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Definitions of Managed Objects for SNA Data Link Control (SDLC)  
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.

Abstract

This specification defines an extension to the Management Information Base (MIB) for use with SNMP-based network management. In particular, it defines objects for managing the configuration, monitoring and control of data link controls in an SNA environment. This draft identifies managed objects for SNA Synchronous Data Link Control (SDLC) links only.

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## 1. The SNMPv2 Network Management Framework

The SNMPv2 Network Management Framework consists of four major components. They are:

- o RFC 1441 which defines the SMI, the mechanisms used for describing and naming objects for the purpose of management.
- o STD 17, RFC 1213 defines MIB-II, the core set of managed objects for the Internet suite of protocols.
- o RFC 1445 which defines the administrative and other architectural aspects of the framework.
- o RFC 1448 which defines the protocol used for network access to managed objects.

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

### 1.1. Object Definitions

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. Objects in the MIB are defined using the subset of Abstract Syntax Notation One (ASN.1) defined in the SMI. In particular, each object object type is named by an OBJECT IDENTIFIER, an administratively assigned name. The object type together with an object instance serves to uniquely identify a specific instantiation of the object. For human convenience, we often use a textual string, termed the descriptor, to refer to the object type.

## 2. Overview

This memo identifies the proposed set of objects for configuring, monitoring, and controlling SDLC ports and link stations.

## 2.1. Tables Defined in the SNADLC SDLC MIB

The SNADLC MIB is composed of two managed entities with three tables each. The two managed entities for SDLC are:

- o Ports: the physical connection, and
- o Link Stations: the logical connections on the Port.

The three management tables are:

- o Administration: objects used for configuring and controlling the operation of a Port or Link Station,
- o Operational: objects that reflect the run-time state of the Port or Link Station, and
- o Statistics: objects that reflect the operating metrics of the Port or Link Station.

Considering the above combinations, the following are the actual tables found in this MIB:

- 1) Port Administration Table,
- 2) Port Operation Table,
- 3) Port Statistics Table,
- 4) Link Station Administration Table,
- 5) Link Station Operation Table,
- 6) Link Station Statistics Table.

All variables in this MIB relate to SDLC ports and link stations only. Any variable relating to higher-layer entities in SNA such as Physical Units (PU) and Logical Units (LU) are found in the SNA NAU MIB [4].

## 2.2. Row Creation Mechanism

Row creation mechanism for the `sdlcLSAdminTable` is based on the use of the `RowStatus` object. It follows the rules for the use in SNMPv1 context proposed in the memo "Row creation with SNMPv1" [5]. Before accepting the `destroy` value for an entry, an agent has to verify the operational state of the corresponding entry in the `sdlcLSOperTable` entry.

### 2.3. Relationship to the Interfaces Group

This memo shall conform to the recommendations of [6].

The SDLC layer of each SDLC Port shall be modeled by a row in the ifTable with an ifType using the IANA assigned number for SDLC (17). Each SDLC port interface must comply with the following conformance groups in [6]:

- ifGeneralGroup
- ifStackGroup
- ifPacketGroup

An implementation may optionally comply with the ifTestGroup defined in that memo to execute vendor specific tests. An example of this would be to perform LPDA test functions.

The SDLC port's relation with its physical, or lower-layer interface (i.e., RS-232, V.35, etc.) shall be modeled by a row in the ifStackTable with the ifStackHigherLayer pointing to the SDLC port ifTable instance and the ifStackLowerLayer pointing to the physical media-specific ifTable instance. The media-specific objects of these lower-layer interfaces will, of course, be described in their respective MIBs (i.e., [1]).

The following table provides specific implementation guidelines for all the interface group objects listed in the conformance tables above.

Object	Use for an SDLC Port
ifIndex	Each SDLC port is represented by an ifEntry. All SDLC port tables shall be indexed by ifIndex.
ifDescr	Description of the SDLC port.
ifType	The IANA value reserved for SDLC - 17.
ifMtu	Refer to [6].
ifSpeed	This object shall reflect the value of the corresponding object in the ifEntry of the associated lower-layer interface.
ifPhysAddress	A string denoting the physical location of the SDLC port within its node. This shall have unique significance within each implementing node.

ifAdminStatus	This object shall reflect the value of the corresponding object in the ifEntry of the associated lower-layer interface.
ifOperStatus	This object shall reflect the value of the corresponding object in the ifEntry of the associated lower-layer interface.
ifLastChange	Refer to [6].
ifInOctets	Refer to [6].
ifInUcastPkts	This object shall count packets received from a specific SDLC poll address. Packets for the SDLC broadcast address of x'FF' are not counted.
ifInDiscards	Refer to [6].
ifInErrors	Refer to [6]. Specific counters for these errors are kept in the sdlcPortStatsTable.
ifInUnknownProtos	This counter shall return zero for SDLC ports.
ifOutOctets	Refer to [6].
ifOutUcastPkts	This object shall count packets transmitted to a specific SDLC poll address (not x'FF').
ifOutDiscards	Refer to [6].
ifOutErrors	Refer to [6]. Specific counters for these errors are kept in the sdlcPortStatsTable.
ifName	The textual name of the SDLC port or an octet string of zero length.
ifInMulticastPkts	The value is 0 (not applicable to the SDLC layer).
ifInBroadcastPkts	This object shall count packets received on this interface addressed to the SDLC broadcast address (x'FF'). Only point-to-point ports supporting a secondary switched station should return non-zero values.
ifOutMulticastPkts	The value is 0 (not applicable to the SDLC layer).
ifOutBroadcastPkts	This object shall count packets transmitted on this interface which were addressed to the SDLC broadcast

address (x'FF'). Only point-to-point ports supporting a primary switched station should return non-zero values.

ifHC\* Not part of the conformance group.

ifLinkUpDownTrapEnable Refer to [6]. Default is disabled (2).

ifHighSpeed Refer to [6].

ifPromiscuousMode Should return false if this interface receives only packets addressed to its SDLC poll address(es). However, in certain implementations, the lower-layer interface shall present all frames to the SDLC port regardless of the poll address. Such frames may be the result of a misconfigured peer or the secondary end of a multipoint connection. Such implementations should return true for this object.

ifConnectorPresent Set to 'false'.

ifStackHigherLayer For each SDLC port there will be an ifStackEntry with this object's value referring to the ifIndex of the SDLC port's ifEntry for the SDLC layer.

ifStackLowerLayer For each SDLC port there will be an ifStackEntry with this object's value referring to the ifIndex of the physical layer interface's ifEntry for that SDLC port.

ifStackStatus Refer to [6].

## 3. Definitions

```
SNA-SDLC-MIB DEFINITIONS ::= BEGIN
```

## IMPORTS

```
MODULE-IDENTITY, OBJECT-TYPE, NOTIFICATION-TYPE,
Counter32, Integer32, TimeTicks
FROM SNMPv2-SMI
DisplayString, RowStatus, TimeInterval
FROM SNMPv2-TC
MODULE-COMPLIANCE, OBJECT-GROUP
FROM SNMPv2-CONF
mib-2, ifIndex, ifAdminStatus, ifOperStatus
FROM RFC1213-MIB;
```

## snadLC MODULE-IDENTITY

```
LAST-UPDATED "9411150000Z"
ORGANIZATION "IETF SNA DLC MIB Working Group"
CONTACT-INFO
    " Wayne Clark

    Postal: cisco Systems, Inc.
           3100 Smoketree Ct.
           Suite 1000
           Raleigh, NC 27604
           US

    Tel: +1 919 878 6958

    E-Mail: wclark@cisco.com"
```

## DESCRIPTION

```
"This is the MIB module for objects used to
manage SDLC devices."
```

```
::= { mib-2 41 }
```

```
--
-- The following data link controls are modelled in this MIB module:
--
-- 1. SDLC
--
```

```
sdlc OBJECT IDENTIFIER ::= { snadLC 1 }
```

```

--
-- THE SDLC GROUP
-- =====
--
-- The following resources are modelled in the SDLC group of this
-- MIB module:
--
--     1. PORTS
--     2. LINK STATIONS
--
sdlcPortGroup OBJECT IDENTIFIER ::= { sdlc 1 } -- Physical Ports
sdlcLSGroup   OBJECT IDENTIFIER ::= { sdlc 2 } -- Logical Link Stations
--
-- THE SDLC PORT GROUP
-- =====
--
-- The following classes of information is modelled for each SDLC port:
--
--     1. ADMINISTRATIVE ( read/write)
--     2. OPERATIONAL   ( read-only)
--     3. STATISTICS     ( read-only)
--
-- Information not found in this group is found in tables described in
-- the following RFCs:
--
--     1. RFC1213 - MIB-II
--
--           TABLE                               INDEX
--           =====                               =====
--     a.  ifTable                                ifIndex
--
--     2. RFC1659 - The RS232-like MIB
--
--           TABLE                               INDEX
--           =====                               =====
--     a.  rs232PortTable                         rs232PortIndex
--     b.  rs232SyncPortTable                     rs232SyncPortIndex
--     c.  rs232InSigTable                        rs232InSigPortIndex,
--                                                rs232InSigName
--     d.  rs232OutSigTable                       rs232OutSigPortIndex,
--                                                rs232OutSigName
--     ** e. rs232AsyncPortTable                  rs232AsyncPortIndex
--
--     ** rs232AsyncPortTable for ISO 3309.3 ( Start-Stop SDLC).

```



```
-- *****
-- *
-- *          THE SDLC PORT ADMINISTRATIVE TABLE
-- *
-- *****
```

```
sdlcPortAdminTable OBJECT-TYPE
SYNTAX      SEQUENCE OF SdlcPortAdminEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "This table contains objects that can be
    changed to manage an SDLC port.  Changing one
    of these parameters may take effect in the
    operating port immediately or may wait until
    the interface is restarted depending on the
    details of the implementation.

    Most of the objects in this read-write table
    have corresponding read-only objects in the
    sdlcPortOperTable that return the current
    operating value.

    The operating values may be different from
    these configured values if a configured
    parameter was changed after the interface was
    started."
 ::= { sdlcPortGroup 1 }
```

```
sdlcPortAdminEntry OBJECT-TYPE
SYNTAX      SdlcPortAdminEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "A list of configured values for an SDLC port."
INDEX      { ifIndex }
 ::= { sdlcPortAdminTable 1 }
```

```
SdlcPortAdminEntry ::= SEQUENCE
{
    sdlcPortAdminName      DisplayString,
    sdlcPortAdminRole      INTEGER,
    sdlcPortAdminType      INTEGER,
    sdlcPortAdminTopology  INTEGER,
    sdlcPortAdminISTATUS   INTEGER,
    sdlcPortAdminACTIVTO   TimeInterval,
    sdlcPortAdminPAUSE     TimeInterval,
    sdlcPortAdminSERVLIM   Integer32,
```

```

    sdlcPortAdminSlowPollTimer TimeInterval
}

sdlcPortAdminName OBJECT-TYPE
    SYNTAX      DisplayString (SIZE (1..10))
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "An octet string that defines the physical port
        to which this interface is assigned.  It has
        implementation-specific significance.  Its value
        shall be unique within the administered
        system.  It must contain only ASCII printable
        characters.  Should an implementation choose to
        accept a write operation for this object, it
        causes the logical port definition associated
        with the table instance to be moved to a
        different physical port.  A write operation
        shall not take effect until the port is cycled
        inactive."
    ::= { sdlcPortAdminEntry 1 }

sdlcPortAdminRole OBJECT-TYPE
    SYNTAX      INTEGER
    {
        primary(1),
        secondary(2),
        negotiable(3)
    }
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object describes the role that the link
        station shall assume the next time a connection
        is established.

        Even though this is defined as a port object,
        it is a link station attribute in the sense
        that a role is per link station.  However, it
        is not possible to vary link station roles on a
        particular port.  For example, if an SDLC port
        is configured to primary, all link stations on
        that port must be primary."
    ::= { sdlcPortAdminEntry 2 }

sdlcPortAdminType OBJECT-TYPE
    SYNTAX      INTEGER
    {

```

```

        leased(1),
        switched(2)
    }
    MAX-ACCESS read-write
    STATUS current
    DESCRIPTION
        "This parameter defines whether the SDLC port
        is to connect to a leased or switched line. A
        write operation to this administrative value
        shall not take effect until the SDLC port has
        been cycled inactive."
    DEFVAL { leased }
    ::= { sdlcPortAdminEntry 3 }

```

```

sdlcPortAdminTopology OBJECT-TYPE
    SYNTAX INTEGER
    {
        pointToPoint(1),
        multipoint(2)
    }
    MAX-ACCESS read-write
    STATUS current
    DESCRIPTION
        "This parameter defines whether the SDLC port is
        capable of operating in either a point-to-point
        or multipoint topology.

        sdlcPortAdminTopology == multipoint implies the
        port can also operate in a point-to-point
        topology. sdlcPortAdminTopology ==
        pointToPoint does not imply the port can
        operate in a multipoint topology.

        A write operation to this administrative value
        shall not take effect until the SDLC port has
        been cycled inactive."
    DEFVAL { pointToPoint }
    ::= { sdlcPortAdminEntry 4 }

```

```

sdlcPortAdminISTATUS OBJECT-TYPE
    SYNTAX INTEGER
    {
        inactive(1),
        active(2)
    }
    MAX-ACCESS read-write
    STATUS current
    DESCRIPTION

```

"This parameter controls the initial value of the administrative status, ifAdminStatus, of this SDLC port at port start-up. Depending on the implementation, a write operation to this administrative object may not take effect until the SDLC port has been cycled inactive."

```
DEFVAL { active }
 ::= { sdlcPortAdminEntry 5 }
```

```
sdlcPortAdminACTIVTO    OBJECT-TYPE
SYNTAX                  TimeInterval
MAX-ACCESS              read-write
STATUS                  current
DESCRIPTION
    "This parameter defines the period of time (in
    1/100ths of a second) that the port will allow a
    switched line to remain inactive before
    disconnecting. A switched line is considered
    to be inactive if there are no I-Frames being
    transferred. A value of zero indicates no
    timeout. Depending on the implementation, a
    write operation to this administered value may
    not take effect until the port is cycled
    inactive.

    This object only has meaning for SDLC ports
    where sdlcPortAdminType == switched

    The object descriptor contains the name of an
    NCP configuration parameter, ACTIVTO. Please
    note that the value of this object represents
    1/100ths of a second while the NCP ACTIVTO is
    represented in seconds."
DEFVAL { 0 }
 ::= { sdlcPortAdminEntry 6 }
```

```
sdlcPortAdminPAUSE     OBJECT-TYPE
SYNTAX                  TimeInterval
MAX-ACCESS              read-write
STATUS                  current
DESCRIPTION
    "This object defines the minimum elapsed time
    (in 1/100ths of a second) between any two
    traversals of the poll list for a primary SDLC
    port. Depending on the implementation, a write
    operation to this administered value may not
    take effect until the port is cycled inactive."
```

The object descriptor contains the name of an NCP configuration parameter, PAUSE. Please note that the value of this object represents 1/100ths of a second while the NCP PAUSE is represented in 1/10ths of a second.

This object only has meaning for SDLC ports where `sdlcPortAdminRole == primary` "

```
DEFVAL { 200 }
 ::= { sdlcPortAdminEntry 7 }
```

`sdlcPortAdminSERVLIM` OBJECT-TYPE

```
SYNTAX      Integer32
MAX-ACCESS  read-write
STATUS      current
```

DESCRIPTION

"This object defines the number of times the active poll list will be traversed before polling a station on the slow poll list for a primary, multipoint SDLC port. Depending on the implementation, a write operation to this administered value may not take effect until the port is cycled inactive.

This object only has meaning for SDLC ports where

```
sdlcPortAdminRole == primary
and
sdlcPortAdminTopology == multipoint "
```

```
DEFVAL { 20 }
 ::= { sdlcPortAdminEntry 8 }
```

`sdlcPortAdminSlowPollTimer` OBJECT-TYPE

```
SYNTAX      TimeInterval
MAX-ACCESS  read-write
STATUS      current
```

DESCRIPTION

"This object describes the elapsed time (in 1/100ths of a second) between polls for failed secondary link station addresses. Depending on the implementation, a write operation to this administered value may not take effect until the port is cycled inactive.

This object only has meaning for SDLC ports where

```
sdlcPortAdminRole == primary
and
```

```

        sdlcPortAdminTopology == multipoint "
DEFVAL { 2000 }
 ::= { sdlcPortAdminEntry 9 }

```

```

-- *****
-- *
-- *           THE SDLC PORT OPERATIONAL TABLE
-- *
-- *****

```

```

sdlcPortOperTable  OBJECT-TYPE
    SYNTAX          SEQUENCE OF SdlcPortOperEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This table contains current SDLC port
        parameters.  Many of these objects have
        corresponding objects inthe sdlcPortAdminTable."
    ::= { sdlcPortGroup 2 }

```

```

sdlcPortOperEntry  OBJECT-TYPE
    SYNTAX          SdlcPortOperEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "Currently set parameters for a specific SDLC
        port."
    INDEX          { ifIndex }
    ::= { sdlcPortOperTable 1 }

```

```

SdlcPortOperEntry ::= SEQUENCE
{
    sdlcPortOperName          DisplayString,
    sdlcPortOperRole          INTEGER,
    sdlcPortOperType          INTEGER,
    sdlcPortOperTopology      INTEGER,
    sdlcPortOperISTATUS       INTEGER,
    sdlcPortOperACTIVTO       TimeInterval,
    sdlcPortOperPAUSE         TimeInterval,
    sdlcPortOperSlowPollMethod INTEGER,
    sdlcPortOperSERVLIM       Integer32,
    sdlcPortOperSlowPollTimer TimeInterval,
    sdlcPortOperLastModifyTime TimeTicks,
    sdlcPortOperLastFailTime  TimeTicks,
    sdlcPortOperLastFailCause INTEGER
}

```

```

sdlcPortOperName  OBJECT-TYPE

```

```

SYNTAX      DisplayString (SIZE (1..8))
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "An octet string that describes the physical
    port to which this interface is currently
    attached. It has implementation-specific
    significance."
 ::= { sdlcPortOperEntry 1 }

```

```

sdlcPortOperRole OBJECT-TYPE
SYNTAX      INTEGER
{
    primary(1),
    secondary(2),
    undefined(3)
}
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This object describes the role that the link
    station has assumed on this connection.

    Even though this is defined as a port object,
    it is a link station attribute in the sense
    that a role is per link station. However, it
    is not possible to vary link station roles on a
    particular port. For example, if an SDLC port
    is configured to primary, all link stations on
    that port must be primary.

    The value of sdlcPortOperRole is undefined(3)
    whenever the link station role has not yet been
    established by the mode setting command."
 ::= { sdlcPortOperEntry 2 }

```

```

sdlcPortOperType OBJECT-TYPE
SYNTAX      INTEGER
{
    leased(1),
    switched(2)
}
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This parameter defines whether the SDLC port
    is currently operating as though connected to a
    leased or switched line."

```

```
 ::= { sdlcPortOperEntry 3 }
```

```
sdlcPortOperTopology OBJECT-TYPE
    SYNTAX      INTEGER
    {
        pointToPoint(1),
        multipoint(2)
    }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This parameter defines whether the SDLC port is
        currently operating in a point-to-point or
        multipoint topology."
 ::= { sdlcPortOperEntry 4 }
```

```
sdlcPortOperISTATUS OBJECT-TYPE
    SYNTAX      INTEGER
    {
        inactive(1),
        active(2)
    }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This parameter describes the initial value of
        the administrative status, ifAdminStatus, of
        this SDLC port at last port start-up."
 ::= { sdlcPortOperEntry 5 }
```

```
sdlcPortOperACTIVTO OBJECT-TYPE
    SYNTAX      TimeInterval
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This parameter defines the period of time (in
        100ths of a second) that the port will allow a
        switched line to remain inactive before
        disconnecting. A switched line is considered
        to be inactive if there are no I-Frames being
        transferred.

        The object descriptor contains the name of an
        NCP configuration parameter, ACTIVTO. Please
        note that the value of this object represents
        1/100ths of a second while the NCP ACTIVTO is
        represented in seconds.
```



A value of zero indicates no timeout."  
 ::= { sdlcPortOperEntry 6 }

sdlcPortOperPAUSE OBJECT-TYPE  
 SYNTAX TimeInterval  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object describes the current minimum elapsed time (in 1/100ths of a second) between any two traversals of the poll list for a primary SDLC port.  
  
 The object descriptor contains the name of an NCP configuration parameter, PAUSE. Please note that the value of this object represents 1/100ths of a second while the NCP PAUSE is represented in 1/10ths of a second.  
  
 This object only has meaning for SDLC ports where  
     sdlcPortAdminRole == primary "  
 ::= { sdlcPortOperEntry 7 }

sdlcPortOperSlowPollMethod OBJECT-TYPE  
 SYNTAX INTEGER  
 {  
     servlim(1),  
     pollpause(2),  
     other(3)  
 }  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object defines the exact method that is in effect for periodically polling failed secondary link station addresses.  
  
 If sdlcPortOperSlowPollMethod == servlim, then sdlcPortOperSERVLIM defines the actual polling characteristics.  
  
 If sdlcPortOperSlowPollMethod == pollpause, then sdlcPortOperSlowPollTimer defines the actual polling characteristics.  
  
 If sdlcPortOperSlowPollMethod == other, then the polling characteristics are modeled in

vendor-specific objects.

This object only has meaning for SDLC ports where

```

    sdlcPortOperRole == primary
and
    sdlcPortOperTopology == multipoint "
 ::= { sdlcPortOperEntry 8 }

```

sdlcPortOperSERVLIM OBJECT-TYPE

```

SYNTAX      Integer32
MAX-ACCESS  read-only
STATUS      current

```

DESCRIPTION

"This object describes the number of times the active poll list is currently being traversed before polling a station on the slow poll list for a primary, multipoint SDLC port.

This object only has meaning for SDLC ports where

```

    sdlcPortOperRole == primary
and
    sdlcPortOperTopology == multipoint "
 ::= { sdlcPortOperEntry 9 }

```

sdlcPortOperSlowPollTimer OBJECT-TYPE

```

SYNTAX      TimeInterval
MAX-ACCESS  read-only
STATUS      current

```

DESCRIPTION

"This object describes the elapsed time (in 1/100ths of a second) between polls for failed secondary link station addresses.

This object only has meaning for SDLC ports where

```

    sdlcPortOperRole == primary
and
    sdlcPortOperTopology == multipoint "
 ::= { sdlcPortOperEntry 10 }

```

sdlcPortOperLastModifyTime OBJECT-TYPE

```

SYNTAX      TimeTicks
MAX-ACCESS  read-only
STATUS      current

```

DESCRIPTION

"This object describes the value of sysUpTime

when this port definition was last modified.  
 If the port has not been modified, then this  
 value shall be zero."  
 ::= { sdlcPortOperEntry 11 }

sdlcPortOperLastFailTime OBJECT-TYPE  
 SYNTAX TimeTicks  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object describes the value of sysUpTime  
 when this SDLC port last failed. If the port  
 has not failed, then this value shall be zero."  
 ::= { sdlcPortOperEntry 12 }

sdlcPortOperLastFailCause OBJECT-TYPE  
 SYNTAX INTEGER  
 {  
 undefined(1),  
 physical(2)  
 }  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This enumerated object describes the cause of  
 the last failure of this SDLC port. If the  
 port has not failed, then this object has a  
 value of undefined(1)."  
 DEFVAL { undefined }  
 ::= { sdlcPortOperEntry 13 }

```

-- *****
-- *
-- *          THE SDLC PORT STATISTICS TABLE
-- *
-- *****

sdlcPortStatsTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF SdlcPortStatsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Each entry in this table contains statistics
        for a specific SDLC port."
        ::= { sdlcPortGroup 3 }

sdlcPortStatsEntry OBJECT-TYPE
    SYNTAX      SdlcPortStatsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A list of statistics for an SDLC port."
    INDEX      { ifIndex }
    ::= { sdlcPortStatsTable 1 }

SdlcPortStatsEntry ::= SEQUENCE
{
    sdlcPortStatsPhysicalFailures Counter32,
    sdlcPortStatsInvalidAddresses Counter32,
    sdlcPortStatsDwarfFrames      Counter32,
    sdlcPortStatsPollsIn          Counter32,
    sdlcPortStatsPollsOut         Counter32,
    sdlcPortStatsPollRspsIn       Counter32,
    sdlcPortStatsPollRspsOut      Counter32,
    sdlcPortStatsLocalBusies      Counter32,
    sdlcPortStatsRemoteBusies     Counter32,
    sdlcPortStatsIFramesIn        Counter32,
    sdlcPortStatsIFramesOut       Counter32,
    sdlcPortStatsOctetsIn         Counter32,
    sdlcPortStatsOctetsOut        Counter32,
    sdlcPortStatsProtocolErrs     Counter32,
    sdlcPortStatsActivityTOS      Counter32,
    sdlcPortStatsRNRLIMITs        Counter32,
    sdlcPortStatsRetriesExps      Counter32,
    sdlcPortStatsRetransmitsIn    Counter32,
    sdlcPortStatsRetransmitsOut   Counter32
}

sdlcPortStatsPhysicalFailures OBJECT-TYPE

```

```

SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This object reflects the total number of times
    this port has failed due to its physical media
    since port startup.  At port startup time,
    this object must be initialized to zero."
 ::= { sdlcPortStatsEntry 1 }

```

```

sdlcPortStatsInvalidAddresses OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This object reflects the total number of
    frames received by this port with invalid link
    station addresses."
 ::= { sdlcPortStatsEntry 2 }

```

```

sdlcPortStatsDwarfFrames OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This object reflects the total number of
    frames received by this port which were
    delivered intact by the physical layer but were
    too short to be legal.

    Ignoring the frame check sequence (FCS), a
    frame is considered to be too short if it
    is less than 2 bytes for sdlcLSOperMODULO of
    eight, or if it is less than 3 bytes for
    sdlcLSOperMODULO of onetwentyeight."

 ::= { sdlcPortStatsEntry 3 }

```

```

sdlcPortStatsPollsIn OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This object reflects the total number of polls
    received by this port since the port was
    created."

 ::= { sdlcPortStatsEntry 4 }

```

```
sdlcPortStatsPollsOut OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object reflects the total number of polls
        sent by this port since the port was created."

    ::= { sdlcPortStatsEntry 5 }

sdlcPortStatsPollRspsIn OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object reflects the total number of poll
        responses received by this port since the port
        was created."

    ::= { sdlcPortStatsEntry 6 }

sdlcPortStatsPollRspsOut OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object reflects the total number of poll
        responses sent by this port since the port was
        created."

    ::= { sdlcPortStatsEntry 7 }

sdlcPortStatsLocalBusies OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object reflects the total number of
        times that the local SDLC link stations on
        this port have entered a busy state (RNR).
        This object is initialized to zero when the
        port is created."

    ::= { sdlcPortStatsEntry 8 }

sdlcPortStatsRemoteBusies OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
```

## DESCRIPTION

"This object reflects the total number of times that the adjacent (i.e., remote) SDLC link stations on this port have entered a busy state (RNR). This object is initialized to zero when the port is created."

::= { sdlcPortStatsEntry 9 }

## sdlcPortStatsIFramesIn OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current

## DESCRIPTION

"This object reflects the total number of I-Frames that have been received by SDLC link stations on this port. This object is initialized to zero when the port is created."

::= { sdlcPortStatsEntry 10 }

## sdlcPortStatsIFramesOut OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current

## DESCRIPTION

"This object reflects the total number of I-Frames that have been transmitted by SDLC link stations on this port. This object is initialized to zero when the port is created."

::= { sdlcPortStatsEntry 11 }

## sdlcPortStatsOctetsIn OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current

## DESCRIPTION

"This object reflects the total octets received from adjacent SDLC link stations on this port. This object covers the address, control, and information field of I-Frames only. This object is initialized to zero when the port is created."

::= { sdlcPortStatsEntry 12 }

## sdlcPortStatsOctetsOut OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current

## DESCRIPTION

"This object reflects the total octets transmitted to adjacent SDLC link stations on this port. This object covers the address, control, and information field of I-Frames only. This object is initialized to zero when the port is created."  
 ::= { sdlcPortStatsEntry 13 }

sdlcPortStatsProtocolErrs OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"This object reflects the total number of times that the SDLC link stations on this port have deactivated the link as a result of having received a protocol violation from the adjacent link station. This object is initialized to zero when the port is created."  
 ::= { sdlcPortStatsEntry 14 }

sdlcPortStatsActivityTOs OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"This object reflects the total number of times that the SDLC link stations on this port have deactivated the link as a result of no activity on the link. This object is initialized to zero when the port is created."  
 ::= { sdlcPortStatsEntry 15 }

sdlcPortStatsRNRLIMITs OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"This object reflects the total number of times that the SDLC link stations on this port have deactivated the link as a result of its RNRLIMIT timer expiring. This object is initialized to zero when the port is created."  
 ::= { sdlcPortStatsEntry 16 }

sdlcPortStatsRetriesExps OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only



```
STATUS      current
DESCRIPTION
    "This object reflects the total number of
    times that the SDLC link stations on this port
    have deactivated the link as a result of a
    retry sequence being exhausted.  This object
    is initialized to zero when the port is
    created."
 ::= { sdlcPortStatsEntry 17 }
```

```
sdlcPortStatsRetransmitsIn OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This object reflects the total number of
    I-Frames retransmitted by remote link stations
    for all SDLC link stations on this port.  This
    object is initialized to zero when the port is
    created."
 ::= { sdlcPortStatsEntry 18 }
```

```
sdlcPortStatsRetransmitsOut OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This object reflects the total number of
    I-Frames retransmitted by all local SDLC link
    stations on this port.  This object is
    initialized to zero when the port is created."
 ::= { sdlcPortStatsEntry 19 }
```

```

--
-- THE SDLC LINK STATION GROUP
-- =====
--
-- The following classes of information is modelled for each SDLC link
-- station:
--
--     1. ADMINISTRATIVE ( read-write)
--     2. OPERATIONAL   ( read-only)
--     3. STATISTICS    ( read-only)
--
-- *****
-- *
-- *     THE SDLC LINK STATION ADMINISTRATIVE TABLE
-- *
-- *****

```

```

sdlcLSAdminTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF SdlcLSAdminEntry
    MAX-ACCESS     not-accessible
    STATUS          current
    DESCRIPTION
        "This table contains objects that can be
        changed to manage an SDLC link station.
        Changing one of these parameters may take
        effect in the operating link immediately or may
        wait until the link is restarted depending on
        the details of the implementation.

        The entries in sdlcLSAdminTable can be created
        either by an agent or a management station. The
        management station can create an entry in
        sdlcLSAdminTable by setting the appropriate
        value in sdlcLSAdminRowStatus.

        Most of the objects in this read-create table
        have corresponding read-only objects in the
        sdlcLSOperTable that reflect the current
        operating value.

        The operating values may be different from
        these configured values if changed by XID
        negotiation or if a configured parameter was
        changed after the link was started."
    ::= { sdlcLSGroup 1 }

```

```

sdlcLSAdminEntry OBJECT-TYPE

```

```

SYNTAX      SdlcLSAdminEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "A list of configured values for an SDLC link
    station."
INDEX       { ifIndex, sdlcLSAddress }
 ::= { sdlcLSAdminTable 1 }

```

```
SdlcLSAdminEntry ::= SEQUENCE
```

```

{
    sdlcLSAddress          INTEGER,
    sdlcLSAdminName       DisplayString,
    sdlcLSAdminState      INTEGER,
    sdlcLSAdminISTATUS    INTEGER,
    sdlcLSAdminMAXDATASend Integer32,
    sdlcLSAdminMAXDATARcv Integer32,
    sdlcLSAdminREPLYTO    TimeInterval,
    sdlcLSAdminMAXIN      INTEGER,
    sdlcLSAdminMAXOUT     INTEGER,
    sdlcLSAdminMODULO     INTEGER,
    sdlcLSAdminRETRIESEm  INTEGER,
    sdlcLSAdminRETRIESt   TimeInterval,
    sdlcLSAdminRETRIESEn  Integer32,
    sdlcLSAdminRNRLIMIT   TimeInterval,
    sdlcLSAdminDATMODE    INTEGER,
    sdlcLSAdminGPoll      INTEGER,
    sdlcLSAdminSimRim     INTEGER,
    sdlcLSAdminXmitRcvCap INTEGER,
    sdlcLSAdminRowStatus  RowStatus
}

```

```

sdlcLSAddress      OBJECT-TYPE
SYNTAX             INTEGER (1..255)
MAX-ACCESS         read-create
STATUS             current
DESCRIPTION
    "This value is the poll address of the
    secondary link station for this SDLC link.  It
    uniquely identifies the SDLC link station
    within a single SDLC port."
 ::= { sdlcLSAdminEntry 1 }

```

```

sdlcLSAdminName    OBJECT-TYPE
SYNTAX             DisplayString (SIZE (1..10))
MAX-ACCESS         read-create
STATUS             current
DESCRIPTION

```

"An octet string that defines the local name of the SDLC link station. This field may be sent in the XID3 control vector 0x0E, type 0xF7."  
 ::= { sdlcLSAdminEntry 2 }

sdlcLSAdminState OBJECT-TYPE  
 SYNTAX INTEGER  
 {  
     inactive(1),  
     active(2)  
 }  
 MAX-ACCESS read-create  
 STATUS current  
 DESCRIPTION  
     "This object controls the desired state of the SDLC station. The managed system shall attempt to keep the operational state, sdlcLSOperState, consistent with this value."  
 DEFVAL { active }  
 ::= { sdlcLSAdminEntry 3 }

sdlcLSAdminISTATUS OBJECT-TYPE  
 SYNTAX INTEGER  
 {  
     inactive(1),  
     active(2)  
 }  
 MAX-ACCESS read-create  
 STATUS current  
 DESCRIPTION  
     "This parameter controls the desired state, sdlcLSAdminState, of the SDLC link station at link station start-up."  
 DEFVAL { active }  
 ::= { sdlcLSAdminEntry 4 }

sdlcLSAdminMAXDATASend OBJECT-TYPE  
 SYNTAX Integer32  
 MAX-ACCESS read-create  
 STATUS current  
 DESCRIPTION  
     "This object contains the maximum PDU size that the local link station thinks it can send to the adjacent link station before having received any XID from the ALS. After the maximum PDU size that the ALS can receive is known (via XID exchange) that value is reflected in sdlcLSOperMAXDATASend and takes

precedence over this object.

This value includes the Transmission Header (TH) and the Request Header (RH)."  
 ::= { sdlcLSAdminEntry 5 }

sdlcLSAdminMAXDATARcv OBJECT-TYPE

SYNTAX Integer32  
 MAX-ACCESS read-create  
 STATUS current  
 DESCRIPTION

"This object contains the maximum PDU size that the local link station can receive from the adjacent link station. This value is sent in the XID to the ALS.

This value includes the Transmission Header (TH) and the Request Header (RH)."  
 ::= { sdlcLSAdminEntry 6 }

sdlcLSAdminREPLYTO OBJECT-TYPE

SYNTAX TimeInterval  
 MAX-ACCESS read-create  
 STATUS current  
 DESCRIPTION

"This object controls the reply timeout (in 1/100ths of a second) for an SDLC link station. If the link station does not receive a response to a poll or message before the specified time expires then the appropriate error recovery shall be initiated.

The object descriptor contains the name of an NCP configuration parameter, REPLYTO. Please note that the value of this object represents 1/100ths of a second while the NCP REPLYTO is represented in 1/10ths of a second.

Depending on the implementation, a write operation to this administered value may not change the operational value, sdlcLSOperREPLYTO, until the link station is cycled inactive.

This object only has meaning for SDLC ports where sdlcPortAdminRole == primary "  
 DEFVAL { 100 }  
 ::= { sdlcLSAdminEntry 7 }

```

sdlcLSAdminMAXIN OBJECT-TYPE
SYNTAX          INTEGER (1..127)
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION
    "This object controls the maximum number of
    unacknowledged I-frames which an SDLC link
    station may receive. This should range from 1
    to (sdlcLSAdminMODULO - 1). This value is sent
    in the XID to the ALS.

    A write operation to this administered value
    will not change the operational value,
    sdlcLSOperMAXIN, until the link station is
    cycled inactive."
DEFVAL { 7 }
 ::= { sdlcLSAdminEntry 8 }

sdlcLSAdminMAXOUT OBJECT-TYPE
SYNTAX          INTEGER (1..127)
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION
    "This object controls the maximum number of
    consecutive unacknowledged I-frames which an
    SDLC link station shall send without an
    acknowledgement. This shall range from 1 to
    (sdlcLSAdminMODULO - 1).

    For link stations on switched SDLC lines,
    certain implementations may choose to override
    this administered value with the value
    received in the XID exchange.

    Depending on the implementation, a write
    operation to this administered value may not
    change the operational value,
    sdlcLSOperMAXOUT, until the link station is
    cycled inactive.

    An implementation can support only modulo 8,
    only modulo 128, or both."
DEFVAL { 1 }
 ::= { sdlcLSAdminEntry 9 }

sdlcLSAdminMODULO OBJECT-TYPE
SYNTAX          INTEGER
{

```

```

        eight(8),
        onetwentyeight(128)
    }
    MAX-ACCESS read-create
    STATUS current
    DESCRIPTION
        "This object controls the modulus for an SDLC
        link station. This modulus determines the size
        of the rotating acknowledgement window used the
        SDLC link station pair.

        A write operation to this administered value
        will not change the operational value,
        sdlcLSOperMODULO, until the link station is
        cycled inactive.

        An implementation can support only modulo 8,
        only modulo 128, or both."
    DEFVAL { eight }
    ::= { sdlcLSAdminEntry 10 }

```

```

sdlcLSAdminRETRIESt OBJECT-TYPE
    SYNTAX INTEGER (0..128)
    MAX-ACCESS read-create
    STATUS current
    DESCRIPTION
        "This object controls number of retries in a
        retry sequence for the local SDLC link
        station. A retry sequence is a series of
        retransmitted frames ( data or control) for
        which no positive acknowledgement is received.

        The number of times that the retry sequence is
        to be repeated is controlled by the object:
        sdlcLSAdminRETRIESt. The interval between retry
        sequences is controlled by the object:
        sdlcLSAdminRETRIESt.

        A value of zero indicates no retries. If the
        value of sdlcLSAdminRETRIESt is zero, then the
        values of sdlcLSAdminRETRIESt and
        sdlcLSAdminRETRIESt should also be zero.

        Depending on the implementation, a write
        operation to this administered value may not
        change the operational value,
        sdlcLSOperRETRIESt, until the link station is
        cycled inactive."

```

```
DEFVAL { 15 }
 ::= { sdlcLSAdminEntry 11 }
```

```
sdlcLSAdminRETRIESt OBJECT-TYPE
SYNTAX      TimeInterval
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "This object controls the interval (in 1/100ths
    of a second) between retry sequences for the
    local SDLC link station if multiple retry
    sequences are specified . A retry sequence is
    a series of retransmitted frames ( data or
    control) for which no positive acknowledgement
    is received.

    The number of repeated retries sequences is
    controlled by the object: sdlcLSAdminRETRIESn.
    The retries per sequence is controlled by the
    object:  sdlcLSAdminRETRIESm.

    The object descriptor contains the name of an
    NCP configuration parameter, RETRIEST. Please
    note that the value of this object represents
    1/100ths of a second while the NCP RETRIEST is
    represented in seconds.

    Depending on the implementation, a write
    operation to this administered value may not
    change the operational value,
    sdlcLSOperRETRIESt, until the link station is
    cycled inactive."
DEFVAL { 0 }
 ::= { sdlcLSAdminEntry 12 }
```

```
sdlcLSAdminRETRIESn OBJECT-TYPE
SYNTAX      Integer32
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "This object controls the number of times that
    a retry sequence is repeated for the local SDLC
    link station. A retry sequence is a series of
    retransmitted frames ( data or control) for
    which no positive acknowledgement is received.

    The interval between retry sequences is
    controlled by the object: sdlcLSAdminRETRIESt."
```



The retries per sequence is controlled by the object: sdlcLSAdminRETRIESm.

Depending on the implementation, a write operation to this administered value may not change the operational value, sdlcLSOperRETRIESn, until the link station is cycled inactive."

```
DEFVAL { 0 }
 ::= { sdlcLSAdminEntry 13 }
```

```
sdlcLSAdminRNRLIMIT OBJECT-TYPE
SYNTAX      TimeInterval
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "This object controls the length of time (in
    1/100ths of a second) that an SDLC link station
    will allow its adjacent link station to remain
    in a busy (RNR) state before declaring it
    inoperative.
```

A value of sdlcLSAdminRNRLIMIT == 0 means there is no limit.

The object descriptor contains the name of an NCP configuration parameter, RNRLIMIT. Please note that the value of this object represents 1/100ths of a second while the NCP RNRLIMIT is represented in minutes.

Depending on the implementation, a write operation to this administered value may not change the operational value, sdlcLSOperRNRLIMIT, until the link station is cycled inactive."

```
DEFVAL { 18000 }
 ::= { sdlcLSAdminEntry 14 }
```

```
sdlcLSAdminDATMODE OBJECT-TYPE
SYNTAX      INTEGER
{
    half(1),
    full(2)
}
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
```

"This object controls whether communications mode with the adjacent link station is two-way-alternate (half) or two-way-simultaneous (full).

A write operation to this administered value will not change the operational value, sdlcLSOperDATMODE, until the link station is cycled inactive."

```
DEFVAL { half }
 ::= { sdlcLSAdminEntry 15 }
```

```
sdlcLSAdminGPoll OBJECT-TYPE
SYNTAX          INTEGER (0..254)
MAX-ACCESS     read-create
STATUS         current
DESCRIPTION
    "This object describes the group poll address for this link station instance. If group poll is not in effect for this link station instance, the value for sdlcLSAdminGPoll should be zero.

    Depending on the implementation, a write operation to this administered value may not change the operational value, sdlcLSOperGPoll, until the link station is cycled inactive."
 ::= { sdlcLSAdminEntry 16 }
```

```
sdlcLSAdminSimRim OBJECT-TYPE
SYNTAX          INTEGER
{
    no(1),
    yes(2)
}
MAX-ACCESS     read-create
STATUS         current
DESCRIPTION
    "This object controls the support for transmission and receipt of SIM and RIM control frames for this link station. The value of this object controls the setting of the transmit-receive capability sent in the XID field."
DEFVAL { no }
 ::= { sdlcLSAdminEntry 17 }
```

```
sdlcLSAdminXmitRcvCap OBJECT-TYPE
```

```

SYNTAX      INTEGER
{
    twa(1),
    tws(2)
}
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "This object controls the transmit-receive
    capabilities for this SDLC link station.  The
    value of this object establishes the value of
    the transmit-receive capability indicator sent
    in the XID image to the adjacent link station."
DEFVAL { twa }
 ::= { sdlcLSAdminEntry 18 }

```

```

sdlcLSAdminRowStatus OBJECT-TYPE
SYNTAX      RowStatus
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "This object is used by a management station to
    create or delete the row entry in
    sdlcLSAdminTable following the RowStatus
    textual convention.

    Upon successful creation of the row, an agent
    automatically creates a corresponding entry in
    the sdlcLSOperTable with sdlcLSOperState equal
    to 'discontacted (1)'."
 ::= { sdlcLSAdminEntry 19 }

```

```

-- *****
-- *
-- *          THE SDLC LINK STATION OPERATIONAL TABLE          *
-- *
-- *****

```

```

sdlcLSOperTable OBJECT-TYPE
SYNTAX      SEQUENCE OF SdlcLSOperEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "This table contains current SDLC link
    parameters.  Many of these objects have
    corresponding objects in the
    sdlcLSAdminTable."
 ::= { sdlcLSGroup 2 }

```

```

sdlcLSOperEntry      OBJECT-TYPE
    SYNTAX             SdlcLSOperEntry
    MAX-ACCESS         not-accessible
    STATUS              current
    DESCRIPTION
        "A list of status and control values for an
        SDLC link station."
    INDEX              { ifIndex, sdlcLSAddress }
    ::= { sdlcLSOperTable 1 }

SdlcLSOperEntry      ::= SEQUENCE
{
    sdlcLSOperName          DisplayString,
    sdlcLSOperRole          INTEGER,
    sdlcLSOperState         INTEGER,
    sdlcLSOperMAXDATASend   Integer32,
    sdlcLSOperREPLYTO       TimeInterval,
    sdlcLSOperMAXIN         INTEGER,
    sdlcLSOperMAXOUT        INTEGER,
    sdlcLSOperMODULO        INTEGER,
    sdlcLSOperRETRIESEm     INTEGER,
    sdlcLSOperRETRIESt     TimeInterval,
    sdlcLSOperRETRIESEn     INTEGER,
    sdlcLSOperRNRLIMIT      TimeInterval,
    sdlcLSOperDATMODE       INTEGER,
    sdlcLSOperLastModifyTime TimeTicks,
    sdlcLSOperLastFailTime  TimeTicks,
    sdlcLSOperLastFailCause INTEGER,
    sdlcLSOperLastFailCtrlIn OCTET STRING,
    sdlcLSOperLastFailCtrlOut OCTET STRING,
    sdlcLSOperLastFailFRMRInfo OCTET STRING,
    sdlcLSOperLastFailREPLYTOs Counter32,
    sdlcLSOperEcho          INTEGER,
    sdlcLSOperGPoll         INTEGER,
    sdlcLSOperSimRim        INTEGER,
    sdlcLSOperXmitRcvCap    INTEGER
}

sdlcLSOperName      OBJECT-TYPE
    SYNTAX             DisplayString (SIZE (1..10))
    MAX-ACCESS         read-only
    STATUS              current
    DESCRIPTION
        "An octet string that defines the name of the
        remote SDLC link station.  This field is
        received in the XID3 control vector 0x0E, type
        0xF7."
    ::= { sdlcLSOperEntry 1 }

```

```

sdlcLSOperRole      OBJECT-TYPE
                    SYNTAX      INTEGER
                    {
                        primary(1),
                        secondary(2),
                        undefined(3)
                    }
                    MAX-ACCESS  read-only
                    STATUS      current
                    DESCRIPTION
                        "This object reflects the current role that the
                        link station is assuming.

                        The value of sdlcLSOperRole is undefined(3)
                        whenever the link station role has not yet been
                        established by the mode setting command."
                    ::= { sdlcLSOperEntry 2 }

sdlcLSOperState     OBJECT-TYPE
                    SYNTAX      INTEGER
                    {
                        disconnected(1),
                        contactPending(2),
                        contacted(3),
                        disconnectPending(4)
                    }
                    MAX-ACCESS  read-only
                    STATUS      current
                    DESCRIPTION
                        "This object describes the operational state of
                        the SDLC link station. The managed system
                        shall attempt to keep this value consistent
                        with the administered state, sdlcLSAdminState"
                    ::= { sdlcLSOperEntry 3 }

sdlcLSOperMAXDATASend OBJECT-TYPE
                    SYNTAX      Integer32
                    MAX-ACCESS  read-only
                    STATUS      current
                    DESCRIPTION
                        "This object contains the actual maximum PDU
                        size that the local link station can send to
                        the adjacent link station. This object is
                        established from the value received in the XID
                        from the adjacent link station. If no XID
                        is received, then this value is implementation
                        dependent (for instance, it could be the value
                        of sdlcLSAdminMAXDATASend).

```

This value includes the Transmission Header (TH) and the Request Header (RH)."  
 ::= { sdlcLSOperEntry 4 }

sdlcLSOperREPLYTO OBJECT-TYPE  
 SYNTAX TimeInterval  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object reflects the current reply timeout (in 1/100ths of a second) for an SDLC link station. If the link station does not receive a response to a poll or message before the specified time expires then the appropriate error recovery shall be initiated.  
  
 The object descriptor contains the name of an NCP configuration parameter, REPLYTO. Please note that the value of this object represents 1/100ths of a second while the NCP REPLYTO is represented in 1/10ths of a second.  
  
 This object only has meaning for SDLC ports where sdlcPortOperRole == primary "  
 ::= { sdlcLSOperEntry 5 }

sdlcLSOperMAXIN OBJECT-TYPE  
 SYNTAX INTEGER (1..127)  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object reflects the current maximum number of unacknowledged I-frames which an SDLC link station may receive. This shall range from 1 to (sdlcLSOperMODULO - 1)."  
 ::= { sdlcLSOperEntry 6 }

sdlcLSOperMAXOUT OBJECT-TYPE  
 SYNTAX INTEGER (1..127)  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object controls the maximum number of consecutive unacknowledged I-frames which an SDLC link station shall send without an acknowledgement. This shall range from 1 to (sdlcLSAdminMODULO - 1)."

This value may controlled by the administered MAXOUT, sdlcLSAdminMAXOUT, or by the MAXIN value received during the XID exchange."

::= { sdlcLSOperEntry 7 }

```
sdlcLSOperMODULO OBJECT-TYPE
SYNTAX          INTEGER
                {
                    eight(8),
                    onetwentyeight(128)
                }
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION     "This object reflects the current modulus for
                an SDLC link station. This modulus determines
                the size of rotating acknowledgement window
                used by the SDLC link station pair."
DEFVAL { eight }
::= { sdlcLSOperEntry 8 }
```

```
sdlcLSOperRETRIESt OBJECT-TYPE
SYNTAX          INTEGER (0..128)
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION     "This object controls number of retries in a
                retry sequence for an SDLC link station. A
                retry sequence is a series of retransmitted
                frames ( data or control) for which no positive
                acknowledgement is received.

                The current number of times that the retry
                sequence is to be repeated is reflected by the
                object: sdlcLSOperRETRIESt. The current
                interval between retry sequences is reflected
                by the object: sdlcLSOperRETRIESt."
::= { sdlcLSOperEntry 9 }
```

```
sdlcLSOperRETRIESt OBJECT-TYPE
SYNTAX          TimeInterval
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION     "This object reflects the current interval (in
                1/100ths of a second) between retry sequences
                for an SDLC link station if multiple retry
                sequences are specified. A retry sequence is a
```

series of retransmitted frames ( data or control) for which no positive acknowledgement is received.

The object descriptor contains the name of an NCP configuration parameter, RETRIEST. Please note that the value of this object represents 1/100ths of a second while the NCP RETRIEST is represented in seconds.

The current number of repeated retries sequences is reflected by the object: sdlcLSOperRETRIESn. The current retries per sequence is reflected by the object: sdlcLSOperRETRIESm."

::= { sdlcLSOperEntry 10 }

sdlcLSOperRETRIESn OBJECT-TYPE

SYNTAX INTEGER (0..127)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the current number of times that a retry sequence is repeated for an SDLC link station. A retry sequence is a series of retransmitted frames ( data or control) for which no positive acknowledgement is received.

The current interval between retry sequences is reflected by the object: sdlcLSOperRETRIESn.

The current retries per sequence is reflected by the object: sdlcLSOperRETRIESm."

::= { sdlcLSOperEntry 11 }

sdlcLSOperRNRLIMIT OBJECT-TYPE

SYNTAX TimeInterval

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the current length of time (in 1/100ths of a second) that an SDLC link station will allow its adjacent link station to remain in a busy (RNR) state before declaring it inoperative.

The object descriptor contains the name of an NCP configuration parameter, RNRLIMIT. Please



note that the value of this object represents 1/100ths of a second while the NCP RNRLIMIT is represented in minutes.

A value of sdlcLSOperRNRLIMIT == 0 means there is no limit."

::= { sdlcLSOperEntry 12 }

```
sdlcLSOperDATMODE OBJECT-TYPE
SYNTAX             INTEGER
{
    half(1),
    full(2)
}
MAX-ACCESS         read-only
STATUS             current
DESCRIPTION
    "This object reflects whether the current
    communications mode with the adjacent link
    station is two-way-alternate (half) or
    two-way-simultaneous (full)."
```

::= { sdlcLSOperEntry 13 }

```
sdlcLSOperLastModifyTime OBJECT-TYPE
SYNTAX             TimeTicks
MAX-ACCESS         read-only
STATUS             current
DESCRIPTION
    "This object describes the value of sysUpTime
    when this link station definition was last
    modified.  If the link station has not been
    modified, then this value shall be zero."
```

::= { sdlcLSOperEntry 14 }

```
sdlcLSOperLastFailTime OBJECT-TYPE
SYNTAX             TimeTicks
MAX-ACCESS         read-only
STATUS             current
DESCRIPTION
    "This object describes the value of sysUpTime
    when this SDLC link station last failed.  If
    the link station has not failed, then this
    value shall be zero."
```

::= { sdlcLSOperEntry 15 }

```
sdlcLSOperLastFailCause OBJECT-TYPE
SYNTAX             INTEGER
{
```

```

        undefined(1),
        rxFRMR(2),
        txFRMR(3),
        noResponse(4),
        protocolErr(5),
        noActivity(6),
        rnrLimit(7),
        retriesExpired(8)
    }
    MAX-ACCESS    read-only
    STATUS        current
    DESCRIPTION
        "This enumerated object reflects the cause of
        the last failure of this SDLC link station.  If
        the link station has not failed, then this
        object will have a value of undefined(1)."
    DEFVAL { undefined }
    ::= { sdlcLSOperEntry 16 }

```

```

sdlcLSOperLastFailCtrlIn  OBJECT-TYPE
    SYNTAX          OCTET STRING (SIZE(1..2))
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object reflects the last control octet or
        octets (depending on modulus) received by this
        SDLC link station at the time of the last
        failure.  If the link station has not failed,
        then this value has no meaning."
    ::= { sdlcLSOperEntry 17 }

```

```

sdlcLSOperLastFailCtrlOut OBJECT-TYPE
    SYNTAX          OCTET STRING (SIZE(1..2))
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object reflects the last control octet or
        octets (depending on modulus) sent by this SDLC
        link station at the time of the last failure.
        If the link station has not failed, then this
        value has no meaning."
    ::= { sdlcLSOperEntry 18 }

```

```

sdlcLSOperLastFailFRMRInfo OBJECT-TYPE
    SYNTAX          OCTET STRING (SIZE(3))
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION

```

"This object reflects the information field of the FRMR frame if the last failure for this SDLC link station was as a result of an invalid frame. Otherwise, this field has no meaning."  
 ::= { sdlcLSOperEntry 19 }

sdlcLSOperLastFailREPLYTOs OBJECT-TYPE  
 SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object reflects the number of times that the REPLYTO timer had expired for an SDLC link station at the time of the last failure. If the link station has not failed, then this value has no meaning."  
 ::= { sdlcLSOperEntry 20 }

sdlcLSOperEcho OBJECT-TYPE  
 SYNTAX INTEGER  
 {  
     no(1),  
     yes(2)  
 }  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object identifies whether the echo bit is in effect for this particular link station."  
 DEFVAL { no }  
 ::= { sdlcLSOperEntry 21 }

sdlcLSOperGPoll OBJECT-TYPE  
 SYNTAX INTEGER (0..254)  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object describes the group poll address in effect for this link station instance."  
 DEFVAL { 0 }  
 ::= { sdlcLSOperEntry 22 }

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

```

MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "This object reflects the support for
    transmission and receipt of SIM and RIM control
    frames for the adjacent link station. The
    value of this object is set from the XID field
    received from the adjacent link station."
DEFVAL { no }
 ::= { sdlcLSOperEntry 23 }

```

```

sdlcLSOperXmitRcvCap OBJECT-TYPE
    SYNTAX INTEGER
    {
        twa(1),
        tws(2)
    }
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "This object reflects the transmit-receive
        capabilities for the adjacent SDLC link
        station. The value of this object is the value
        of the transmit-receive capability indicator
        received in the XID image from the adjacent
        link station."
    DEFVAL { twa }
    ::= { sdlcLSOperEntry 24 }

```

```

-- *****
-- *
-- *          THE SDLC LINK STATION STATISTICS TABLE          *
-- *
-- *****

```

```

sdlcLSStatsTable OBJECT-TYPE
    SYNTAX SEQUENCE OF SdlcLSStatsEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "Each entry in this table contains statistics
        for a specific SDLC link station."
    ::= { sdlcLSGroup 3 }

```

```

sdlcLSStatsEntry OBJECT-TYPE
    SYNTAX SdlcLSStatsEntry
    MAX-ACCESS not-accessible

```

```

STATUS      current
DESCRIPTION
    "A list of statistics for an SDLC link station."
INDEX      { ifIndex, sdlcLSAddress }
 ::= { sdlcLSStatsTable 1 }

```

```
SdlcLSStatsEntry ::= SEQUENCE
```

```
{
```

```

    sdlcLSStatsBLUsIn           Counter32,
    sdlcLSStatsBLUsOut         Counter32,
    sdlcLSStatsOctetsIn        Counter32,
    sdlcLSStatsOctetsOut       Counter32,
    sdlcLSStatsPollsIn         Counter32,
    sdlcLSStatsPollsOut        Counter32,
    sdlcLSStatsPollRspIn       Counter32,
    sdlcLSStatsPollRspOut      Counter32,
    sdlcLSStatsLocalBusies     Counter32,
    sdlcLSStatsRemoteBusies    Counter32,
    sdlcLSStatsIFramesIn       Counter32,
    sdlcLSStatsIFramesOut      Counter32,
    sdlcLSStatsUIFramesIn      Counter32,
    sdlcLSStatsUIFramesOut     Counter32,
    sdlcLSStatsXIDsIn          Counter32,
    sdlcLSStatsXIDsOut         Counter32,
    sdlcLSStatsTESTsIn         Counter32,
    sdlcLSStatsTESTsOut        Counter32,
    sdlcLSStatsREJsIn          Counter32,
    sdlcLSStatsREJsOut         Counter32,
    sdlcLSStatsFRMRsIn         Counter32,
    sdlcLSStatsFRMRsOut        Counter32,
    sdlcLSStatsSIMsIn          Counter32,
    sdlcLSStatsSIMsOut         Counter32,
    sdlcLSStatsRIMsIn          Counter32,
    sdlcLSStatsRIMsOut         Counter32,
    sdlcLSStatsDISCIn          Counter32,
    sdlcLSStatsDISCOut         Counter32,
    sdlcLSStatsUAIIn           Counter32,
    sdlcLSStatsUAOut           Counter32,
    sdlcLSStatsDMIn            Counter32,
    sdlcLSStatsDMOut           Counter32,
    sdlcLSStatsSNRMIn          Counter32,
    sdlcLSStatsSNRMOut         Counter32,
    sdlcLSStatsProtocolErrs    Counter32,
    sdlcLSStatsActivityTOs     Counter32,
    sdlcLSStatsRNRLIMITs      Counter32,
    sdlcLSStatsRetriesExps     Counter32,
    sdlcLSStatsRetransmitsIn   Counter32,
    sdlcLSStatsRetransmitsOut  Counter32

```

```

}

sdlcLSStatsBLUsIn OBJECT-TYPE
    SYNTAX Counter32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "This object reflects the total basic link
        units (BLUs; frames) received from an adjacent
        SDLC link station since link station startup.
        At link station startup time, this object must
        be initialized to zero."
    ::= { sdlcLSStatsEntry 1 }

sdlcLSStatsBLUsOut OBJECT-TYPE
    SYNTAX Counter32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "This object reflects the total basic link
        units (BLUs; frames), transmitted to an
        adjacent SDLC link station since link station
        startup. At link station startup time, this
        object must be initialized to zero."
    ::= { sdlcLSStatsEntry 2 }

sdlcLSStatsOctetsIn OBJECT-TYPE
    SYNTAX Counter32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "This object reflects the total octets received
        from an adjacent SDLC link station since link
        station startup. This object covers the
        address, control, and information field of
        I-Frames only. At link station startup time,
        this object must be initialized to zero."
    ::= { sdlcLSStatsEntry 3 }

sdlcLSStatsOctetsOut OBJECT-TYPE
    SYNTAX Counter32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "This object reflects the total octets
        transmitted to an adjacent SDLC link station
        since link station startup. This object covers
        the address, control, and information field of

```

I-Frames only. At link station startup time,  
this object must be initialized to zero."  
 ::= { sdlcLSStatsEntry 4 }

sdlcLSStatsPollsIn OBJECT-TYPE  
SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"This object reflects the total polls received  
from an adjacent SDLC link station since link  
station startup. At link station startup time,  
this object must be initialized to zero."  
 ::= { sdlcLSStatsEntry 5 }

sdlcLSStatsPollsOut OBJECT-TYPE  
SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"This object reflects the total polls sent to  
an adjacent SDLC link station since link  
station startup. At link station startup time,  
this object must be initialized to zero."  
 ::= { sdlcLSStatsEntry 6 }

sdlcLSStatsPollRspsOut OBJECT-TYPE  
SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"This object reflects the total number of poll  
responses sent to the adjacent SDLC link  
station since link station startup. This value  
includes I-frames that are sent in response to  
a poll.  
  
At link station startup time, this object must  
be initialized to zero."  
 ::= { sdlcLSStatsEntry 7 }

sdlcLSStatsPollRspsIn OBJECT-TYPE  
SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"This object reflects the total number of poll  
responses received from the adjacent SDLC link

station since station startup. This value includes I-frames that are received in response to a poll.

At link station startup time, this object must be initialized to zero."

::= { sdlcLSStatsEntry 8 }

sdlcLSStatsLocalBusies OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the total number of times that the local SDLC link station has entered a busy state (RNR) since link station startup. At link station startup time, this object must be initialized to zero."

::= { sdlcLSStatsEntry 9 }

sdlcLSStatsRemoteBusies OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the total number of times that an adjacent ( remote) SDLC link station has entered a busy state (RNR) since link station startup. At link station startup time, this object must be initialized to zero."

::= { sdlcLSStatsEntry 10 }

sdlcLSStatsIFramesIn OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the total I-frames received from an adjacent SDLC link station since link station startup. At link station startup time, this object must be initialized to zero."

::= { sdlcLSStatsEntry 11 }

sdlcLSStatsIFramesOut OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current



## DESCRIPTION

"This object reflects the total I-frames transmitted to an adjacent SDLC link station since link station startup. At link station startup time, this object must be initialized to zero."

::= { sdlcLSStatsEntry 12 }

## sdlcLSStatsUIFramesIn OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"This object reflects the total UI-frames received from an adjacent SDLC link station since link station startup."

::= { sdlcLSStatsEntry 13 }

## sdlcLSStatsUIFramesOut OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"This object reflects the total UI-frames transmitted to an adjacent SDLC link station since link station startup."

::= { sdlcLSStatsEntry 14 }

## sdlcLSStatsXIDsIn

## OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"This object reflects the total XID frames received from an adjacent SDLC link station since link station startup."

::= { sdlcLSStatsEntry 15 }

## sdlcLSStatsXIDsOut

## OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"This object reflects the total XID frames transmitted to an adjacent SDLC link station since link station startup."

::= { sdlcLSStatsEntry 16 }

```

sdlcLSStatsTESTsIn  OBJECT-TYPE
    SYNTAX          Counter32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object reflects the total TEST frames,
        commands or responses, received from an
        adjacent SDLC link station since link station
        startup."
    ::= { sdlcLSStatsEntry 17 }

sdlcLSStatsTESTsOut OBJECT-TYPE
    SYNTAX          Counter32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object reflects the total TEST frames,
        commands or responses, transmitted to an
        adjacent SDLC link station since link station
        startup."
    ::= { sdlcLSStatsEntry 18 }

sdlcLSStatsREJsIn   OBJECT-TYPE
    SYNTAX          Counter32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object reflects the total REJ frames
        received from an adjacent SDLC link station
        since link station startup."
    ::= { sdlcLSStatsEntry 19 }

sdlcLSStatsREJsOut OBJECT-TYPE
    SYNTAX          Counter32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object reflects the total REJ frames
        transmitted to an adjacent SDLC link station
        since link station startup."
    ::= { sdlcLSStatsEntry 20 }

sdlcLSStatsFRMRsIn OBJECT-TYPE
    SYNTAX          Counter32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "This object reflects the total frame reject

```

(FRMR) frames received from an adjacent SDLC link station since link station startup."  
 ::= { sdlcLSStatsEntry 21 }

sdlcLSStatsFRMRsOut OBJECT-TYPE  
 SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object reflects the total frame reject (FRMR) frames transmitted to an adjacent SDLC link station since link station startup."  
 ::= { sdlcLSStatsEntry 22 }

sdlcLSStatsSIMsIn OBJECT-TYPE  
 SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object reflects the total set initialization mode (SIM) frames received from an adjacent SDLC link station since link station startup."  
 ::= { sdlcLSStatsEntry 23 }

sdlcLSStatsSIMsOut OBJECT-TYPE  
 SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object reflects the total set initialization mode (SIM) frames transmitted to an adjacent SDLC link station since link station startup. At link station startup time, this object must be initialized to zero."  
 ::= { sdlcLSStatsEntry 24 }

sdlcLSStatsRIMsIn OBJECT-TYPE  
 SYNTAX Counter32  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
 "This object reflects the total request initialization mode (RIM) frames received from an adjacent SDLC link station since link station startup. At link station startup time, this object must be initialized to zero."  
 ::= { sdlcLSStatsEntry 25 }

```

sdlcLSStatsRIMsOut OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object reflects the total request
        initialization mode (RIM) frames transmitted to
        an adjacent SDLC link station since link station
        startup.  At link station startup time, this
        object must be initialized to zero."
    ::= { sdlcLSStatsEntry 26 }

sdlcLSStatsDISCIn OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object reflects the total number of
        disconnect (DISC) requests received from an
        adjacent SDLC link station since link station
        startup.  At link station startup time, this
        object must be initialized to zero."
    ::= { sdlcLSStatsEntry 27 }

sdlcLSStatsDISCOut OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object reflects the total number of
        disconnect (DISC) requests transmitted to an
        adjacent SDLC link station since link station
        startup.  At link station startup time, this
        object must be initialized to zero."
    ::= { sdlcLSStatsEntry 28 }

sdlcLSStatsUAIIn OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object reflects the total number of
        unnumbered acknowledgements (UA) requests
        received from an adjacent SDLC link station
        since link station startup.  At link station
        startup time, this object must be initialized
        to zero."
    ::= { sdlcLSStatsEntry 29 }

```

```

sdlcLSStatsUAOut  OBJECT-TYPE
                  SYNTAX      Counter32
                  MAX-ACCESS  read-only
                  STATUS      current
                  DESCRIPTION
                    "This object reflects the total number of
                     unnumbered acknowledgements (UA) requests
                     transmitted to an adjacent SDLC link station
                     since link station startup.  At link station
                     startup time, this object must be initialized
                     to zero."
                  ::= { sdlcLSStatsEntry 30 }

sdlcLSStatsDMIn   OBJECT-TYPE
                  SYNTAX      Counter32
                  MAX-ACCESS  read-only
                  STATUS      current
                  DESCRIPTION
                    "This object reflects the total number of
                     disconnect mode (DM) requests received from an
                     adjacent SDLC link station since link station
                     startup.  At link station startup time, this
                     object must be initialized to zero."
                  ::= { sdlcLSStatsEntry 31 }

sdlcLSStatsDMOut  OBJECT-TYPE
                  SYNTAX      Counter32
                  MAX-ACCESS  read-only
                  STATUS      current
                  DESCRIPTION
                    "This object reflects the total number of
                     disconnect mode (DM) requests transmitted to an
                     adjacent SDLC link station since link station
                     startup.  At link station startup time, this
                     object must be initialized to zero."
                  ::= { sdlcLSStatsEntry 32 }

sdlcLSStatsSNRMin OBJECT-TYPE
                  SYNTAX      Counter32
                  MAX-ACCESS  read-only
                  STATUS      current
                  DESCRIPTION
                    "This object reflects the total number of
                     set normal response mode (SNRM/SNRME) requests
                     received from an adjacent SDLC link station
                     since link station startup.  At link station
                     startup time, this object must be initialized
                     to zero."

```

```
::= { sdlcLSStatsEntry 33 }
```

```
sdlcLSStatsSNRMOut OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "This object reflects the total number of
    set normal response mode (SNRM/SNRME) requests
    transmitted to an adjacent SDLC link station
    since link station startup. At link station
    startup time, this object must be initialized
    to zero."
 ::= { sdlcLSStatsEntry 34 }
```

```
sdlcLSStatsProtocolErrs OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "This object reflects the total occurrences,
    since link station startup, where this SDLC
    link station has inactivated the link as a
    result of receiving a frame from its adjacent
    link station which was in violation of the
    protocol. At link station startup time, this
    object must be initialized to zero."
 ::= { sdlcLSStatsEntry 35 }
```

```
sdlcLSStatsActivityTOs OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "This object reflects the total occurrences,
    since startup, where this SDLC link station has
    inactivated the link as a result of no activity
    on the link. At link station startup time,
    this object must be initialized to zero."
 ::= { sdlcLSStatsEntry 36 }
```

```
sdlcLSStatsRNRLIMITs OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "This object reflects the total occurrences,
    since startup, where this SDLC link station has
```

inactivated the link as a result of its  
RNRLIMIT timer expiring. At link station  
startup time, this object must be initialized  
to zero."

::= { sdlcLSStatsEntry 37 }

sdlcLSStatsRetriesExps OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the total occurrences,  
since startup, where this SDLC link station has  
inactivated the link as a result of a retry  
sequence being exhausted. At link station  
startup time, this object must be initialized  
to zero."

::= { sdlcLSStatsEntry 38 }

sdlcLSStatsRetransmitsIn OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the total number of  
information frames retransmitted by the remote  
link station because the N(s) received from  
that link station indicated that one or more  
information frames sent by that station were  
lost. This event causes the first missing  
information frame of a window and all  
subsequent information frames to be  
retransmitted. At link station startup time,  
this object must be initialized to zero.

Management: If the value of  
sdlcLSStatsRetransmitsIn grows over time, then  
the quality of the serial line is in  
question. You might want to look at  
decreasing the value for  
sdlcLSAdminMAXDATASend to compensate for the  
lower quality line."

::= { sdlcLSStatsEntry 39 }

sdlcLSStatsRetransmitsOut OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"This object reflects the total number of information frames retransmitted to a remote link station because the N(r) received from that link station indicated that one or more information frames sent to that station were lost. This event causes the first missing information frame of a window and all subsequent information frames to be retransmitted. At link station startup time, this object must be initialized to zero.

Management: If the value of `sdlcLSStatsRetransmitsOut` grows over time, then the quality of the serial line is in question. You might want to look at decreasing the value for `sdlcLSAdminMAXDATASend` to compensate for the lower quality line."

```
::= { sdlcLSStatsEntry 40 }
```

```
--
-- TRAP DEFINITIONS
```

```
--
-- Notifications
```

```
sdlcTraps OBJECT IDENTIFIER ::= { sdlc 3 }
```

```
sdlcPortStatusChange NOTIFICATION-TYPE
OBJECTS      { ifIndex,
               ifAdminStatus,
               ifOperStatus,
               sdlcPortOperLastFailTime,
               sdlcPortOperLastFailCause
             }
STATUS      current
DESCRIPTION
    "This trap indicates that the state of an SDLC
    port has transitioned to active or inactive."
::= { sdlcTraps 1 }
```

```
sdlcLSStatusChange NOTIFICATION-TYPE
OBJECTS      { ifIndex,
               sdlcLSAddress,
               sdlcLSOperState,
               sdlcLSAdminState,
```



```

        sdlcLSOperLastFailTime,
        sdlcLSOperLastFailCause,
        sdlcLSOperLastFailFRMRInfo,
        sdlcLSOperLastFailCtrlIn,
        sdlcLSOperLastFailCtrlOut,
        sdlcLSOperLastFailREPLYTOs
    }
STATUS current
DESCRIPTION
    "This trap indicates that the state of an SDLC
    link station has transitioned to contacted or
    discontacted."
 ::= { sdlcTraps 2 }

```

```

--
-- Conformance Information
--

```

```
sdlcConformance OBJECT IDENTIFIER ::= { sdlc 4 }
```

```
sdlcCompliances OBJECT IDENTIFIER ::= { sdlcConformance 1 }
sdlcGroups      OBJECT IDENTIFIER ::= { sdlcConformance 2 }
```

```

--
-- Compliance Statements
--

```

```
sdlcCoreCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION
    "The core compliance statement for all SDLC
    nodes."
MODULE
MANDATORY-GROUPS
    {
        sdlcCorePortAdminGroup,
        sdlcCorePortOperGroup,
        sdlcCorePortStatsGroup,
        sdlcCoreLSAdminGroup,
        sdlcCoreLSOperGroup,
        sdlcCoreLSStatsGroup
    }

OBJECT      sdlcPortAdminName
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."

```

```
OBJECT      sdlcPortAdminRole
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcPortAdminType
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcPortAdminTopology
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcPortAdminISTATUS
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAddress
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminName
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminState
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminISTATUS
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminMAXDATASend
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminMAXDATARcv
MIN-ACCESS  read-only
DESCRIPTION
```

```
        "Write access is not required."

OBJECT      sdlcLSAdminMAXIN
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminMAXOUT
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminMODULO
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminRETRIESt
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminRETRIESt
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminRETRIESt
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminRNRLIMIT
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminDATMODE
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminGPoll
MIN-ACCESS  read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminSimRim
```

```

MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminRowStatus
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."

 ::= { sdlcCompliances 1 }

```

```

sdlcPrimaryCompliance  MODULE-COMPLIANCE
STATUS current
DESCRIPTION
    "The compliance statement for all nodes that
    are performing the role of a Primary link
    station."
MODULE
    MANDATORY-GROUPS { sdlcPrimaryGroup }

OBJECT      sdlcPortAdminPAUSE
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcLSAdminREPLYTO
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."

 ::= { sdlcCompliances 2 }

```

```

sdlcPrimaryMultipointCompliance  MODULE-COMPLIANCE
STATUS current
DESCRIPTION
    "The compliance statement for all nodes that
    are performing the role of a primary link
    station on a multipoint line."
MODULE
    MANDATORY-GROUPS { sdlcPrimaryMultipointGroup }

OBJECT      sdlcPortAdminSERVLIM
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."

OBJECT      sdlcPortAdminSlowPollTimer
MIN-ACCESS read-only

```

## DESCRIPTION

"Write access is not required."

::= { sdlcCompliances 3 }

--  
 -- Core Conformance Groups for All Link Stations  
 --

sdlcCoreGroups OBJECT IDENTIFIER ::= { sdlcGroups 1 }

sdlcCorePortAdminGroup OBJECT-GROUP

OBJECTS

```
{
    sdlcPortAdminName,          sdlcPortAdminRole,
    sdlcPortAdminType,         sdlcPortAdminTopology,
    sdlcPortAdminISTATUS
}
```

STATUS current

DESCRIPTION

"The sdlcCorePortAdminGroup defines objects which are common to the PortAdmin group of all compliant link stations."

::= { sdlcCoreGroups 1 }

sdlcCorePortOperGroup OBJECT-GROUP

OBJECTS

```
{
    sdlcPortOperName,
    sdlcPortOperRole,
    sdlcPortOperType,
    sdlcPortOperTopology,
    sdlcPortOperISTATUS,
    sdlcPortOperACTIVTO,
    sdlcPortOperLastFailTime,
    sdlcPortOperLastFailCause
}
```

STATUS current

DESCRIPTION

"The sdlcCorePortOperGroup defines objects which are common to the PortOper group of all compliant link stations."

::= { sdlcCoreGroups 2 }

sdlcCorePortStatsGroup OBJECT-GROUP

OBJECTS

```

    {
        sdlcPortStatsPhysicalFailures,
        sdlcPortStatsInvalidAddresses,
        sdlcPortStatsDwarfFrames
    }
STATUS current
DESCRIPTION
    "The sdlcCorePortStatsGroup defines objects
    which are common to the PortStats group of all
    compliant link stations."
 ::= { sdlcCoreGroups 3 }

```

```

sdlcCoreLSAdminGroup OBJECT-GROUP
OBJECTS
{
    sdlcLSAddress,
    sdlcLSAdminName,
    sdlcLSAdminState,
    sdlcLSAdminISTATUS,
    sdlcLSAdminMAXDATASend,
    sdlcLSAdminMAXDATARcv,
    sdlcLSAdminMAXIN,
    sdlcLSAdminMAXOUT,
    sdlcLSAdminMODULO,
    sdlcLSAdminRETRIESt,
    sdlcLSAdminRETRIESt,
    sdlcLSAdminRETRIESt,
    sdlcLSAdminRNRLIMIT,
    sdlcLSAdminDATMODE,
    sdlcLSAdminGPoll,
    sdlcLSAdminSimRim,
    sdlcLSAdminRowStatus
}
STATUS current
DESCRIPTION
    "The sdlcCorePortAdminGroup defines objects
    which are common to the PortAdmin group of all
    compliant link stations."
 ::= { sdlcCoreGroups 4 }

```

```

sdlcCoreLSOperGroup OBJECT-GROUP
OBJECTS
{
    sdlcLSOperRole,
    sdlcLSOperState,
    sdlcLSOperMAXDATASend,
    sdlcLSOperMAXIN,

```

```

    sdlcLSOperMAXOUT,
    sdlcLSOperMODULO,
    sdlcLSOperRETRIESt,
    sdlcLSOperRETRIESt,
    sdlcLSOperRETRIESt,
    sdlcLSOperRNRLIMIT,
    sdlcLSOperDATMODE,
    sdlcLSOperLastFailTime,
    sdlcLSOperLastFailCause,
    sdlcLSOperLastFailCtrlIn,
    sdlcLSOperLastFailCtrlOut,
    sdlcLSOperLastFailFRMRInfo,
    sdlcLSOperLastFailREPLYTOs,
    sdlcLSOperEcho,
    sdlcLSOperGPoll
}
STATUS current
DESCRIPTION
    "The sdlcCorePortOperGroup defines objects
    which are common to the PortOper group of all
    compliant link stations."
 ::= { sdlcCoreGroups 5 }

```

```

sdlcCoreLSStatsGroup OBJECT-GROUP
OBJECTS
{
    sdlcLSStatsBLUsIn,
    sdlcLSStatsBLUsOut,
    sdlcLSStatsOctetsIn,
    sdlcLSStatsOctetsOut,
    sdlcLSStatsPollsIn,
    sdlcLSStatsPollsOut,
    sdlcLSStatsPollRspIn,
    sdlcLSStatsPollRspOut,
    sdlcLSStatsLocalBusies,
    sdlcLSStatsRemoteBusies,
    sdlcLSStatsIFramesIn,
    sdlcLSStatsIFramesOut,
    sdlcLSStatsRetransmitsIn,
    sdlcLSStatsRetransmitsOut,
    sdlcLSStatsUIFramesIn,
    sdlcLSStatsUIFramesOut,
    sdlcLSStatsXIDsIn,
    sdlcLSStatsXIDsOut,
    sdlcLSStatsTESTsIn,
    sdlcLSStatsTESTsOut,
    sdlcLSStatsREJIn,

```

```

        sdlcLSStatsREJsOut,
        sdlcLSStatsFRMRsIn,
        sdlcLSStatsFRMRsOut,
        sdlcLSStatsSIMsIn,
        sdlcLSStatsSIMsOut,
        sdlcLSStatsRIMsIn,
        sdlcLSStatsRIMsOut,
        sdlcLSStatsProtocolErrs,
        sdlcLSStatsRNRLIMITs,
        sdlcLSStatsRetriesExps
    }
    STATUS current
    DESCRIPTION
        "The sdlcCorePortStatsGroup defines objects
        which are common to the PortStats group of all
        compliant link stations."
    ::= { sdlcCoreGroups 6 }

```

```

--
-- Conformance Groups for Primary Link Stations
--

```

```
sdlcPrimaryGroups OBJECT IDENTIFIER ::= { sdlcGroups 2 }
```

```
sdlcPrimaryGroup OBJECT-GROUP
    OBJECTS
    {
        sdlcPortAdminPAUSE,
        sdlcPortOperPAUSE,
        sdlcLSAdminREPLYTO,
        sdlcLSOperREPLYTO
    }
    STATUS current
    DESCRIPTION
        "The sdlcPrimaryGroup defines objects which
        are common to all compliant primary link
        stations."
    ::= { sdlcPrimaryGroups 1 }

```

```
sdlcPrimaryMultipointGroup OBJECT-GROUP
    OBJECTS
    {
        sdlcPortAdminSERVLIM,
        sdlcPortAdminSlowPollTimer,
        sdlcPortOperSlowPollMethod,
        sdlcPortOperSERVLIM,
        sdlcPortOperSlowPollTimer
    }

```



```
}
STATUS current
DESCRIPTION
    "The sdlcPrimaryMultipointGroup defines objects
    which are common to all compliant primary link
    stations that are in a multipoint topology."
 ::= { sdlcPrimaryGroups 2 }
```

END

#### 4. Acknowledgments

Thanks goes to the SNADLC MIB working group for reviewing this MIB and for their infinite patience through the editing process.

#### 5. References

- [1] Stewart, B., "Definitions of Managed Objects for RS-232-like Hardware Devices using SMIV2", RFC 1659, Xyplex, July 1994.
- [2] "Synchronous Data Link Control: Concepts", IBM Publication No. GA27-3093-04, 5th edition, May 1992.
- [3] "Vocabulary for Data Processing Telecommunications, and Office Systems", IBM Publication No. GC20-1699-6.
- [4] Kostick, D., Kielczewski, Z., and K. Shih, Editors, "Definitions of Managed Objects for SNA NAUs using SMIV2", RFC 1666, Eicon Technology Corporation, Bell Communications Research, Novell, August 1994.
- [5] Waldbusser, S., "Row Creation with SNMPv1", Work in Progress.
- [6] McCloghrie K., and F. Kastenholz, "Evolution of the Interfaces Group of MIB-II", RFC 1573, Hughes LAN Syst, FTP Software, January 1994.

## 6. Glossary

### link station

A link station comprises procedures and control information that coordinate the transfer of data between two nodes joined by a link connection. All traffic over the link connection is from the primary link station to one or more secondary link stations, or from a secondary link station to the primary link station.

### primary link station

The link station instance on a link connection that is responsible for the control of the data link. There must be only one primary link station on a link connection. The primary link station issues commands to one or more secondary link stations.

### secondary link station

The link station instance on a link connection that receives commands from the primary link station and issues responses to it.

### switched line

A telecommunications line in which the connection is established by dialing. For switched lines, the SDLC startup sequence typically begins with a null exchange identifier (null XID).

### leased line

A telecommunications line on which connections do not have to be established by dialing. For leased lines, the SDLC startup sequence may or may not begin with an exchange identifier (XID). While there are interface (e.g., RS.232) differences between leased and switched lines, those interface differences do not map one-to-one with differences in the SDLC startup protocol (i.e., the interface and the SDLC protocol are independent from one another).

### point-to-point link

A link that connects the single primary link station to single secondary link station. A point-to-point link may be either switched or leased.

### multipoint link

A link that connects the single primary link station to several secondary link stations. A multipoint link may be either switched or leased. Note: The physical interface signals for a multipoint link are different than for a point-to-point link.

Synonymous with multidrop line.

#### 7. Security Considerations

Security issues are not discussed in this memo.

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