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**Extensions for Financial Services (XFS) interface specification -
Release 3.03 - Part 33: XFS MIB Device Specific Definitions -
PIN Keypad Device Class MIB 1.1**

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties, the constitution of which is indicated in the foreword of this Workshop Agreement.

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Foreword

This CWA is revision 3.03 of the XFS interface specification.

The CEN/ISSS XFS Workshop gathers suppliers as well as banks and other financial service companies. A list of companies participating in this Workshop and in support of this CWA is available from the CEN/ISSS Secretariat.

This CWA was formally approved by the XFS Workshop meeting on 2004-09-24. The specification is continuously reviewed and commented in the CEN/ISSS Workshop on XFS. It is therefore expected that an update of the specification will be published in due time as a CWA, superseding this revision 3.03.

This document supersedes CWA 14050-33:2004.

The CWA is published as a multi-part document, consisting of:

Part 1: Application Programming Interface (API) - Service Provider Interface (SPI); Programmer's Reference

Part 2: Service Classes Definition; Programmer's Reference

Part 3: Printer Device Class Interface - Programmer's Reference

Part 4: Identification Card Device Class Interface - Programmer's Reference

Part 5: Cash Dispenser Device Class Interface - Programmer's Reference

Part 6: PIN Keypad Device Class Interface - Programmer's Reference

Part 7: Check Reader/Scanner Device Class Interface - Programmer's Reference

Part 8: Depository Device Class Interface - Programmer's Reference

Part 9: Text Terminal Unit Device Class Interface - Programmer's Reference

Part 10: Sensors and Indicators Unit Device Class Interface - Programmer's Reference

Part 11: Vendor Dependent Mode Device Class Interface - Programmer's Reference

Part 12: Camera Device Class Interface - Programmer's Reference

Part 13: Alarm Device Class Interface - Programmer's Reference

Part 14: Card Embossing Unit Class Interface - Programmer's Reference

Part 15: Cash In Module Device Class Interface- Programmer's Reference

Part 16: Application Programming Interface (API) - Service Provider Interface (SPI) - Migration from Version 2.0 (see CWA 13449) to Version 3.0 (this CWA) - Programmer's Reference

Part 17: Printer Device Class Interface - Migration from Version 2.0 (see CWA 13449) to Version 3.0 (this CWA) - Programmer's Reference

Part 18: Identification Card Device Class Interface - Migration from Version 2.0 (see CWA 13449) to Version 3.00 (see CWA 14050-4:2000; superseded) - Programmer's Reference

Part 19: Cash Dispenser Device Class Interface - Migration from Version 2.0 (see CWA 13449) to Version 3.0 (this CWA) - Programmer's Reference

Part 20: PIN Keypad Device Class Interface - Migration from Version 2.0 (see CWA 13449) to Version 3.00 (see CWA 14050-6:2000; superseded) - Programmer's Reference

Part 21: Depository Device Class Interface - Migration from Version 2.0 (see CWA 13449) to Version 3.0 (this CWA) - Programmer's Reference

Part 22: Text Terminal Unit Device Class Interface - Migration from Version 2.0 (see CWA 13449) to Version 3.0 (this CWA) - Programmer's Reference

Part 23: Sensors and Indicators Unit Device Class Interface - Migration from Version 2.0 (see CWA 13449) to Version 3.01 (this CWA) - Programmer's Reference

Part 24: Camera Device Class Interface - Migration from Version 2.0 (see CWA 13449) to Version 3.0 (this CWA) - Programmer's Reference

Part 25: Identification Card Device Class Interface - PC/SC Integration Guidelines

Part 26: Identification Card Device Class Interface - Migration from Version 3.0 (see CWA 14050-4:2000; superseded) to Version 3.02 (this CWA) - Programmer's Reference

Part 27: PIN Keypad Device Class Interface - Migration from Version 3.0 (see CWA 14050-6:2000; superseded) to Version 3.02 (this CWA) - Programmer's Reference

Part 28: Cash In Module Device Class Interface - Migration from Version 3.0 (see CWA 14050-15:2000; superseded) to Version 3.02 (this CWA) - Programmer's Reference

Part 42: PIN Keypad Device Class Interface - Migration from Version 3.02 (see CWA 14050-6:2003; superseded) to Version 3.03 (this CWA) - Programmer's Reference

In addition to these Programmer's Reference specifications, the reader of this CWA is also referred to a complementary document, called Release Notes. The Release Notes contain clarifications and explanations on the CWA specifications, which are not requiring functional changes. The current version of the Release Notes is available online from <http://www.cenorm.be/iss/Workshop/XFS>.

The following parts constitute an optional addendum to this CWA. They define the integration between the SNMP standard and the set of status and statistical information exported by the service providers.

Part 29: XFS MIB Architecture and SNMP Extensions – Programmer's Reference

Part 30: XFS MIB Device Specific Definitions - Printer Device Class

Part 31: XFS MIB Device Specific Definitions - Identification Card Device Class

Part 32: XFS MIB Device Specific Definitions - Cash Dispenser Device Class

Part 33: XFS MIB Device Specific Definitions - PIN Keypad Device Class

Part 34: XFS MIB Device Specific Definitions - Check Reader/Scanner Device Class

Part 35: XFS MIB Device Specific Definitions - Depository Device Class

Part 36: XFS MIB Device Specific Definitions - Text Terminal Unit Device Class

Part 37: XFS MIB Device Specific Definitions - Sensors and Indicators Unit Device Class

Part 38: XFS MIB Device Specific Definitions - Camera Device Class

Part 39: XFS MIB Device Specific Definitions - Alarm Device Class

Part 40: XFS MIB Device Specific Definitions - Card Embossing Unit Class

Part 41: XFS MIB Device Specific Definitions - Cash In Module Device Class

Part 43: XFS MIB Device Specific Definitions – Vendor Dependent Mode Device Class

Part 44: XFS MIB Application Management

The information in this document represents the Workshop's current views on the issues discussed as of the date of publication. It is furnished for informational purposes only and is subject to change without notice. CEN/ISSS makes no warranty, express or implied, with respect to this document.

Revision History:

1.0	20 January 2004	Initial release of XFS MIB specification
1.1	15 April 2007	Update of the MIB to add support for a Detailed Status Trap, a Device Reset capability and the support of SMIv2.

This CEN Workshop Agreement is publicly available as a reference document from the National Members of CEN : AENOR, AFNOR, ASRO, BDS, BSI, CSNI, CYS, DIN, DS, ELOT, EVS, IBN, IPQ, IST, LVS, LST, MSA, MSZT, NEN, NSAI, ON, PKN, SEE, SIS, SIST, SFS, SN, SNV, SUTN and UNI

Comments or suggestions from the users of the CEN Workshop Agreement are welcome and should be addressed to the CEN Management Centre.

1. Introduction

This document provides the device specific MIB definition (Management Information Base) variables for the xfsPIN sub-tree version one, as foreseen by the *XFS MIB Architecture and SNMP Extensions Programmer's reference* document. All the attributes in all the MIBs are Mandatory. In the case where a vendor's device does not support an attribute then a request for this unsupported attribute should return NULL.

The xfsPIN version one sub-tree is identified by:

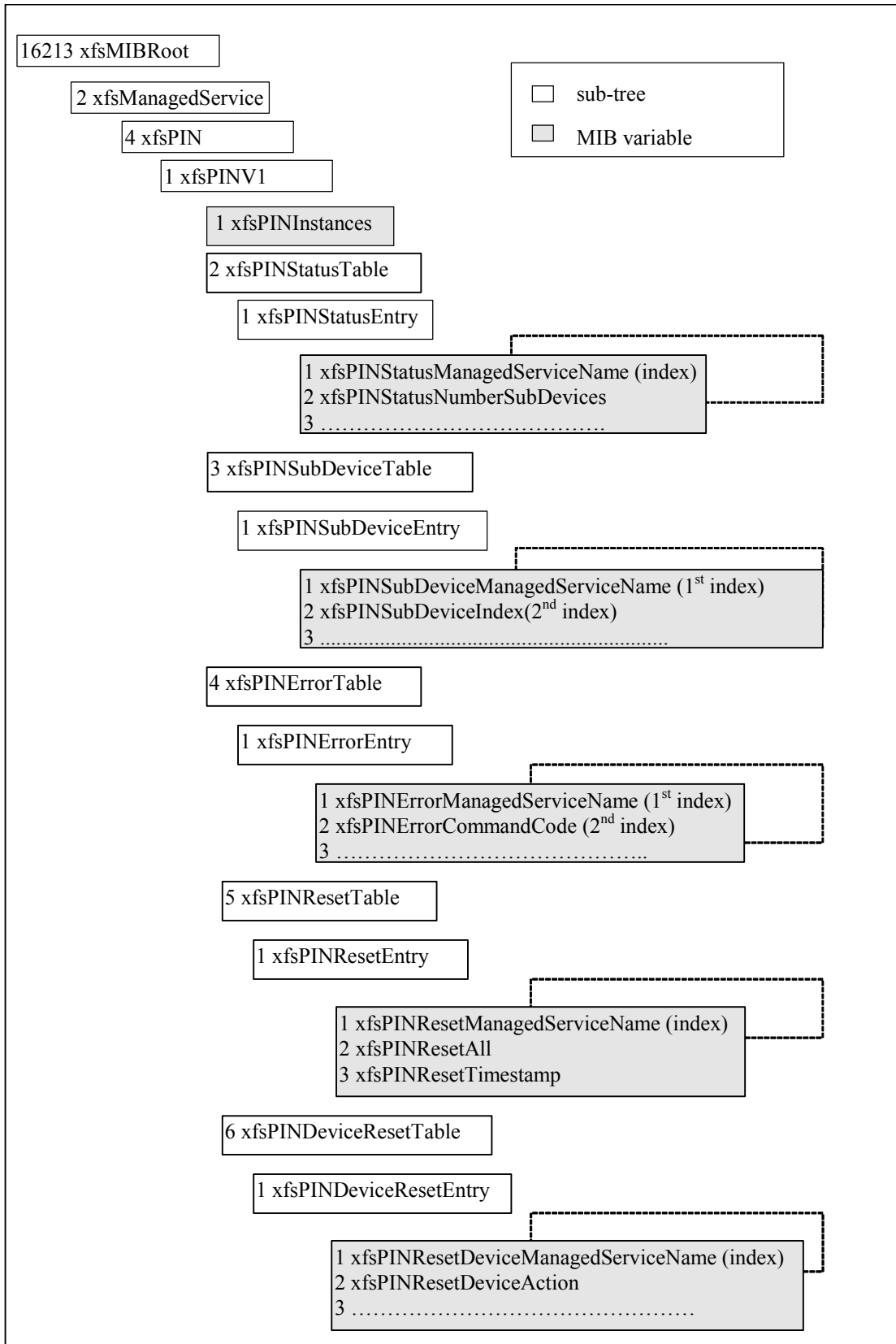
xfsMIBRoot

- xfsManagedService (2)
 - xfsPIN (4)
 - xfsPINV1 (1)

The xfsPINV1 sub-tree contains the following variables:

- *xfsPINInstances(1)* is the number of managed services for the PIN class installed on the XFS subsystem. It is a 32 bit numerical field.
- *xfsPINStatusTable(2)* identifies the table for the PIN variables.
- *xfsPINSubDeviceTable(3)* not applicable to the PIN device.
- *xfsPINErrorTable(4)* identifies the table for the PIN error counters.
- *xfsPINResetTable(5)* identifies the table for the PIN reset variable.
- *xfsPINResetDeviceTable(6)* identifies the table for the PIN reset device variables.

The *XFS MIB Architecture and SNMP Extensions Programmer's Reference* document provides an overview of the MIB structure. The following picture shows the structure of the *xfsPINV1* sub-tree.



Section 2 describes how the Status, Sub-Device, Error and Reset tables apply to the PIN device class.

2. XFS PIN MIB variables

This section describes the MIB variables for the tables of the PIN Class. The description of the variables listed below includes, where it is meaningful, a reference to relevant data structures and commands defined inside the *Pin Keypad Device Class Interface Programmer's Reference*.

Note that all counters persist across re-boot. The following are some general notes pertaining to the MIB variables:

- All command response counters maintained by the service provider are persistent across re-boots.
- One application command may trigger only one command-related counter to be updated.
- One application command may trigger one or multiple status variables to be updated.
- All command response counters are read-writable unless otherwise specified.
- Each managed service has a Reset table that allows the all response counters to be reset.
- Each managed service has a Reset Device table that allows the WFS_CMD_PIN_RESET command to be executed from the management station.

2.1 XFS PIN Status Table

The `xfPINStatusTable` groups the variables identifying device status information, statistics and auxiliary variables. It is indexed through a single parameter, `xfPINStatusManagedServiceName`. All device status variables are read-only.

Additional variables can be used to contain vendor-dependent variables. These variables do not start immediately after the standard variables in order to allow for expansion of the standard variables, the first additional variable can be added at position 1000.

`xfPINStatusManagedServiceName` is the instance identifier of the managed service and uniquely identifies one instance of the PIN class.

As an example, the identifier for the device status value of `xfPINStatusEncStat(4)` for a device with managed service name equal to "PinPad1" is as follows:

Character	P	i	n	P	a	d	1
ASCII Hex	50	69	6E	50	61	64	31
ASCII Dec	80	105	110	80	97	100	49

NOTE: SNMP OID representation of strings consists of a length field specifying the number of characters in the string followed by the ASCII code in decimal for each character in the string. Therefore the OID of the above example is:

`xfMIBRoot.2.4.1.2.1.4.7.80.105.110.80.97.100.49`

2.1.1 xfsPINStatusTable: States

`xfPINStatusManagedServiceName` (1)

Uniquely identifies the managed service.

`xfPINStatusNumberSubDevices` (2)

Defines how many sub-devices the service has. This is always 0 in the PIN device class.

`xfPINStatusDevice` (3)

It contains the device state. It is a numeric type field. Allowed values are as follows:

Value	Meaning
<code>xfPINDevOnline(1)</code>	The device is on-line (i.e., powered on and operable).
<code>xfPINDevOffline(2)</code>	The device is off-line (e.g., the operator has taken the device offline by turning a switch or pulling out the device).
<code>xfPINDevPowerOff(3)</code>	The device is powered off or physically not connected.

<code>xfsPINDevNoDevice(4)</code>	There is no device intended to be there; e.g. this type of self service machine does not contain such a device or it is internally not configured.
<code>xfsPINDevHWError(5)</code>	The device is inoperable due to a hardware error.
<code>xfsPINDevUserError(6)</code>	The device is inoperable because a person is preventing proper device operation.
<code>xfsPINDevBusy(7)</code>	The device is busy and unable to process an execute command at this time.

xfsPINStatusEncStat (4)

It contains the encryptor module state. It is a numeric type field. Allowed values are as follows:

Value	Meaning
<code>xfsPINEncReady (1)</code>	The encryption module is initialized and ready (at least one key is imported into the encryption module).
<code>xfsPINEncNotReady (2)</code>	The encryption module is not ready.
<code>xfsPINEncNotInitialized (3)</code>	The encryption module is not initialized (no master key loaded).
<code>xfsPINEncBusy (4)</code>	The encryption module is busy (implies that the device is busy).
<code>xfsPINEncUndefined (5)</code>	The encryption module state is undefined.
<code>xfsPINEncInitialized (6)</code>	The encryption module is initialized and master key (where required) and any other initial keys are loaded; ready to import other keys.

xfsPINStatusCertificateState (5)

It contains the certificate state. It is a numeric type field. Allowed values are as follows:

Value	Meaning
<code>xfsPINCertNotSupp (1)</code>	Certificate is not supported.
<code>xfsPINCertPrimary (2)</code>	The encryption module indicates that all pre-loaded certificates have been loaded and that primary verification certificates will be accepted.
<code>xfsPINCertSecondary (3)</code>	The encryption module indicates that primary verification certificates will not be accepted and only secondary verification certificates will be accepted.
<code>xfsPINCertNotReady (5)</code>	The certificate module is not ready. (The device is powered off or physically not present).

xfsPINStatusExtraStatus (100)

It contains vendor dependent additional device status information as an OCTET STRING. The information is returned as a series of "*key=value*" strings. Each string is null-terminated, with the final string terminating with two null characters.

2.2 XFS PIN Sub Device Table

The PIN service class does not support any sub-devices, therefore the `xfsPINStatusNumberSubDevices` will be reported as zero. Sub-device tables are usually used to report sub-device status for Cash Units within a CDM or CIM device class.

2.3 XFS PIN Error Table

The `xfsPINErrorTable` provides access to all command response counters supported by a device class. The error table contains the set of counters for every combination of executable command and associated response that the service provider supports. The counters report the number of times that a response has been returned from a particular command since the counts were last reset. Selection of the required counter is made by specifying the managed service name, command code and response code through the following parameters:

xfsPINErrorManagedServiceName
xfsPINErrorCommandCode
xfsPINErrorResponseCode

The *xfsPINErrorTable* is defined as:

- *xfsPINErrorManagedServiceName(1)* which provides the primary index to the service in question. It is Display String field. The *xfsPINErrorManagedServiceName* parameter corresponds to the value of *xfsMIBRoot.xfsGeneral.xfsMIBV1.xfsManagedServiceTable.xfsManagedServiceEntry.xfsManagedServiceName* in the general table. E.g. “PinPad1”.
- *xfsPINErrorCommandCode(2)* is an index which identifies the command code that that response code related to, e.g. WFS_CMD_PIN_CRYPT (401). It is a 32 bit numerical field.
- *xfsPINErrorResponseCode(3)* is an index which identifies the response code that the count is required for. It is the absolute value of the error code e.g. WFS_ERR_PIN_KEYNOTFOUND (-400) is represented by 400. It is a 32 bit numerical field
- *xfsPINErrorCount(4)* is the count of the number of times that a particular response code has been generated while executing a specific command, since they were last reset. It is a 32 bit numerical field.

All counter variables are read-write. Issue of a Set command on a specific counter with value x will result in the individual counter being set to value x.

As an example, the identifier for the error count value for the WFS_ERR_PIN_KEYNOTFOUND (-400) error returned from the WFS_CMD_PIN_CRYPT (401) command for a device with managed service name equal to “PinPad1” is as follows:

`xfsMIBRoot.2.4.1.4.1.4.7.80.105.110.80.97.100.49.401.400.`

2.4 XFS PIN Reset Table

The *xfsPINResetTable* contains the *xfsPINResetAll* and *xfsPINResetTimestamp* variables and is indexed by the single variable, *xfsPINResetManagedServiceName*. When the *xfsPINResetAll* variable is set to 0 (zero), all the counters in the error table for the managed service are reset to 0 (zero), all other values are ignored.

The *xfsPINResetTable* is defined as:

- *xfsPINResetManagedServiceName(1)* which provides the index to the service in question. It is Display String field. The *xfsPINResetManagedServiceName* parameter corresponds to the value of *xfsMIBRoot.xfsGeneral.xfsMIBV1.xfsManagedServiceTable.xfsManagedServiceEntry.xfsManagedServiceName* in the general table. E.g. “PinPad1”.
- *xfsPINResetAll(2)* is a read-write variable. Issue of a Set command on the *xfsPINResetAll* variable with value 0 (zero) will result in all counters for the managed service being reset to value 0 (zero). Any other value will be ignored. A query of the *xfsPINResetAll* variable will return 0 (zero).
- *xfsPINResetTimestamp(3)* is a read-only variable which represents the UTC date and time when the counters in the error table was reset, it is a Display String field. The data is formatted in the following way: “DD/MM/YYYY HH:MM:SS +ZZZ” where DD/MM/YYYY HH:MM:SS is the local date and time. ZZZ is the bias, which is the difference, in minutes, between Coordinated Universal Time (UTC) and local time.

As an example, all the error counts can be reset for a device with managed service name equal to “PinPad1” by setting the value zero in the *xfsPINResetAll* variable represented by:

`xfsMIBRoot.2.4.1.5.1.2.7.80.105.110.80.97.100.49`

2.5 XFS PIN Reset Device Table

The *xfsPINResetDeviceTable(6)* is indexed by the single variable, *xfsPINResetDeviceManagedServiceName*. This table contains variables which monitor and control the execution of the reset request.

The *xfsPINResetDeviceAction* variable is used to initiate a reset. Setting this variable will cause the following to happen

1. The SNMP agent will determine if a Device Reset is allowed by checking the *RemoteDeviceResetAllowed* configuration flag (see XFS Common Management Configuration section, within the *XFS MIB Architecture and SNMP Extensions Programmer's Reference* document). If it is not allowed then the flow continues with step 5, otherwise the flow continues with step 2.
2. Exclusive access to the device will be obtained
3. A *WFS_CMD_PIN_RESET* command will be issued
4. Exclusive access to the device will be relinquished when the *WFS_CMD_PIN_RESET* command completes. Note: Exclusive access must be relinquished as soon as possible and implemented in such a way that deadlocks are avoided.
5. A *xfsPINResetDeviceCompleteTrap* trap will be generated to report the result of the Device Reset request

The *xfsPINResetDeviceTable(6)* is defined as:

- *xfsPINResetDeviceManagedServiceName(1)* which provides the index to the service in question. It is a Display String field. The *xfsPINResetDeviceManagedServiceName* parameter corresponds to the value of *xfsMIBRoot.xfsGeneral.xfsMIBV1.xfsManagedServiceTable.xfsManagedServiceEntry.xfsManagedServiceName* in the general table. E.g. "PinPad1".
- *xfsPINResetDeviceAction(2)* is a read-write variable. Issue of a Set command on the *xfsPINResetDeviceAction* variable with value *executeReset(1)* will result in the device being reset as described above.
- *xfsPINResetDeviceMediaControl(3)* is a read-only variable. As there is no media in the PIN device class this variable can only report the *mediaDefault* value.
- *xfsPINResetDeviceStatus(4)* is a read only variable This variable can be used to check if a reset operation is still in progress. It is set when the reset is initiated and cleared when the reset command completes.

As an example, the device with managed service name equal to "PinPad1" is reset by setting the *xfsPINResetDeviceAction* variable represented by:

`xfsMIBRoot.2.4.1.6.1.2.7.80.105.110.80.97.100.49`

3. PIN Traps

The following sections define XFS Traps that are specific to the PIN device class.

3.1 PIN Detailed Device Status Change Trap

Status changes within managed services are reported as system events to the XFS Agent. The following section explicitly defines the format of the PIN Detailed Device Status Change trap. However, the format is split into two sections; the fields that are common to all device specific traps and the fields that are specific to each device class. The common fields are defined in the *XFS MIB Architecture and SNMP Extensions Programmer's Reference* document. The fields that are specific to the PIN reflect the PIN Status Table as defined in section 2.1.

The detailed device status change event is only generated when the top level status changes within a managed service, i.e. the trap is generated when the fwDevice value in the WFS_INF_PIN_STATUS response has changed. In addition, this trap is only generated on version 1.1 of the MIB and higher and is sent in addition to the summary device status change trap.

The SNMP Specific trap value 104 defines the trap as a PIN Detailed Device Status Change trap.

3.1.1 PIN Detailed Device Status Change Trap Format

The following defines the variable bindings included in the PIN Detailed Device Status Change Trap.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapSysName (1)

This variable binding contains the system generating the alarm, it is a Display String field. It corresponds to lpszWorkstationName in the device status change event data from the service provider.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceName (2)

This variable binding represents the managed service name generating the alarm, it is a Display String field. The agent derives this field from the device status change event.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceClass (3)

This variable binding represents the XFS service class identifier generating the alarm, it is a 32-bit integer (INT32). It corresponds to the class identifier for the class name. The class name is identified from the registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\MANAGEMENT_PROVIDERS*<ManagedServiceName>*\class. This ID matches the class OID branch number i.e. PTR=1, IDC=2, CDM=3, etc. See the *XFS MIB Architecture and SNMP Extensions Programmer's Reference* document for a complete list of these values.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceClassName (4)

This variable binding represents the XFS service class name generating the alarm, it is a Display String field. It corresponds to the three character representation of the XFS device class name, and it is useful for human interpretation of a trap. The class name is identified from the registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\MANAGEMENT_PROVIDERS*<ManagedServiceName>*\class.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceType (5)

This variable binding represents the XFS type identifier generating the alarm, it is a 32-bit integer (INT32). It corresponds to the type identifier as defined in the WFS_INF_PIN_CAPABILITIES.fwType field.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceOid (6)

This variable binding represents the OID of the sub-tree within xfsManagedService defining the management information for this class of managed service. This variable, along with the managed service name as an index, prevents the need for additional querying to find the service specific MIB branch. The PIN MIB class is represented by .1.3.6.1.4.1.16213.2.4

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapPhysicalDeviceName (7)

This variable binding represents the physical device name or names associated with the managed service generating the alarm, it is a Display String field. It corresponds to the physical device name or names identified by the managed service. The managed service name is used to identify the physical device name or names, from registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\MANAGEMENT_PROVIDERS*<ManagedServiceName>*\PhysicalDeviceName. Multiple physical device names are comma separated.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapDeviceVendor (8)

This variable binding represents the XFS device vendor name of the device generating the alarm, it is a Display String field. It corresponds to the vendor name for the service provider. The service provider is identified from the managed service name and the registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\MANAGEMENT_PROVIDERS*<ManagedServiceName>*\ServiceProvider.

The service provider name is then used to identify the vendor, from the registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\SERVICE_PROVIDERS*<ServiceProviderName>*\vendor_name.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapMIBVersion (9)

This variable binding represents the XFS MIB version of the device generating the alarm, it is a Display String field. It corresponds to the XFS MIB version for the managed service. The managed service name is used to identify the XFS MIB version, from registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\MANAGEMENT_PROVIDERS*<ManagedServiceName>*\MibVersion.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapEvent (10)

In case of XFS this variable binding represents the XFS event generating the alarm, it is a 32-bit integer (INT32). It corresponds to u.dwEventID in the event data from the service provider. See the Application Programming Interface (API) - Service Provider Interface (SPI); Programmer's Reference for a complete description of the event structure.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapDate (11)

This variable represents the UTC and bias for local translation of the date and time when the event was generated. It is a Display String field. The data is formatted in the following way: "DD/MM/YYYY HH:MM:SS +ZZZ" where DD/MM/YYYY HH:MM:SS is the local date and time. ZZZ is the bias, which is the difference, in minutes, between Co-ordinated Universal Time (UTC) and local time.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapSPVersion (12)

This variable represents the vendor-defined version of the service provider generating the alarm, it is a Display String field. The service provider is identified from the managed service name and the registry value HKEY_LOCAL_MACHINE\SOFTWARE\XFS\MANAGEMENT_PROVIDERS*<ManagedServiceName>*\ServiceProvider.

The service provider name is then used to identify the version, from the registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\SERVICE_PROVIDERS*<ServiceProviderName>*\version.

xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.

xfsPINStatusDevice.xfsPINStatusManagedServiceName (13)

This variable binding represents the current state of the physical device managed by the service. It is a 32 bit integer (INT32).

xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusNumberSubDevices.xfsPINStatusManagedServiceName (14)

Defines how many sub-devices the service has. This is the number of retract bins the device supports.

xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusEncryptor.xfsPINStatusManagedServiceName (15)

It contains the encryptor module state. It is a numeric type field.

xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusCertificateState.xfsPINStatusManagedServiceName (16)

It contains the certificate state. It is a numeric type field.

xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusExtraStatus.xfsPINStatusManagedServiceName (17)

It contains the vendor dependent additional device status information as an OCTET STRING. The information is returned as a series of "key=value" strings. Each string is null-terminated, with the final string terminating with two null characters.

3.1.2 PIN Detailed Device Status Change Trap: an example

As an example, the following variable binding list represents a detailed device status change trap (6, 104) that is generated for a PIN with a managed service name of “PinPad1”. It reports that the device is OFFLINE because the encryption module is not ready.

xfsMIBRoot.3.1.3.1	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapSysName) “SST System 1”
xfsMIBRoot.3.1.3.2	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceName) “PinPad1”
xfsMIBRoot.3.1.3.3	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceClass) 4 (WFS_SERVICE_CLASS_PIN)
xfsMIBRoot.3.1.3.4	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceClassName) “PIN”
xfsMIBRoot.3.1.3.5	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceType) 0x0007 (WFS_PIN_TYPEHSM WFS_PIN_TYPEEDM WFS_PIN_TYPEEPP)
xfsMIBRoot.3.1.3.6	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceOid) “.1.3.6.1.4.1.16213.2.4”
xfsMIBRoot.3.1.3.7	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapPhysicalDeviceName) “ABC Corp Pin Pad”
xfsMIBRoot.3.1.3.8	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapDeviceVendor) “Best Devices Incorporated”
xfsMIBRoot.3.1.3.9	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapMIBVersion) “1.10”
xfsMIBRoot.3.1.3.10	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapEvent) 4 (WFS_SYSE_DEVICE_STATUS)
xfsMIBRoot.3.1.3.11	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapDate) “20/03/2003 15:40:53 -300”
xfsMIBRoot.3.1.3.12	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapSPVersion) “1.23”
xfsMIBRoot.2.4.1.2.1.3.Index	(xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusDevice.xfsPINStatusManagedServiceName) 2 (WFS_STAT_DEVOFFLINE)
xfsMIBRoot.2.4.1.2.1.2.Index	(xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusNumberSubDevices.xfsPINStatusManagedServiceName) 0 (No sub device)
xfsMIBRoot.2.4.1.2.1.4.Index	(xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusEncStat.xfsPINStatusManagedServiceName) 2 (xfsPINEncNotReady)
xfsMIBRoot.2.4.1.2.1.5.Index	(xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusCertificateState.xfsPINStatusManagedServiceName) 1 (xfsPINCertNotSupp)

xfsmIBRoot.2.4.1.2.1.100.Index	(xfsmIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusExtraStatus.xfsPINStatusManagedServiceName)
	"0" (No extra data)

3.2 PIN Sub-Device Status Change Trap

The PIN does not currently support any sub-devices so the PIN Sub-Device Status Change Trap is not currently defined. The SNMP Specific trap value 204 is reserved in case a sub-device is ever added to the PIN device class.

3.3 PIN Reset Device Complete Trap

On the PIN device class this trap reports the completion of the reset device request and includes the status of the device at that point. If the reset has changed the status of the device then the Device Status Change and a Detail Device Status traps will also be generated.

The SNMP Specific trap value 304 defines the trap as a PIN Reset Device Complete trap.

3.3.1 PIN Reset Device Complete Trap Format

The following defines the variable bindings included in the PIN Reset Device Complete Trap. In the following section, the numbers in parenthesis at the end of each binding just indicate the sequence of the variable bindings within the trap, they do not represent an OID value.

xfsmIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapResetDeviceResult (1)

This variable binding contains a value indicating if the reset was executed, and if not provides a reason. It does not report the status of the device (i.e. the result of the reset), the current status of the device is reported within the **xfsmIBRoot.xfsPINStatusDevice** binding (var bind 12 below).

xfsmIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceName (2)

This variable binding represents the managed service name generating the alarm, it is a Display String field. The agent derives this field from the device status change event.

xfsmIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceClass (3)

This variable binding represents the XFS service class identifier generating the alarm, it is a 32-bit integer (INT32). It corresponds to the class identifier for the class name. The class name is identified from the registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\MANAGEMENT_PROVIDERS*<ManagedServiceName>*\class. This ID matches the class OID branch number i.e. PTR=1, IDC=2, CDM=3, etc. See the *XFS MIB Architecture and SNMP Extensions Programmer's Reference* document for a complete list of these values.

xfsmIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceClassName (4)

This variable binding represents the XFS service class name generating the alarm, it is a Display String field. It corresponds to the three character representation of the XFS device class name, and it is useful for human interpretation of a trap. The class name is identified from the registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\MANAGEMENT_PROVIDERS*<ManagedServiceName>*\class.

xfsmIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceType (5)

This variable binding represents the XFS type identifier generating the alarm, it is a 32-bit integer (INT32). It corresponds to the type identifier as defined in the WFS_INF_PIN_CAPABILITIES.fwType field.

xfsmIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceOid (6)

This variable binding represents the OID of the sub-tree within xfsManagedService defining the management information for this class of managed service. This variable, along with the managed service name as an index, prevents the need for additional querying to find the service specific MIB branch. The PIN MIB class is represented by .1.3.6.1.4.1.16213.2.4

xfsmIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapPhysicalDeviceName (7)

This variable binding represents the physical device name or names associated with the managed service generating the alarm, it is a Display String field. It corresponds to the physical device name or names identified by the managed service. The managed service name is used to identify the physical device name or names, from registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\MANAGEMENT_PROVIDERS*<ManagedServiceName>*\PhysicalDeviceName. Multiple physical device names are comma separated.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapDeviceVendor (8)

This variable binding represents the XFS device vendor name of the device generating the alarm, it is a Display String field. It corresponds to the vendor name for the service provider. The service provider is identified from the managed service name and the registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\MANAGEMENT_PROVIDERS*<ManagedServiceName>*\ServiceProvider.

The service provider name is then used to identify the vendor, from the registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\SERVICE_PROVIDERS*<ServiceProviderName>*\vendor_name.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapMIBVersion (9)

This variable binding represents the XFS MIB version of the device generating the alarm, it is a Display String field. It corresponds to the XFS MIB version for the managed service. The managed service name is used to identify the XFS MIB version, from registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\MANAGEMENT_PROVIDERS*<ManagedServiceName>*\MibVersion.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapDate (10)

This variable represents the UTC and bias for local translation of the date and time when the event was generated. It is a Display String field. The data is formatted in the following way: "DD/MM/YYYY

HH:MM:SS +ZZZ" where DD/MM/YYYY HH:MM:SS is the local date and time. ZZZ is the bias, which is the difference, in minutes, between Co-ordinated Universal Time (UTC) and local time.

xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapSPVersion (11)

This variable represents the vendor-defined version of the service provider generating the alarm, it is a

Display String field. The service provider is identified from the managed service name and the registry value HKEY_LOCAL_MACHINE\SOFTWARE\XFS\MANAGEMENT_PROVIDERS*<ManagedServiceName>*\ServiceProvider.

The service provider name is then used to identify the version, from the registry value

HKEY_LOCAL_MACHINE\SOFTWARE\XFS\SERVICE_PROVIDERS*<ServiceProviderName>*\version.

xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.

xfsxfsPINStatusDevice.xfsPINStatusManagedServiceName(12)

This variable binding represents the current state of the physical device managed by the service. It is a 32 bit integer (INT32).

xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.**xfsPINStatusNumberSubDevices.xfsPINStatusManagedServiceName** (13)

Defines how many sub-devices the service has. This is the number of retract bins the device supports.

xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.**xfsPINStatusEncrypt.xfsPINStatusManagedServiceName** (14)

It contains the encryptor module state. It is a numeric type field.

xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.**xfsPINStatusCertificateState.xfsPINStatusManagedServiceName** (15)

It contains the certificate state. It is a numeric type field.

xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.**xfsPINStatusExtraStatus.xfsPINStatusManagedServiceName** (16)

3.3.2 PIN Reset Device Complete: an example

As an example, the following variable binding list represents a Reset Device Complete trap (6, 304) generated as a result of a request to reset the device from the remote management station. The device in question has a managed service name "PinPad1".

xfsMIBRoot.3.1.3.13	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars. xfsCommonTrapResetDeviceResult)
	0 (resetExecuted)
xfsMIBRoot.3.1.3.2	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceName)
	"PinPad1"
xfsMIBRoot.3.1.3.3	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceClass)
	4 (WFS_SERVICE_CLASS_PIN)
xfsMIBRoot.3.1.3.4	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceClassName)
	"PIN"
xfsMIBRoot.3.1.3.5	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceType)
	0x0007 (WFS_PIN_TYPEHSM WFS_PIN_TYPEEDM WFS_PIN_TYPEEPP)
xfsMIBRoot.3.1.3.6	(xfsMIBRoot.xfsTrap.xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapManagedServiceOid)
	".1.3.6.1.4.1.16213.2.4"
xfsMIBRoot.3.1.3.7	(xfsMIBRoot.xfsTrap. xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapPhysicalDeviceName)
	"ABC Corp Pin Pad"
xfsMIBRoot.3.1.3.8	(xfsMIBRoot.xfsTrap. xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapDeviceVendor)
	"Best Devices Incorporated"
xfsMIBRoot.3.1.3.9	(xfsMIBRoot.xfsTrap. xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapMIBVersion)
	"1.10"
xfsMIBRoot.3.1.3.11	(xfsMIBRoot.xfsTrap. xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapDate)
	"20/03/2003 15:40:53 -300"
xfsMIBRoot.3.1.3.12	(xfsMIBRoot.xfsTrap. xfsTrapV1.xfsCommonTrapVars.xfsCommonTrapSPVersion)
	"1.23"
xfsMIBRoot.2.4.1.2.1. 3.Index	(xfsMIBRoot. xfsManagedService. xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusDevice.xfsPINStatusManagedServiceName)
	2 (WFS_STAT_DEVOFFLINE)
xfsMIBRoot.2.4.1.2.1. 2.Index	(xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusNumberSubDevices.xfsPINStatusManagedServiceName)
	0 (No sub device)
xfsMIBRoot.2.4.1.2.1. 4.Index	(xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusEncStat.xfsPINStatusManagedServiceName)
	2 (xfsPINEncNotReady)
xfsMIBRoot.2.4.1.2.1. 5.Index	(xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusCertificateState.xfsPINStatusManagedServiceName)
	1 (xfsPINCertNotSupp)
xfsMIBRoot.2.4.1.2.1. 100.Index	(xfsMIBRoot.xfsManagedService.xfsPIN.xfsPINV1.xfsPINStatusTable.xfsPINStatusEntry.xfsPINStatusExtraStatus.xfsPINStatusManagedServiceName)
	"0"0" (No extra data)

4. Appendix A - PIN MIB sub-tree

The following paragraph contains the definition of the XFS PIN MIB sub-tree in ASN-1 format.

4.1 PIN MIB in SMIV2 and SMIV1 ASN-1 format

The following object contains the xfsPIN.MIB file in SMIV2 format.



SMIV2\xfsPIN.mib

The following object contains the xfsPIN.MIB file in SMIV2 format.



SMIV1\xfsPIN.mib

The following text is the content of xfsPIN.MIB in SMIV2 format.

```
--*****
-- XFS MIB for PIN
-- Management Information Base for XFS PIN Device
--
-- The PIN Number is 4
-- The ASN.1 prefix to, and including the PIN is: 1.3.6.1.4.1.16213.2.4
--
--*****
XFS-PIN-MIB DEFINITIONS ::= BEGIN

    IMPORTS
        Integer32, OBJECT-TYPE, OBJECT-IDENTITY, NOTIFICATION-TYPE
            FROM SNMPv2-SMI
        DisplayString
            FROM SNMPv2-TC
        xfsPIN, xfsTrap, IxfsMIBDeviceStatus
            FROM XFSMIB;

-- *****
-- PIN #defines
-- *****
    IxfsPINEncStatStatus ::= INTEGER
    {
        xfsPINEncReady(1),
        xfsPINEncNotReady(2),
        xfsPINEncNotInitialized(3),
        xfsPINEncBusy(4),
        xfsPINEncundefined(5),
        xfsPINEncInitialized(6)
    }

    IxfsPINCertificateStateStatus ::= INTEGER
    {
        xfsPINCertNotSupp(1),
        xfsPINCertPrimary(2),
        xfsPINCertSecondary(3),
        xfsPINCertNotReady(5)
    }

-- *****
-- Version 1 of PIN MIB
--
-- The ASN.1 prefix to, and including the Version 1 of PIN is:
        1.3.6.1.4.1.16213.2.4.1
--
```

```

-- *****
xfsPINV1 OBJECT IDENTIFIER ::= { xfsPIN 1 }

xfsPINInstances OBJECT-TYPE
    SYNTAX Integer32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Number that represents the number of PIN managed services."
    ::= { xfsPINV1 1 }

-- *****
-- PIN Device Status Table
-- *****
xfsPINStatusTable OBJECT-TYPE
    SYNTAX SEQUENCE OF XfsPINStatusEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "Define the set of MIB Variables for the PIN status table."
    ::= { xfsPINV1 2 }

xfsPINStatusEntry OBJECT-TYPE
    SYNTAX XfsPINStatusEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "PIN Device Status Table Entry."
    INDEX { xfsPINStatusManagedServiceName }
    ::= { xfsPINStatusTable 1 }

XfsPINStatusEntry ::=
    SEQUENCE {
        xfsPINStatusManagedServiceName
            DisplayString,
        xfsPINStatusNumberSubDevices
            Integer32,
        xfsPINStatusDevice
            IxfsMIBDeviceStatus,
        xfsPINStatusEncStat
            IxfsPINEncStatStatus,
        xfsPINStatusCertificateState
            IxfsPINCertificateStateStatus,
        xfsPINStatusExtraStatus
            OCTET STRING
    }

xfsPINStatusManagedServiceName OBJECT-TYPE
    SYNTAX DisplayString
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Instance identifier of the managed service."
    ::= { xfsPINStatusEntry 1 }

xfsPINStatusNumberSubDevices OBJECT-TYPE
    SYNTAX Integer32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Number of sub devices supported by the PIN device."
    ::= { xfsPINStatusEntry 2 }

xfsPINStatusDevice OBJECT-TYPE
    SYNTAX IxfsMIBDeviceStatus

```

```

MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "Device status."
 ::= { xfsPINStatusEntry 3 }

xfsPINStatusEncStat OBJECT-TYPE
SYNTAX IxfsPINEncStatStatus
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "Encryption Module status.
     xfsPINEncReady (1),
     xfsPINEncNotReady (2),
     xfsPINEncNotInitialized (3),
     xfsPINEncBusy (4),
     xfsPINEncundefined (5),
     xfsPINEncInitialized (6)"
 ::= { xfsPINStatusEntry 4 }

xfsPINStatusCertificateState OBJECT-TYPE
SYNTAX IxfsPINCertificateStateStatus
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "Certificate status. xfsPINCertNotSupp (1), xfsPINCertPrimary (2),
     xfsPINCertSecondary (3), xfsPINCertNotReady (5)"
 ::= { xfsPINStatusEntry 5 }

xfsPINStatusExtraStatus OBJECT-TYPE
SYNTAX OCTET STRING
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "Vendor dependent additional device status information."
 ::= { xfsPINStatusEntry 100 }

-- *****
-- PIN Sub Device Status Table
--
-- Note that the PIN device does not currently have sub-devices. The
-- sub-device table is not required for this device and is shown as an
-- example for those devices that do support sub-devices.
--
-- Note, to ensure consistency across all MIB extensions OID 16213.2.4.1.3
-- must be reserved for the sub-device table.
-- *****
xfsPINSubDeviceTable OBJECT-TYPE
SYNTAX SEQUENCE OF XfsPINSubDeviceEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "Define the set of MIB Variables for the PIN Sub-Device Status Table."
 ::= { xfsPINV1 3 }

xfsPINSubDeviceEntry OBJECT-TYPE
SYNTAX XfsPINSubDeviceEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
    "PIN Sub-Device Status Table Entry."
INDEX { xfsPINSubDeviceManagedServiceName, xfsPINSubDeviceIndex }
 ::= { xfsPINSubDeviceTable 1 }

XfsPINSubDeviceEntry ::=

```

```

SEQUENCE {
    xfsPINSubDeviceManagedServiceName
        DisplayString,
    xfsPINSubDeviceIndex
        INTEGER
}

-- As an example if you want to add values to the sub-device table, add
-- entries as shown in the example below.
-- xfsPINSubDeviceValue          INTEGER }
xfsPINSubDeviceManagedServiceName OBJECT-TYPE
    SYNTAX DisplayString
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Instance identifier of the managed service."
    ::= { xfsPINSubDeviceEntry 1 }

xfsPINSubDeviceIndex OBJECT-TYPE
    SYNTAX INTEGER (1..65535)
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Index into the array of sub devices supported."
    ::= { xfsPINSubDeviceEntry 2 }

-- As an example if you want to add values to the sub-device table, add
-- entries as shown in the example below.
-- xfsPINSubDeviceValue OBJECT-TYPE
--     SYNTAX          INTEGER
--     ACCESS          read-only
--     STATUS          mandatory
--     DESCRIPTION     "Returns the value of the sub device referenced by the index."
--     ::= {xfsPINSubDeviceEntry 3}
-- *****
-- PIN Error Table
-- *****
xfsPINErrorTable OBJECT-TYPE
    SYNTAX SEQUENCE OF XfsPINErrorEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "Define the set of MIB Variables for the PIN Error Table."
    ::= { xfsPINV1 4 }

xfsPINErrorEntry OBJECT-TYPE
    SYNTAX XfsPINErrorEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "PIN Error Table Entry."
    INDEX { xfsPINErrorManagedServiceName, xfsPINErrorCommandCode,
            xfsPINErrorResponseCode }
    ::= { xfsPINErrorTable 1 }

XfsPINErrorEntry ::=
SEQUENCE {
    xfsPINErrorManagedServiceName
        DisplayString,
    xfsPINErrorCommandCode
        INTEGER,
    xfsPINErrorResponseCode
        INTEGER,
    xfsPINErrorCount
        Integer32
}

```

```

xfsPINErrorManagedServiceName OBJECT-TYPE
    SYNTAX DisplayString
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Instance identifier of the managed service."
    ::= { xfsPINErrorEntry 1 }

xfsPINErrorCommandCode OBJECT-TYPE
    SYNTAX INTEGER (401..500)
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The executable command code supported by the service
        provider associated with the error count of interest."
    ::= { xfsPINErrorEntry 2 }

xfsPINErrorResponseCode OBJECT-TYPE
    SYNTAX INTEGER (0..99 | 400..499)
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The response code supported by service provider for the
        corresponding command code associated with the error count
        of interest."
    ::= { xfsPINErrorEntry 3 }

xfsPINErrorCount OBJECT-TYPE
    SYNTAX Integer32
    MAX-ACCESS read-write
    STATUS current
    DESCRIPTION
        "The counter value corresponding to the managed service,
        command code and response code."
    ::= { xfsPINErrorEntry 4 }

-- *****
-- PIN Reset Table
-- *****
xfsPINResetTable OBJECT-TYPE
    SYNTAX SEQUENCE OF XfsPINResetEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "Defines the set of MIB Variables for the PIN Reset Table."
    ::= { xfsPINV1 5 }

xfsPINResetEntry OBJECT-TYPE
    SYNTAX XfsPINResetEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "PIN Reset Table Entry."
    INDEX { xfsPINResetManagedServiceName }
    ::= { xfsPINResetTable 1 }

XfsPINResetEntry ::=
    SEQUENCE {
        xfsPINResetManagedServiceName
            DisplayString,
        xfsPINResetAll
            Integer32,
        xfsPINResetTimestamp
            DisplayString
    }

```

```

xfsPINResetManagedServiceName OBJECT-TYPE
    SYNTAX DisplayString
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Instance identifier of the managed service."
    ::= { xfsPINResetEntry 1 }

xfsPINResetAll OBJECT-TYPE
    SYNTAX Integer32
    MAX-ACCESS read-write
    STATUS current
    DESCRIPTION
        "Returns all counter values for this managed service to
         zero when set to zero and returns zero when read."
    ::= { xfsPINResetEntry 2 }

xfsPINResetTimestamp OBJECT-TYPE
    SYNTAX DisplayString
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Date and time the last reset of the counters was
         performed."
    ::= { xfsPINResetEntry 3 }

-- *****
-- PIN Reset Device Table
-- *****
xfsPINResetDeviceTable OBJECT-TYPE
    SYNTAX SEQUENCE OF XfsPINResetDeviceEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "Define the set of MIB Variables for the PIN Reset Device Table."
    ::= { xfsPINv1 6 }

xfsPINResetDeviceEntry OBJECT-TYPE
    SYNTAX XfsPINResetDeviceEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "PIN Reset Device Table Entry."
    INDEX { xfsPINResetDeviceManagedServiceName }
    ::= { xfsPINResetDeviceTable 1 }

XfsPINResetDeviceEntry ::=
    SEQUENCE {
        xfsPINResetDeviceManagedServiceName
            DisplayString,
        xfsPINResetDeviceAction
            INTEGER,
        xfsPINResetDeviceMediaControl
            INTEGER,
        xfsPINResetDeviceStatus
            INTEGER
    }

xfsPINResetDeviceManagedServiceName OBJECT-TYPE
    SYNTAX DisplayString
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Instance identifier of the managed service."
    ::= { xfsPINResetDeviceEntry 1 }

```

```

xfsPINResetDeviceAction OBJECT-TYPE
    SYNTAX INTEGER { executeReset(1) }
    MAX-ACCESS read-write
    STATUS current
    DESCRIPTION
        "Variable that initiates the device reset."
    ::= { xfsPINResetDeviceEntry 2 }

xfsPINResetDeviceMediaControl OBJECT-TYPE
    SYNTAX INTEGER
        {
            mediaDefault(1)
        }
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Variable that reports the media handling during the device reset."
    ::= { xfsPINResetDeviceEntry 3 }

xfsPINResetDeviceStatus OBJECT-TYPE
    SYNTAX INTEGER
        {
            resetIdle(1),
            resetInProgress(2)
        }
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Variable that reports the progress of the device reset."
    ::= { xfsPINResetDeviceEntry 4 }

xfsTrapV2 OBJECT-IDENTITY
    STATUS current
    DESCRIPTION
        "Root node for the converted TRAP-TYPES."
    ::= { xfsTrap 0 }

-- *****
-- Trap definitions
-- *****
xfsPINDetailedDSCTrap NOTIFICATION-TYPE
    OBJECTS { xfsCommonTrapSysName, xfsCommonTrapManagedServiceName,
              xfsCommonTrapManagedServiceClass,
              xfsCommonTrapManagedServiceClassName,
              xfsCommonTrapManagedServiceType,
              xfsCommonTrapManagedServiceOid, xfsCommonTrapPhysicalDeviceName,
              xfsCommonTrapDeviceVendor, xfsCommonTrapMIBVersion,
              xfsCommonTrapEvent,
              xfsCommonTrapDate, xfsCommonTrapSPVersion, xfsPINStatusDevice,
              xfsPINStatusNumberSubDevices, xfsPINStatusEncStat,
              xfsPINStatusCertificateState, xfsPINStatusExtraStatus }
    STATUS current
    DESCRIPTION
        "This trap indicates a change in the status of a managed
        service."
    ::= { xfsTrapV2 104 }

xfsPINResetDeviceCompleteTrap NOTIFICATION-TYPE
    OBJECTS { xfsCommonTrapResetDeviceResult, xfsCommonTrapManagedServiceName,
              xfsCommonTrapManagedServiceClass,
              xfsCommonTrapManagedServiceClassName,
              xfsCommonTrapManagedServiceType,

```

```
        xfsCommonTrapManagedServiceOid, xfsCommonTrapPhysicalDeviceName,  
        xfsCommonTrapDeviceVendor, xfsCommonTrapMIBVersion,  
        xfsCommonTrapDate,  
        xfsCommonTrapSPVersion, xfsPINStatusDevice,  
        xfsPINStatusNumberSubDevices, xfsPINStatusEncStat,  
        xfsPINStatusCertificateState,  
        xfsPINStatusExtraStatus }  
STATUS current  
DESCRIPTION  
        "This trap indicates the Reset action has complete and reports the  
        state of the device after the reset."  
 ::= { xfsTrapV2 304 }
```

END

5. Appendix B - C-Header files

5.1 XFSMIBPIN.H



xfsmibpin.h

```

/*****
*
* xfsmibpin.h          WOSA/XFS - MIB PIN counters
*
*                      Version 1.00  --  Jan 20, 2004
*
*****/

#ifndef __inc_xfsmibpin__h
#define __inc_xfsmibpin__h

#ifdef __cplusplus
extern "C" {
#endif

enum IxfsPINEncStatStatus
{
    xfsPINEncReady          = 2,
    xfsPINDevNotReady,
    xfsPINEncNotInitialised,
    xfsPINEncBusy,
    xfsPINEncUndefined,
    xfsPINEncInitialized,
} xfsPINEncStatStatus;

enum IxfsPINCertificateStateStatus
{
    xfsPINCertNotSupp      = 1,
    xfsPINCertPrimary      = 2,
    xfsPINCertSecondary    = 3,
    xfsPINCertNotReady    = 5,
} xfsPINCertificateStateStatus;

/*****
*
*          MIB Variables for the Status Table
*
*****/
#define xfsPINStatusManagedServiceName    (1)
#define xfsPINStatusNumberSubDevices      (2)
#define xfsPINStatusDevice                 (3)
#define xfsPINStatusEncStat                (4)
#define xfsPINStatusCertificateState       (5)
#define xfsPINStatusExtraStatus            (100)

/*****
*
*          MIB Variables for the Error Table
*
*****/
//Command codes and error codes correspond to the Service Provider definitions.

#ifdef __cplusplus
} /*extern "C"*/

```

```
#endif
```

```
#endif /* __inc_xfsmibpin__h */
```