Subj: **Five Approved Additional Objects for the Printer MIB**
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This paper contains the updated specifications of the 5 additional objects that the PWG reviewed at its Jan 24-25 meeting for adding to the Printer MIB when the Printer MIB progresses to draft status. Many printers support these features today. We also agreed to specify how phone numbers, fax numbers, and email addresses could be added to the existing **prtGeneralCurrentOperator** and **prtGeneralServicePerson** objects.

The PWG agreements were for a new optional **AuxiliarySheet** group, and addition to the optional **ExtendedInput** group. However, in preparing all these additions to RFC 1759 and discussing it with several implementors, it seemed better to add the 3 new objects dealing with input tray switching and manual tray to a new optional group, rather than adding them to the current **ExtendedInput** group for three reasons:

1. Low end implementations that have manual input trays and/or input tray switching are not likely to want to implement the **ExtendedInput** group (**prtInputName**, **prtInputVendorName**, **prtInputModel**, **prtInputVersion**, **prtInputSerialNumber**, **prtInputDescription**, **prtInputSecurity**)
2. Current implementations of RFC 1759 that implement the optional **ExtendedInput** group (such as the 5si) will still be conforming to the draft Printer MIB, if we put the three new objects into a new optional group, say, InputSwitching group, instead of extending the **ExtendedInput** group.
3. Since the three new objects have to be added to the end of the (Input) table, putting them in a new group, means that *all* the objects in *each* of the groups in the **prtInputTable** have adjacent OID arcs assigned, so that there are not gaps in any group.

So I took the liberty of showing the complete set of changes to the text of RFC 1759 for these objects as follows:

Group	Table	Object
AuxiliarySheet (*new*)	**prtGeneralTable**	**prtGeneralStartupPage**
		prtGeneralBannerPage
InputSwitching (new) ~~**ExtendedInput**~~	**prtInputTable**	**prtInputManualFeedTimeout**
		prtInputAutoSwitch
		prtInputNextIndex

In addition the minutes of the PWG January meeting indicated that **prtInputManualFeedTimeout** needed some clarification which I also added concerning its interaction with the other two objects that deal with switching. Now a manual input

tray time-out can either abort the job or switch to another tray, depending on the values set. See the change history at the end.

Revision marks are used in the remainder of this document to indicate changes to be made to the Printer MIB when it is progressed from proposed status (RFC 1759) to draft status.

1. Additional Textual Conventions

Add the following textual convention up front where the textual conventions are:

```
PrtSupplementaryPageContent ::= TEXTUAL-CONVENTION
    STATUS     current
    DESCRIPTION
        "Supplementary pages are added by the printing system and
        are not part of the actual print job. Examples include
        error pages and banner pages. This textual convention is
        used to specify the information content of these pages."
    SYNTAX     INTEGER {
                   noPage(3),        -- no page will be produced
                   concise(4),       -- content of page is concise
                   verbose(5)        -- content of page is verbose
    }
```

2. Specify syntax for phone numbers, fax, email for ResponsibleParty group

Instead of adding new objects to the **ResponsibleParty** Group, add special syntax to indicate phone numbers, fax, and email that software (either the NMS or the agent) could use to notify the operator or service person. The revision marks indicate the changes from RFC 1759, page 35:

```
-- The Responsible Party group
--
-- This group is optional.  However, to claim conformance to this
-- group, it is necessary to implement every object in the group.

prtGeneralCurrentOperator OBJECT-TYPE
    SYNTAX     OCTET STRING (SIZE(0..127))
    MAX-ACCESS read-write
    STATUS     current
    DESCRIPTION
        "The name of the current human operator responsible for
        operating this printer. It is suggested that this string
        include information that would enable other humans to reach
        the operator, such as a phone number.
        As a convention to facilitate automatic notification of the
        operator by the agent or the network management station,
        the phone number, fax number or email should be placed on a
        separate line starting with ASCII LF (hex 0C) and the ASCII
        text string (without the quotes): 'phone: ', 'fax: ', and
        'email: ', respectively.  Phone numbers may contain spaces
        and parentheses, which shall be ignored, and all the digits
        to reach the organization's outside dial-up lines, if
```

```
        required.  The ASCII comma (hex 23) is used to indicate a
        half second pause."
    ::= { prtGeneralEntry 4 }

prtGeneralServicePerson OBJECT-TYPE
    SYNTAX     OCTET STRING (SIZE(0..127))
    MAX-ACCESS read-write
    STATUS     current
    DESCRIPTION
        "The name of the last human responsible for servicing
        this printer. It is suggested that this string
        include information that would enable other humans to reach
        the service person, such as a phone number.  As a
        convention to facilitate automatic notification of the
        service person by the agent or the network management
        station, the phone number, fax number or email should be
        placed on a separate line starting with ASCII LF (hex 0C)
        and the ASCII text string (without the quotes):
        'phone: ', 'fax: ', and 'email: ', respectively.  Phone
        numbers may contain spaces and parentheses, which shall be
        ignored and all the digits to reach the organization's
        outside dial-up lines, if required.  The ASCII comma
        (hex 2C) is used to indicate a half second pause."
    ::= { prtGeneralEntry 5 }
```

3. Put 2 objects into a *new* optional AuxiliarySheet group.

Put **prtGeneralStartupPage** and **prtGeneralBannerPage** into a *new* **AuxiliarySheet** group and add them to the end of the **prtGeneralTable**.

3.1 Add the 2 objects to the end of prtGeneralTable (extending prtGeneralEntry)

Add **prtGeneralStartupPage** and **prtGeneralBannerPage** columns to the end of the **prtGeneralTable** (extending **prtGeneralEntry**) on page 28:

```
prtGeneralEntry OBJECT-TYPE
    SYNTAX      PrtGeneralEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry exists in this table for each
        device entry in the hostmib device table who's type
        is `printer'"
    INDEX  { hrDeviceIndex }
    ::= { prtGeneralTable 1 }

PrtGeneralEntry ::= SEQUENCE {
    -- Note that not all of the objects in this sequence are in the
    -- general printer group.
    prtGeneralConfigChanges         Counter32,
    prtGeneralCurrentLocalization   Integer32,
    prtGeneralReset                 INTEGER,
    prtGeneralCurrentOperator       OCTET STRING,
```

```
    prtGeneralServicePerson         OCTET STRING,
    prtInputDefaultIndex            Integer32,
    prtOutputDefaultIndex           Integer32,
    prtMarkerDefaultIndex           Integer32,
    prtMediaPathDefaultIndex        Integer32,
    prtConsoleLocalization          Integer32,
    prtConsoleNumberOfDisplayLines  Integer32,
    prtConsoleNumberOfDisplayChars  Integer32,
    prtConsoleDisable               INTEGER,
    prtGeneralStartupPage           PresentOnOff,
    prtGeneralBannerPage            PresentOnOff
}
```

3.2 Put the 2 objects into a new optional AuxiliarySheet group

Add the specifications of a new optional **AuxiliarySheet** group to page 35, so that it is the last group specified as part of the **prtGeneralTable**, just before the start of the **Input** Group:

```
-- The Responsible Party group
--
-- This group is optional.  However, to claim conformance to this
-- group, it is necessary to implement every object in the group.

prtGeneralCurrentOperator OBJECT-TYPE
    SYNTAX     OCTET STRING (SIZE(0..127))
    MAX-ACCESS read-write
    STATUS     current
    DESCRIPTION
        "The name of the current human operator responsible for
        operating this printer. It is suggested that this string
        include information that would enable other humans to reach
        the operator, such as a phone number."
    ::= { prtGeneralEntry 4 }

prtGeneralServicePerson OBJECT-TYPE
    SYNTAX     OCTET STRING (SIZE(0..127))
    MAX-ACCESS read-write
    STATUS     current
    DESCRIPTION
        "The name of the last human responsible for servicing
        this printer. It is suggested that this string
        include information that would enable other humans to reach
        the service person, such as a phone number."
    ::= { prtGeneralEntry 5 }

-- The Auxiliary Sheet group
--
-- The auxiliary sheet group allows the administrator to control
-- the production of auxiliary sheets by the printer.
--
-- This group is optional.  However, to claim conformance to this
```

```
-- group, it is necessary to implement every object in the group.

prtGeneralStartupPage OBJECT-TYPE
        SYNTAX          PresentOnOff
        MAX-ACCESS      read-write
        STATUS          current
        DESCRIPTION
                "Used to enable or disable printing a startup page.
                If enabled, a startup page will be printed shortly
                after power-up when the device is ready.
                Typical startup pages include test patterns and/or
                printer configuration information."
        ::= { prtGeneralEntry 16 }

prtGeneralBannerPage OBJECT-TYPE
        SYNTAX            PresentOnOff
        MAX-ACCESS        read-write
        STATUS            current
        DESCRIPTION
                "Used to enable or disable printing banner pages at
                the beginning of jobs. This is a master switch
                which applies to all jobs, regardless of
                interpreter."
        ::= { prtGeneralEntry 17 }


-- The Input Group
--
-- Input sub-units are managed as a tabular, indexed collection of
-- possible devices capable of providing media for input to the printing
-- process.  Input sub-units 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.
--
-- Implementation of every object in this group is mandatory.


prtInput   OBJECT IDENTIFIER ::= { printmib 8 }
```

3.3 Add the new prtAuxiliarySheetGroup to the list of optional groups

Add **prtAuxiliarySheetGroup** to the list of optional groups on page 93:

```
    -- the prtResponsiblePartyGroup, prtExtendedInputGroup,
    -- prtInputMediaGroup, prtExtendedOutputGroup,
    -- prtOutputDimensionsGroup, prtOutputFeaturesGroup,
    -- prtMarkerSuppliesGroup, prtMarkerColorantGroup,
    -- and the prtAlertTimeGroup, and the prtAuxiliarySheetGroup
    -- are completely optional.
    ::= { prtMIBConformance 1 }
```

3.4 Specify the conformance macro for the prtAuxiliarySheetGroup

Add the specification of the new prtAuxiliarySheetGroup to page 97 where it becomes the new last group to have its conformance specified:

```
prtAlertTimeGroup OBJECT-GROUP
    OBJECTS { prtAlertTime }
    STATUS  current
    DESCRIPTION
        "The alert time group."
    ::= { prtMIBGroups 18 }

prtAuxiliarySheetGroup OBJECT-GROUP
    OBJECTS { prtGeneralStartupPage, prtGeneralBannerPage }
    STATUS  current
    DESCRIPTION
        "The auxiliary sheet group."
    ::= { prtMIBGroups 19 }


END
```

4. Put 3 objects into a *new* optional InputSwitching group

Put **prtInputManualFeedTimeout**, **prtInputAutoSwitch**, and **prtInputNextIndex** into a *new* **prtInputSwitchingGroup** and add them to the end of the **prtInputTable.**

4.1 Add the 3 objects to the end of prtInputTable (extending prtInputEntry)

Add **prtInputManualFeedTimeout**, **prtInputAutoSwitch**, and **prtInputNextIndex** columns to the end of the **prtInputTable** (extending **prtInputEntry**) on pages 36-37:

```
prtInputTable OBJECT-TYPE
    SYNTAX     SEQUENCE OF PrtInputEntry
    MAX-ACCESS not-accessible
    STATUS     current
    DESCRIPTION
        "A table of the devices capable of providing media for input
        to the printing process."
    ::= { prtInput 2 }

prtInputEntry OBJECT-TYPE
    SYNTAX     PrtInputEntry
    MAX-ACCESS not-accessible
    STATUS     current
    DESCRIPTION
        "Attributes of a device capable of providing media for input
        to the printing process.
```

```
        Entries may exist in the table for each device
        index whose's device type is `printer'."
    INDEX  { hrDeviceIndex, prtInputIndex }
    ::= { prtInputTable 1 }

PrtInputEntry ::= SEQUENCE {
        prtInputIndex                       Integer32,
        prtInputType                        INTEGER,
        prtInputDimUnit                     MediaUnit,
        prtInputMediaDimFeedDirDeclared     Integer32,
        prtInputMediaDimXFeedDirDeclared    Integer32,
        prtInputMediaDimFeedDirChosen       Integer32,
        prtInputMediaDimXFeedDirChosen      Integer32,
        prtInputCapacityUnit                CapacityUnit,
        prtInputMaxCapacity                 Integer32,
        prtInputCurrentLevel                Integer32,
        prtInputStatus                      SubUnitStatus,
        prtInputMediaName                   OCTET STRING,
        prtInputName                        OCTET STRING,
        prtInputVendorName                  OCTET STRING,
        prtInputModel                       OCTET STRING,
        prtInputVersion                     OCTET STRING,
        prtInputSerialNumber                OCTET STRING,
        prtInputDescription                 OCTET STRING,
        prtInputSecurity                    PresentOnOff,
        prtInputMediaWeight                 Integer32,
        prtInputMediaType                   OCTET STRING,
        prtInputMediaColor                  OCTET STRING,
        prtInputMediaFormParts              Integer32,
        prtInputManualFeedTimeout           Integer32,
        prtInputAutoSwitch                  PresentOnOff,
        prtInputNextIndex                   Integer32
}
```

4.2 Put the 3 objects into a *new* optional prtInputSwitchingGroup

Add the specifications of a new optional **InputSwitching** group to page 44, so that it is the last group specified as part of the **prtInputTable**, just before the start of the **Output** Group:

```
prtInputMediaFormParts OBJECT-TYPE
    SYNTAX     Integer32
    MAX-ACCESS read-write
    STATUS     current
    DESCRIPTION
         "The number of parts associated with the medium
         associated with this input sub-unit if the medium 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."
    ::= { prtInputEntry 23 }
```

```
-- The Input Switching group
--
-- The input switching group allows the administrator to set the manual
-- input subunit timeout for the printer and to control the automatic
-- input subunit switching by the printer when an input subunit becomes
-- empty.
--
-- This group is optional.  However, to claim conformance to this
-- group, it is necessary to implement every object in the group.

prtInputManualFeedTimeout OBJECT-TYPE
        SYNTAX            Integer32
        MAX-ACCESS        read-write
        STATUS            current
        DESCRIPTION
                "The duration in seconds after which the printer
                shall either:
                (a) switch to another input subunit,
                    if the value of prtInputNextIndex is non-zero and
                    prtInputAutoSwitch is on(3)
                or
                (b) abort any job waiting for manually fed input,
                    if the value of prtInputNextIndex is zero or
                    prtInputAutoSwitch is: off(4) or notPresent(5).

                The event which causes the printer to enter the
                waiting state is product specific.
                A value of (-1) implies 'other' or 'infinite'
                or this input subunit doesn't support manual feed
                while a value of (-2) implies 'unknown'."
        ::= { prtInputEntry 24 }

prtInputAutoSwitch OBJECT-TYPE
        SYNTAX            PresentOnOff
        MAX-ACCESS        read-write
        STATUS            current
        DESCRIPTION
                "Indicates the state of the auto input switching
                feature. The value notPresent(5) indicates
                the feature is not currently supported. Exact
                behavior of this feature is product specific."
        ::= { prtInputEntry 25 }

prtInputNextIndex OBJECT-TYPE
        SYNTAX          Integer32
        MAX-ACCESS      read-write
        STATUS          current
        DESCRIPTION
                "The value of prtInputIndex corresponding to the
                input subunit which will be used when this input
                subunit is emptied. A value of zero(0) indicates
                that auto input switching will not occur when
                this input subunit is emptied."
        ::= { prtInputEntry 26 }
```

```
385
386   -- The Output Group
387   --
388   -- Output sub-units are managed as a tabular, indexed collection of
389   -- possible devices capable of receiving media delivered from the
390   -- printing process.  Output sub-units typically have a location,
391   -- a type, an identifier, a set of constraints on possible media
392   -- sizes and potentially other characteristics, and may be capable
393   -- of indicating current status or capacity.
394   --
395   -- Implementation of every object in this group is mandatory.
396
397   prtOutput  OBJECT IDENTIFIER ::= { printmib 9 }
398
399   prtOutputDefaultIndex OBJECT-TYPE
400       SYNTAX     Integer32
401       MAX-ACCESS read-write
402
403
404   Smith, Wright, Hastings, Zilles & Gyllenskog                  [Page 44]
405
406
```

4.3 Add the new group prtInputSwitchingGroup to the list of optional groups

Add **prtInputSwitchingGroup** to the list of optional groups on page 93:

```
407       -- the prtResponsiblePartyGroup, prtExtendedInputGroup,
408       -- prtInputMediaGroup, prtExtendedOutputGroup,
409       -- prtOutputDimensionsGroup, prtOutputFeaturesGroup,
410       -- prtMarkerSuppliesGroup, prtMarkerColorantGroup,
411       -- and the prtAlertTimeGroup, prtAuxiliarySheetGroup, and
412       -- the prtInputSwitchingGroup are completely optional.
413       ::= { prtMIBConformance 1 }
414
```

4.4 Specify the conformance macro for the prtInputSwitchingGroup

Add the specification of the new prtAuxiliarySheetGroup to page 97 where it becomes the new last group to have its conformance specified:

```
415   prtAlertTimeGroup OBJECT-GROUP
416       OBJECTS { prtAlertTime }
417       STATUS  current
418       DESCRIPTION
419           "The alert time group."
420       ::= { prtMIBGroups 18 }
421
422   prtAuxiliarySheetGroup OBJECT-GROUP
423       OBJECTS { prtGeneralStartupPage, prtGeneralBannerPage }
424       STATUS  current
425       DESCRIPTION
426           "The auxiliary sheet group."
427       ::= { prtMIBGroups 19 }
```

```
prtInputSwitchingGroup OBJECT-GROUP
    OBJECTS { prtInputManualFeedTimeout, prtInputAutoSwitch,
              and prtInputNextIndex }
    STATUS  current
    DESCRIPTION
        "The input switching group."
    ::= { prtMIBGroups 20 }


END
```

5. Change History from version 0.1 (1/19/96) to make 0.2 (1/25/96)

1. Added special syntax for phone numbers, fax numbers, and email numbers to **prtGeneralCurrentOperator** and **prtGeneralServicePerson** objects, instead of new objects.
2. Removed the proposed **prtGeneralErrorPage**, since error pages are controlled by the print job submission protocol on a per job basis.
3. Removed the proposed **prtOutputAutoSwitch** and **prtOutputNextIndex** objects, since most printer don't do auto switching of the output bins.
4. Removed the proposed **prtInterpreterDefaultName** interpreter object, since PostScript doesn't have a setable default font, and PCL needs more.
5. Removed the proposed prtInterpreterErrorPageType and prtInterpreterBannerPageType since current practice is not sufficient to justify adding them.
6. Put the **prtInputManualFeedTimeout, prtInputAutoSwitch,** and **prtInputNextIndex** the deal with manual trays and input tray switching into a new **prtInputSwitchingGroup**, instead of adding them to the existing optional **prtExtendedInputGroup**, in order to be upwards compatible with RFC 1759 and allow implementation of the three new objects without requiring implementation of the other objects in the **prtExtendedInputGroup**.
7. Clarified that a manual input feed can use the switch mechanism when the time-out occurs or abort, depending on the value of prtInputAutoSwitch and prtInputNextIndex.
8. Clarified that a prtInputManualFeedTimeout value of other(-1) is the value to be used for input subunits that don't support manual feed.