. An attempt has been made to provide a
reasonable ordering of these variables into groups. These groups are:

     System Group
     Network Management Group
     Session Group
     End Group
     Routing Group
     Circuit Group
     DDCMP Group
     DDCMP Multipoint Control Group
     Ethernet Group
     Counters Group
     Adjacency Group
     Line Group
     Non Broadcast Line Group
     Area Group

An effort has also been made to preserve the original syntax of each
object wherever possible, for example, a DECnet Phase IV object is
Executor State. This was originally coded as a NICE (Network
Information and Control Exchange) data type which is a coded single
field object of 1 byte in length. When converted for inclusion into
the Internet MIB using the Internet SMI, it became an enumerated
integer.

All objects in this memo are described using the standard Internet
SMI and BER of STD 16, [RFC 1155](#). A complete description of an object
will include the name, syntax and encoding. Just as with objects
supported in the MIB (STD 17, [RFC 1213](#)), an object name is identified
with an object identifier which has been administratively assigned.
This identifies an Object Type. When an object type is combined with
a specific instance, the particular object is uniquely identified.
The use of Object Descriptors in this memo is consistent with that of
STD 17, [RFC 1213](#) - they are text strings meant to be read by humans.
The descriptors have been taken from the original DIGITAL Network
Architecture Network Management Functional Specification Version
4.0.0 Dated July 1983 which defined DECnet Phase IV objects. These

names were then massaged to put them in a form as consistent as
possible with object type names listed in the standard Internet MIB.
Object defintion information is also taken directly from the Network
Architecture Network Managment Functional Specification cited above
wherever possible. In this document, EXECUTOR is intended to
reference only the DECnet software and is not intended to effect any
other protocols which may be running on the system.

[4](#). Textual Conventions

New datatypes have been introduced as a textual conventions in this
DECnet Phase IV MIB document. The purpose of these additions is to
facilitate understanding of new objects in this MIB. No changes to
the SMI or the SNMP are necessary to support these conventions which
are described in 5 (Definitions).

[5](#). Definitions

```
     DECNET-PHIV-MIB DEFINITIONS ::= BEGIN

     IMPORTS
        Gauge
           FROM RFC1155-SMI
         OBJECT-TYPE
            FROM RFC-1212
         mib-2, DisplayString
           FROM RFC1213-MIB;
```

-- DECNet Phase-IV MIB

```
     phiv      OBJECT IDENTIFIER ::= { mib-2 18 }
```

-- textual conventions

PhivAddr ::= OCTET STRING (SIZE (2))
-- This data type is intended as a short word representation of
-- standard DECnet Phase IV addresses. DECnet addresses are
-- hierarchically structured numbers assigned to a particular
-- DECnet node. The address is structured so that the area
-- number is contained in the most significant 6 bits of the
-- first octet. The next 2 bits of the first octet contain
-- the first two bits of the host address. The remainder of
-- the host address is contained in the second octet.

PhivCounter ::= INTEGER
-- This data type has been created for DECnet counters. These
-- counters latch at their maximum specified value until either
-- the system is restarted, or they are reset to zero by the user

    -- or management software.

    InterfaceIndex ::= INTEGER
    -- The range of ifIndex, i.e., (1..2147483647)

    -- groups in the decnetiv mib

         phivSystem   OBJECT IDENTIFIER ::= { phiv 1 }
         phivManagement   OBJECT IDENTIFIER ::= { phiv 2 }
         session   OBJECT IDENTIFIER ::= { phiv 3 }
         end   OBJECT IDENTIFIER ::= { phiv 4 }
         routing   OBJECT IDENTIFIER ::= { phiv 5 }
         circuit   OBJECT IDENTIFIER ::= { phiv 6 }
         ddcmp   OBJECT IDENTIFIER ::= { phiv 7 }
         control   OBJECT IDENTIFIER ::= { phiv 8 }
         ethernet   OBJECT IDENTIFIER ::= { phiv 9 }
         counters   OBJECT IDENTIFIER ::= { phiv 10 }
         adjacency   OBJECT IDENTIFIER ::= { phiv 11 }
         line   OBJECT IDENTIFIER ::= { phiv 12 }
         nonBroadcastLine   OBJECT IDENTIFIER ::= { phiv 14 }
         area   OBJECT IDENTIFIER ::= { phiv 15 }

    -- System Group

    -- The implementation of the System Group is mandatory for
    -- all systems.

    phivSystemState OBJECT-TYPE
        SYNTAX INTEGER {
            on (1),
            off (2),
            shut (3),
            restricted (4)
        }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This represents the operational state of the executor
            node.
            The possible states are:
            ON   Allows logical links.
            OFF   Allows no new links, terminates existing
                      links, and stops routing traffic through.
            SHUT   Allows no new logical links, does not
                      destroy existing logical links, and goes
                      to the OFF state when all logical links are
                      gone.

```
            RESTRICTED  Allows no new incoming logical links from
                        other nodes.

            NOTE: These values are incremented by one compared to
            the standard DECnet values in order to maintain
            compliance with RFC 1155)."
        ::= { phivSystem 1 }

    phivExecIdent OBJECT-TYPE
        SYNTAX DisplayString (SIZE (0..32))
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This is a text string that describes the executor node
            (for example, 'Research Lab').  The string is up to 32
            characters of any type."
        ::= { phivSystem 2 }

-- Network Management Group

-- The implementation of the Network Management Group is
-- mandatory for all systems which contain a DECnet-style
-- management version.


    phivMgmtMgmtVers OBJECT-TYPE
        SYNTAX DisplayString (SIZE (0..255))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This is the read-only Network Management Version,
            consisting of the version number, the Engineering
            Change Order (ECO) number, and the user ECO number
            (for example, 3.0.0). This parameter applies to the
            executor node only."
        ::= { phivManagement 1 }

-- Session Layer Group

-- The implementation of the Session Layer Group is optional.
-- A system can be said to implement this group if and only if
-- all objects in this group are implemented.

    phivSessionSystemName OBJECT-TYPE
        SYNTAX DisplayString (SIZE (0..6))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
```

           "Name to be associated with the node identification.
           Only one name can be assigned to a node address or a
           circuit identification. No name should be used more than
           once in a DECnet network. Node-name is one to six upper
           case alphanumeric characters with at least one alpha
           character. A length of 0 indicates no name."
       ::= { session 1 }

   phivSessionInTimer OBJECT-TYPE
       SYNTAX INTEGER (0..65535)
       ACCESS read-write
       STATUS mandatory
       DESCRIPTION
           "This value represents the maximum duration between the
           time a connect is received for a process at the
           executor node and the time that process accepts or
           rejects it. If the connect is not accepted or rejected
           by the user within the number of seconds specified,
           Session Control rejects it for the user. A value of 0
           indicates no timer is running."
       ::= { session 2 }

   phivSessionOutTimer OBJECT-TYPE
       SYNTAX INTEGER (0..65535)
       ACCESS read-write
       STATUS mandatory
       DESCRIPTION
           "This value represents the duration between the time the
           executor requests a connect and the time that connect is
           acknowledged by the destination node. If the connect is
           not acknowledged within the number of seconds
           specified, Session Control returns an error. A value of 0
           indicates no timer is running."
       ::= { session 3 }

   -- End Communication Layer Group

   -- The implementation of the End Communication Layer Group is optional.
   -- A system can be said to implement this group if and only if
   -- all objects in this group are implemented.

   -- Remote State Table

   phivEndRemoteTable OBJECT-TYPE
       SYNTAX SEQUENCE OF PhivEndRemoteEntry
       ACCESS not-accessible
       STATUS mandatory
       DESCRIPTION

                "Information about the state of sessions between the
                node under study and the nodes found in the table."
            ::= { end 1 }

    phivEndRemoteEntry OBJECT-TYPE
        SYNTAX PhivEndRemoteEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Information about a particular remote node as seen
            from the end communication layer."
        INDEX { phivEndRemoteHostNodeID }
        ::= { phivEndRemoteTable 1 }

    PhivEndRemoteEntry ::=
        SEQUENCE {
            phivEndRemoteHostNodeID
                PhivAddr,
            phivEndRemoteState
                INTEGER,
            phivEndCircuitIndex
                INTEGER,
            phivEndActiveLinks
                INTEGER,
            phivEndDelay
                INTEGER
        }

    phivEndRemoteHostNodeID OBJECT-TYPE
        SYNTAX PhivAddr -- OCTET STRING (SIZE (2))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This value is the address of the remote node to be
            evaluated."
        ::= { phivEndRemoteEntry 1 }

    phivEndRemoteState OBJECT-TYPE
        SYNTAX INTEGER {
            on (1),
            off (2),
            shut (3),
            restricted (4)
        }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This represents the operational state of the remote node

being evaluated.
The possible states are:

ON   Allows logical links.
OFF   Allows no new links, terminates existing
            links, and stops routing traffic through.
SHUT   Allows no new logical links, does not
            destroy existing logical links, and goes
            to the OFF state when all logical links are
            gone.
RESTRICTED Allows no new incoming logical links from
            other nodes.

NOTE: These values are incremented by one compared to
the standard DECnet values in order to maintain
compliance with [RFC 1155](#)."
    ::= { phivEndRemoteEntry 2 }

phivEndCircuitIndex OBJECT-TYPE
    SYNTAX INTEGER (1..65535)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "A unique index value for each known circuit used to
        communicate with the remote node. This is the same
        value as phivCircuitIndex."
    ::= { phivEndRemoteEntry 3 }

phivEndActiveLinks OBJECT-TYPE
    SYNTAX INTEGER (0..65535)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "This read-only parameter represents the number of active
        logical links from the executor to the destination node."
    ::= { phivEndRemoteEntry 4 }

phivEndDelay OBJECT-TYPE
    SYNTAX INTEGER (0..65535)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "This read-only parameter is the average round trip
        delay in seconds to the destination node. This
        parameter is kept on a remote node basis."
    ::= { phivEndRemoteEntry 5 }

-- End System Counter Table

    phivEndCountTable OBJECT-TYPE
        SYNTAX SEQUENCE OF PhivEndCountEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Information about the counters associated with each end
            system that is known to the entity. These counters
            reflect totals from the perspective of the executor
            node."
        ::= { end 2 }

    phivEndCountEntry OBJECT-TYPE
        SYNTAX PhivEndCountEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Information about a particular session between two end
            systems."
        INDEX { phivEndCountHostNodeID }
        ::= { phivEndCountTable 1 }

    PhivEndCountEntry ::=
        SEQUENCE {
            phivEndCountHostNodeID
                PhivAddr,
            phivEndCountSecsLastZeroed
                PhivCounter,
            phivEndCountUsrBytesRec
                PhivCounter,
            phivEndCountUsrBytesSent
                PhivCounter,
            phivEndUCountUsrMessRec
                PhivCounter,
            phivEndCountUsrMessSent
                PhivCounter,
            phivEndCountTotalBytesRec
                PhivCounter,
            phivEndCountTotalBytesSent
                PhivCounter,
            phivEndCountTotalMessRec
                PhivCounter,
            phivEndCountTotalMessSent
                PhivCounter,
            phivEndCountConnectsRecd
                PhivCounter,
            phivEndCountConnectsSent
                PhivCounter,

                phivEndCountReponseTimeouts
                    PhivCounter,
                phivEndCountRecdConnectResErrs
                    PhivCounter
            }

    phivEndCountHostNodeID OBJECT-TYPE
        SYNTAX PhivAddr -- OCTET STRING (SIZE (2))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This value is the address of the remote node to be
            evaluated."
        ::= { phivEndCountEntry 1 }

    phivEndCountSecsLastZeroed OBJECT-TYPE
        SYNTAX PhivCounter (0..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This value is the number of seconds that have elapsed
            since the counters for the node in this table row were
            last set to zero. This counter is located in the
            network management layer, but is returned with the
            end system information which follows."
        ::= { phivEndCountEntry 2 }

    phivEndCountUsrBytesRec OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of user bytes received from the target host."
        ::= { phivEndCountEntry 3 }

    phivEndCountUsrBytesSent OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of user bytes sent to the target host."
        ::= { phivEndCountEntry 4 }

    phivEndUCountUsrMessRec OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION

              "Number of user messages received from the target host."
          ::= { phivEndCountEntry 5 }

      phivEndCountUsrMessSent OBJECT-TYPE
          SYNTAX PhivCounter (0..2147483647)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of user messages sent to the target host."
          ::= { phivEndCountEntry 6 }

      phivEndCountTotalBytesRec OBJECT-TYPE
          SYNTAX PhivCounter (0..2147483647)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of bytes received from the target host."
          ::= { phivEndCountEntry 7 }

      phivEndCountTotalBytesSent OBJECT-TYPE
          SYNTAX PhivCounter (0..2147483647)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of bytes sent to the target host."
          ::= { phivEndCountEntry 8 }

      phivEndCountTotalMessRec OBJECT-TYPE
          SYNTAX PhivCounter (0..2147483647)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of messages received from the target host."
          ::= { phivEndCountEntry 9 }

      phivEndCountTotalMessSent OBJECT-TYPE
          SYNTAX PhivCounter (0..2147483647)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of messages sent to the target host."
          ::= { phivEndCountEntry 10 }

      phivEndCountConnectsRecd OBJECT-TYPE
          SYNTAX PhivCounter (0..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION

                "Number of connects received from the target host."
            ::= { phivEndCountEntry 11 }

    phivEndCountConnectsSent OBJECT-TYPE
            SYNTAX PhivCounter (0..65535)
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                "Number of connects sent to the target host."
            ::= {phivEndCountEntry 12 }

    phivEndCountReponseTimeouts OBJECT-TYPE
            SYNTAX PhivCounter (0..65535)
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                "Number of response timeouts."
            ::= { phivEndCountEntry 13 }

    phivEndCountRecdConnectResErrs OBJECT-TYPE
            SYNTAX PhivCounter (0..65535)
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                "Number of received connect resource errors."
            ::= {phivEndCountEntry 14 }

    -- additional End System objects

    phivEndMaxLinks OBJECT-TYPE
            SYNTAX INTEGER (1..65535)
            ACCESS read-write
            STATUS mandatory
            DESCRIPTION
                "This value represents the maximum active logical
                link count allowed for the executor."
            ::= { end 3 }

    phivEndNSPVers OBJECT-TYPE
            SYNTAX DisplayString (SIZE (0..255))
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                "This read-only parameter represents the version number
                of the node End Communication S/W. The format is
                version number, ECO, and user ECO, e.g., 4.1.0"
            ::= { end 4 }

    phivEndRetransmitFactor OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the maximum number of times the
            source End Communication at the executor node will
            restart the retransmission timer when it expires. If
            the number is exceeded, Session Control disconnects the
            logical link for the user."
        ::= { end 5 }

    phivEndDelayFact OBJECT-TYPE
        SYNTAX INTEGER (1..255)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This is the number by which to multiply one sixteenth
            of the estimated round trip delay to a node to set the
            retransmission timer to that node."
        ::= { end 6 }

    phivEndDelayWeight OBJECT-TYPE
        SYNTAX INTEGER (1..255)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This number represents the weight to apply to a
            current round trip delay estimate to a remote node
            when updating the estimated round trip delay to a node.
            On some systems the number must be 1 less than a power
            of 2 for computational efficiency."
        ::= { end 7 }

    phivEndInactivityTimer OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the maximum duration of inactivity
            (no data in either direction) on a logical link before
            the node checks to see if the logical link still works.
            If no activity occurs within the minimum number of
            seconds, End Communication generates artificial
            traffic to test the link (End Communication
            specification)."
        ::= { end 8 }

    phivEndCountZeroCount OBJECT-TYPE
        SYNTAX INTEGER {
            other (1),
            reset (2)
        }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "When this value is set to 2, all of the counters in
            the End System Counter Table are set to zero."
        ::= { end 9 }

    phivEndMaxLinksActive OBJECT-TYPE
        SYNTAX PhivCounter (0..65535)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the high water mark for the
            number of links that were active at any one time."
        ::= { end 10 }

    -- Routing Layer Group

    -- The implementation of the Routing Layer Group is mandatory for
    -- all systems that implement level 1 routing layer
    -- communications.

    phivRouteBroadcastRouteTimer OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value determines the maximum time in seconds
             allowed between Routing updates on Ethernet
             circuits. When this timer expired before a routing
             update occurs, a routing update is forced. With a
             standard calculation, Routing also uses this timer
             to enforce a minimum delay between routing updates."
        ::= { routing 1 }

    phivRouteBuffSize OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This parameter value determines the maximum size of
             a Routing message. It therefore determines the maximum
             size message that can be forwarded. This size includes

            protocol overhead down to and including the End
            Communication layer, plus a constant value of 6. (This
            value of 6 is included to provide compatibility with
            the parameter definition in Phase III, which included
            the Routing overhead.) It does not include Routing or
            Data link overhead (except for the constant value of
            6). There is one buffer size for all circuits.

            NOTE: The BUFFER SIZE defines the maximum size messages
            that the Routing layer can forward. The SEGMENT BUFFER
            SIZE (defined below) defines the maximum size messages
            that the End Communication layer can transmit or
            receive. The SEGMENT BUFFER SIZE is always less than
            or equal to the BUFFER SIZE. Normally the two
            parameters will be equal. They may be different to
            allow the network manager to alter buffer sizes
            on all nodes without interruption of service. They both
            include an extra 6 bytes for compatibility with Phase
            III."
        ::= { routing 2 }

    phivRouteRoutingVers OBJECT-TYPE
        SYNTAX DisplayString (SIZE (0..255))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This read-only parameter identifies the executor node's
            Routing version number. The format is version number,
            ECO, and user ECO, e.g., 4.1.0"
        ::= { routing 3 }

    phivRouteMaxAddr OBJECT-TYPE
        SYNTAX INTEGER (1..1023)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the largest node number and,
            therefore, number of nodes that can be known about
            by the executor node's home area."
        ::= { routing 4 }

    phivRouteMaxBdcastNonRouters OBJECT-TYPE
        SYNTAX INTEGER (0..65535)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the maximum total number of
            nonrouters the executor node can have on its Ethernet

               circuits."
          ::= { routing 5 }

     phivRouteMaxBdcastRouters OBJECT-TYPE
          SYNTAX INTEGER (0..65535)
          ACCESS read-write
          STATUS mandatory
          DESCRIPTION
              "This value represents the maximum total number of
              routers the executor node can have on its Ethernet
              circuits."
          ::= { routing 6 }

     phivRouteMaxBuffs OBJECT-TYPE
          SYNTAX INTEGER (1..65535)
          ACCESS read-write
          STATUS mandatory
          DESCRIPTION
              "This value represents the maximum number of transmit
              buffers that Routing may use for all circuits."
          ::= { routing 7 }

     phivRouteMaxCircuits OBJECT-TYPE
          SYNTAX INTEGER (1..65535)
          ACCESS read-write
          STATUS mandatory
          DESCRIPTION
              "This value represents the maximum number of Routing
              circuits that the executor node can know about."
          ::= { routing 8 }

     phivRouteMaxCost OBJECT-TYPE
          SYNTAX INTEGER (1..1022)
          ACCESS read-write
          STATUS mandatory
          DESCRIPTION
              "This value represents the maximum total path cost
              allowed from the executor to any node within an area.
              The path cost is the sum of the circuit costs along
              a path between two nodes. This parameter defines the
              point where the executor node's Routing routing
              decision algorithm declares another node unreachable
              because the cost of the least costly path to the
              other node is excessive. For correct operation, this
              parameter must not be less than the maximum path cost
              of the network."
          ::= { routing 9 }

```
    phivRouteMaxHops OBJECT-TYPE
        SYNTAX INTEGER (1..30)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the maximum number of routing hops
            allowable from the executor to any other reachable node
            within an area. (A hop is the logical distance over a
            circuit between two adjacent nodes.) This parameter
            defines the point where the executor node's Routing
            routing decision algorithm declares another node
            unreachable because the length of the shortest path
            between the two nodes is too long. For correct
            operation, this parameter must not be less than the
            network diameter. (The network diameter is the
            reachability distance between the two nodes of the
            network having the greatest reachability distance,
            where reachability distance is the length the shortest
            path between a given pair of nodes.)"
        ::= { routing 10 }

    phivRouteMaxVisits OBJECT-TYPE
        SYNTAX INTEGER (1..63)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the maximum number of nodes a
            message coming into the executor node can have visited.
            If the message is not for this node and the MAXIMUM
            VISITS number is exceeded, the message is discarded.
            The MAXIMUM VISITS parameter defines the point where
            the packet lifetime control algorithm discards
            a packet that has traversed too many nodes. For correct
            operation, this parameter must not be less than the
            maximum path length of the network. (The maximum path
            length is the routing distance between the two nodes of
            the network having the greatest routing distance, where
            routing distance is the length of the least costly
            path between a given pair of nodes.)"
        ::= { routing 11 }

    phivRouteRoutingTimer OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value determines the maximum time in seconds
            allowed between Routing updates on non-Ethernet
```

```
            circuits. When this timer expires before a routing
            update occurs, a routing update is forced."
        ::= { routing 12 }

    phivRouteSegBuffSize OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This parameter value determines the maximum size of an
            end-to-end segment. The size is a decimal integer in
            the range 1-65535. This size is in bytes. This size
            includes protocol overhead down to and including the
            End Communication layer, plus a constant value of 6.
            (This value of 6 is included to provide compatibility
            with the BUFFER SIZE parameter definition.) It does not
            include Routing or Data link overhead (except for the
            constant value of 6)."
        ::= { routing 13 }

    phivRouteType OBJECT-TYPE
        SYNTAX INTEGER {
            routing-III (1),
            nonrouting-III (2),
            area (3),
            routing-IV (4),
            nonrouting-IV (5)
        }
        ACCESS read-only
        STATUS obsolete
        DESCRIPTION
            "This parameter indicates the type of the executor
            node. The node-type is one of the following:

            routing-III
            nonrouting-III
            routing-IV
            ronrouting-IV
            area

            A routing node has full routing capability. A
            nonrouting node contains a subset of the Routing
            routing modules. The III and IV indicate the DNA
            phase of the node. Nonrouting nodes can deliver
            and receive packets to and from any node, but cannot
            route packets from other nodes through to other nodes.
            An area node routes between areas. Refer to the Routing
            specification for details.
```

            For adjacent nodes, this is a read-only parameter that
            indicates the type of the reachable adjacent node.
            NOTE: The ROUTING-III and NONROUTING-III values are
            incremented by one compared to the standard DECnet
            values in order to maintain compliance with [RFC 1155](RFC 1155))"
        ::= { routing 14 }

    phivRouteCountAgedPktLoss OBJECT-TYPE
        SYNTAX PhivCounter (0..127)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of aged packet losses."
        ::= { routing 15 }

    phivRouteCountNodeUnrPktLoss OBJECT-TYPE
        SYNTAX PhivCounter (0..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of node unreachable packet losses."
        ::= { routing 16 }

    phivRouteCountOutRngePktLoss OBJECT-TYPE
        SYNTAX PhivCounter (0..127)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of node out-of-range packet losses."
        ::= { routing 17 }

    phivRouteCountOverSzePktLoss OBJECT-TYPE
        SYNTAX PhivCounter (0..127)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of Oversized packet losses."
        ::= { routing 18 }

    phivRouteCountPacketFmtErr OBJECT-TYPE
        SYNTAX PhivCounter (0..127)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of packet format errors."
        ::= { routing 19 }

    phivRouteCountPtlRteUpdtLoss OBJECT-TYPE
        SYNTAX PhivCounter (0..127)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of partial routing update losses."
        ::= { routing 20 }

    phivRouteCountVerifReject OBJECT-TYPE
        SYNTAX PhivCounter (0..127)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of verification rejects."
        ::= { routing 21 }

    -- Level 1 Routing Table

    phivLevel1RouteTable OBJECT-TYPE
        SYNTAX SEQUENCE OF PhivLevel1RouteEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Information about the currently known DECnet Phase
            IV Routes."
        ::= { routing 22 }

    phivLevel1RouteEntry OBJECT-TYPE
        SYNTAX PhivLevel1RouteEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Information about the currently known DECnet Phase
            IV Routes."
        INDEX { phivLevel1RouteNodeAddr }
        ::= { phivLevel1RouteTable 1 }

    PhivLevel1RouteEntry ::=
        SEQUENCE {
            phivLevel1RouteNodeAddr
                PhivAddr,
            phivLevel1RouteCircuitIndex
                INTEGER,
            phivLevel1RouteCost
                INTEGER,
            phivLevel1RouteHops
                INTEGER,
            phivLevel1RouteNextNode

                    PhivAddr
            }

    phivLevel1RouteNodeAddr OBJECT-TYPE
          SYNTAX PhivAddr -- OCTET STRING (SIZE (2))
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "This value is the address of the node about which
              routing information is contained in this level 1
              routing table."
          ::= { phivLevel1RouteEntry 1 }

    phivLevel1RouteCircuitIndex OBJECT-TYPE
          SYNTAX INTEGER (1..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "A unique index value for each known circuit. This is
              the index to the circuit state table and is the same
              value as phivCircuitIndex."
          ::= { phivLevel1RouteEntry 2 }

    phivLevel1RouteCost OBJECT-TYPE
          SYNTAX INTEGER (0..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "This read-only parameter represents the total cost
              over the current path to the destination node. Cost is
              a positive integer value associated with using a
              circuit. Routing routes messages (data) along the path
              between two nodes with the smallest cost. COST is kept
              on a remote node basis."
          ::= { phivLevel1RouteEntry 3 }

    phivLevel1RouteHops OBJECT-TYPE
          SYNTAX INTEGER (0..127)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "This read-only parameter represents the number of hops
              over to a destination node. A hop is Routing value
              representing the logical distance between two nodes in
              a network. HOPS is kept on a remote node basis."
          ::= { phivLevel1RouteEntry 4 }

    phivLevel1RouteNextNode OBJECT-TYPE

          SYNTAX PhivAddr -- OCTET STRING (SIZE (2))
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "This read-only value indicates the next node on the
              circuit used to get to the node under scrutiny
              (next hop)."
          ::= { phivLevel1RouteEntry 5 }

    -- Additional routing parameters

    phivRouteCountZeroCount OBJECT-TYPE
          SYNTAX INTEGER {
              other (1),
              reset (2)
          }
          ACCESS read-write
          STATUS mandatory
          DESCRIPTION
              "When this value is set to 2, the following objects are
              set to Zero: phivRouteCountAgedPktLoss,
              phivRouteCountNodeUnrPktLoss,
              phivRouteCountOutRngePktLoss,
              phivRouteCountOverSzePktLoss,
              phivRouteCountPacketFmtErr,
              phivRouteCountPtlRteUpdtLoss, and
              phivRouteCountVerifReject."
          ::= { routing 23 }

    phivRouteSystemAddr OBJECT-TYPE
          SYNTAX PhivAddr -- OCTET STRING (SIZE (2))
          ACCESS read-only
          STATUS obsolete
          DESCRIPTION
              "DECnet Phase IV node address."
          ::= { routing 24 }

    phivRouteRoutingType OBJECT-TYPE
          SYNTAX INTEGER {
              routing-III (1),
              nonrouting-III (2),
              area (3),
              routing-IV (4),
              nonrouting-IV (5)
          }
          ACCESS read-write
          STATUS mandatory
          DESCRIPTION

          "This read-write parameter indicates the type of the executor
          node. The node-type is one of the following:

          routing-III
          nonrouting-III
          routing-IV
          ronrouting-IV
          area

          A routing node has full routing capability. A
          nonrouting node contains a subset of the Routing
          routing modules. The III and IV indicate the DNA
          phase of the node. Nonrouting nodes can deliver
          and receive packets to and from any node, but cannot
          route packets from other nodes through to other nodes.
          An area node routes between areas. Refer to the Routing
          specification for details.

          For adjacent nodes, this is a read-only parameter that
          indicates the type of the reachable adjacent node.
          NOTE: The ROUTING-III and NONROUTING-III values are
          incremented by one compared to the standard DECnet
          values in order to maintain compliance with [RFC 1155](RFC 1155))"
     ::= { routing 25 }

   phivRouteSystemAddress OBJECT-TYPE
       SYNTAX PhivAddr -- OCTET STRING (SIZE (2))
       ACCESS read-write
       STATUS mandatory
       DESCRIPTION
           "DECnet Phase IV node address."
       ::= { routing 26 }

   -- Circuit Group

   -- The implementation of the Circuit Group is mandatory for
   -- all systems.

   -- Circuit Parameters Table

   phivCircuitParametersTable OBJECT-TYPE
       SYNTAX SEQUENCE OF PhivCircuitParametersEntry
       ACCESS not-accessible
       STATUS mandatory
       DESCRIPTION
           "Information about the parameters associated with all
           circuits currently known."
       ::= {circuit 1 }

    phivCircuitParametersEntry OBJECT-TYPE
        SYNTAX PhivCircuitParametersEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Parameters information about all circuits currently
             known."
        INDEX { phivCircuitIndex }
        ::= { phivCircuitParametersTable 1 }

    PhivCircuitParametersEntry ::=
        SEQUENCE {
            phivCircuitIndex
                INTEGER,
            phivCircuitLineIndex
                INTEGER,
            phivCircuitCommonState
                INTEGER,
            phivCircuitCommonSubState
                INTEGER,
            phivCircuitCommonName
                DisplayString,
            phivCircuitExecRecallTimer
                INTEGER,
            phivCircuitCommonType
                INTEGER,
            phivCircuitService
                INTEGER,
            phivCircuitExecCost
                INTEGER,
            phivCircuitExecHelloTimer
                INTEGER
        }

    phivCircuitIndex OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "A unique index value for each known circuit."
        ::= { phivCircuitParametersEntry 1 }

    phivCircuitLineIndex OBJECT-TYPE
        SYNTAX InterfaceIndex
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The line on which this circuit is active. This is

```
         the same as the ifIndex."
    ::= { phivCircuitParametersEntry 2 }


phivCircuitCommonState OBJECT-TYPE
    SYNTAX INTEGER {
        on (1),
        off (2),
        service (3),
        cleared (4)
    }
    ACCESS read-write
    STATUS mandatory
    DESCRIPTION
        "This value represents the circuit's Network Management
        operational state. NOTE: These values are incremented
        by one compared to the standard DECnet values in order
        to maintain compliance with RFC 1155."
    ::= { phivCircuitParametersEntry 3 }

phivCircuitCommonSubState OBJECT-TYPE
    SYNTAX INTEGER {
        starting (1),
        reflecting (2),
        looping (3),
        loading (4),
        dumping (5),
        triggering (6),
        autoservice (7),
        autoloading (8),
        autodumping (9),
        autotriggering (10),
        synchronizing (11),
        failed (12),
        running (13)
    }
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "This value represents the circuit's Network Management
        operational and service substate. NOTE: These values are
        incremented by one compared to the standard DECnet values
        in order to maintain compliance with RFC 1155."
    ::= { phivCircuitParametersEntry 4 }

phivCircuitCommonName OBJECT-TYPE
    SYNTAX DisplayString (SIZE (0..16))
    ACCESS read-only
    STATUS mandatory
```

```
        DESCRIPTION
            "The name of the circuit entry in the table, for example,
             SVA-0 or in a level 2 router ASYNC-8 or ETHER-1)."
        ::= { phivCircuitParametersEntry 5 }

    phivCircuitExecRecallTimer OBJECT-TYPE
        SYNTAX INTEGER (0..65535)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This parameter represents the minimum number of
            seconds to wait before restarting the circuit.  A
            value of 0 indicates not timer is running."
        ::= { phivCircuitParametersEntry 6 }

    phivCircuitCommonType OBJECT-TYPE
        SYNTAX INTEGER {
            ddcmp-point (1),
            ddcmp-control (2),
            ddcmp-tributary (3),
            x25 (4),
            ddcmp-dmc (5),
            ethernet (6),
            ci (7),
            qp2-dte20 (8),
            bisync (9),
            other (14),
            fddi (15)
        }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Represents the type of the circuit. For X.25 circuits,
            the value must be set to X25. For DDCMP and Ethernet
            circuits it is read only and is the same value as the
            protocol of the associated line.
            NOTE: Values 1 - 5 are incremented by one compared to the
            standard DECnet values in order to maintain compliance
            with RFC 1155."
        ::= { phivCircuitParametersEntry 7 }

    phivCircuitService  OBJECT-TYPE
        SYNTAX INTEGER {
            enabled (1),
            disabled (2)
        }
        ACCESS read-write
        STATUS mandatory
```

         DESCRIPTION
             "This value indicates whether or not Network Management
             allows service operations on a circuit. The values for
             service-control are as follows:

             ENABLED   SERVICE state and/or service functions are
                          allowed.

             DISABLED   SERVICE state and/or service functions are not
                          allowed.

             NOTE: These values are incremented by one compared to the
             standard DECnet values in order to maintain compliance
             with [RFC 1155](#)."
         ::= { phivCircuitParametersEntry 8 }

     phivCircuitExecCost OBJECT-TYPE
         SYNTAX INTEGER (1..25)
         ACCESS read-write
         STATUS mandatory
         DESCRIPTION
             "This value represents the routing cost of the circuit.
             Routing sends messages along the path between two nodes
             having the smallest cost."
         ::= { phivCircuitParametersEntry 9 }

     phivCircuitExecHelloTimer OBJECT-TYPE
         SYNTAX INTEGER (1..8191)
         ACCESS read-write
         STATUS mandatory
         DESCRIPTION
             "This value determines the frequency of Routing Hello
             messages sent to the adjacent node on the circuit."
         ::= { phivCircuitParametersEntry 10 }

     -- Circuit Counters Table

     phivCircuitCountTable OBJECT-TYPE
         SYNTAX SEQUENCE OF PhivCircuitCountEntry
         ACCESS not-accessible
         STATUS mandatory
         DESCRIPTION
             "Information about the counters associated with all
             circuits currently known."
         ::= { circuit 2 }

           phivCircuitCountEntry OBJECT-TYPE
         SYNTAX PhivCircuitCountEntry

         ACCESS not-accessible
         STATUS mandatory
         DESCRIPTION
             "Counter information about all circuits currently known"
         INDEX   { phivCircuitIndex }
         ::= { phivCircuitCountTable 1 }

     PhivCircuitCountEntry ::=
         SEQUENCE {
             phivCircuitCountSecLastZeroed
                 PhivCounter,
             phivCircuitCountTermPacketsRecd
                 PhivCounter,
             phivCircuitCountOriginPackSent
                 PhivCounter,
             phivCircuitCountTermCongLoss
                 PhivCounter,
             phivCircuitCountCorruptLoss
                 PhivCounter,
             phivCircuitCountTransitPksRecd
                 PhivCounter,
             phivCircuitCountTransitPkSent
                 PhivCounter,
             phivCircuitCountTransitCongestLoss
                 PhivCounter,
             phivCircuitCountCircuitDown
                 PhivCounter,
             phivCircuitCountInitFailure
                 PhivCounter,
             phivCircuitCountAdjDown
                 PhivCounter,
             phivCircuitCountPeakAdj
                 PhivCounter,
             phivCircuitCountBytesRecd
                 PhivCounter,
             phivCircuitCountBytesSent
                 PhivCounter,
             phivCircuitCountDataBlocksRecd
                 PhivCounter,
             phivCircuitCountDataBlocksSent
                 PhivCounter,
             phivCircuitCountUsrBuffUnav
                 PhivCounter
         }

     phivCircuitCountSecLastZeroed OBJECT-TYPE
         SYNTAX PhivCounter (0..65535)
         ACCESS read-only

```
    STATUS mandatory
    DESCRIPTION
        "Number of seconds since the circuit counters for this
        circuit were last zeroed."
    ::= { phivCircuitCountEntry 1 }

phivCircuitCountTermPacketsRecd OBJECT-TYPE
    SYNTAX PhivCounter (0..2147483647)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of terminating packets received on this circuit."
    ::= { phivCircuitCountEntry 2 }

phivCircuitCountOriginPackSent OBJECT-TYPE
    SYNTAX PhivCounter (0..2147483647)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of originating packets sent on this circuit."
    ::= { phivCircuitCountEntry 3 }

phivCircuitCountTermCongLoss OBJECT-TYPE
    SYNTAX PhivCounter (0..65535)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of terminating congestion losses on this
        circuit."
    ::= { phivCircuitCountEntry 4 }

phivCircuitCountCorruptLoss OBJECT-TYPE
    SYNTAX PhivCounter (0..255)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of corruption losses on this circuit."
    ::= { phivCircuitCountEntry 5 }

phivCircuitCountTransitPksRecd OBJECT-TYPE
    SYNTAX PhivCounter (0..2147483647)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of Transit packets received on this circuit."
    ::= { phivCircuitCountEntry 6 }

phivCircuitCountTransitPkSent OBJECT-TYPE
```

```
     SYNTAX PhivCounter (0..2147483647)
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Number of transit packets sent on this circuit."
     ::= { phivCircuitCountEntry 7 }

 phivCircuitCountTransitCongestLoss OBJECT-TYPE
     SYNTAX PhivCounter (0..65535)
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Number of transit congestion losses on this circuit."
     ::= { phivCircuitCountEntry 8 }

 phivCircuitCountCircuitDown OBJECT-TYPE
     SYNTAX PhivCounter (0..255)
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Number of circuit downs on this circuit."
     ::= { phivCircuitCountEntry 9 }

 phivCircuitCountInitFailure OBJECT-TYPE
     SYNTAX PhivCounter (0..255)
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "Number of Initialization failures on this circuit."
     ::= { phivCircuitCountEntry 10 }

 phivCircuitCountAdjDown OBJECT-TYPE
     SYNTAX PhivCounter (0..2147483647)
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "This counter indicates the number of adjacency losses
         that result from any of the following:
                 Node listener timeout
                 Invalid data received at node listener
                 Unexpected control (initialization or verification)
                     message received
                 Routing message received with a checksum error
                 Node identification from a routing message or a
                 Hello message that is not the one expected Hello
                 message received indicating that connectivity
                 became one-way
                 Adjacency idled."
```

          ::= { phivCircuitCountEntry 11 }

     phivCircuitCountPeakAdj OBJECT-TYPE
          SYNTAX PhivCounter (0..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "This counter indicates the maximum number of nodes
              that are up on the circuit."
          ::= { phivCircuitCountEntry 12 }

     phivCircuitCountBytesRecd OBJECT-TYPE
          SYNTAX PhivCounter (0..2147483647)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of bytes received on this circuit."
          ::= { phivCircuitCountEntry 13 }

     phivCircuitCountBytesSent OBJECT-TYPE
          SYNTAX PhivCounter (0..2147483647)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of bytes sent on this circuit."
          ::= { phivCircuitCountEntry 14 }

     phivCircuitCountDataBlocksRecd OBJECT-TYPE
          SYNTAX PhivCounter (0..2147483647)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of data blocks received on this circuit."
          ::= { phivCircuitCountEntry 15 }

     phivCircuitCountDataBlocksSent OBJECT-TYPE
          SYNTAX PhivCounter (0..2147483647)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of data blocks sent on this circuit."
          ::= { phivCircuitCountEntry 16 }

     phivCircuitCountUsrBuffUnav OBJECT-TYPE
          SYNTAX PhivCounter (0..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION

              "Number of user buffer unavailable errors."
          ::= { phivCircuitCountEntry 17 }

    -- Additional Circuit Parameters

    phivCircuitOrigQueueLimit OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This parameter indicates the maximum number of
            originating packets that may be outstanding on this
            circuit. This does not include route-thru traffic."
        ::= { circuit 3 }

    phivCircuitCountZeroCount OBJECT-TYPE
        SYNTAX INTEGER {
            other (1),
            reset (2)
        }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "When this value is set to 2, all of the counters in the
            Circuit Counter Table are set to zero."
        ::= { circuit 4 }

    -- DDCMP Circuit Group

    -- The implementation of the DDCMP Circuit Group is optional.
    -- A system can be said to implement this group if and only if
    -- all objects in this group are implemented.

    -- DDCMP Parameters Table

    phivDDCMPCircuitParametersTable OBJECT-TYPE
        SYNTAX SEQUENCE OF PhivDDCMPCircuitParametersEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Information about DDCMP circuit parameters."
        ::= { ddcmp 1}

    phivDDCMPCircuitParametersEntry OBJECT-TYPE
        SYNTAX PhivDDCMPCircuitParametersEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION

            "Parameters information about DDCMP circuits currently
             known."
        INDEX   { phivDDCMPCircuitIndex }
        ::= { phivDDCMPCircuitParametersTable 1 }

    PhivDDCMPCircuitParametersEntry ::=
        SEQUENCE {
            phivDDCMPCircuitIndex
                INTEGER,
            phivDDCMPCircuitAdjNodeAddr
                INTEGER,
            phivDDCMPCircuitTributary
                INTEGER
        }

    phivDDCMPCircuitIndex OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "A unique index value for each known DDCMP circuit.
            This is the same value as phivCircuitIndex."
        ::= { phivDDCMPCircuitParametersEntry 1 }

    phivDDCMPCircuitAdjNodeAddr OBJECT-TYPE
        SYNTAX PhivAddr -- OCTET STRING (SIZE (2))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The address of the adjacent node."
        ::= { phivDDCMPCircuitParametersEntry 2 }

    phivDDCMPCircuitTributary OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This value represents the Data Link physical tributary
            address of the circuit."
        ::= { phivDDCMPCircuitParametersEntry 3 }

    -- DDCMP Circuit Counter Table

    phivDDCMPCircuitCountTable OBJECT-TYPE
        SYNTAX SEQUENCE OF PhivDDCMPCircuitCountEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION

            "Information about the DDCMP counters associated with all
            circuits currently known."
        ::= { ddcmp 2 }

    phivDDCMPCircuitCountEntry OBJECT-TYPE
        SYNTAX PhivDDCMPCircuitCountEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Counter information about DDCMP circuits now known"
        INDEX   { phivCircuitIndex }
        ::= { phivDDCMPCircuitCountTable 1 }

    PhivDDCMPCircuitCountEntry ::=
        SEQUENCE {
            phivDDCMPCircuitErrorsInbd
                PhivCounter,
            phivDDCMPCircuitErrorsOutbd
                PhivCounter,
            phivDDCMPCircuitRmteReplyTimeouts
                PhivCounter,
            phivDDCMPCircuitLocalReplyTimeouts
                PhivCounter,
            phivDDCMPCircuitRmteBuffErrors
                PhivCounter,
            phivDDCMPCircuitLocalBuffErrors
                PhivCounter,
            phivDDCMPCircuitSelectIntervalsElap
                PhivCounter,
            phivDDCMPCircuitSelectTimeouts
                PhivCounter
        }

    phivDDCMPCircuitErrorsInbd OBJECT-TYPE
        SYNTAX PhivCounter (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of Data errors inbound."
        ::= { phivDDCMPCircuitCountEntry 1 }

    phivDDCMPCircuitErrorsOutbd OBJECT-TYPE
        SYNTAX PhivCounter (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of outbound data errors."
        ::= { phivDDCMPCircuitCountEntry 2 }

     phivDDCMPCircuitRmteReplyTimeouts OBJECT-TYPE
         SYNTAX PhivCounter (0..255)
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Number of remote reply timeouts."
         ::= { phivDDCMPCircuitCountEntry 3 }

     phivDDCMPCircuitLocalReplyTimeouts OBJECT-TYPE
         SYNTAX PhivCounter (0..255)
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Number of local Reply timeouts."
         ::= { phivDDCMPCircuitCountEntry 4 }

     phivDDCMPCircuitRmteBuffErrors OBJECT-TYPE
         SYNTAX PhivCounter (0..255)
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Number of remote reply time out errors."
         ::= { phivDDCMPCircuitCountEntry 5 }

     phivDDCMPCircuitLocalBuffErrors OBJECT-TYPE
         SYNTAX PhivCounter (0..255)
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Number of local buffer errors."
         ::= { phivDDCMPCircuitCountEntry 6 }

     phivDDCMPCircuitSelectIntervalsElap OBJECT-TYPE
         SYNTAX PhivCounter (0..65535)
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Selection intervals that have elapsed."
         ::= {phivDDCMPCircuitCountEntry 7 }

     phivDDCMPCircuitSelectTimeouts OBJECT-TYPE
         SYNTAX INTEGER (0..255)
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "Number of selection timeouts."
         ::= {phivDDCMPCircuitCountEntry 8 }

    -- DDCMP Line Count Table

    phivDDCMPLineCountTable OBJECT-TYPE
        SYNTAX SEQUENCE OF PhivDDCMPLineCountEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "The DDCMP Line Count Table."
        ::= { ddcmp 3 }

    phivDDCMPLineCountEntry OBJECT-TYPE
        SYNTAX PhivDDCMPLineCountEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "There is one entry in the table for each line."
        INDEX { phivDDCMPLineCountIndex }
        ::= { phivDDCMPLineCountTable 1 }

    PhivDDCMPLineCountEntry ::=
        SEQUENCE {
            phivDDCMPLineCountIndex
                InterfaceIndex,
            phivDDCMPLineCountDataErrsIn
                PhivCounter,
            phivDDCMPLineCountRmteStationErrs
                PhivCounter,
            phivDDCMPLineCountLocalStationErrs
                PhivCounter
        }

    phivDDCMPLineCountIndex OBJECT-TYPE
        SYNTAX InterfaceIndex
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The line on which this entry's equivalence is
            effective. The interface identified by a particular
            value of this index is the same interface as
            identified by the same value of phivLineIndex.
            This value is the ifIndex."
        ::= { phivDDCMPLineCountEntry 1 }

    phivDDCMPLineCountDataErrsIn OBJECT-TYPE
        SYNTAX PhivCounter (0..255)
        ACCESS read-only
        STATUS mandatory

          DESCRIPTION
              "Number of data errors inbound."
          ::= { phivDDCMPLineCountEntry 2 }

     phivDDCMPLineCountRmteStationErrs OBJECT-TYPE
          SYNTAX PhivCounter (0..255)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "Number of remote station errors."
          ::= { phivDDCMPLineCountEntry 3 }

     phivDDCMPLineCountLocalStationErrs OBJECT-TYPE
          SYNTAX PhivCounter (0..255)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
               "Number of local station errors."
          ::= { phivDDCMPLineCountEntry 4 }

     -- DDCMP Multipoint Circuit Control Group

     -- The implementation of the DDCMP Multipoint Circuit Control
     -- Group is optional. A system can be said to implement this group
     -- if and only if all objects in this group are implemented.

     phivControlSchedTimer OBJECT-TYPE
          SYNTAX INTEGER (50..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "This value represents the number of milliseconds
              between recalculation of tributary polling priorities."
          DEFVAL { 200 }
          ::= { control 1 }

     phivControlDeadTimer OBJECT-TYPE
          SYNTAX INTEGER (1..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "This value represents the number of milliseconds
              between polls of one of the set of dead
              tributaries."
          DEFVAL { 10000 }
          ::= { control 2 }

     phivControlDelayTimer OBJECT-TYPE

          SYNTAX INTEGER (1..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "This value represents the minimum number of
              milliseconds to delay between polls. The delay timer
              limits the effect of a very fast control station on
              slow tributaries."
          ::= { control 3 }

      phivControlStreamTimer OBJECT-TYPE
          SYNTAX INTEGER (0..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "This value represents the number of milliseconds a
              tributary or a half duplex remote station is
              allowed to hold the line.

              NOTE: This parameter can also be applied to
              half-duplex lines of type DDCMP POINT."
          DEFVAL { 6000 }
          ::= { control 4 }

      -- DDCMP Multipoint Circuit Control Parameters Table

      phivControlParametersTable OBJECT-TYPE
          SYNTAX SEQUENCE OF PhivControlParametersEntry
          ACCESS not-accessible
          STATUS mandatory
          DESCRIPTION
              "Information about control circuit parameters."
          ::= { control 5 }

      phivControlParametersEntry OBJECT-TYPE
          SYNTAX PhivControlParametersEntry
          ACCESS not-accessible
          STATUS mandatory
          DESCRIPTION
              "Parameters information about control circuits
              currently known."
          INDEX { phivControlCircuitIndex }
          ::= { phivControlParametersTable 1 }

      PhivControlParametersEntry ::=
          SEQUENCE {
              phivControlCircuitIndex
                  INTEGER,

```
            phivControlBabbleTimer
                INTEGER,
            phivControlMaxBuffs
                INTEGER,
            phivControlMaxTransmits
                INTEGER,
            phivControlDyingBase
                INTEGER,
            phivControlDyingIncrement
                INTEGER,
            phivControlDeadThreshold
                INTEGER,
            phivControlDyingThreshold
                INTEGER,
            phivControlInactTreshold
                INTEGER,
            phivControlPollingState
                INTEGER,
            phivControlPollingSubState
                INTEGER,
            phivControlTransTimer
                INTEGER
        }

    phivControlCircuitIndex OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "A unique index value for each known multipoint
            control circuit.
            This is the same value as phivCircuitIndex."
        ::= { phivControlParametersEntry 1 }

    phivControlBabbleTimer OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the number of milliseconds that a
            selected tributary or remote half-duplex station is
            allowed to transmit."
        DEFVAL { 6000 }
        ::= { phivControlParametersEntry 2 }

    phivControlMaxBuffs  OBJECT-TYPE
        SYNTAX INTEGER (1..254)
        ACCESS read-write
```

        STATUS mandatory
        DESCRIPTION
            "This value represents the maximum number of buffers the
            tributary can use from a common buffer pool. If not
            set, there is no common buffer pool and buffers are
            explicitly supplied by the higher level. Count is a
            decimal integer in the range 1-254."
        ::= { phivControlParametersEntry 3 }

    phivControlMaxTransmits OBJECT-TYPE
        SYNTAX INTEGER (1..255)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the maximum number of data
            messages that can be transmitted at one time. Count
            is a decimal integer in the range 1-255."
        DEFVAL { 4 }
        ::= { phivControlParametersEntry 4 }

    phivControlDyingBase OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the base priority to which a
            tributary is reset each time it has been polled. A
            separate base can be set for each of the indicated
            polling states. Base is a decimal integer in the range
            0-255. If not set, the defaults are: active, 255;
            inactive, 0; and dying, 0."
        ::= { phivControlParametersEntry 5 }

    phivControlDyingIncrement OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the increment added to the
            tributary priority each time the scheduling timer
            expires. If not set, the defaults are: active, 0;
            inactive, 64; and dying, 16."
        ::= { phivControlParametersEntry 6 }

    phivControlDeadThreshold OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-write
        STATUS mandatory

        DESCRIPTION
            "This value represents the number of times to poll the
            active, inactive, or dying tributary before changing
            its polling state to dead because of receive timeouts.
            Count is a decimal integer in the range 0-255."
        DEFVAL { 8 }
        ::= { phivControlParametersEntry 7 }

    phivControlDyingThreshold OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the number of times to poll the
            active or inactive tributary before changing its
            polling state to dying because of receive timeouts.
            Count is a decimal integer in the range 0-255."
        DEFVAL { 2 }
        ::= { phivControlParametersEntry 8 }

    phivControlInactTreshold OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the number of times to poll the
            active tributary before changing its polling state to
            inactive because of no data response. Count is a
            decimal integer in the range
            0-255."
        DEFVAL { 8 }
        ::= { phivControlParametersEntry 9 }

    phivControlPollingState OBJECT-TYPE
        SYNTAX INTEGER {
            automatic (1),
            active (2),
            inactive (3),
            dying (4),
            dead (5)
        }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the state of the tributary
            relative to the multipoint polling algorithm. If not
            set the default is AUTOMATIC. The possible states are:

              AUTOMATIC

                The tributary's state is allowed to vary according to
                the operation of the polling algorithm.

              ACTIVE/INACTIVE/DYING/DEAD

                The tributary is locked in the specified state.

               NOTE: These values are incremented by one compared to
               the standard DECnet values in order to maintain
               compliance with [RFC 1155](#)."
          ::= { phivControlParametersEntry 10 }

    phivControlPollingSubState OBJECT-TYPE
          SYNTAX INTEGER {
              active (1),
              inactive (2),
              dying (3),
              dead (4)
          }
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "This value represents the tributary's state as
              determined by the polling algorithm. This applies
              only when the polling state is AUTOMATIC and is
              read-only to Network Management. Polling-substate is
              one of ACTIVE, INACTIVE, DYING, or DEAD. It is
              displayed as a tag on the polling state, for example:
              AUTOMATIC-INACTIVE."
          ::= { phivControlParametersEntry 11 }

    phivControlTransTimer OBJECT-TYPE
          SYNTAX INTEGER (0..65535)
          ACCESS read-write
          STATUS mandatory
          DESCRIPTION
              "This value represents the number of milliseconds to
              delay between data message transmits. Milliseconds is
              a decimal integer in the range 0-65535."
          DEFVAL { 0 }
          ::= { phivControlParametersEntry 12 }

    -- Ethernet Group

    -- The implementation of the Ethernet Group is mandatory
    -- for all systems which support ethernet links.

    -- Ethernet Parameters Table

    phivEthLinkParametersTable OBJECT-TYPE
        SYNTAX SEQUENCE OF PhivEthLinkParametersEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Information about ethernet link parameters."
        ::= { ethernet 1}

    phivEthLinkParametersEntry OBJECT-TYPE
        SYNTAX PhivEthLinkParametersEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Parameter information about ethernet links currently
            known."
        INDEX   { phivEthLinkIndex }
        ::= { phivEthLinkParametersTable 1 }

    PhivEthLinkParametersEntry ::=
        SEQUENCE {
            phivEthLinkIndex
                INTEGER,
            phivEthDesigRouterNodeAddr
                PhivAddr,
            phivEthMaxRouters
                INTEGER,
            phivEthRouterPri
                INTEGER,
            phivEthHardwareAddr
                OCTET STRING
         }

    phivEthLinkIndex OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The circuit over which this links information is
            collected. This is the same as phivCircuitIndex."
        ::= { phivEthLinkParametersEntry 1 }

    phivEthDesigRouterNodeAddr OBJECT-TYPE
        SYNTAX PhivAddr -- OCTET STRING (SIZE (2))
        ACCESS read-only
        STATUS mandatory

          DESCRIPTION
              "This value is the address of the designated router."
          ::= { phivEthLinkParametersEntry 2 }

   phivEthMaxRouters OBJECT-TYPE
          SYNTAX INTEGER (0..255)
          ACCESS read-write
          STATUS mandatory
          DESCRIPTION
              "This parameter is the maximum number of routers (other
               than the executor itself) allowed on the circuit by
               Routing for circuits that are owned by the executor
               node."
          ::= { phivEthLinkParametersEntry 3 }

   phivEthRouterPri OBJECT-TYPE
          SYNTAX INTEGER (0..127)
          ACCESS read-write
          STATUS mandatory
          DESCRIPTION
              "This parameter is the priority that this router is to
               have in the selection of designated router for the
               circuit on circuits that are owned by the executor
               node."
          DEFVAL { 64 }
          ::= { phivEthLinkParametersEntry 4 }

   phivEthHardwareAddr OBJECT-TYPE
          SYNTAX OCTET STRING (SIZE (6))
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
              "This read-only parameter is the address that is
               associated with the line device hardware as seen by
               the DECnet Software. This value is not the same as
               ifPhysAddress."
          ::= { phivEthLinkParametersEntry 5 }

   -- Counters Group

   -- The implementation of the Counters Group is optional.
   -- A system can be said to implement this group if and only if
   -- all objects in this group are implemented.

   -- Counters Table

   phivCountersCountTable OBJECT-TYPE
          SYNTAX SEQUENCE OF PhivCountersCountEntry

        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Information about ethernet link counters."
        ::= { counters 1 }

   phivCountersCountEntry OBJECT-TYPE
        SYNTAX PhivCountersCountEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
            "Counter information about ethernet links currently
            known."
        INDEX   { phivCountersIndex }
        ::= { phivCountersCountTable 1 }

   PhivCountersCountEntry ::=
        SEQUENCE {
            phivCountersIndex
                InterfaceIndex,
            phivCountersCountBytesRecd
                PhivCounter,
            phivCountersCountBytesSent
                PhivCounter,
            phivCountersCountDataBlocksRecd
                PhivCounter,
            phivCountersCountDataBlocksSent
                PhivCounter,
            phivCountersCountEthUsrBuffUnav
                PhivCounter,
            phivCountersCountMcastBytesRecd
                PhivCounter,
            phivCountersCountDataBlksRecd
                PhivCounter,
            phivCountersCountDataBlksSent
                PhivCounter,
            phivCountersCountMcastBlksRecd
                PhivCounter,
            phivCountersCountBlksSentDef
                PhivCounter,
            phivCountersCountBlksSentSingleCol
                PhivCounter,
            phivCountersCountBlksSentMultCol
                PhivCounter,
            phivCountersCountSendFailure
                PhivCounter,
            phivCountersCountCollDetectFailure
                PhivCounter,

```
             phivCountersCountReceiveFailure
                 PhivCounter,
             phivCountersCountUnrecFrameDest
                 PhivCounter,
             phivCountersCountDataOver
                 PhivCounter,
             phivCountersCountSysBuffUnav
                 PhivCounter,
             phivCountersCountUsrBuffUnav
                 PhivCounter
          }

    phivCountersIndex OBJECT-TYPE
        SYNTAX InterfaceIndex
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The interface to which these counters apply.  This is
            the same interface as identified by the same value of
            phivLineIndex. This value is the ifIndex."
        ::= { phivCountersCountEntry 1 }

    phivCountersCountBytesRecd OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of bytes received over this link."
        ::= { phivCountersCountEntry 2 }

    phivCountersCountBytesSent OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of bytes sent over this link."
        ::= { phivCountersCountEntry 3 }

    phivCountersCountDataBlocksRecd OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS obsolete
        DESCRIPTION
            "Number of data blocks received over this link."
        ::= { phivCountersCountEntry 4 }

    phivCountersCountDataBlocksSent OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
```

        ACCESS read-only
        STATUS obsolete
        DESCRIPTION
            "Number of data blocks sent over this link."
        ::= { phivCountersCountEntry 5 }

    phivCountersCountEthUsrBuffUnav OBJECT-TYPE
        SYNTAX PhivCounter (0..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of user buffer unavailable errors over this
            link."
        ::= { phivCountersCountEntry 6 }

    phivCountersCountMcastBytesRecd OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of multicast bytes received over this link."
        ::= { phivCountersCountEntry 7 }

    phivCountersCountDataBlksRecd OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of data blocks received over this link."
        ::= { phivCountersCountEntry 8 }

    phivCountersCountDataBlksSent OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of data blocks sent over this link."
        ::= { phivCountersCountEntry 9 }

    phivCountersCountMcastBlksRecd OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of multicast blocks received over this link."
        ::= { phivCountersCountEntry 10 }

    phivCountersCountBlksSentDef OBJECT-TYPE

```
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of blocks sent, initially deferred over this
            link."
        ::= { phivCountersCountEntry 11 }

    phivCountersCountBlksSentSingleCol OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of blocks sent, single collision over this link."
        ::= { phivCountersCountEntry 12 }

    phivCountersCountBlksSentMultCol OBJECT-TYPE
        SYNTAX PhivCounter (0..2147483647)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of blocks sent, multiple collisions over this
            link."
        ::= { phivCountersCountEntry 13 }

    phivCountersCountSendFailure OBJECT-TYPE
        SYNTAX INTEGER (0..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of send failures over this link."
        ::= { phivCountersCountEntry 14 }

    phivCountersCountCollDetectFailure OBJECT-TYPE
        SYNTAX INTEGER (0..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of collision detect check failures over this
             link."
        ::= { phivCountersCountEntry 15 }

    phivCountersCountReceiveFailure OBJECT-TYPE
        SYNTAX INTEGER (0..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "Number of receive failures over this link."
```

```
        ::= { phivCountersCountEntry 16 }

phivCountersCountUnrecFrameDest OBJECT-TYPE
    SYNTAX INTEGER (0..65535)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of unrecognized frame destinations over this
        link."
    ::= { phivCountersCountEntry 17 }

phivCountersCountDataOver OBJECT-TYPE
    SYNTAX INTEGER (0..65535)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of data overruns over this link."
    ::= { phivCountersCountEntry 18 }

phivCountersCountSysBuffUnav OBJECT-TYPE
    SYNTAX INTEGER (0..65535)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of system buffer unavailables over this link."
    ::= { phivCountersCountEntry 19 }

phivCountersCountUsrBuffUnav OBJECT-TYPE
    SYNTAX INTEGER (0..65535)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Number of user buffer unavailables."
    ::= { phivCountersCountEntry 20 }

-- Adjacency Group

-- The implementation of the Adjacency Group is mandatory for all
-- conformant implementations of this memo.

-- The phivAdjTable has been made obsolete it has been replaced with
-- the phivAdjNodeTable.

phivAdjTable OBJECT-TYPE
    SYNTAX SEQUENCE OF PhivAdjEntry
    ACCESS not-accessible
    STATUS obsolete
    DESCRIPTION
```

```
                "The Adjacency Table."
            ::= { adjacency 1 }


    phivAdjEntry OBJECT-TYPE
            SYNTAX PhivAdjEntry
            ACCESS not-accessible
            STATUS obsolete
            DESCRIPTION
                "There is one entry in the table for each adjacency."
            INDEX  { phivAdjCircuitIndex }
            ::= { phivAdjTable 1 }


    PhivAdjEntry ::=
            SEQUENCE {
                phivAdjCircuitIndex
                    INTEGER,
                phivAdjNodeAddr
                    PhivAddr,
                phivAdjBlockSize
                    INTEGER,
                phivAdjListenTimer
                    INTEGER (1..65535),
                phivAdjCircuitEtherServPhysAddr
                    OCTET STRING,
                phivAdjType
                    INTEGER,
                phivAdjState
                    INTEGER,
                phivAdjPriority
                    INTEGER,
                phivAdjExecListenTimer
                    INTEGER (1..65535)
             }
    phivAdjCircuitIndex OBJECT-TYPE
            SYNTAX INTEGER
            ACCESS read-only
            STATUS obsolete
            DESCRIPTION
                "A unique index value for each known circuit."
            ::= { phivAdjEntry 1 }


    phivAdjNodeAddr OBJECT-TYPE
            SYNTAX PhivAddr -- OCTET STRING (SIZE (2))
            ACCESS read-only
            STATUS obsolete
            DESCRIPTION
                "The address of the adjacent node."
            ::= { phivAdjEntry 2 }
```

        phivAdjBlockSize OBJECT-TYPE
            SYNTAX INTEGER
            ACCESS read-only
            STATUS obsolete
            DESCRIPTION
                "This read-only parameter is the block size that was
                negotiated with the adjacent Routing layer during Routing
                initialization over a particular circuit. It includes the
                routing header, but excludes the data link header. This
                parameter is qualified by ADJACENT NODE."
            ::= { phivAdjEntry 3 }

        phivAdjListenTimer OBJECT-TYPE
            SYNTAX INTEGER (1..65535)
            ACCESS read-only
            STATUS obsolete
            DESCRIPTION
                "This value determines the maximum number of seconds
                allowed to elapse before Routing receives some message
                (either a Hello message or a user message) from the
                adjacent node on the circuit. It was agreed during
                Routing initialization with the adjacent Routing layer.
                This parameter is qualified by ADJACENT NODE."
            ::= { phivAdjEntry 4 }

        phivAdjCircuitEtherServPhysAddr OBJECT-TYPE
            SYNTAX OCTET STRING (SIZE (6))
            ACCESS read-only
            STATUS obsolete
            DESCRIPTION
                "This parameter indicates the Ethernet physical address
                of an adjacent node that is being serviced on this
                circuit. This parameter is a qualifier for SERVICE
                SUBSTATE."
            ::= { phivAdjEntry 5 }

        phivAdjType OBJECT-TYPE
            SYNTAX INTEGER {
                routing-III (1),
                nonrouting-III (2),
                area (3),
                routing-IV (4),
                nonrouting-IV (5)
            }
            ACCESS read-only
            STATUS obsolete
            DESCRIPTION

            "This parameter indicates the type of adjacency.

            For adjacent nodes, this is a read-only parameter that
            indicates the type of the reachable adjacent node.
            NOTE: The routing-III and nonrouting-III values are
            incremented by one compared to the standard DECnet
            values in order to maintain compliance with RFC 1155)"
        ::= { phivAdjEntry 6 }

    phivAdjState OBJECT-TYPE
        SYNTAX INTEGER {
            initializing (1),   -- Ethernet one-way
            up (2),   -- Ethernet two-way
            run (3),   -- The eight DDCMP/X.25 states
            circuit-rejected (4),
            data-link-start (5),
            routing-layer-initialize (6),
            routing-layer-verify (7),
            routing-layer-complete (8),
            off (9),
            halt (10)
        }
        ACCESS read-only
        STATUS obsolete
        DESCRIPTION
            "This value indicates the state of a router adjacency.
            On adjacencies over a circuit of type
            (phivCircuitCommonType) Ethernet, CI, or FDDI, with an
            adjacent node of type (phivAdjType) ROUTING IV or AREA,
            this variable is the state of the Ethernet
            Initialization Layer for this adjacency, and can have
            values INITIALIZING or UP. (See Section 9.1.1 of
            DECnet Phase IV Routing Layer Functional Specification.)

            On adjacencies over a circuit of type
            (phivCircuitCommonType) Ethernet, CI, or FDDI, with an
            adjacent node of type (phivAdjType) NONROUTING IV,
            this variable will always take on the value UP.

            On adjacencies over a circuit of type
            (phivCircuitCommonType) DDCMP POINT, DDCMP CONTROL,
            DDCMP TRIBUTARY, DDCMP DMC, or X.25, this variable is
            the state of the Routing Layer Initialization Circuit
            State. (See section 7.3, ibid.) It can have values
            between RUN and HALT.

            On adjacencies over a circuit of type
            (phivCircuitCommonType) OTHER, this variable may be

                used in a manner consistent with the Initialization
                Layer used on that circuit."
            ::= { phivAdjEntry 7 }

    phivAdjPriority OBJECT-TYPE
            SYNTAX INTEGER (0..255)
            ACCESS read-only
            STATUS obsolete
            DESCRIPTION
                "Priority assigned by the adjacent node for this
                circuit."
        ::= { phivAdjEntry 8 }

    phivAdjExecListenTimer OBJECT-TYPE
            SYNTAX INTEGER (1..65535)
            ACCESS read-only
            STATUS obsolete
            DESCRIPTION
                "This read-only value determines the maximum number of
                seconds allowed to elapse before Routing receives some
                message (either a Hello message or a user message) from
                the adjacent node on the circuit. It was agreed during
                Routing initialization with the adjacent Routing layer."
            ::= { phivAdjEntry 9 }

    -- New Adjacency Table this replaces the phivAdjTable.

    phivAdjNodeTable OBJECT-TYPE
            SYNTAX SEQUENCE OF PhivAdjNodeEntry
            ACCESS not-accessible
            STATUS mandatory
            DESCRIPTION
                "The Adjacent Node Table."
            ::= { adjacency 2 }

    phivAdjNodeEntry OBJECT-TYPE
            SYNTAX PhivAdjNodeEntry
            ACCESS not-accessible
            STATUS mandatory
            DESCRIPTION
                "There is one entry in the table for each adjacency."
            INDEX { phivAdjNodeCircuitIndex, phivAdjAddr }
            ::= { phivAdjNodeTable 1 }

    PhivAdjNodeEntry ::=
            SEQUENCE {
                phivAdjNodeCircuitIndex
                    INTEGER,

```
        phivAdjAddr
            PhivAddr,
        phivAdjNodeBlockSize
            INTEGER,
        phivAdjNodeListenTimer
            INTEGER,
        phivAdjNodeCircuitEtherServPhysAddr
            OCTET STRING,
        phivAdjNodeType
            INTEGER,
        phivAdjNodeState
            INTEGER,
        phivAdjNodePriority
            INTEGER
     }

phivAdjNodeCircuitIndex OBJECT-TYPE
     SYNTAX INTEGER (1..65535)
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "A unique index value for each known circuit.  This
         value is the same as phivCircuitIndex and identifies the
         circuit over which the adjacency is realized."
     ::= { phivAdjNodeEntry 1 }

phivAdjAddr OBJECT-TYPE
     SYNTAX PhivAddr -- OCTET STRING (SIZE (2))
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "The address of the adjacent node."
     ::= { phivAdjNodeEntry 2 }

phivAdjNodeBlockSize OBJECT-TYPE
     SYNTAX INTEGER
     ACCESS read-only
     STATUS mandatory
     DESCRIPTION
         "This read-only parameter is the block size that was
         negotiated with the adjacent Routing layer during Routing
         initialization over a particular circuit. It includes the
         routing header, but excludes the data link header. This
         parameter is qualified by ADJACENT NODE."
     ::= { phivAdjNodeEntry 3 }

phivAdjNodeListenTimer OBJECT-TYPE
     SYNTAX INTEGER (1..65535)
```

        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This value determines the maximum number of seconds
            allowed to elapse before Routing receives some message
            (either a Hello message or a user message) from the
            adjacent node on the circuit. It was agreed during
            Routing initialization with the adjacent Routing layer.
            This parameter is qualified by ADJACENT NODE."
        ::= { phivAdjNodeEntry 4 }

    phivAdjNodeCircuitEtherServPhysAddr OBJECT-TYPE
        SYNTAX OCTET STRING (SIZE (6))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This parameter indicates the Ethernet physical address
            of an adjacent node that is being serviced on this
            circuit. This parameter is a qualifier for SERVICE
            SUBSTATE."
        ::= { phivAdjNodeEntry 5 }

    phivAdjNodeType OBJECT-TYPE
        SYNTAX INTEGER {
            routing-III (1),
            nonrouting-III (2),
            area (3),
            routing-IV (4),
            nonrouting-IV (5)
        }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This parameter indicates the type of adjacency.

            For adjacent nodes, this is a read-only parameter that
            indicates the type of the reachable adjacent node.
            NOTE: The routing-III and nonrouting-III values are
            incremented by one compared to the standard DECnet
            values in order to maintain compliance with [RFC 1155](#))"
        ::= { phivAdjNodeEntry 6 }

    phivAdjNodeState OBJECT-TYPE
        SYNTAX INTEGER {
            initializing (1),   -- Ethernet one-way
            up (2),   -- Ethernet two-way
            run (3),   -- The eight DDCMP/X.25 states
            circuit-rejected (4),

```
        data-link-start (5),
        routing-layer-initialize (6),
        routing-layer-verify (7),
        routing-layer-complete (8),
        off (9),
        halt (10)
    }
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "This value indicates the state of a router adjacency.
        On adjacencies over a circuit of type
        (phivCircuitCommonType) Ethernet, CI, or FDDI, with an
        adjacent node of type (phivAdjNodeType) ROUTING IV or AREA,
        this variable is the state of the Ethernet
        Initialization Layer for this adjacency, and can have
        values INITIALIZING or UP. (See Section 9.1.1 of
        DECnet Phase IV Routing Layer Functional Specification.)

        On adjacencies over a circuit of type
        (phivCircuitCommonType) Ethernet, CI, or FDDI, with an
        adjacent node of type (phivAdjNodeType) NONROUTING IV,
        this variable will always take on the value UP.

        On adjacencies over a circuit of type
        (phivCircuitCommonType) DDCMP POINT, DDCMP CONTROL,
        DDCMP TRIBUTARY, DDCMP DMC, or X.25, this variable is
        the state of the Routing Layer Initialization Circuit
        State. (See section 7.3, ibid.)  It can have values
        between RUN and HALT.

        On adjacencies over a circuit of type
        (phivCircuitCommonType) OTHER, this variable may be
        used in a manner consistent with the Initialization
        Layer used on that circuit."
    ::= { phivAdjNodeEntry 7 }

phivAdjNodePriority OBJECT-TYPE
    SYNTAX INTEGER (0..255)
    ACCESS read-only
    STATUS mandatory
    DESCRIPTION
        "Priority assigned by the adjacent node for this
        circuit."
     ::= { phivAdjNodeEntry 8 }
```

     -- Line Group

     -- The implementation of the Line Group is mandatory for all
     -- conformant implementations of this memo.

     phivLineTable OBJECT-TYPE
          SYNTAX SEQUENCE OF PhivLineEntry
          ACCESS not-accessible
          STATUS mandatory
          DESCRIPTION
              "The Line Table."
          ::= { line 1 }

     phivLineEntry OBJECT-TYPE
          SYNTAX PhivLineEntry
          ACCESS not-accessible
          STATUS mandatory
          DESCRIPTION
              "There is one entry in the table for each line."
          INDEX { phivLineIndex }
          ::= { phivLineTable 1 }

     PhivLineEntry ::=
          SEQUENCE {
              phivLineIndex
                  InterfaceIndex,
              phivLineName
                  DisplayString,
              phivLineState
                  INTEGER,
              phivLineSubstate
                  INTEGER,
              phivLineService
                  INTEGER,
              phivLineDevice
                  DisplayString,
              phivLineReceiveBuffs
                  INTEGER,
              phivLineProtocol
                  INTEGER,
              phivLineServiceTimer
                  INTEGER,
              phivLineMaxBlock
                  INTEGER
          }

     phivLineIndex OBJECT-TYPE
          SYNTAX InterfaceIndex

```
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
            "The line on which this entry's equivalence is effective.
            This is the same as the ifIndex."
        ::= { phivLineEntry 1 }

    phivLineName OBJECT-TYPE
        SYNTAX  DisplayString (SIZE (0..16))
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
            "The name of the line on this row of the table."
        ::= { phivLineEntry 2 }

    phivLineState OBJECT-TYPE
        SYNTAX  INTEGER {
            on (1),
            off (2),
            service (3),
            cleared (4)
        }
        ACCESS  read-only
        STATUS  mandatory
        DESCRIPTION
            "This value represents Network Management operational
            state.
            NOTE that these values are incremented by one compared to
            the standard DECnet values."
        ::= { phivLineEntry 3 }

    phivLineSubstate OBJECT-TYPE
        SYNTAX  INTEGER {
            starting (1),
            reflecting (2),
            looping (3),
            loading (4),
            dumping (5),
            triggering (6),
            auto-service (7),
            auto-loading (8),
            auto-dumping (9),
            auto-triggering (10),
            synchronizing (11),
            failed (12),
            running (13)
        }
        ACCESS  read-only
```

            STATUS mandatory
            DESCRIPTION
                "This value represents the line's read-only Network
                Management substate.
                NOTE that these values are incremented by one compared to
                the standard DECnet values."
            ::= { phivLineEntry 4 }

    phivLineService OBJECT-TYPE
            SYNTAX INTEGER {
                starting (1),
                reflecting (2),
                looping (3),
                other (4)
            }
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                "This value represents the line's read-only Network
                Management service.
                NOTE that these values are incremented by one compared to
                the standard DECnet values and OTHER is a new addition."
            ::= { phivLineEntry 5 }

    phivLineDevice OBJECT-TYPE
            SYNTAX DisplayString (SIZE (0..16))
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                "This value represents the Physical Link device to be
                used on the line."
            ::= { phivLineEntry 6 }

    phivLineReceiveBuffs OBJECT-TYPE
            SYNTAX INTEGER (0..65535)
            ACCESS read-only
            STATUS mandatory
            DESCRIPTION
                "This value represents the number of receive buffers
                reserved for the line. It is a decimal number in
                the range 0-65535. 0 is supported for those vendors
                that do not reserve buffers on a per line basis and
                use a pool of buffers that can be used by any line."
            ::= { phivLineEntry 7 }

    phivLineProtocol OBJECT-TYPE
            SYNTAX INTEGER {
                ddcmp-point (1),

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```
            ddcmp-control (2),
            ddcmp-tributary (3),
            reserved (4),
            ddcmp-dmc (5),
            olapb (6),
            ethernet (7),
            ci (8),
            qp2 (9),
            other (14),
            fddi (15)
        }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This value represents the protocol used on the line
            device.  Note that these values are incremented by
            one compared to the standard DECnet values."
        ::= { phivLineEntry 8 }

    phivLineServiceTimer OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This value represents the amount of time in
            milliseconds allowed to elapse before a Data Link
            receive request completes while doing service
            operations."
        ::= { phivLineEntry 9 }

    phivLineMaxBlock OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This value represents the Data Link maximum block
            size on the line."
        ::= { phivLineEntry 10 }


    -- Non Broadcast Line Group

    -- The implementation of the Non Broadcast Line Group is optional.
    -- A system can be said to implement this group if and only if
    -- all objects in this group are implemented.

    phivNonBroadcastTable OBJECT-TYPE
        SYNTAX SEQUENCE OF PhivNonBroadcastEntry
        ACCESS not-accessible
```

             STATUS mandatory
             DESCRIPTION
                 "The Non Broadcast Table."
             ::= { nonBroadcastLine 1 }

     phivNonBroadcastEntry OBJECT-TYPE
             SYNTAX PhivNonBroadcastEntry
             ACCESS not-accessible
             STATUS mandatory
             DESCRIPTION
                 "There is one entry in the table for each
                 Non Broadcast line."
             INDEX { phivNonBroadcastIndex }
             ::= { phivNonBroadcastTable 1 }

     PhivNonBroadcastEntry ::=
             SEQUENCE {
                 phivNonBroadcastIndex
                     InterfaceIndex,
                 phivNonBroadcastController
                     INTEGER,
                 phivNonBroadcastDuplex
                     INTEGER,
                 phivNonBroadcastClock
                     INTEGER,
                 phivNonBroadcastRetransmitTimer
                     INTEGER
             }

     phivNonBroadcastIndex OBJECT-TYPE
             SYNTAX InterfaceIndex
             ACCESS read-only
             STATUS mandatory
             DESCRIPTION
                 "The Non Broadcast line on which this entry's
                 equivalence is effective. This is the same value
                 as the ifIndex."
             ::= { phivNonBroadcastEntry 1 }

     phivNonBroadcastController OBJECT-TYPE
             SYNTAX INTEGER {
                 normal (1),
                 loopback (2),
                 other (3)
             }
             ACCESS read-only
             STATUS mandatory
             DESCRIPTION

                "This value represents the Physical Link hardware
                controller mode for the line device. The values
                for controller-mode are:

                NORMAL For normal controller operating mode.

                LOOPBACK For software controllable loopback of the
                controller. On those devices that can support this
                mode, it causes all transmitted messages to be looped
                back from within the controller itself. This is
                accomplished without any manual intervention other
                than the setting of this parameter value.

                OTHER indicates function is not supported
                Note that these values are incremented by one compared to
                the standard DECnet values."
            ::= { phivNonBroadcastEntry 2 }

    phivNonBroadcastDuplex OBJECT-TYPE
        SYNTAX INTEGER {
            full (1),
            half (2)
        }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This value represents the Physical Link hardware
            duplex mode of the line device. The possible modes
            are:

            FULL   Full-duplex
            HALF   Half-duplex

            Note that these values are incremented by one compared to
            the standard DECnet values."
        ::= { phivNonBroadcastEntry 3 }

    phivNonBroadcastClock OBJECT-TYPE
        SYNTAX INTEGER {
            external (1),
            internal (2),
            other (3)
        }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "This value represents the Physical Link hardware clock
            mode for the line device. The values for clock-mode are:

               INTERNAL For software controllable loopback use of
               the clock. On those devices that can support this
               mode, it causes the device to supply a clock signal
               such that a transmitted messages can be looped
               back from outside the device. This may require manual
               intervention other than the setting of this parameter
               value. For example, the operator may have to connect
               a loopback plug in place of the normal line.

               EXTERNAL For normal clock operating mode, where the
               clock signal is supplied externally to the controller.
               Note that these values are incremented by one compared to
               the standard DECnet values."
          ::= { phivNonBroadcastEntry 4 }

     phivNonBroadcastRetransmitTimer OBJECT-TYPE
          SYNTAX INTEGER (1..65535)
          ACCESS read-only
          STATUS mandatory
          DESCRIPTION
               "This value represents number of milliseconds before
               the Data Link retransmits a block on the line. On
               half-duplex lines, this parameter is the select timer."
          DEFVAL { 3000 }
          ::= { phivNonBroadcastEntry 5 }

     -- Area Parameters Group

     -- The implementation of the Area Parameters Group is mandatory
     -- for all systems which implement level 2 routing.

     phivAreaTable OBJECT-TYPE
          SYNTAX SEQUENCE OF PhivAreaEntry
          ACCESS not-accessible
          STATUS mandatory
          DESCRIPTION
               "Table of information kept on all areas known to
               this unit."
          ::= { area 1 }

     phivAreaEntry OBJECT-TYPE
          SYNTAX PhivAreaEntry
          ACCESS not-accessible
          STATUS mandatory
          DESCRIPTION
               "The area routing information."
          INDEX { phivAreaNum }

           ::= { phivAreaTable 1 }

    PhivAreaEntry ::=
         SEQUENCE {
             phivAreaNum
                 INTEGER,
             phivAreaState
                 INTEGER,
             phivAreaCost
                 Gauge,
             phivAreaHops
                 INTEGER,
             phivAreaNextNode
                 PhivAddr,
             phivAreaCircuitIndex
                 INTEGER
         }

    phivAreaNum OBJECT-TYPE
         SYNTAX INTEGER (0..64)
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "This value indicates the area number of this entry."
         ::= { phivAreaEntry 1 }

    phivAreaState OBJECT-TYPE
         SYNTAX INTEGER {
             reachable (4),
             unreachable (5)
         }
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "This value indicates the state of the area"
         ::= { phivAreaEntry 2 }

    phivAreaCost OBJECT-TYPE
         SYNTAX Gauge
         ACCESS read-only
         STATUS mandatory
         DESCRIPTION
             "The total cost over the current path to the
              destination area. Cost is a value associated with
              using a circuit. Routing routes messages (data)
              along the path between 2 areas with the smallest
              cost."
         ::= { phivAreaEntry 3 }

    phivAreaHops OBJECT-TYPE
        SYNTAX INTEGER (0..255)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The number of hops to a destination area. A hop is
            the routing value representing the logical distance
            between two areas in network."
        ::= { phivAreaEntry 4 }

    phivAreaNextNode OBJECT-TYPE
        SYNTAX PhivAddr -- OCTET STRING (SIZE (2))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The next node on the circuit used to get to the
            area under scrutiny."
        ::= { phivAreaEntry 5 }

    phivAreaCircuitIndex OBJECT-TYPE
        SYNTAX INTEGER (1..65535)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "A unique index value for each known circuit."
        ::= { phivAreaEntry 6 }

    -- Additional Area Parameters

    phivAreaMaxCost OBJECT-TYPE
        SYNTAX INTEGER (1..1022)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the maximum total path cost
            allowed from the executor to any other level 2 routing
            node. The AREA MAXIMUM COST number is decimal in the
            range 1-1022. This parameter is only applicable if
            the executor node is of type AREA."
        ::= { area 2 }

    phivAreaMaxHops OBJECT-TYPE
        SYNTAX INTEGER (1..30)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
            "This value represents the maximum number of routing hops

```
        allowable from the executor to any other level 2
        routing node.  This parameter is only applicable if the
        executor node is of type AREA."
    ::= { area 3 }

phivRouteMaxArea OBJECT-TYPE
    SYNTAX INTEGER (1..63)
    ACCESS read-write
    STATUS mandatory
    DESCRIPTION
        "This value represents the largest area number and,
        therefore, number of areas that can be known about
        by the executor node's Routing. This parameter is only
        applicable if the executor node is of type AREA."
    ::= { area 4 }

        END
```

6. Changes from RFC 1289

Several changes have been made to this document. These changes
include:

(1) Ranges have been added on all PhivCounter types to remove
     ambiguity which might otherwise have occurred.

(2) Made clear that all indexes start with 1 and count up.

(3) Spelling and typographic changes.

(4) Changes to improve consistency with other documents including
     the removal of subranging within definitions of sequences
     defining table entries.

(5) Updated compliance text to conform to current practice.

(6) Fixed discrepancy between description and range clause for
     phivControlMaxBuffs.

(7) Added a space that was missing between SYNTAX and INTEGER in the
     phivRouteType object.

(8) Both phivRouteType and phivRouteSystemAddr have been made
     obsolete. They have been replaced with phivRouteRoutingType
     and phivRouteSystemAddress which are both read-write objects.

(9) A new Adjacency table has been added as adjacency 2. This
     table is identical to the original except that
     phivAdjExecListenTimer was not carried into the new version.
     The existing Adjacency table and all objects in it have been
     made obsolete. The index to the new table is
     phivAdjNodeCircuitIndex and phivAdjAddr.

(10) Objects phivCountersCountDataBlocksRecd and
     phivCountersCountDataBlocksSent have both been made obsolete
     since the DESCRIPTION information overlapped with the
     phivCountersCountDataBlksRecd and
     phivCountersCountDataBlksSent objects which have been
     retained.

(11) The following groups have been moved from mandatory to
     optional status: Session, End, DDCMP, DDCMP Multipoint
     Circuit Control, Counters, and Non Broadcast Line.

[7](#). Acknowledgements

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     Chris Chiotasso, Sparticus

     Steven Hunter, National Energy Research Supercomputer Center,
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[9](#). Security Considerations

   Security issues are not discussed in this memo.

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