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## Definitions of Managed Objects for DLUR using SMiv2

### 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.

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### 2. Introduction

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it defines objects for monitoring and controlling network devices with DLUR (Dependent LU Requester) capabilities. This memo identifies managed objects for the DLUR protocol.

### 3. The SNMP Network Management Framework

The SNMP Network Management Framework consists of several components. For the purpose of this specification, the applicable components of the Framework are the SMI and related documents [1, 2, 3], which define the mechanisms used for describing and naming objects for the purpose of management.

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

### 4. Overview

This document identifies objects for monitoring the configuration and active characteristics of devices with DLUR capabilities. Dependent LU requester/server (DLUR/S) is an extension to the Advanced Peer-to-Peer Networking (APPN) architecture that provides dependent LU services in APPN networks. See the SNANAU APPN MIB [4] for management of APPN networks.

The base APPN architecture only provided for transport of data between independent logical units (LUs). However, customers have an enormous investment in applications based on dependent LU types. DLUR/S provides for support of dependent LU sessions in an APPN network.

A dependent LU server (DLUS) is an APPN node that provides System Services Control Point (SSCP) services over an APPN network to remote secondary dependent LUs by using SSCP-PU (physical unit) and SSCP-LU sessions whose flows are encapsulated on LU 6.2 session flows between the DLUS node and the appropriate dependent LU requester (DLUR) node. The secondary dependent LUs may be local to the DLUR node, or in adjacent type 2.0 or 2.1 nodes.

The LU 6.2 control sessions between a DLUS node and a DLUR node are referred to as a CPSVRMGR pipe. CPSVRMGR refers to the mode used for the sessions.

In this document, we describe DLUR managed objects.

The DLUR terms and overall architecture are described in [5].

Highlights of the management functions supported by the DLUR MIB module include the following:

- o Identifying the node's DLUR capabilities
- o Displaying the physical units (PUs) this node is supporting
- o Identification of Dependent LU Servers
- o Displaying the state of control sessions to Dependent LU Servers.

This MIB module does not support:

- o Management of dependent LU servers
- o Configuration of DLUR nodes.
- o Changing the state of control session to the DLUS
- o Displaying the dependent LUs this node is supporting
- o Traps. The APPN MIB contains a trap for Alert conditions that may affect DLUR resources. The value for the affectedObject object contained in the alertTrap is determined by the implementation. It may contain a VariablePointer from the DLUR MIB. The APPN/DLUR Alerts are defined in [6].

#### 4.1. DLUR MIB Structure

Although DLUR is an extension to APPN, the DLUR MIB relies very little upon the APPN MIB. The dlurNodeCpName object in this MIB has the same value as the appnNodeCpName object in the APPN MIB. If the dlurPuLsName object in the MIB has the same value as the appnLsName object in the APPN MIB, then the two objects are referring to the same link station.

The DLUR MIB module contains the following collections of objects:

- o dlurNodeInfo--objects representing the capabilities and architecture options supported by the DLUR implementation, as well as default primary and backup DLUSs.
- o dlurPuInfo--objects describing the PUs that this APPN node is supporting with DLUR.
- o dlurDlusInfo--objects describing the control sessions with DLUSs.

These are described below in more detail.

#### 4.1.1. dlurNodeInfo group

The dlurNodeInfo group consists of the following objects and table:

##### 1) dlurNodeCapabilities group

These objects represent the capabilities and options of the DLUR implementation, such as the release level of the implementation

##### 2) dlurDefaultDefBackupDlusTable

This table identifies the list of defined backup DLUSs for all PUs served by this DLUR, if there is no specific DLUS backup list for the PU. The list is in descending order of preference as a backup DLUS.

#### 4.1.2. dlurPuInfo group

The dlurPuInfo group consists of the following tables:

##### 1) dlurPuTable

This table has an entry for each PU this node is supporting via DLUR, including the locally known name, the SSCP supplied name (if known), and the PU status.

##### 2) dlurPuDefBackupDlusTable

This table contains the backup DLUS list defined on a PU basis. The table has an entry for each specifically defined backup DLUS on each PU. The first index to the entry is the PU name, which organizes the table by PU name. The second index is a ranking which further sorts the table in descending order of preference as a backup DLUS for the PU.

If a PU name is not found in this table, the dlurDefaultDefBackupDlusNameTable is used as a backup list for that PU.

#### 4.1.3. dlurDlusInfo group

This group consists of the following table:

##### 1) dlurDlusTable

This table contains information about the control sessions (CPSVRMGR pipes) with the DLUS, including the control point (CP) name of the DLUS and the status of the control session.

## 5. Definitions

```
APPN-DLUR-MIB DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
    DisplayString, TruthValue
    FROM SNMPv2-TC
```

```
    OBJECT-TYPE, MODULE-IDENTITY, Unsigned32
    FROM SNMPv2-SMI
```

```
    MODULE-COMPLIANCE, OBJECT-GROUP
    FROM SNMPv2-CONF
```

```
    snanauMIB
    FROM SNA-NAU-MIB
```

```
    SnaControlPointName
    FROM APPN-MIB;
```

```
dlurMIB MODULE-IDENTITY
```

```
    LAST-UPDATED "9705101500Z"
```

```
    ORGANIZATION "IETF SNA NAU MIB WG / AIW APPN/HPR MIBs SIG"
```

```
    CONTACT-INFO
```

```
    "
```

```
        Bob Clouston
        Cisco Systems
        7025 Kit Creek Road
        P.O. Box 14987
        Research Triangle Park, NC 27709, USA
        Tel:      1 919 472 2333
        E-mail:   clouston@cisco.com
```

```
        Bob Moore
        IBM Corporation
        800 Park Offices Drive
        RHJA/664
        P.O. Box 12195
        Research Triangle Park, NC 27709, USA
        Tel:      1 919 254 4436
        E-mail:   remoore@ralvm6.vnet.ibm.com
```

```
    "
```

```
DESCRIPTION
```

```
    "This is the MIB module for objects used to manage
    network devices with DLUR capabilities.  This MIB
    contains information that is useful for managing an APPN
    product that implements a DLUR (Dependent Logical Unit
```

Requester). The DLUR product has a client/server relationship with an APPN product that implements a DLUS (Dependent Logical Unit Server)."

```
 ::= { snanauMIB 5 }
-- snanauMIB ::= { mib-2 34 }

-- *****
-- Textual Convention
-- *****
-- SnaControlPointName is imported from the APPN MIB

-- *****
dlurObjects OBJECT IDENTIFIER ::= { dlurMIB 1 }
-- *****

dlurNodeInfo OBJECT IDENTIFIER ::= { dlurObjects 1 }
-- *****
-- DLUR Capabilities of the node
--
-- This group represents the capabilities and options of the DLUR
-- implementation.
-- *****
dlurNodeCapabilities OBJECT IDENTIFIER ::= { dlurNodeInfo 1 }

dlurNodeCpName OBJECT-TYPE
    SYNTAX SnaControlPointName
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Administratively assigned network name for the APPN node where
        this DLUR implementation resides. If this object has the same
        value as the appnNodeCpName object in the APPN MIB, then the
        two objects are referring to the same APPN node."

    ::= { dlurNodeCapabilities 1 }

dlurReleaseLevel OBJECT-TYPE
    SYNTAX DisplayString (SIZE (2))
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The DLUR release level of this implementation. This is the
        value that is encoded in the DLUR/DLUS Capabilites (CV 51).
        To insure consistent display, this one-byte value is encoded
        here as two displayable characters that are equivalent to a
        hexadecimal display. For example, if the one-byte value as
```

encoded in CV51 is X'01', this object will contain the displayable string '01'."

```
::= { dlurNodeCapabilities 2 }
```

dlurAnsSupport OBJECT-TYPE

```
SYNTAX INTEGER {
    continueOrStop(1),
    stopOnly(2)
}
```

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Automatic Network Shutdown (ANS) capability of this node.

- 'continueOrStop' indicates that the DLUR implementation supports either ANS value (continue or stop) as specified by the DLUS on ACTPU for each PU.
- 'stopOnly' indicates that the DLUR implementation only supports the ANS value of stop.

ANS = continue means that the DLUR node will keep LU-LU sessions active even if SSCP-PU and SSCP-LU control sessions are interrupted.

ANS = stop means that LU-LU sessions will be interrupted when the SSCP-PU and SSCP-LU sessions are interrupted."

```
::= { dlurNodeCapabilities 3 }
```

dlurMultiSubnetSupport OBJECT-TYPE

```
SYNTAX TruthValue
```

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indication of whether this DLUR implementation can support CPSVRMGR sessions that cross NetId boundaries."

```
::= { dlurNodeCapabilities 4 }
```

dlurDefaultDefPrimDlusName OBJECT-TYPE

```
SYNTAX SnaControlPointName
```

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The SNA name of the defined default primary DLUS for all of the PUs served by this DLUR. This can be overridden for a

particular PU by a defined primary DLUS for that PU, represented by the dlurPuDefPrimDlusName object."

```
::= { dlurNodeCapabilities 5 }
```

dlurNetworkNameForwardingSupport OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indication of whether this DLUR implementation supports forwarding of Network Name control vectors on ACTPUs and ACTLUs to DLUR-served PUs and their associated LUs.

This object corresponds to byte 9. bit 3 of cv51."

```
::= { dlurNodeCapabilities 6 }
```

dlurNondisDlusDlurSessDeactSup OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indication of whether this DLUR implementation supports nondisruptive deactivation of its DLUR-DLUS sessions. Upon receiving from a DLUS an UNBIND for the CPSVRMGR pipe with sense data X'08A0 000B', a DLUR that supports this option immediately begins attempting to activate a CPSVRMGR pipe with a DLUS other than the one that sent the UNBIND.

This object corresponds to byte 9. bit 4 of cv51."

```
::= { dlurNodeCapabilities 7 }
```

```
-- *****
-- DLUR default defined backup DLUS table
-- *****
```

dlurDefaultDefBackupDlusTable OBJECT-TYPE

SYNTAX SEQUENCE OF DlurDefaultDefBackupDlusEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table contains an ordered list of defined backup DLUSs for all of the PUs served by this DLUR. These can be overridden for a particular PU by a list of defined backup DLUSs for that PU, represented by the dlurPuDefBackupDlusNameTable. Entries in this table are



ordered from most preferred default backup DLUS to least preferred."

```
::= { dlurNodeInfo 2 }
```

```
dlurDefaultDefBackupDlusEntry OBJECT-TYPE
    SYNTAX DlurDefaultDefBackupDlusEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
```

"This table is indexed by an integer-valued index, which orders the entries from most preferred default backup DLUS to least preferred."

```
INDEX { dlurDefaultDefBackupDlusIndex }
```

```
::= { dlurDefaultDefBackupDlusTable 1 }
```

```
DlurDefaultDefBackupDlusEntry ::= SEQUENCE {
    dlurDefaultDefBackupDlusIndex      Unsigned32,
    dlurDefaultDefBackupDlusName       SnaControlPointName
}
```

```
dlurDefaultDefBackupDlusIndex OBJECT-TYPE
    SYNTAX Unsigned32 (1..4294967295)
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
```

"Index for this table. The index values start at 1, which identifies the most preferred default backup DLUS."

```
::= { dlurDefaultDefBackupDlusEntry 1 }
```

```
dlurDefaultDefBackupDlusName OBJECT-TYPE
    SYNTAX SnaControlPointName
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
```

"Fully qualified name of a default backup DLUS for PUs served by this DLUR."

```
::= { dlurDefaultDefBackupDlusEntry 2 }
```

```
-- *****
-- PU Information
--
-- The following table carries information about the PUs that this APPN
-- node is supporting via DLUR.
```

```

-- *****
dlurPuInfo OBJECT IDENTIFIER ::= { dlurObjects 2 }

dlurPuTable OBJECT-TYPE
    SYNTAX SEQUENCE OF DlurPuEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "Information about the PUs supported by this DLUR."

    ::= { dlurPuInfo 1 }

dlurPuEntry OBJECT-TYPE
    SYNTAX DlurPuEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "Entry in a table of PU information, indexed by PU name."

    INDEX { dlurPuName }

    ::= { dlurPuTable 1 }

DlurPuEntry ::= SEQUENCE {
    dlurPuName                DisplayString,
    dlurPuSscpSuppliedName    DisplayString,
    dlurPuStatus              INTEGER,
    dlurPuAnsSupport          INTEGER,
    dlurPuLocation            INTEGER,
    dlurPuLsName              DisplayString,
    dlurPuDlusSessnStatus     INTEGER,
    dlurPuActiveDlusName      DisplayString,
    dlurPuDefPrimDlusName     DisplayString
}

dlurPuName OBJECT-TYPE
    SYNTAX DisplayString (SIZE (1..17))
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "Locally administered name of the PU."

    ::= { dlurPuEntry 1 }

dlurPuSscpSuppliedName OBJECT-TYPE
    SYNTAX DisplayString (SIZE (0..17))
    MAX-ACCESS read-only

```

STATUS current

DESCRIPTION

"The SNA name of the PU. This value is supplied to a PU by the SSCP that activated it. If a value has not been supplied, a zero-length string is returned."

::= { dlurPuEntry 2 }

dlurPuStatus OBJECT-TYPE

SYNTAX INTEGER {

reset(1),  
pendReqActpuRsp(2),  
pendActpu(3),  
pendActpuRsp(4),  
active(5),  
pendLinkact(6),  
pendDactpuRsp(7),  
pendInop(8),  
pendInopActpu(9)

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Status of the DLUR-supported PU. The following values are defined:

reset(1)	-	reset
pendReqActpuRsp(2)	-	pending a response from the DLUS to a Request ACTPU
pendActpu(3)	-	pending an ACTPU from the DLUS
pendActpuRsp(4)	-	pending an ACTPU response from the PU
active(5)	-	active
pendLinkact(6)	-	pending activation of the link to a downstream PU
pendDactpuRsp(7)	-	pending a DACTPU response from the PU
pendInop(8)	-	the CPSVRMGR pipe became inoperative while the DLUR was pending an ACTPU response from the PU
pendInopActpu(9)	-	when the DLUR was in the pendInop state, a CPSVRMGR pipe became active and a new ACTPU was received over it, before a response to the previous ACTPU was received from the PU."

::= { dlurPuEntry 3 }

dlurPuAnsSupport OBJECT-TYPE

SYNTAX INTEGER {

```

        continue(1),
        stop(2)
    }
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The Automatic Network Shutdown (ANS) support configured for
    this PU. This value (as configured by the network
    administrator) is sent by DLUS with ACTPU for each PU.

    - 'continue' means that the DLUR node will attempt to keep
    LU-LU sessions active even if SSCP-PU and SSCP-LU
    control sessions are interrupted.

    - 'stop' means that LU-LU sessions will be interrupted
    when the SSCP-PU and SSCP-LU sessions are interrupted."

 ::= { dlurPuEntry 4 }

dlurPuLocation OBJECT-TYPE
    SYNTAX INTEGER {
        internal(1),
        downstream(2) }
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Location of the DLUR-support PU:
        internal(1) - internal to the APPN node itself (no link)
        downstream(2) - downstream of the APPN node (connected via
        a link)."

 ::= { dlurPuEntry 5 }

dlurPuLsName OBJECT-TYPE
    SYNTAX DisplayString (SIZE (0..10))
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Administratively assigned name of the link station through
        which a downstream PU is connected to this DLUR. A zero-length
        string is returned for internal PUs. If this object has the
        same value as the appnLsName object in the APPN MIB, then the
        two are identifying the same link station."

 ::= { dlurPuEntry 6 }

dlurPuDlusrSessnStatus OBJECT-TYPE
    SYNTAX INTEGER {

```

```

        reset(1),
        pendingActive(2),
        active(3),
        pendingInactive(4)
    }
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "Status of the control session to the DLUS identified in
    dlurPuActiveDlusName. This is a combination of the separate
    states for the contention-winner and contention-loser sessions:

```

```

reset(1)          - none of the cases below
pendingActive(2)   - either contention-winner session or
                    contention-loser session is pending active
active(3)          - contention-winner and contention-loser
                    sessions are both active
pendingInactive(4) - either contention-winner session or
                    contention-loser session is pending
                    inactive - this test is made AFTER the
                    'pendingActive' test.

```

The following matrix provides a different representation of how the values of this object are related to the individual states of the contention-winner and contention-loser sessions:

```

                Conwinner
                | pA | pI | A | X = !(pA | pI | A)
C ++++++
o pA | 2 | 2 | 2 | 2
n ++++++
l pI | 2 | 4 | 4 | 4
o ++++++
s A | 2 | 4 | 3 | 1
e ++++++
r X | 2 | 4 | 1 | 1
    ++++++
"

```

```
 ::= { dlurPuEntry 7 }

```

```

dlurPuActiveDlusName OBJECT-TYPE
    SYNTAX DisplayString (SIZE (0..17))
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The SNA name of the active DLUS for this PU. If its length
        is not zero, this name follows the SnaControlPointName textual

```

convention. A zero-length string indicates that the PU does not currently have an active DLUS."

```
::= { dlurPuEntry 8 }
```

```
dlurPuDefPrimDlusName OBJECT-TYPE
```

```
SYNTAX DisplayString (SIZE (0..17))
```

```
MAX-ACCESS read-only
```

```
STATUS current
```

```
DESCRIPTION
```

"The SNA name of the defined primary DLUS for this PU, if one has been defined. If present, this name follows the SnaControlPointName textual convention. A zero-length string indicates that no primary DLUS has been defined for this PU, in which case the global default represented by the dlurDefaultDefPrimDlusName object is used."

```
::= { dlurPuEntry 9 }
```

```
-- *****
```

```
-- Defined backup DLUS table for a PU
```

```
-- *****
```

```
dlurPuDefBackupDlusTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF DlurPuDefBackupDlusEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

"This table contains an ordered list of defined backup DLUSs for those PUs served by this DLUR that have their own defined backup DLUSs. PUs that have no entries in this table use the global default backup DLUSs for the DLUR, represented by the dlurDefaultDefBackupDlusNameTable. Entries in this table are ordered from most preferred backup DLUS to least preferred for each PU."

```
::= { dlurPuInfo 2 }
```

```
dlurPuDefBackupDlusEntry OBJECT-TYPE
```

```
SYNTAX DlurPuDefBackupDlusEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

"This table is indexed by PU name and by an integer-valued index, which orders the entries from most preferred backup DLUS for the PU to least preferred."

```
INDEX { dlurPuDefBackupDlusPuName,
```

```

        dlurPuDefBackupDlusIndex }

 ::= { dlurPuDefBackupDlusTable 1 }

DlurPuDefBackupDlusEntry ::= SEQUENCE {
    dlurPuDefBackupDlusPuName      DisplayString,
    dlurPuDefBackupDlusIndex       Unsigned32,
    dlurPuDefBackupDlusName        SnaControlPointName
}

dlurPuDefBackupDlusPuName OBJECT-TYPE
    SYNTAX DisplayString (SIZE (1..17))
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "Locally administered name of the PU.  If this object has the
        same value as the dlurPuName object, then the two are
        identifying the same PU."

 ::= { dlurPuDefBackupDlusEntry 1 }

dlurPuDefBackupDlusIndex OBJECT-TYPE
    SYNTAX Unsigned32 (1..4294967295)
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "Secondary index for this table.  The index values start at 1,
        which identifies the most preferred backup DLUS for the PU."

 ::= { dlurPuDefBackupDlusEntry 2 }

dlurPuDefBackupDlusName OBJECT-TYPE
    SYNTAX SnaControlPointName
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Fully qualified name of a backup DLUS for this PU."

 ::= { dlurPuDefBackupDlusEntry 3 }

-- *****
--                               DLUS Control Sessions (CPSVRMGR Pipes)
--
-- This table contains information about DLUS control sessions, also
-- known as CPSVRMGR pipes.  Although DLUR uses a pair of CPSVRMGR
-- sessions for communication, for the purpose of status, information
-- about these two sessions is combined to yield a single status for the
-- requester/server connection.

```

-- \*\*\*\*\*

dlurDlusInfo OBJECT IDENTIFIER ::= { dlurObjects 3 }

dlurDlusTable OBJECT-TYPE  
 SYNTAX SEQUENCE OF DlurDlusEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "Information about DLUS control sessions."  
  
 ::= { dlurDlusInfo 1 }

dlurDlusEntry OBJECT-TYPE  
 SYNTAX DlurDlusEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "This entry is indexed by the name of the DLUS."  
  
 INDEX { dlurDlusName }  
  
 ::= { dlurDlusTable 1 }

DlurDlusEntry ::= SEQUENCE {  
 dlurDlusName SnaControlPointName,  
 dlurDlusSessnStatus INTEGER  
 }

dlurDlusName OBJECT-TYPE  
 SYNTAX SnaControlPointName  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "The SNA name of a DLUS with which this DLUR currently has a  
 CPSVRMGR pipe established."  
  
 ::= { dlurDlusEntry 1 }

dlurDlusSessnStatus OBJECT-TYPE  
 SYNTAX INTEGER {  
 reset(1),  
 pendingActive(2),  
 active(3),  
 pendingInactive(4)  
 }  
 MAX-ACCESS read-only  
 STATUS current



## DESCRIPTION

"Status of the CPSVRMGR pipe between the DLUR and this DLUS.  
This is a combination of the separate states for the  
contention-winner and contention-loser sessions:

```

reset(1)           - none of the cases below
pendingActive(2)   - either contention-winner session or
                    contention-loser session is pending active
active(3)          - contention-winner and contention-loser
                    sessions are both active
pendingInactive(4) - either contention-winner session or
                    contention-loser session is pending
                    inactive - this test is made AFTER the
                    'pendingActive' test.
```

The following matrix provides a different representation of  
how the values of this object are related to the individual  
states of the contention-winner and contention-loser sessions:

```

          Conwinner
          | pA | pI | A | X = !(pA | pI | A)
C ++++++
o pA | 2 | 2 | 2 | 2
n ++++++
l pI | 2 | 4 | 4 | 4
o ++++++
s A | 2 | 4 | 3 | 1
e ++++++
r X | 2 | 4 | 1 | 1
    ++++++
"
```

```
::= { dlurDlusEntry 2 }
```

```
-- *****
-- Conformance information
-- *****
```

```
dlurConformance      OBJECT IDENTIFIER ::= { dlurMIB 2 }
```

```
dlurCompliances      OBJECT IDENTIFIER ::= { dlurConformance 1 }
```

```
dlurGroups           OBJECT IDENTIFIER ::= { dlurConformance 2 }
```

```
-- Compliance statements
```

```
dlurCompliance MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION
```

"The compliance statement for the SNMPv2 entities which implement the DLUR MIB."

```
MODULE -- this module

-- Unconditionally mandatory groups
MANDATORY-GROUPS { dlurConfGroup }

 ::= { dlurCompliances 1 }

-- Units of conformance
dlurConfGroup OBJECT-GROUP
  OBJECTS {
    dlurNodeCpName,
    dlurReleaseLevel,
    dlurAnsSupport,
    dlurMultiSubnetSupport,
    dlurNetworkNameForwardingSupport,
    dlurNondisDlusDlurSessDeactSup,
    dlurDefaultDefPrimDlusName,
    dlurDefaultDefBackupDlusName,
    dlurPuSscpSuppliedName,
    dlurPuStatus,
    dlurPuAnsSupport,
    dlurPuLocation,
    dlurPuLsName,
    dlurPuDlusSessnStatus,
    dlurPuActiveDlusName,
    dlurPuDefPrimDlusName,
    dlurPuDefBackupDlusName,
    dlurDlusSessnStatus
  }
  STATUS current
  DESCRIPTION
    "A collection of objects providing information on an
    implementation of APPN DLUR."

 ::= { dlurGroups 1 }

-- end of conformance statement

END
```

## 6. Acknowledgments

This MIB module is the product of the IETF SNA NAU MIB WG and the AIW APPN/HPR MIBs SIG.

## 7. References

- [1] Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Structure of Management Information for version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1902, January 1996.
- [2] Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Textual Conventions for Version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1903, January 1996.
- [3] Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Conformance Statements for Version 2 of the Simple Network Management Protocol (SNMPv2)", RFC 1904, January 1996.
- [4] Clouston, B., and B. Moore, "Definition of Managed Objects for APPN", RFC 2155, June 1997.
- [5] IBM, Systems Network Architecture Advanced Peer-to-Peer Networking Dependent LU Requester Architecture Reference, Version 1.2, SV40-1010-01, December 1995.
- [6] IBM, SNA/MS Formats, GC31-8302-00.

## 8. Security Considerations

In most cases, MIBs are not themselves security risks; if SNMP security is operating as intended, the use of a MIB to view information about a system, or to change some parameter at the system, is a tool, not a threat.

None of the read-only objects in the DLUR MIB reports a password, user data, or anything else that is particularly sensitive. Some enterprises view their network configuration itself, as well as information about network usage and performance, as corporate assets; such enterprises may wish to restrict SNMP access to most of the objects in the MIB.

There are no read-write objects in the DLUR MIB.

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