

Network Working Group  
Request for Comments: 1747  
Category: Standards Track

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January 1995

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
```

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                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: sdlcLSAdminRETRIEStn.
    The retries per sequence is controlled by the
    object:  sdlcLSAdminRETRIEStm.

    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 }

```

```

sdlcLSAdminRETRIEStn 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 'disconnected (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,
    sdlcLSOperRETRIESm      INTEGER,
    sdlcLSOperRETRIESt      TimeInterval,
    sdlcLSOperRETRIESn      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,
    sdlcLSStatsREJIn       Counter32,
    sdlcLSStatsREJOut     Counter32,
    sdlcLSStatsFRMRsIn     Counter32,
    sdlcLSStatsFRMRsOut   Counter32,
    sdlcLSStatsSIMsIn     Counter32,
    sdlcLSStatsSIMsOut   Counter32,
    sdlcLSStatsRIMsIn     Counter32,
    sdlcLSStatsRIMsOut   Counter32,
    sdlcLSStatsDISCIn     Counter32,
    sdlcLSStatsDISCOut   Counter32,
    sdlcLSStatsUAIn       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 }

sdlcLSStatsPollRspOut 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 }

sdlcLSStatsPollRspIn 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 }

sdlcLSStatsUAIn 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
                        transmited 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 transmited 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
    disconnected."
 ::= { 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           sdlcLSAdminRETRIESSm  
MIN-ACCESS      read-only  
DESCRIPTION

"Write access is not required."

OBJECT           sdlcLSAdminRETRIESt  
MIN-ACCESS      read-only  
DESCRIPTION

"Write access is not required."

OBJECT           sdlcLSAdminRETRIESSn  
MIN-ACCESS      read-only  
DESCRIPTION

"Write access is not required."

OBJECT           sdlcLSAdminRNRLLIMIT  
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,
    sdlcLSStatsREJsIn,

```

```

        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

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- [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. Kastenholtz, "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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