Printer Management Objects: Input, Output, Medium Resource, and Finisher Classes

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Revision 0.3

This document specifies class and object definitions for management of printing devices and resources through programmatic interfaces such as the Desktop Management Task Force (DMTF) Desktop Management Interface (DMI), and also through management protocols such as SNMP or CMIP.

Specifically, this document defines classes and objects supporting management of

- input sources for printing media, their characteristic attributes, and controls,
- medium resources and their characteristics,
- output destinations for delivery of printing media, their characteristic attributes, and controls, and
- finishing mechanisms for production of printed documents, their characteristic attributes and controls.

The syntax utilized for definitions in this document is loosely based on the restricted form of ASN.1 employed for specification of SNMP MIB objects. The reader should *not* assume that any restriction is necessarily implied by the selection of this syntax, as its primary purpose is solely as an aid to concise communication of the specification.

Input Source Class

Input sources are managed as a tabular, indexed collection of possible devices capable of providing media for input to the printing process. Input sources typically have a location, a type, an identifier, a set of constraints on possible media sizes and potentially other media characteristics, and may be capable of indicating current status or capacity.

Basic Input Source Class

Object definitions specified as part of the Basic Input Source Class are mandatory for all conforming implementations.

defaultInputDevice OBJECT-TYPE
SYNTAX INTEGER
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object enables the caller either to interrogate, and optionally, if properly authorized, to set the default input source for the associated printer. This is the value of the corresponding input device's inputDeviceId object value."

inputDeviceTable OBJECT-TYPE
SYNTAX SEQUENCE OF InputDevice
ACCESS not-accessible
STATUS current
DESCRIPTION
"A list of input devices capable of providing printing media resources to this printer including information regarding their identity, possible and current configuration, and status."

inputDevice OBJECT-TYPE
SYNTAX InputDevice
ACCESS not-accessible
STATUS current
DESCRIPTION
"An input device entry in the table of possible input devices supported by this printer."
INDEX { inputDeviceId }

InputDevice ::=
SEQUENCE {
inputDeviceId
INTEGER,
inputDeviceType
INTEGER,
inputDeviceDimsUnits
INTEGER,
inputDeviceCurrentDimsAcrossFeedDirection
Integer32,
inputDeviceCurrentDimsInFeedDirection
Integer32,
inputDeviceCapacityUnits
INTEGER,
inputDeviceMaxCapacity
Integer32,
inputDeviceCurrentCapacity
Integer32,
inputDeviceState
INTEGER
}

inputDeviceId OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only
STATUS current
DESCRIPTION
"A unique value used by this printer to identify an associated input device. Although these values may change due to a major reconfiguration of the device (e.g. the addition of new input devices to the printer), values are expected to remain stable across successive printer power cycles."

inputDeviceType OBJECT-TYPE
SYNTAX INTEGER { -- Type 2
other (1),
unknown (2),
sheet-feed-auto-removable (3),
sheet-feed-auto-non-removable (4),
sheet-feed-manual (5),
continuous-roll (6),
continuous-fan-fold (7)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This value indicates the type of technology (discriminated primarily according to feeder mechanism type) employed by the input device. Note, the Optional Input Source Class provides for a descriptor field to further qualify the *other* choice."

Definitions for the inputDeviceType standard values are as follows:

- sheet-feed-auto-removable — A device which provides a source of sheet media which is removable from the housing in which it is enclosed; removable devices are often referred-to as trays.
- sheet-feed-auto-non-removable — A device which provides a source of sheet media which is integral to the housing in which it is enclosed; non-removable devices are often referred-to as bins.
- sheet-feed-manual — A device which provides a source of sheet media which is fed by a manual source.
- continuous-roll — A device which provides a roll-fed continuous source of media; continuous roll-fed devices are often referred-to as web devices.
- continuous-fan-fold — A device which provides a continuous source of fan-fold media (such as computer fan-fold paper)

inputDeviceDimsUnits OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
inches-.001 (3),
millimeters-.01 (4),
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides a technology-independent means for input devices to identify the units of measurement for use in calculating and relaying dimensional values."

inputDeviceCurrentDimsAcrossFeedDirection OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides the value of the current dimensions supported by the input device for measurements taken ninety degrees relative to the feed direction associated with that device. The value (-1) means *other* and specifically indicates that the device places no restriction on this parameter. The value (-2) indicates *unknown*."

inputDeviceCurrentDimsInFeedDirection OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides the value of the current dimensions supported by the input device for measurements taken parallel relative to the feed direction associated with that device. The value (-1) means *other* and specifically indicates that the device places no restriction on this parameter. The value (-2) indicates *unknown*."

inputDeviceCapacityUnits OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unkown (2),
inches-.001 (3),
millimeters-.01 (4),
sheets (5),
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides a technology-independent means for input devices to identify the units of measurement for use in calculating and relaying capacity values."

inputDeviceMaxCapacity OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The maximum capacity of the input source in input device capacity units. There is no convention associated with the media itself so this value reflects claimed capacity. This field is read-write in order to allow a management application to request the desired capacity input device. The value (-1) means *other* and specifically indicates that the device places no restrictions on this parameter. The value (-2) means *unknown*."

inputDeviceCurrentLevel OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The current capacity of the the input source in input device capacity units. This field is read-write to accomodate remote op-panel implementation. The value (-1) means *other* and spcecifically indicates that the device places no restrictions on this parameter. The value (-2) means *unknown*."

inputDeviceState OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2)
ready (3),
busy (4),
needs-attention (5),
unavailable (6),
tray-missing(7),
jammed (8)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This value indicates the current state of the specific input device.

State	Definition
other	the input device state is not described in the set of enumerated values
unknown	the input device state is unknown
ready	the input device is operational and available for all requests
busy	the input device is operational, but is currently occupied with a request for activity
needs-attention	the input device is not currently available to service requests, but it could be made available (brought to the ready state) with possibly some human intervention such as adding paper; the on-request state will most commonly be reported through inputDeviceAlert traps when a device is out of paper
unavailable	the input device is unavailable for use (this is the same as "broken" in some other terminologies)
tray-missing	the input device is a tray, and the tray is removed
jammed	the input device is reporting a paper misfeed."

Optional Input Source Class Specification

inputDeviceTypeExtended OBJECT-TYPE
SYNTAX InputDeviceTypeExtended
MAX-ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"A list of information suitable for extended input device management. This list refers to installed input sources."
AUGMENTS
{ inputDevice }

```
InputDeviceTypeExtended ::=
    SEQUENCE {
        inputDeviceName
            DisplayString ( SIZE ( 0 .. 255 ) ),
        inputDeviceModel
            DisplayString ( SIZE ( 0 .. 255 ) ),
        inputDeviceSerialNumber
            DisplayString ( SIZE ( 0 ..  255) ),
        inputDeviceDescriptor
            DisplayString ( SIZE ( 0 ..  255) ),
        inputDeviceSecurity
            INTEGER -- Type 2
    }

inputDeviceName  OBJECT-TYPE
    SYNTAX  DisplayString ( SIZE ( 0 .. 255 ) )
    MAX-ACCESS  read-only
    STATUS  current
    DESCRIPTION
        " The name assigned to this input device."

inputDeviceModel  OBJECT-TYPE
    SYNTAX  DisplayString ( SIZE ( 0 .. 255 ) )
    MAX-ACCESS  read-only
    STATUS  current
    DESCRIPTION
        " The model name of this input device."

inputDeviceSerialNumber  OBJECT-TYPE
    SYNTAX  DisplayString ( SIZE ( 0 .. 255 ) )
    MAX-ACCESS  read-only
    STATUS  current
    DESCRIPTION
        " The serial number assigned to this input device."

inputDeviceDescriptor  OBJECT-TYPE
    SYNTAX  DisplayString ( SIZE ( 0 .. 255 ) )
    MAX-ACCESS  read-only
    STATUS  current
    DESCRIPTION
        "A free-form text description of this input device."
```

```
inputDeviceSecurity  OBJECT-TYPE
    SYNTAX INTEGER  { -- Type 2
        other (1),
        unknown (2),
        yes (3),
        no (4)
    }
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Provides a way to determine if the device is considered secure
        or not."

inputDeviceDimsExtended OBJECT-TYPE
    SYNTAX InputDeviceDimsExtended
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "A list of information suitable for extended input device management."
    AUGMENTS
        { inputDevice }

InputDeviceDimsExtended ::=
    SEQUENCE {
        printableAreaOffsetAcrossFeed
            Integer32,
        printableAreaExtentAcrossFeed
            Integer32,
        printableAreaOffsetInFeed
            Integer32,
        printableAreaExtentInFeed
            Integer32
        }
```

Printable Area Offsets and Extents

The printable area offset and extent values describe how the printable area for a given medium is distributed relative to the surface area of that medium. These values are defined relative to an abstract feeding mechanism, and are independent of the actual medium size. The abstract feeding mechanismis defined according to the standard cartesian coordinate system, such that the origin is placed at the left-most edge of the feeding mechanism when viewed from the head-on direction with the medium positioned in front of it. The x-axis is conincident with the across-feed dimensions, and the y-axis is coincident with the in-feed dimentions. All valid dimensions are always 0 or positive (this is achieved by viewing the coordinate system with the origin positioned as defined, but looking at the progression of values along the y-axis from the bottom surface of the medium when positioned relative to the abstract feeding mechanism). The goal of this definition is to decouple the values as much as possible from the physical medium itself, and to assure consistent interpretation independent of other, possibly conflicting coordinate systems associated with the printing process (e.g. PDL coordinate systems).

printableAreaOffsetAcrossFeed OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides the offset value from the edge of the medium as aligned with the origin of the input feeding device, to the edge of the printable area on the medium surface. The direction of the offset is across the feeding device, and is interpreted according to the current inputDimsUnits. The value (-1) means *other* and specifically indicates that the device places no restrictions on this parameter. The value (-2) means*unknown*."

printableAreaExtentAcrossFeed OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides the extent value of the printable area. The extent value is aligned with the printable area offset value in the same axis, and starts at the coordinate indicated by the offset value. The direction of the extent is across the feeding device, and is interpreted according to the current inputDimsUnits. The value (-1) means *other* and specifically indicates that the device places no restrictions on this parameter. The value (-2) means*unknown*."

printableAreaOffsetInFeed OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides the offset value from the edge of the medium as aligned with the origin of the input feeding device, to the edge of the printable area on the medium surface. The direction of the offset is perpendicular to the edge of the feeding device associated with the across feed direction,
and is interpreted according to the current inputDimsUnits. The value (-1) means *other* and specifically indicates that the device places no restrictions on this parameter. The value (-2) means*unknown*."

printableAreaExtentInFeed OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides the extent value of the printable area. The extent value is aligned with the printable area offset value in the same axis, and starts at the coordinate indicated by the offset value. The direction of the extent is perpendicular to the edge of the feeding device associated with the across feed direction, and is interpreted according to the current inputDimsUnits.
The value (-1) means *other* and specifically indicates that the device places no restrictions on this parameter. The value (-2) means*unknown.*"

Medium Resource Class

The Medium Resource class supports identification of media installed or available for use on a printing device. Medium resources are identified by name, and include a collection of characteristic attributes that may further be used for selection and management of them. The Medium Resource class is conceptually built in the form of an SNMP "AUGMENTS" construction off of the InputDevice table. In this manner, a minimally conforming implementation may choose to not support reporting of media resources if it cannot do so.

The Medium Resource Class is separated into two levels of support, a *basic* set and a more comprehensive *extended* set. In practice, implementors will choose between one of the two sets, since they both AUGMENT the InputDevice table similarly and are differentiated only by the collection of objects accessible through them. That is, the *extended* version of the Medium Resource Class does not augment the *basic* version. Rather, the two definitons overlap and simply represent different levels of support suitable to the goals of different products and the markets that they serve.

mediumResourceBasic OBJECT-TYPE
    SYNTAX MediumResourceBasic
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "A list of medium resources capable of heing provided by the associated input device."
    AUGMENTS
        { inputDevice }

MediumResourceBasic ::=
    SEQUENCE {
        mediumName
            DisplayString (SIZE (0 .. 255)),
        mediumSizeEnumerated
            INTEGER
    }

mediumResourceExtended OBJECT-TYPE
    SYNTAX MediumResourceBasic
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "A list of medium resources capable of heing provided by the associated input device."
    AUGMENTS
        { inputDevice }

MediumResourceExtended ::=
SEQUENCE {
mediumName
DisplayString (SIZE (0 .. 255)),
mediumSizeEnumerated
INTEGER,
mediumDimsUnits
INTEGER,
mediumSizeAcrossFeedDirection
Integer32,
mediumSizeInFeedDirection
Integer32,
mediumWeight
Integer32,
mediumType
DisplayString (SIZE (0 .. 255)),
mediumColor
DisplayString (SIZE (0 .. 255)),
mediumFormParts
INTEGER
}

mediumName OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object identifies the name of the medium associated with the input device"

mediumSizeEnumerated OBJECT-TYPE
SYNTAX INTEGER {
-- the enumeration values for media size are based on the standard ISO, JIS,
-- and North American medium size identifiers; these values are conveniently
-- defined in both the ISO10175 specification, and the NPA Printing Protocol
-- specification, and are not duplicated in this proposal
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object identifies the standard size of the medium associated with the input device"

mediumDimsUnits OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
inches-.001 (3),
millimeters-.01 (4)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object provides a technology-independent means for medium specifications to identify the units of measurement for use in calculating and relaying dimensional values."

mediumSizeAcrossFeedDirection OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object identifies the size of the medium for measurements taken ninety degrees relative to the feeding mechanism path of the associated input device. The value is interpreted relative to the value of the mediumDimsUnits object. The value (-1) means *other* and specifically indicates that the device places no restrictions on this parameter. The value (-2) means*unknown*."

mediumSizeInFeedDirection OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object identifies the size of the medium for measurements taken parallel relative to the feeding mechanism path of the associated input device.
The value is interpreted relative to the value of the mediumDimsUnits object. The value (-1) means *other* and specifically indicates that the device places no restrictions on this parameter. The value (-2) means*unknown*."

mediumWeight OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object identifies the weight of the medium in grams / per meter squared The value (-1) means *other* and specifically indicates that the device places no restrictions on this parameter. The value (-2) means*unknown*."

mediumType OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object is a named identifier useful for qualifying the type of the medium
Standard named values for this object include the following:
stationery
transparency
envelope
continuous-long
continuous-short
tab-stock
multi-part-form

other-medium-type
unknown-medium-type

These values are standardized in ISO10175 (DPA) and in ISO10180 (SPDL), and include associated Object Identifer values."

mediumColor OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object is a named identifier useful for qualifying the color of the medium
Standard named values for this object include the following:
white
pink
yellow
buff
goldenrod
blue
green
transparent

other-medium-color
unknown-medium-color

These values are standardized in ISO10175 (DPA) and in ISO10180 (SPDL), and include associated Object Identifer values."

mediumFormParts OBJECT-TYPE
SYNTAX INTEGER
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The number of parts associated with this media if it is a multi-part form. The value (-1) means *other* and specifically indicates that the device places no restrictions on this parameter. The value (-2) means*unknown*."

Output Class

Ouput destinations are managed as a tabular, indexed collection of possible devices capable of receiving media delivered from the printing process. Output destinations typically have a location, a type, an identifier, a set of constraints on possible media sizes and potentially other characteristics, and may be capable of indicating current status or capacity.

Basic Ouput Class

Object definitions specified as part of the Basic Output Class are mandatory for all conforming implementations.

defaultOutputDevice OBJECT-TYPE
SYNTAX INTEGER
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object enables the caller either to interrogate, and optionally, if properly authorized, to set the default output device for the associated printer. The is the value of the corresponding output device's outputDeviceId object value."

outputDeviceTable OBJECT-TYPE
SYNTAX SEQUENCE OF OutputDevice
ACCESS not-accessible
STATUS current
DESCRIPTION
"A list of output devices capable of accepting and delivering printed media from an associated printing process to this printer including information regarding their identity, possible and current configuration, and status."

outputDevice OBJECT-TYPE
SYNTAX OutputDevice
ACCESS not-accessible
STATUS current
DESCRIPTION
"An output device entry in the table of possible output devices supported by this printer."
INDEX { outputDeviceId }

OutputDevice ::=
SEQUENCE {
outputDeviceId
INTEGER,
outputDeviceType
INTEGER,
outputDeviceCapacityUnits
INTEGER,
outputDeviceMaxCapacity
Integer32,
outputDeviceCurrentLevel
Integer32,
outputDeviceState
INTEGER
}

outputDeviceId OBJECT-TYPE
SYNTAX INTEGER
ACCESS read-only
STATUS current
DESCRIPTION
"A unique value used by this printer to identify an associated output device. Although these values may change due to a major reconfiguration of the device (e.g. the addition of new output devices to the printer), values are expected to remain stable across successive printer power cycles."

outputDeviceType OBJECT-TYPE
SYNTAX INTEGER { -- Type 2
other (1),
unknown (2),
removable-bin (3),
unremovable-bin (4),
continuous-roll-device (5),
mailbox (6)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This value indicates the type of technology supported by the output device. Note, the Optional Output Class provides for a descriptor field to further qualify the *other* choice"

outputDeviceCapacityUnits OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
inches-.001 (3),
millimeters-.01 (4)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides a technology-independent means for output devices to identify the units of measurement for use in calculating and relaying capacity values."

outputDeviceMaxCapacity OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The maximum capacity of the output destination in output device capacity units. There is no convention associated with the media itself so this value essentially reflects claimed capacity. This field is read-write in order to allow a management application to request the desired capacity of the output device. The value (-1) means *other* and specifically indicates that the device places no restrictions on this parameter. The value (-2) means *unknown*."

outputDeviceCurrentLevel OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The remaining capacity (100% to 0%) of the possible output destination capacity in output device capacity units."

outputDeviceState OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
ready (3),
busy (4),
needs-attention (5),
unavailable (6),
bin-missing (7),
jammed (8)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This value indicates the current state of the specific output device.

State	Definition
other	the output device state is not described in the set of enumerated values
unknown	the output device state is unknown
ready	the output device is operational and available for all requests
busy	the output device is operational, but is currently occupied with a request for activity
needs-attention	the output device is not currently available to service requests, but it could be made available (brought to the ready state) with possibly some human intervention
unavailable	the output device is unavailable for use (this is the same as "broken" in some other terminologies)
bin-missing	the output device is not currently installed
jammed	the output device is reporting a paper misfeed."

Optional Output Class Specifications

The following optional object definitions may be used by devices to consistently report configuration and status information about a wide variety of common, but optional product capabilities associated with printing output.

Ouput Device Features and Controls

outputDeviceFeatures OBJECT-TYPE
SYNTAX OutputDeviceFeatures
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"The outputDeviceFeatures object extends the basic outputDevice table with standardized and commonly useful, but possibly optional objects not required of a minimally conforming implementation."
AUGMENTS
{ outputDevice }

OutputDeviceFeatures ::=
SEQUENCE {
outputStackingOrder
INTEGER, -- Type 1
outputPageSurfaceDeliveryOrder
INTEGER, -- Type 1
outputBursting
INTEGER, -- Type 1
outputDecollating
INTEGER, -- Type 1
outputPageCollated
INTEGER, -- Type 1
outputJobCollated
INTEGER, -- Type 1
outputOffsetStacking
INTEGER, -- Type 1
outputSlipsheet
INTEGER, -- Type 1
outputDeviceSecurity
INTEGER -- Type 2
}

outputStackingOrder OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
one-to-n (3),
n-to-one (4)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This value of this object indicates the current state of the stacking order for the associated output device. Properly authorized management consoles may be permitted to set the value of this object.

State	Definition
other	the stacking order is not described in the set of enumerated values
unknown	the stacking order is unknown
one-to-n	pages are output in the order in which they are acquired (e.g. first page first, then the second, etc.)
n-to-one	pages are output from last to first (note: this implies that all pages must be acquired before they can be output). "

outputPageSurfaceDeliveryOrder OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
face-up (3),
face-down (4)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This value of this object indicates which reading surface will "up" when pages are delivered to the associated output device (note: interpretation of these values is in general context-dependent based on locale; presentation of these values to an end-user should be normalized to the expectations of the user). Properly authorized management consoles may be permitted to set the value of this object.

State	Definition
other	the stacking order is not described in the set of enumerated values
unknown	the stacking order is unknown
face-up	the stacking order is face-up (also known as recto)
face-down	the stacking order is face-down (also known as verso). "

outputBursting OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
yes (3),
no (4)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"By its presence, this object indicates that the output device supports bursting, and if so, whether the feature is enabled. Bursting is the process by which continuous media is separated into individual sheets, typically by bursting along pre-formred perforations.
Properly authorized management consoles may be permitted to use this value as a control to enable / disable this feature."

outputDecollating OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
yes (3),
no (4)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"By its presence, this object indicates that the output device supports decollating, and if so, whether the feature is enabled. Decollating is the process by which the individual parts within a multi-part form are separated and sorted into separate stacks for each part.
Properly authorized management consoles may be permitted to use this value as a control to enable / disable this feature."

outputPageCollated OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
yes (3),
no (4)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"By its presence, this object indicates that the output device supports page collation, and if so, whether the feature is enabled.
Properly authorized management consoles may be permitted to use this value as a control to enable / disable this feature."

outputJobCollated OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
yes (3),
no (4)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"By its presence, this object indicates that the output device supports job collation, and if so, whether the feature is enabled.
Properly authorized management consoles may be permitted to use this value as a control to enable / disable this feature."

outputOffsetStacking OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
yes (3),
no (4)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"By its presence, this object indicates that the output device supports offset stacking, and if so, whether the feature is enabled.
Properly authorized management consoles may be permitted to use this value as a control to enable / disable this feature."

outputSetSlipsheet OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
yes (3),
no (4)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"By its presence, this object indicates that the output device supports slipsheet insertion between sets, and if so, whether the feature is enabled.
Properly authorized management consoles may be permitted to use this value as a control to enable / disable this feature."

outputDeviceSecurity OBJECT-TYPE
SYNTAX INTEGER { -- Type 2
other (1),
unknown (2),
yes (3),
no (4)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
“Provides a way to determine if the device is considered secure or not.”

Output Device Associated Finishing

Finisher devices are typcially complicated systems and can (or should be) dealt with largely isolated from the “output device.” Since there are so many configuration options for finisher devices (and some of them may indeed be integrated within the output device itself), the question is whether to deal with finishers as part of output device management, or whether to deal with them separately. The merit of separating the two “types” of devices is that it enables greater modularity across the widest variety of interesting configurations, and that is the approach taken in this specification.

A common model for basic management of finisher devices is provided later in this proposal in the Finisher Class section.

outputDeviceAssociatedFinishing OBJECT-TYPE
SYNTAX OutputDeviceAssociatedFinishing
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
“The outputDeviceAssociatedFinisher object extends the basic outputDevice table with standardized and commonly useful, but possibly optional objects not required of a minimally conforming implementation.”
AUGMENTS
{ outputDevice }

OutputDeviceAssociatedFinishing ::=
SEQUENCE {
finishingConfigurationId
INTEGER
}

finishingConfigurationId OBJECT-TYPE
SYNTAX INTEGER
MAX-ACCESS read-write
STATUS current
DESCRIPTION
“The value of this object is the index of the finishing configuration associated with the output device as indicated by the finishingConfiguration table.”

Output Device Type Extensions

These objects extend the basic OutputDevice table with objects suitable for management of more complex printing systems.

outputDeviceTypeExtended OBJECT-TYPE
SYNTAX OutputDeviceTypeExtended
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"The outputDeviceTypeExtended object defines additional, optional type information that is standardized and useful but not required for support by minimally conforming implementations."
AUGMENTS
{ outputDevice }

OutputDeviceTypeExtended ::=
SEQUENCE {
outputDeviceName
DisplayString (SIZE (0 .. 255)),
outputDeviceModel
DisplayString (SIZE (0 .. 255)),
outputDeviceSerialNumber
DisplayString (SIZE (0 .. 255)),
outputDeviceDescriptor
DisplayString (SIZE (0 .. 255))
}

outputDeviceName OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
" The name assigned to this output device."

outputDeviceModel OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
" The model name of this output device."

outputDeviceSerialNumber OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
" The serial number assigned to this output device."

outputDeviceDescriptor OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"A free-form text description of this output device."

outputDeviceDimsExtended OBJECT-TYPE
SYNTAX OutputDeviceDimsExtended
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"A list of information suitable for extended output device management."
AUGMENTS
{ outputDevice }

OutputDeviceDimsExtended ::=
SEQUENCE {
outputDeviceDimsUnits
INTEGER, -- Type 1
outputDeviceCurrentDimsAcrossFeedDirection
Integer32,
outputDeviceCurrentDimsInFeedDirection
Integer32,
outputDeviceMaxDimsAcrossFeedDirection
Integer32,
outputDeviceMaxDimsInFeedDirection
Integer32,
outputDeviceMinDimsAcrossFeedDirection
Integer32,
outputDeviceMinDimsInFeedDirection
Integer32
}

outputDeviceDimsUnits OBJECT-TYPE
SYNTAX INTEGER { -- Type 1
other (1),
unknown (2),
inches-.001 (3),
millimeters-.01 (4)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object provides a technology-independent means for output devices to identify the units of measurement for use in calculating and relaying dimensional values."

outputDeviceCurrentDimsAcrossFeedDirection OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides the value of the current dimensions supported by the output device for measurements taken ninety degrees relative to the feed direction associated with that device."

outputDeviceCurrentDimsInFeedDirection OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides the value of the current dimensions supported by the output device for measurements taken parallel relative to the feed direction associated with that device."

outputDeviceMaxDimsAcrossFeedDirection OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides the value of the maximum dimensions supported by the output device for measurements taken ninety degrees relative to the feed direction associated with that device."

outputDeviceMaxDimsInFeedDirection OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides the value of the maximum dimensions supported by the output device for measurements taken parallel relative to the feed direction associated with that device."

outputDeviceMinDimsAcrossFeedDirection OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides the value of the minimum dimensions supported by the output device for measurements taken ninety degrees relative to the feed direction associated with that device"

outputDeviceMinDimsInFeedDirection OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object provides the value of the minimum dimensions supported by the output device for measurements taken parallel relative to the feed direction associated with that device."

Finisher Class

The Finisher Class is an optional class, and is included in this specification for completeness due to its relationship to the Output Class.

In general, finishers are very complicated devices and their management is a topic suitable for considerable, additional investigation. The goal of this class is therefore *not* to standardize management of arbitrarily complex finishers. Rather, this class only standardizes basic management objects suitable for a very generic abstract finisher. The value of this, is that by defining this basic class we establish the architectural framework for a common approach which can then be augmented as required in a consistent manner by vendors and consortia.

Finishing Configuration

The finishing configuration maintains mappings between configurations of possibly zero or more finishers and zero or more output devices. Each output device may provide a value for the optional column “outputDeviceAssociatedFinishing”. The value in that column is an integer which is the “finishingConfigurationId”. The value for the “finishingConfigurationId” is the index into the “finishingConfigurationTable”.

finishingConfigurationTable OBJECT-TYPE
SYNTAX SEQUENCE OF FinishingConfiguration
ACCESS not-accessible
STATUS current
DESCRIPTION
“A list of finishing configurations associated with zero or more output devices.”

finishingConfiguration OBJECT-TYPE
SYNTAX InputDevice
ACCESS not-accessible
STATUS current
DESCRIPTION
INDEX { finishingConfigurationId)

FinishingConfiguration ::=
SEQUENCE {
finishingConfigurationId -- defined in Output Device Associated Finishing
INTEGER,
stitching
DisplayString (SIZE (0 .. 255)),
folding
DisplayString (SIZE (0 .. 255)),
binding
DisplayString (SIZE (0 .. 255)),
punching
DisplayString (SIZE (0 .. 255)),
trimming
DisplayString (SIZE (0 .. 255)),
inserting
DisplayString (SIZE (0 .. 255))
}

stitching OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"By its presence, this object indicates that the output device supports stapling as a process accessible in the production path associated with it. The value returned by this object is the identifier for the associated finishing device; the value serves as the index for identifying the device in the FinisherDevice table."

folding OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"By its presence, this object indicates that the output device supports folding as a process accessible in the production path associated with it. The value returned by this object is the identifier for the associated finishing device; the value serves as the index for identifying the device in the FinisherDevice table."

binding OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"By its presence, this object indicates that the output device supports binding as a process accessible in the production path associated with it. The value returned by this object is the identifier for the associated finishing device; the value serves as the index for identifying the device in the FinisherDevice table."

punching OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"By its presence, this object indicates that the output device supports punching as a process accessible in the production path associated with it. The value returned by this object is the identifier for the associated finishing device; the value serves as the index for identifying the device in the FinisherDevice table."

trimming OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"By its presence, this object indicates that the output device supports trimming as a process accessible in the production path associated with it. The value returned by this object is the identifier for the associated finishing device; the value serves as the index for identifying the device in the FinisherDevice table."

inserting OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"By its presence, this object indicates that the output device supports inserting as a process accessible in the production path associated with it. The value returned by this object is the identifier for the associated finishing device; the value serves as the index for identifying the device in the FinisherDevice table."

Basic Finisher Class

Object definitions specified as part of the Basic Finisher Class are optional for all conforming implementations.

finisherDeviceTable OBJECT-TYPE
SYNTAX SEQUENCE OF FinisherDevice
ACCESS not-accessible
STATUS current
DESCRIPTION
"A list of finisher devices installed in the current print path."

finisherDevice OBJECT-TYPE
SYNTAX FinisherDevice
ACCESS not-accessible
STATUS current
DESCRIPTION
"A finisher device entry in the table of possible finisher devices supported by this printer."
INDEX { IMPLIED finisherDeviceId }

FinisherDevice ::=
SEQUENCE {
finisherDeviceId
DisplayString (SIZE (0 .. 255)),
finisherDeviceType
DisplayString (SIZE (0 .. 255)),
finisherNamedFinishings
DisplayString (SIZE (0 .. 255)),
finisherConsumableResourceUnits
DisplayString (SIZE (0 .. 255)),
finisherMaxConsumableResourceCapacity
Integer32,
finisherCurrentConsumableResourceCapacity
Integer32,
finisherWasteResourceUnits
DisplayString (SIZE (0 .. 255)),
finisherMaxWasteResourceCapacity
Integer32,
finisherCurrentWasteResourceCapacity
Integer32,
finisherDeviceState
INTEGER
}

finisherDeviceId OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
ACCESS read-only
STATUS current
DESCRIPTION
"A unique value used to identify this finisher device."

finisherDeviceType OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"A unique value used to name the type of finishing performed by this device. Commonly standardized names include:
stitching,
binding,
trimming,
die-cutting,
punching,
perforating,
slitting,
inserting,
covers,
folding
These names are based on ISO10175 (DPA) and ISO10180 (SPDL)."

finisherNamedFinishings OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"A unique value used to identify finishing operations available through this device. Commonly standardized names include:
staple,
staple-top-left,
staple-bottom-left,
staple-top-right,
staple-bottom-right,
saddle-stitch,
edge-stitch,
punch,
cover,
bind
These names are based on ISO10175 (DPA) and ISO10180 (SPDL), and are specified with associated Object Identifiers in those standards."

finisherConsumableResourceUnits OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
ACCESS read-only
STATUS current
DESCRIPTION
"The name of the resource units appropriate to this finisher device and its operation."

finisherMaxConsumableResourceCapacity OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The maximum capacity of the finisher expressed relative to the named finisher units value. This value is particularly suited for providing a gauge that can reflect the current available resource capacity of the finisher."

finisherCurrentConsumableResourceCapacity OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The current capacity of the finisher expressed relative to the named finisher units value. This value is particularly suited for providing a gauge that can reflect the current available resource capacity of the finisher."

finisherWasteResourceUnits OBJECT-TYPE
SYNTAX DisplayString (SIZE (0 .. 255))
ACCESS read-only
STATUS current
DESCRIPTION
"The name of the waste resource units appropriate to this finisher device and its operation."

finisherMaxWasteResourceCapacity OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The maximum waste capacity of the finisher expressed relative to the named finisher units value. This value is particularly suited for providing a gauge that can reflect the current available waste capacity of the finisher."

finisherCurrentWasteResourceCapacity OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The current waste capacity of the finisher expressed relative to the named finisher units value. This value is particularly suited for providing a gauge that can reflect the current available waste capacity of the finisher."

finisherDeviceState OBJECT-TYPE
SYNTAX INTEGER {
ready (1),
busy (2),
on-request (3),
unavailable (4),
selected (5),
jammed (6)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This value indicates the current state of the specific output device.

State	Definition
ready	the finisher device is operational for all requests
busy	the finisher device is operational, but is currently occupied with a request for activity
on-request	the finisher device is not currently available to service requests, but it could be made available (brought to the ready state) with possibly some human intervention
unavailable	the finisher device is unavailable for use (this is the same as "broken" in some other terminologies)
selected	the finisher device is the currently selected device
jammed	the finisher device is reporting a paper misfeed."