DECnet Phase IV MIB Extensions

Status of this Memo

This memo is an extension to the SNMP MIB. This RFC specifies an IAB standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "IAB Official Protocol Standards" for the standardization state and status of this protocol. Distribution of this memo is unlimited.

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Abstract

This memo defines a set of DECnet Phase IV extensions that have been created for the Internet MIB. When used in conjunction with the structure of management information (RFC 1155), the management information base for network management of TCP/IP-based internets (RFC 1213) and the Simple Network Management Protocol (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).

1. Introduction

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

All objects in this memo are described using the standard Internet SMI and BER of RFC 1155. A complete description of an object will include the name, syntax and encoding. Just as with objects supported in the MIB (RFC 1156), 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 RFC 1156 - 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 definition information is also taken directly from the Network Architecture Network Management 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.

3.1 Format of Definitions

An object in this memo is specified by five fields of information: Object, Syntax, Definition, Access, and Status.

The OBJECT is a textual name (OBJECT DESCRIPTOR) for that object type combined with an administratively obtained OBJECT IDENTIFIER.

SYNTAX: For each object type, its abstract syntax is presented using the ASN.1 specified in RFC 1155.
DEFINITION: A general description of the object type. Its original purpose in the DECnet Phase IV environment is given so that all implementers and users will consistently interpret the information contained in each object type. Changes in format to make the object consistent with RFC 1155 are also noted.

ACCESS: The standard access keywords supported in RFC 1156 are used. The keywords used in this MIB are: read-only, read-write, and, not-accessible.

STATUS: The status field is used to describe with a single keyword whether the object type is mandatory or optional. Status keywords of obsolete and deprecated are not used in this memo since this is the first version of the DECnet Phase IV MIB.

3.2 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 4.0 (Object Definitions).

4. Object Definitions

RFC1289-phivMIB

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 restored, or they are reset to zero by the user
-- or management software.

-- 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
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 mandatory for all systems that implement session layer communications.
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 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 0 indicates no timer is running."
::= { session 3 }

-- End Communication Layer Group

-- The implementation of the End Communication Layer Group is mandatory for all systems that implement end layer communications.

-- 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 (0..65535)
}

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)
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
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 (0..65535),
  phivEndCountUsrBytesRec
    PhivCounter,
  phivEndCountUsrBytesSent
    PhivCounter,
  phivEndUCountUsrMessRec
    PhivCounter,
  phivEndCountUsrMessSent
    PhivCounter,
  phivEndCountTotalBytesRec
    PhivCounter,
  phivEndCountTotalBytesSent
    PhivCounter,
  phivEndCountTotalMessRec
    PhivCounter,
  phivEndCountTotalMessSent
    PhivCounter,
}
PhivCounter,  
phivEndCountConnectsRecd  
  PhivCounter (0..65535),  
phivEndCountConnectsSent  
  PhivCounter (0..65535),  
phivEndCountResponseTimeouts  
  PhivCounter (0..65535),  
phivEndCountRecdConnectResErrs  
  PhivCounter (0..65535)  
}  

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  
ACCESS read-only  
STATUS mandatory  
DESCRIPTION  
  "Number of user bytes received from the target host."  
::= { phivEndCountEntry 3 }  

phivEndCountUsrBytesSent OBJECT-TYPE  
SYNTAX PhivCounter  
ACCESS read-only  
STATUS mandatory  
DESCRIPTION  
  "Number of user bytes sent to the target host."  
::= { phivEndCountEntry 4 }
phivEndUCountUsrMessRec OBJECT-TYPE
SYNTAX PhivCounter
ACCESS read-only
STATUS mandatory
DESCRIPTION
   "Number of user messages received from the target host."
 ::= { phivEndCountEntry 5 }

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

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

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

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

phivEndCountTotalMessSent OBJECT-TYPE
SYNTAX PhivCounter
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 }

phivEndCountResponseTimeouts 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
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 mandatory
DESCRIPTION
"This parameter indicates the type of the executor node. The node-type is one of the following:

   routing-III
   nonrouting-III
   routing-IV
   nonrouting-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.

::= { 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 (0..65535),
phivLevel1RouteHops
   INTEGER (0..127),
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
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

ACCESS read-only

STATUS mandatory

DESCRIPTION

"DECnet Phase IV node address."

```::= { routing 24 }
```
-- 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 (0..65535),
  phivCircuitCommonType
    INTEGER,
  phivCircuitService
    INTEGER,
  phivCircuitExecCost
    INTEGER (1..25),
  phivCircuitExecHelloTimer
    INTEGER (0..65535),
}
INTEGER (1..8191)

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

phivCircuitLineIndex OBJECT-TYPE
SYNTAX INTEGER
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 (0..65535),
  phivCircuitCountTermPacketsRecd PhivCounter,
  phivCircuitCountOriginPackSent PhivCounter,
  phivCircuitCountTermCongLoss PhivCounter (0..65535),
  phivCircuitCountCorruptLoss PhivCounter (0..255),
  phivCircuitCountTransitPksRecd PhivCounter,
  phivCircuitCountTransitPkSent PhivCounter,
  phivCircuitCountTransitCongestLoss PhivCounter (0..65535),
  phivCircuitCountCircuitDown PhivCounter (0..255),
  phivCircuitCountInitFailure PhivCounter (0..255),
  phivCircuitCountAdjDown PhivCounter,
phivCircuitCountPeakAdj
   PhivCounter,
phivCircuitCountBytesRecd
   PhivCounter,
phivCircuitCountBytesSent
   PhivCounter,
phivCircuitCountDataBlocksRecd
   PhivCounter (0..65535),
phivCircuitCountDataBlocksSent
   PhivCounter,
phivCircuitCountUsrBuffUnav
   PhivCounter (0..65535)
}

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
ACCESS read-only
STATUS mandatory
DESCRIPTION
   "Number of terminating packets received on this circuit."
 ::= { phivCircuitCountEntry 2 }

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

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

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

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

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

phivCircuitCountDataBlocksSent OBJECT-TYPE
SYNTAX PhivCounter
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 mandatory for
-- all systems which support DDCMP circuits.
-- 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 (0..65535),
  phivDDCMPCircuitTributary
    INTEGER (0..255)
}

phivDDCMPCircuitIndex OBJECT-TYPE
SYNTAX INTEGER
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 (0..255),
  phivDDCMPCircuitErrorsOutbd  PhivCounter (0..255),
  phivDDCMPCircuitRmteReplyTimeouts  PhivCounter (0..255),
  phivDDCMPCircuitLocalReplyTimeouts  PhivCounter (0..255),
  phivDDCMPCircuitRmteBuffErrors  PhivCounter (0..255),
  phivDDCMPCircuitLocalBuffErrors  PhivCounter (0..255),
  phivDDCMPCircuitSelectIntervalsElap  PhivCounter (0..65535),
  phivDDCMPCircuitSelectTimeouts  PhivCounter (0..255)
}
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
  INTEGER,
  phivDDCMPLineCountDataErrsIn
  PhivCounter (0..255),
  phivDDCMPLineCountRmteStationErrs
  PhivCounter (0..255),
  phivDDCMPLineCountLocalStationErrs
  PhivCounter (0..255)
}
phivDDCMPLineCountIndex OBJECT-TYPE
SYNTAX INTEGER
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 mandatory for all systems which support DDCMP multipoint control circuits.

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 (1..65535),
    phivControlMaxBuffs INTEGER (0..254),
    phivControlMaxTransmits INTEGER (1..255),
    phivControlDyingBase INTEGER (0..255),
    phivControlDyingIncrement INTEGER (0..255),
    phivControlDeadThreshold INTEGER (0..255),
    phivControlDyingThreshold INTEGER (0..255),
    phivControlInactThreshold INTEGER (0..255),
    phivControlPollingState INTEGER,
    phivControlPollingSubState INTEGER,
    phivControlTransTimer INTEGER (0..65535)
}

phivControlCircuitIndex OBJECT-TYPE
SYNTAX INTEGER
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 (0..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 }

phivControlInactThreshold 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 (0..255),
  phivEthRouterPri
    INTEGER (0..127),
  phivEthHardwareAddr
    OCTET STRING
phivEthLinkIndex OBJECT-TYPE
SYNTAX INTEGER
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 mandatory for
-- systems which only support DECnet style locking counters.

-- 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
        INTEGER,
    phivCountersCountBytesRecd
        PhivCounter,
    phivCountersCountBytesSent
        PhivCounter,
    phivCountersCountDataBlocksRecd
        PhivCounter,
    phivCountersCountDataBlocksSent
        PhivCounter,
    phivCountersCountEthUsrBuffUnav
        PhivCounter (0..65535),
    phivCountersCountMcastBytesRecd
        PhivCounter,
    phivCountersCountDataBlksRecd
        PhivCounter,
    phivCountersCountDataBlksSent
        PhivCounter,}
PhivCounter,
phivCountersCountMcastBlksRecd
  PhivCounter,
phivCountersCountBlksSentDef
  PhivCounter,
phivCountersCountBlksSentSingleCol
  PhivCounter,
phivCountersCountBlksSentMultCol
  PhivCounter,
phivCountersCountSendFailure
  PhivCounter,
phivCountersCountCollDetectFailure
  PhivCounter (0..65535),
phivCountersCountReceiveFailure
  PhivCounter (0..65535),
phivCountersCountUnrecFrameDest
  PhivCounter (0..65535),
phivCountersCountDataOver
  PhivCounter (0..65535),
phivCountersCountSysBuffUnav
  PhivCounter (0..65535),
phivCountersCountUsrBuffUnav
  PhivCounter (0..65535)
}

phivCountersIndex OBJECT-TYPE
SYNTAX INTEGER
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
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Number of bytes received over this link."
::= { phivCountersCountEntry 2 }

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

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

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

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

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

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

phivCountersCountBlksSentDef OBJECT-TYPE
SYNTAX PhivCounter
ACCESS read-only
STATUS mandatory
DESCRIPTION
"Number of blocks sent, initially deferred over this link."
::= { phivCountersCountEntry 11 }

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

phivCountersCountBlksSentMultCol OBJECT-TYPE
SYNTAX PhivCounter
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
RFC 1289 DECnet Phase IV MIB December 1991

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.

phivAdjTable OBJECT-TYPE
SYNTAX SEQUENCE OF PhivAdjEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"The Adjacency Table."
 ::= { adjacency 1 }

phivAdjEntry OBJECT-TYPE
SYNTAX PhivAdjEntry
ACCESS not-accessible
STATUS mandatory
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 mandatory
DESCRIPTION
"A unique index value for each known circuit."
::= { phivAdjEntry 1 }

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

phivAdjBlockSize 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."
::= { phivAdjEntry 3 }

phivAdjListenTimer 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."
::= { phivAdjEntry 4 }

phivAdjCircuitEtherServPhysAddr 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."
::= { 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 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)"
::= { 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 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 (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 mandatory
DESCRIPTION
"Priority assigned by the adjacent node for this circuit."
::= { phivAdjEntry 8 }

phivAdjExecListenTimer OBJECT-TYPE
SYNTAX INTEGER (1..65535)
ACCESS read-only
STATUS mandatory
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 }

-- 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
      INTEGER,
  phivLineName
      DisplayString,
  phivLineState
      INTEGER,
  phivLineSubstate
      INTEGER,
  phivLineService
      INTEGER,
  phivLineDevice
      DisplayString,
  phivLineReceiveBuffs
      INTEGER (0..65535),
  phivLineProtocol
      INTEGER,
  phivLineServiceTimer
      INTEGER (1..65535),
  phivLineMaxBlock
      INTEGER (1..65535)
}

phivLineIndex OBJECT-TYPE
SYNTAX INTEGER
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),
   ddcmp-control (2),
   ddcmp-tributary (3),
   reserved (4),
   ddcmp-dmc (5),
   lapb (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
-- mandatory for all systems which implement non broadcast
-- lines.

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  
      INTEGER, 
    phivNonBroadcastController  
      INTEGER, 
    phivNonBroadcastDuplex  
      INTEGER, 
    phivNonBroadcastClock  
      INTEGER, 
    phivNonBroadcastRetransmitTimer  
      INTEGER (1..65535) 
  }

phivNonBroadcastIndex OBJECT-TYPE 
SYNTAX  INTEGER 
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
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
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

5. Acknowledgements

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6. References


Security Considerations

Security issues are not discussed in this memo.

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