MFP PRINTER MIB ALERTS PROPOSAL
WITH CHANGES FROM FACE-TO-FACE MEETING
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Printer MIB Group Extensions:

Printer MIB extensions were previously defined in the Finisher and Image Counter MIBs. New extensions must be compatible with the Printer MIB plus the extensions.

From the Finisher MIB:

    30. Finisher Device
    31. Finisher Supply
    32. Finisher Media Input
    33. Finisher Device Attribute

From the Image Counter MIB:

    40. Interface
    50. Scan Device

Proposed Additions for MFP Alerts:

    51. Scanner Media Path (Document Feeder)
    52. Scanner System (Sensor and Lamp)
    53. Scanner Transformatter
    54. Scanner Output Channel
    55. Scanner Input Channel
    56. Scanner Console
    57. Scanner Covers

Scanner Faults:

Definition of the possible set of faults will be used to determine if any new alert enumerations must be defined.

Scan Device General (50):

Powered Off	subunitTurnedOff(21) / powerDown(504)
Powered Up	subunitTurnedOn(20) / powerUp(503)
Off Line	subunitOffline(22)
General Error	other(1)

Scanner Media Path (51):

Paper Jam	jam(8)

Scanner Optical System (Sensor and Lamp) (52):

No Sensor Output	subunitUnrecoverableFailure(30)
Invalid Sensor Output	subunitRecoverableFailure(29)

Lamp Failure (no output)   subunitLifeOver(11)
Lamp Missing   subunitMissing(9) / subunitRemoved(26)
Motor Failure   subunitMotorFailure(33)

Transformatter (53):

General Error   other(1)

Output Channel (54):

Output Channel Failure   subunitRecoverableFailure(29) /
subunitUnrecoverableFailure(30)

Input Channel (55):

Input Channel Failure   subunitRecoverableFailure(29) /
subunitUnrecoverableFailure(30)

Control Panel (56):

General Error   other(1)

Covers (57):   coverOpen(3) / coverClosed(4) /
interlockOpen(5) / interlockClosed(6)

~~Scanner MIB Proposal:~~

This section was not reviewed since there is a strong desire for a service centric solution

~~A very small number of MIB objects is proposed for each scanner group. This provides a status indication and will allow for a description in the event of multiple instances a group. This MIB could be expanded at a later date to provide a complete Scanner MIB.~~

~~The following is presented as an outline, rather than in ASN.1 format, to provide a shorter and easier to understand presentation. Once there is an agreement on the need and content of the MIB, the ASN.1 can be easily generated.~~

~~Scanner General Group:~~

~~Scanner General Status~~

~~This object defines the functional status of the entire scanner device. Suggested values for this object are: (subunit status??)~~

~~other(1)~~	~~busy(4)~~
~~unknown(2)~~	~~offline(5)~~
~~Idle(3)~~	~~fault(6)~~

~~Scanner General Description~~

~~This object provides a top level description of the scanner device.~~

~~Document Feeder Group: (Indexed Table)~~

~~Document Feeder Type~~

This object indicates the technology used by this feeder subunit. Suggested values for this object are:

other(1)	automaticFeed(3)
unknown(2)	flatbedManual(4)

Document Feeder Status

This object defines the functional status of the document feeder subunit. Suggested values for this object are:

other(1)	active(4)
unknown(2)	fault(5)
Idle(3)	

Document Feeder Description

This object provides a description of the document feeder subunit.

Scanner Lamp Group: (Indexed Table)

Lamp Status

This object defines the functional status of the scanner lamp subunit. Suggested values for this object are:

other(1)	on(4)
unknown(2)	fault(5)
off(3)	missing(6)

Lamp Description

This object provides a description of the scanner lamp subunit.

Scanner Image Format Group: (Indexed Table)

Image Format Type

This object defines the encoding of the output image. Suggested values for this object are:

other(1)	mh(6)
unknown(2)	mr(7)
tiff(3)	mmr(8)
pdf(4)	jpeg(9)
runLength(5)	

Image Format Status   ???

This object could be used to define which encoding is currently enabled. Suggested values:

other(1)	enabled(3)
unknown(2)	disabled(4)

Image Format Description ???

Not much value in this.

Scanner Data Channel Group: (Indexed Table)

Data Channel Status

This object defines the functional status of the scanner data channel subunit. Suggested values for this object are:

other(1)	active(4)
unknown(2)	fault(5)
idle(3)	disabled(6)

Data Channel Description

This object provides a description of the scanner data channel subunit.

Scanner Control Channel Group: (Indexed Table)

Control Channel Status

This object defines the functional status of the scanner control channel subunit. Suggested values for this object are:

other(1)	active(4)
unknown(2)	fault(5)
idle(3)	disabled(6)

Control Channel Description

This object provides a description of the scanner control channel subunit.

Scanner Control Panel Group: (Indexed Table)

Control Panel Status

This object defines the functional status of the scanner control panel subunit. Suggested values for this object are:

other(1)	fault(4)
unknown(2)	disabled(5)
operational(3)	

Control Panel Description

This object provides a description of the scanner control panel subunit.

MFP Model:

The following two scenarios are the most likely models for an MFP device. For these examples, the MFP contains one print engine and two scanner devices. This may not represent any current devices but it demonstrates how well each model scales.

1. Common hrDeviceIndex value

In this scenario, the printer and both scanners are indexed by the same value hrDeviceIndex. The scanner tables will require 3 indices.

hrDeviceIndex, scanner Index, and subunitIndex.

2. Unique hrDeviceIndex values

In this scenario, the printer and both scanners are indexed by the same value hrDeviceIndex. The scanner tables will require 2 indices.

hrDeviceIndex and subunitIndex.

A new hrDeviceType for scanner will be required for this scenario.

```
PrtAlertGroupTC ::= TEXTUAL-CONVENTION
    -- Values in the range 1 to 29 must not be IANA-assigned without
    -- re-publishing Printer MIB.
    -- Values of 30 and greater are for use in MIBs that augment
    -- the Printer MIB, such as the Finisher MIB.
    -- This TC extracted from prtAlertGroup in RFC 1759.

    STATUS     current
    DESCRIPTION
        "The type of subunit within the printer model that this alert
        is related.  Input, output, and markers are examples of
        printer model groups, i.e., examples of types of subunits.
        Wherever possible, the enumerations match the sub-identifier
        that identifies the relevant table in the Printer MIB.

        NOTE: Alert type codes have been added for the Host Resources
        MIB storage table and device table.  These additional types
        are for situations in which the printer's storage and device
        objects must generate alerts (and possibly traps for critical
        alerts)."
    SYNTAX     INTEGER {
                    other(1),
                    unknown(2),
                  -- Values for Host Resources MIB
                    hostResourcesMIBStorageTable(3),
                    hostResourcesMIBDeviceTable(4),
                  -- Values for Printer MIB
                    generalPrinter(5),
                    cover(6),
                    localization(7),
                    input(8),
                    output(9),
                    marker(10),
                    markerSupplies(11),
                    markerColorant(12),
                    mediaPath(13),
                    channel(14),
                    interpreter(15),
                    consoleDisplayBuffer(16),
                    consoleLights(17),
                    alert(18),                   -- Not in RFC 1759
                  -- Values (5) to (29) reserved for Printer MIB
                  -- Values for Finisher MIB
                    finDevice(30),               -- Not in RFC 1759
                    finSupply(31),               -- Not in RFC 1759
                    finSupplyMediaInput(32),     -- Not in RFC 1759
                    finAttribute(33)             -- Not in RFC 1759
                  -- Values (30) to (39) reserved for Finisher MIB
NEW VALUES -->
                    }
```

```
PrtAlertCodeTC ::= TEXTUAL-CONVENTION
    -- This TC was extracted from prtAlertCode in RFC 1759.
    STATUS     current
    DESCRIPTION
        "The code that describes the type of alert for this entry in

        the table.  Binary change event alerts describe states of the
        subunit while unary change event alerts describe a single
        event.  The same alert code can be used for a binary change
        event or a unary change event, depending on implementation.
        Also, the same alert code can be used to indicate a critical
        or non-critical (warning) alert, depending on implementation.
        The value of prtAlertSeverityLevel specifies binary vs. unary
        and critical vs. non-critical for each event for the
        implementation.

        While there are some specific codes for many subunits, the
        generic codes should be used for most subunit alerts.  The
        network management station can then query the subunit
        specified by prtAlertGroup to determine further subunit
        status and other subunit information.

        An agent shall not add two entries to the alert table for the
        same event, one containing a generic event code and the other
        containing a specific event code; the agent shall add only
        one entry in the alert table for each event; either generic
        (preferred) or specific, not both.

        Implementation of the unary change event
        alertRemovalOfBinaryChangeEntry(1801) is optional.  When
        implemented, this alert code shall indicate to network
        management stations that the trailing edge of a binary change
        event has occurred and the corresponding alert entry has been
        removed from the alert table.  As with all events, the
        alertRemovalOfBinaryChangeEntry(1801) alert shall be placed
        at the end of the alert table.  Such an alert table entry
        shall specify the following information:

        prtAlertSeverityLevel    warningUnaryChangeEvent(4)
        prtAlertTrainingLevel    noInterventionRequired(7)
        prtAlertGroup            alert(18)
        prtAlertGroupIndex       the index of the row in the
                                 alert table of the binary
                                 change event that this event
                                 has removed.
        prtAlertLocation         unknown (-2)
        prtAlertCode             alertRemovalOfBinaryChangeEntry(1801)
        prtAlertDescription      <description or null string>
        prtAlertTime             the value of sysUpTime at
                                 the time of the removal of the
                                 binary change event from the
                                 alert table.

        Optionally, the agent may generate a trap coincident with

        removing the binary change event and placing the unary change
        event alertRemovalOfBinaryChangeEntry(1801) in the alert
```

```
        table.  For such a trap, the prtAlertIndex sent with the above
        trap parameters shall be the index of the
        alertRemovalOfBinaryChangeEvent row that was added to the
        prtAlertTable; not the index of the row that was removed from
        the prtAlertTable."
SYNTAX     INTEGER {
                other(1),
                    -- an event that is not represented
                    -- by one of the alert codes
                    -- specified below.
                unknown(2),
                    -- The following generic codes are common to
                    -- multiple groups.  The NMS may examine the
                    -- prtAlertGroup object to determine what group
                    -- to query for further information.
                coverOpen(3),
                coverClosed(4),
                interlockOpen(5),
                interlockClosed(6),
                configurationChange(7),
                jam(8),
                subunitMissing(9),              -- Not in RFC 1759
                    -- The subunit tray, bin, etc.
                    -- has been removed.
                subunitLifeAlmostOver(10),   -- Not in RFC 1759
                subunitLifeOver(11),         -- Not in RFC 1759
                subunitAlmostEmpty(12),      -- Not in RFC 1759
                subunitEmpty(13),            -- Not in RFC 1759
                subunitAlmostFull(14),       -- Not in RFC 1759
                subunitFull(15),             -- Not in RFC 1759
                subunitNearLimit(16),        -- Not in RFC 1759
                subunitAtLimit(17),          -- Not in RFC 1759
                subunitOpened(18),           -- Not in RFC 1759
                subunitClosed(19),           -- Not in RFC 1759
                subunitTurnedOn(20),         -- Not in RFC 1759
                subunitTurnedOff(21),        -- Not in RFC 1759
                subunitOffline(22),          -- Not in RFC 1759
                subunitPowerSaver(23),       -- Not in RFC 1759
                subunitWarmingUp(24),        -- Not in RFC 1759
                subunitAdded(25),            -- Not in RFC 1759
                subunitRemoved(26),          -- Not in RFC 1759
                subunitResourceAdded(27),    -- Not in RFC 1759
                subunitResourceRemoved(28),  -- Not in RFC 1759
                subunitRecoverableFailure(29),
                                             -- Not in RFC 1759
                subunitUnrecoverableFailure(30),

                                             -- Not in RFC 1759
                subunitRecoverableStorageError(31),
                                             -- Not in RFC 1759
                subunitUnrecoverableStorageError(32),
                                             -- Not in RFC 1759
                subunitMotorFailure(33),     -- Not in RFC 1759
                subunitMemoryExhausted(34),  -- Not in RFC 1759
                subunitUnderTemperature(35), -- Not in RFC 1759
                subunitOverTemperature(36),  -- Not in RFC 1759
                subunitTimingFailure(37),    -- Not in RFC 1759
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              subunitThermistorFailure(38), -- Not in RFC 1759

          -- General Printer group
            doorOpen(501),     -- DEPRECATED
                               -- Use coverOpened(3)
            doorClosed(502),   -- DEPRECATED
                               -- Use coverClosed(4)
            powerUp(503),
            powerDown(504),
            printerNMSReset(505),          -- Not in RFC 1759
                -- The printer has been reset by some
                -- network management station(NMS)
                -- writing into 'prtGeneralReset'.
            printerManualReset(506),       -- Not in RFC 1759
                -- The printer has been reset manually.
            printerReadyToPrint(507),      -- Not in RFC 1759
                -- The printer is ready to print. (i.e.,
                -- not warming up, not in power save
                -- state, not adjusting print quality,
                -- etc.).

          -- Input Group
            inputMediaTrayMissing(801),
            inputMediaSizeChange(802),
            inputMediaWeightChange(803),
            inputMediaTypeChange(804),
            inputMediaColorChange(805),
            inputMediaFormPartsChange(806),
            inputMediaSupplyLow(807),
            inputMediaSupplyEmpty(808),
            inputMediaChangeRequest(809), -- Not in RFC 1759
                -- An interpreter has detected that a
                -- different medium is need in this input
                -- tray subunit.  The prtAlertDescription may
                -- be used to convey a human readable
                -- description of the medium required to
                -- satisfy the request.
            inputManualInputRequest(810), -- Not in RFC 1759

                -- An interpreter has detected that manual
                -- input is required in this subunit.  The
                -- prtAlertDescription may be used to convey
                -- a human readable description of the medium
                -- required to satisfy the request.
            inputTrayPositionFailure(811), -- Not in RFC 1759
                -- The input tray failed to position correctly.
            inputTrayElevationFailure(812),
                              -- Not in RFC 1759
            inputCannotFeedSizeSelected(813),
                              -- Not in RFC 1759
          -- Output Group
            outputMediaTrayMissing(901),
            outputMediaTrayAlmostFull(902),
            outputMediaTrayFull(903),
            outputMailboxSelectFailure(904),
                              -- Not in RFC 1759
          -- Marker group
```

```
              markerFuserUnderTemperature(1001),
              markerFuserOverTemperature(1002),
              markerFuserTimingFailure(1003),
                              -- Not in RFC 1759
              markerFuserThermistorFailure(1004),
                              -- Not in RFC 1759
              markerAdjustingPrintQuality(1005),
                              -- Not in RFC 1759
          -- Marker Supplies group
              markerTonerEmpty(1101),
              markerInkEmpty(1102),
              markerPrintRibbonEmpty(1103),
              markerTonerAlmostEmpty(1104),
              markerInkAlmostEmpty(1105),
              markerPrintRibbonAlmostEmpty(1106),
              markerWasteTonerReceptacleAlmostFull(1107),
              markerWasteInkReceptacleAlmostFull(1108),
              markerWasteTonerReceptacleFull(1109),
              markerWasteInkReceptacleFull(1110),
              markerOpcLifeAlmostOver(1111),
              markerOpcLifeOver(1112),
              markerDeveloperAlmostEmpty(1113),
              markerDeveloperEmpty(1114),
              markerTonerCartridgeMissing(1115),
                                -- Not in RFC 1759
          -- Media Path Device Group
              mediaPathMediaTrayMissing(1301),
              mediaPathMediaTrayAlmostFull(1302),
              mediaPathMediaTrayFull(1303),
              mediaPathCannotDuplexMediaSelected(1304),


                                -- Not in RFC 1759
          -- Interpreter Group
              interpreterMemoryIncrease(1501),
              interpreterMemoryDecrease(1502),
              interpreterCartridgeAdded(1503),
              interpreterCartridgeDeleted(1504),
              interpreterResourceAdded(1505),
              interpreterResourceDeleted(1506),
              interpreterResourceUnavailable(1507),
              interpreterComplexPageEncountered(1509),
                                -- Not in RFC 1759
                -- The interpreter has encountered a page
                -- that is too complex for the resources that
                -- are available.
          -- Alert Group
              alertRemovalOfBinaryChangeEntry(1801)
                                -- Not in RFC 1759
                -- A binary change event entry has been
                -- removed from the alert table.  This unary
                -- change alert table entry is added to the
                -- end of the alert table.
              }
```