Extensions for Financial Services (XFS) interface specification
Release 3.20 - Part 18: Item Processing Module Device Class
Interface Programmer’s Reference

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.

The formal process followed by the Workshop in the development of this Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN-CENELEC Management Centre can be held accountable for the technical content of this CEN Workshop Agreement or possible conflicts with standards or legislation.

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Foreword

This CWA is revision 3.20 of the XFS interface specification.

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties on 2011-06-29, the constitution of which was supported by CEN following the public call for participation made on 1998-06-24. 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 3.20.

A list of the individuals and organizations which supported the technical consensus represented by the CEN Workshop Agreement is available to purchasers from the CEN-CENELEC Management Centre. These organizations were drawn from the banking sector. The CEN/ISSS XFS Workshop gathered suppliers as well as banks and other financial service companies.

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 and Scanning 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: Card Dispenser Device Class Interface - Programmer's Reference
Part 17: Barcode Reader Device Class Interface - Programmer's Reference
Part 18: Item Processing Module Device Class Interface - Programmer's Reference
Parts 19 - 28: Reserved for future use.

Parts 29 through 47 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
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
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Part 41: XFS MIB Device Specific Definitions - Cash-In Module Device Class
Part 42: Reserved for future use.
Part 43: XFS MIB Device Specific Definitions - Vendor Dependent Mode Class
Part 44: XFS MIB Application Management
Part 45: XFS MIB Device Specific Definitions - Card Dispenser Device Class
Part 46: XFS MIB Device Specific Definitions - Barcode Reader Device Class
Part 47: XFS MIB Device Specific Definitions - Item Processing Module Device Class
Parts 48 - 60 are reserved for future use.
Part 61: Application Programming Interface (API) - Service Provider Interface (SPI) - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
Part 62: Printer and Scanning Device Class Interface - Migration from Version 3.10 (CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
Part 63: Identification Card Device Class Interface - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
Part 64: Cash Dispenser Device Class Interface - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
Part 65: PIN Keypad Device Class Interface - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
Part 66: Check Reader/Scanner Device Class Interface - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
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Part 68: Text Terminal Unit Device Class Interface - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
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Part 71: Camera Device Class Interface - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
Part 72: Alarm Device Class Interface - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
Part 73: Card Embossing Unit Device Class Interface - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
Part 74: Cash-In Module Device Class Interface - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
Part 75: Card Dispenser Device Class Interface - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
Part 76: Barcode Reader Device Class Interface - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (this CWA) - Programmer's Reference
Part 77: Item Processing Module Device Class Interface - Migration from Version 3.10 (see CWA 15748) to Version 3.20 (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.cen.eu/cen/pages/default.aspx.
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.

The formal process followed by the Workshop in the development of the CEN Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN-CENELEC Management Centre can be held accountable for the technical content of the CEN Workshop Agreement or possible conflict with standards or legislation. This CEN Workshop Agreement can in no way be held as being an official standard developed by CEN and its members.

The final review/endorsement round for this CWA was started on 2011-06-23 and was successfully closed on 2011-07-23. The final text of this CWA was submitted to CEN for publication on 2011-08-26.

This CEN Workshop Agreement is publicly available as a reference document from the National Members of CEN: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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

Revision History:

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.10</td>
<td>November 29, 2007</td>
<td>Initial release.</td>
</tr>
<tr>
<td>3.20</td>
<td>March 2nd, 2011</td>
<td>For a description of changes from version 3.10 to version 3.20 see the IPM 3.20 Migration document.</td>
</tr>
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</table>
1. Introduction

1.1 Background to Release 3.20

The CEN/ISSS XFS Workshop aims to promote a clear and unambiguous specification defining a multi-vendor software interface to financial peripheral devices. The XFS (eXtensions for Financial Services) specifications are developed within the CEN/ISSS (European Committee for Standardization/Information Society Standardization System) Workshop environment. CEN/ISSS Workshops aim to arrive at a European consensus on an issue that can be published as a CEN Workshop Agreement (CWA).

The CEN/ISSS XFS Workshop encourages the participation of both banks and vendors in the deliberations required to create an industry standard. The CEN/ISSS XFS Workshop achieves its goals by focused sub-groups working electronically and meeting quarterly.

Release 3.20 of the XFS specification is based on a C API and is delivered with the continued promise for the protection of technical investment for existing applications. This release of the specification extends the functionality and capabilities of the existing devices covered by the specification, but does not include any new device classes. Notable major enhancements include Mixed Media processing to allow mixed cash and check accepting, as well as the addition of new commands to the CIM, PTR and IDC to allow better support of the Japanese marketplace.

1.2 XFS Service-Specific Programming

The service classes are defined by their service-specific commands and the associated data structures, error codes, messages, etc. These commands are used to request functions that are specific to one or more classes of Service Providers, but not all of them, and therefore are not included in the common API for basic or administration functions.

When a service-specific command is common among two or more classes of Service Providers, the syntax of the command is as similar as possible across all services, since a major objective of XFS is to standardize function codes and structures for the broadest variety of services. For example, using the $WFSEexecute$ function, the commands to read data from various services are as similar as possible to each other in their syntax and data structures.

In general, the specific command set for a service class is defined as a superset of the specific capabilities likely to be provided by the developers of the services of that class; thus any particular device will normally support only a subset of the defined command set.

There are three cases in which a Service Provider may receive a service-specific command that it does not support:

The requested capability is defined for the class of Service Providers by the XFS specification, the particular vendor implementation of that service does not support it, and the unsupported capability is not considered to be fundamental to the service. In this case, the Service Provider returns a successful completion, but does no operation. An example would be a request from an application to turn on a control indicator on a passbook printer; the Service Provider recognizes the command, but since the passbook printer it is managing does not include that indicator, the Service Provider does no operation and returns a successful completion to the application.

The requested capability is defined for the class of Service Providers by the XFS specification, the particular vendor implementation of that service does not support it, and the unsupported capability is considered to be fundamental to the service. In this case, a $WFS_{ERR\_UNSUPP\_COMMAND}$ error is returned to the calling application. An example would be a request from an application to a cash dispenser to dispense coins; the Service Provider recognizes the command but, since the cash dispenser it is managing dispenses only notes, returns this error.

The requested capability is not defined for the class of Service Providers by the XFS specification. In this case, a $WFS_{ERR\_INVALID\_COMMAND}$ error is returned to the calling application.

This design allows implementation of applications that can be used with a range of services that provide differing subsets of the functionalities that are defined for their service class. Applications may use the $WFSGetInfo$ and $WFSAsyncGetInfo$ commands to inquire about the capabilities of the service they are about to use, and modify their behavior accordingly, or they may use functions and then deal with $WFS_{ERR\_UNSUPP\_COMMAND}$ error returns to make decisions as to how to use the service.
2. Item Processing Module

This specification describes the XFS service class for Item Processing Modules (IPM). The specification of this service class includes definitions of the service-specific commands that can be issued, using the WFSAsyncExecute, WFSEexecute, WFSGetInfo and WFSAsyncGetInfo functions.

This service class is currently defined only for self service devices.

In the U.S., checks are always encoded in magnetic ink for reading by Magnetic Ink Character Recognition (MICR), and a single font is always used. In Europe some countries use MICR and some use Optical Character Recognition (OCR) character sets, with different fonts, for their checks.

Item Processing Modules accept one or more media items (Checks, Giros, etc) and process these items according to application requirements. The IPM class supports devices that can handle a single item as well as those devices that can handle bunches of items. The following are the three principle device types:

- Single Item: can accept and process a single item at a time.
- Multi-Item Feed with no stacker (known as an escrow in some environments): can accept a bunch of media from the customer but each item has to be processed fully (i.e. deposited in a bin or returned) before the next item can be processed.
- Multi-Item Feed with a stacker: can accept a bunch of media from the customer and all items can be processed together.

The IPM class provides applications with an interface to control the following functions (depending on the capabilities of the specific underlying device):

- Capture an image of the front of an item in multiple formats and bit depths.
- Capture an image of the back of an item in multiple formats and bit depths.
- Read the code line of an item using MICR reader.
- Read the code line of an item using OCR.
- Endorse (print text) on an item.
- Stamp an item.
- Return an item to the customer.
- Deposit an item in a bin.
- Retract items left by the customer.

The IPM device class uses the concept of a Media-In transaction to track and control a customer’s interaction with the device. A Media-In transaction consists of one or more WFS_CMD_IPM_MEDIA_IN commands. The transaction is initiated by the first WFS_CMD_IPM_MEDIA_IN command and remains active until the transaction is either confirmed through WFS_CMD_IPM MEDIA_IN_END, or terminated by WFS_CMD_IPM_MEDIA_IN_ROLLBACK, WFS_CMD_IPM RETRACT_MEDIA or WFS_CMD_IPM_RESET. While a transaction is active the WFS_INF_IPM_TRANSACTION_STATUS command reports the status of the current transaction. When a transaction is not active the WFS_INF_IPM TRANSACTION_STATUS command reports the status of the last transaction.

There are primarily two types of devices supported by the IPM, those devices with a stacker and those without.
2.1 Devices with a Stacker

On devices with stackers, the IPM device class supports two mechanisms for deciding if physically acceptable items should be accepted onto the stacker or refused:

- The device/Service Provider automatically makes the accept/refuse decision.
- The application controls the accept/refuse decision.

2.1.1 Automatic Accept/Refuse

In summary, the following process is followed (the exact order will depend on application requirements):

1. The application initiates the transaction via the WFS_CMD_IPM.MEDIA_IN command. This command accepts a bunch of media items. The images and code line for every media item accepted is sent to the application before the command completes.

2. The application then asks the customer if they have any more items to process.

3. If the customer has more items to deposit then the WFS_CMD_IPM.MEDIA_IN command is called one or more times to add more items to the stacker.

4. Once the customer has inserted all their bunches of items and they have been added to the stacker the application can process each item and predefine what should happen to each media item during the WFS_CMD_IPM.MEDIA_IN.END command, e.g.:
   a. Define if the item should be stamped and what should be printed on the item (using WFS_CMD_IPM.PRINT.TEXT), set the destination bin (using WFS_CMD_IPM.SET.DESTINATION), and request the item is rescanned after printing (using WFS_CMD_IPM.GET.IMAGE.AFTER_PRINT), or
   b. Define that the item should be returned to the customer (using WFS_CMD_IPM.SET.DESTINATION).

5. When all items have been processed the application calls WFS_CMD_IPM.MEDIA_IN.END to complete the transaction and carry out the predefined actions, e.g. print and deposit some items while returning others.

Note: Before the WFS_CMD_IPM.MEDIA_IN.END command is called, the customer can cancel the transaction at any time and all items are returned to the customer by the application calling WFS_CMD_IPM.ROLLBACK.

2.1.2 Application Controlled Accept/Refuse

In summary, the following process is followed (the exact order will depend on application requirements):

1. The application uses the WFS_CMD_IPM.MEDIA_IN command to accept a bunch of media items (the first use of this command initiates the transaction). The application indicates that it wants to make the accept/refuse decision for each item via an input parameter, and as a result only one item is processed and the code line and images are only produced for a single item.

2. The application processes the item and decides if it should be accepted or refused using the WFS_CMD_IPM.ACCEPT.ITEM command.

3. The application calls WFS_CMD_IPM.GET.NEXT.ITEM to read the next item. If an item is read then the flow continues at step 2. When there are no items left to process the flow continues with the next step.

4. The application can return the refused items to the customer with WFS_CMD_IPM.PRESENT.MEDIA.

5. The application then asks the customer if they have any more items to process or wish to re-insert the refused items after correcting the issue causing the refusal.

6. If the customer has more items to deposit then flow continues at step 1, otherwise the flow continues at the next step.

7. Once the customer has inserted all their bunches of items and they have been added to the stacker the application can process each item and predefine what should happen to each media item during the WFS_CMD_IPM.MEDIA_IN.END command, e.g.:
a. Define if the item should be stamped and what should be printed on the item (using WFS_CMD_IPM_PRINT_TEXT), set the destination bin (using WFS_CMD_IPM_SET_DESTINATION), and request the item is rescanned after printing (using WFS_CMD_IPM_GET_IMAGE_AFTER_PRINT), or

b. Define that the item should be returned to the customer (using WFS_CMD_IPM_SET_DESTINATION).

8. When all items have been processed the application calls WFS_CMD_IPM_MEDIA_IN_END to complete the transaction and carry out the predefined actions, e.g. print and deposit some items while returning others.

Note: Before the WFS_CMD_IPM_MEDIA_IN_END command is called, the customer can cancel the transaction at any time and all items are returned to the customer by the application calling WFS_CMD_IPM_ROLLBACK.
2.2 **Device without a Stacker**

Devices without a stacker fall into two categories those with a multi-item feed unit and those without. Both of these types of devices can be handled by the same application flow, however they are both documented below for clarity.

### 2.2.1 Multi-Feed Devices without a Stacker

In summary, the following process is followed (the exact order will depend on application requirements):

1. The application uses the WFS_CMD_IPM_MEDIA_IN command to accept a bunch of media items (the first use of this command initiates the transaction). However as there is no stacker only one item is processed and the code line and images are only produced for a single item.

2. The application processes the item and decides what should be done to the item, e.g.:
   a. Define if the item should be stamped and what should be printed on the item (using WFS_CMD_IPM_PRINT_TEXT), set the destination bin (using WFS_CMD_IPM_SET_DESTINATION), and request the item is rescanned after printing (using WFS_CMD_IPM_GET_IMAGE_AFTER_PRINT), or
   b. Define that the item should be returned to the customer (using WFS_CMD_IPM_SET_DESTINATION).

3. The application calls WFS_CMD_IPM_ACTION_ITEM to have the predefined actions executed.

4. The application calls WFS_CMD_IPM_GET_NEXT_ITEM to read the next item. If an item is read then the flow continues at step 2. When there are not items left to process the flow continues with the next step.

5. The application then asks the customer if they have any more items to process.

6. If the customer has more items to deposit then flow continues at step 1.

7. When the customer is finished the application calls WFS_CMD_IPM_MEDIA_IN_END to terminate the transaction.

### 2.2.2 Single-Feed Devices

In summary, the following process is followed:

1. The application initiates the transaction via the WFS_CMD_IPM_MEDIA_IN command. This command accepts a single item and produces the image and code line.

2. The application processes the item and decides what should be done to the item, e.g.:
   a. Define if the item should be stamped and what should be printed on the item (using WFS_CMD_IPM_PRINT_TEXT), set the destination bin (using WFS_CMD_IPM_SET_DESTINATION), and request the item is rescanned after printing (using WFS_CMD_IPM_GET_IMAGE_AFTER_PRINT), or
   b. Define that the item should be returned to the customer (using WFS_CMD_IPM_SET_DESTINATION).

3. The application calls WFS_CMD_IPM_ACTION_ITEM to have the predefined actions executed.

4. The application optionally calls WFS_CMD_IPM_GET_NEXT_ITEM to have a single flow for devices with multi-feed and without. The flow continues with the next step.

5. The application then asks the customer if they have any more items to process.

6. If the customer has more items to deposit then flow continues at step 1.

7. When the customer is finished the application calls WFS_CMD_IPM_MEDIA_IN_END to terminate the transaction.
## References

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>XFS Application Programming Interface (API)/Service Provider Interface (SPI), Programmer’s Reference Revision 3.20</td>
</tr>
<tr>
<td>2.</td>
<td>Extensions for Financial Services (XFS) interface specification, Release 3.20, Part 15: Cash-In Module, Device Class Interface, Programmer's Reference</td>
</tr>
</tbody>
</table>
4. Info Commands

4.1 WFS_INF_IPM_STATUS

Description
This command is used to request status information for the device.

Input Param
None.

Output Param
LPWFSIPMSTATUS lpStatus;

typedef struct _wfs_ipm_status
{
    WORD    fwDevice;
    WORD    wAcceptor;
    WORD    wMedia;
    WORD    wToner;
    WORD    wInk;
    WORD    wFrontImageScanner;
    WORD    wBackImageScanner;
    WORD    wMICRReader;
    WORD    wStacker;
    WORD    wReBuncher;
    WORD    wMediaFeeder;
    LPWFSIPMPOS  *lppPositions;
    DWORD    dwGuidLights[WFS_IPM_GUIDLIGHTS_SIZE];
    LPSTR    lpszExtra;
    WORD    wDevicePosition;
    USHORT   usPowerSaveRecoveryTime;
    WORD    wMixedMode;
    WORD    wAntiFraudModule;
} WFSIPMSTATUS, *LPWFSIPMSTATUS;

fwDevice
Specifies the state of the IPM. However, an fwDevice status of WFS_IPM_DEVONLINE does not necessarily imply that accepting can take place: the value of wAcceptor field must be taken into account. The state of the device will be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_DEVONLINE</td>
<td>The device is online (i.e. powered on and operable).</td>
</tr>
<tr>
<td>WFS_IPM_DEVOFFLINE</td>
<td>The device is offline (e.g. the operator has taken the device offline by turning a switch or pulling out the device).</td>
</tr>
<tr>
<td>WFS_IPM_DEVPOWEROFF</td>
<td>The device is powered off or physically not connected.</td>
</tr>
<tr>
<td>WFS_IPM_DEVNODEVICE</td>
<td>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.</td>
</tr>
<tr>
<td>WFS_IPM_DEVHWERROR</td>
<td>The device is inoperable due to a hardware error.</td>
</tr>
<tr>
<td>WFS_IPM_DEVUSERERROR</td>
<td>The device is present but a person is preventing proper device operation.</td>
</tr>
<tr>
<td>WFS_IPM_DEVBUSY</td>
<td>The device is busy and unable to process an execute command at this time.</td>
</tr>
<tr>
<td>WFS_IPM.DEVFRAUDATTEMPT</td>
<td>The device is present but is inoperable because it has detected a fraud attempt.</td>
</tr>
<tr>
<td>WFS_IPM.DEVPOTENTIALFRAUD</td>
<td>The device has detected a potential fraud attempt and is capable of remaining in service. In this case the application should make the decision as to whether to take the device offline.</td>
</tr>
</tbody>
</table>

wAcceptor
Supplies the state of the overall acceptor media bins as one of the following values:
<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_ACCBINOK</td>
<td>All media bins present are in a good state.</td>
</tr>
<tr>
<td>WFS_IPM_ACCBINSTATE</td>
<td>One or more of the media bins is in a high, full or inoperative condition. Items can still be accepted into at least one of the media bins. The status of the bins can be obtained through the WFS_INF_IPM_MEDIA_BIN_INFO command.</td>
</tr>
<tr>
<td>WFS_IPM_ACCBINSTOP</td>
<td>Due to a media bin problem accepting is impossible. No items can be accepted because all of the media bins are in a full or in an inoperative condition.</td>
</tr>
<tr>
<td>WFS_IPM_ACCBINUNKNOWN</td>
<td>Due to a hardware error or other condition, the state of the media bins cannot be determined.</td>
</tr>
</tbody>
</table>

**wMedia**

Specifies the state of the media as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_MEDIAPRESENT</td>
<td>Media is present in the device.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIANOTPRESENT</td>
<td>Media is not present in the device.</td>
</tr>
<tr>
<td>WFS_IPM.MEDIAJAMMED</td>
<td>Media is jammed in the device.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIANOTSUPP</td>
<td>The capability to report the state of the media is not supported by the device.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIAUNKNOWN</td>
<td>The state of the media cannot be determined with the device in its current state.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIAPOSITION</td>
<td>Media is at one or more of the input, output and refused positions.</td>
</tr>
</tbody>
</table>

**wToner**

Specifies the state of the toner or ink supply or the state of the ribbon of the endorser as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_TONERFULL</td>
<td>The toner or ink supply is full or the ribbon is OK.</td>
</tr>
<tr>
<td>WFS_IPM_TONERLOW</td>
<td>The toner or ink supply is low or the print contrast with a ribbon is weak.</td>
</tr>
<tr>
<td>WFS_IPM_TONEROUT</td>
<td>The toner or ink supply is empty or the print contrast with a ribbon is not sufficient any more.</td>
</tr>
<tr>
<td>WFS_IPM_TONERNOTSUPP</td>
<td>The physical device does not support endorsing or the capability to report the status of the toner/ink is not supported by the device.</td>
</tr>
<tr>
<td>WFS_IPM_TONERUNKNOWN</td>
<td>Status of toner or ink supply or the ribbon cannot be determined with the device in its current state.</td>
</tr>
</tbody>
</table>

**wInk**

Specifies the status of the stamping ink in the device as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_INKFULL</td>
<td>Ink supply in the device is full.</td>
</tr>
<tr>
<td>WFS_IPM_INKLOW</td>
<td>Ink supply in the device is low.</td>
</tr>
<tr>
<td>WFS_IPM_INKOUT</td>
<td>Ink supply in the device is empty.</td>
</tr>
<tr>
<td>WFS_IPM_INKNOTSUPP</td>
<td>The physical device does not support stamping or the capability to report the status of the stamp ink supply is not supported by the device.</td>
</tr>
</tbody>
</table>
WFS_IPM_INKUNKNOWN

Status of the stamping ink supply cannot be determined with the device in its current state.

\textit{wFrontImageScanner}

Specifies the status of the image scanner that captures images of the front of the media items. This value can be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SCANNEROK</td>
<td>The front scanner is OK.</td>
</tr>
<tr>
<td>WFS_IPM_SCANNERFADING</td>
<td>The front scanner performance is degraded.</td>
</tr>
<tr>
<td>WFS_IPM_SCANNERINOP</td>
<td>The front scanner is inoperative.</td>
</tr>
<tr>
<td>WFS_IPM_SCANNERNOTSUPP</td>
<td>The physical device has no front scanner or the capability to report the status of the front scanner is not supported by the device.</td>
</tr>
<tr>
<td>WFS_IPM_SCANNERUNKNOWN</td>
<td>Status of the front scanner cannot be determined with the device in its current state.</td>
</tr>
</tbody>
</table>

\textit{wBackImageScanner}

Specifies the status of the image scanner that captures images of the back of the media items. This value can be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SCANNEROK</td>
<td>The back scanner is OK.</td>
</tr>
<tr>
<td>WFS_IPM_SCANNERFADING</td>
<td>The back scanner performance is degraded.</td>
</tr>
<tr>
<td>WFS_IPM_SCANNERINOP</td>
<td>The back scanner is inoperative.</td>
</tr>
<tr>
<td>WFS_IPM_SCANNERNOTSUPP</td>
<td>The physical device has no back scanner or the capability to report the status of the back scanner is not supported by the device.</td>
</tr>
<tr>
<td>WFS_IPM_SCANNERUNKNOWN</td>
<td>Status of the back scanner cannot be determined with the device in its current state.</td>
</tr>
</tbody>
</table>

\textit{wMICRReader}

Specifies the status of the MICR code line reader as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_MICROK</td>
<td>The MICR code line reader is OK.</td>
</tr>
<tr>
<td>WFS_IPM_MICRFADING</td>
<td>The MICR code line reader performance is degraded.</td>
</tr>
<tr>
<td>WFS_IPM_MICRINOP</td>
<td>The MICR code line reader is inoperative.</td>
</tr>
<tr>
<td>WFS_IPM_MICRNOTSUPP</td>
<td>The physical device has no MICR code line reader or the capability to report the status of the MICR code line reader is not supported by the device.</td>
</tr>
<tr>
<td>WFS_IPM_MICRUNKNOWN</td>
<td>Status of the MICR code line reader cannot be determined with the device in its current state.</td>
</tr>
</tbody>
</table>

\textit{wStacker}

Supplies the state of the stacker (also known as an escrow). The stacker is where the media items are held while the application decides what to do with them. This field can be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_STACKEREMPTY</td>
<td>The stacker is empty.</td>
</tr>
<tr>
<td>WFS_IPM_STACKERNOTEMPTY</td>
<td>The stacker is not empty.</td>
</tr>
<tr>
<td>WFS_IPM_STACKERFULL</td>
<td>The stacker is full. This state is set if the number of media items on the stacker has reached \texttt{usMaxMediaOnStacker} or some physical limit has been reached.</td>
</tr>
<tr>
<td>WFS_IPM_STACKERINOP</td>
<td>The stacker is inoperative.</td>
</tr>
<tr>
<td>WFS_IPM_STACKERUNKNOWN</td>
<td>Due to a hardware error or other condition, the state of the stacker cannot be determined.</td>
</tr>
</tbody>
</table>
WFS_IPM_STACKERNOTSUPP  The physical device has no stacker or the capability to report the status of the stacker is not supported by the device.

wReBuncher
Supplies the state of the re-buncher (return stacker). The re-buncher is where media items are re-bunched ready for return to the customer. This field can be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_REBUNCHEREMPTY</td>
<td>The re-buncher is empty.</td>
</tr>
<tr>
<td>WFS_IPM_REBUNCHERNOTEMPTY</td>
<td>The re-buncher is not empty.</td>
</tr>
<tr>
<td>WFS_IPM_REBUNCHERFULL</td>
<td>The re-buncher is full. This state is set if the number of media items on the re-buncher has reached its physical limit.</td>
</tr>
<tr>
<td>WFS_IPM_REBUNCHERINOP</td>
<td>The re-buncher is inoperative.</td>
</tr>
<tr>
<td>WFS_IPM_REBUNCHERUNKNOWN</td>
<td>Due to a hardware error or other condition, the state of the re-buncher cannot be determined.</td>
</tr>
<tr>
<td>WFS_IPM_REBUNCHERNOTSUPP</td>
<td>The physical device has no re-buncher or the capability to report the status of the re-buncher is not supported by the device.</td>
</tr>
</tbody>
</table>

wMediaFeeder
Supplies the state of the media feeder. This value can be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_FEEDEREMPTY</td>
<td>The media feeder is empty.</td>
</tr>
<tr>
<td>WFS_IPM_FEEDERNOTEMPTY</td>
<td>The media feeder is not empty.</td>
</tr>
<tr>
<td>WFS_IPM_FEEDERINOP</td>
<td>The media feeder is inoperative.</td>
</tr>
<tr>
<td>WFS_IPM_FEEDERUNKNOWN</td>
<td>Due to a hardware error or other condition, the state of the media feeder cannot be determined.</td>
</tr>
<tr>
<td>WFS_IPM_FEEDERNOTSUPP</td>
<td>The physical device has no media feeder or the capability to report the status of the media feeder is not supported by the device.</td>
</tr>
</tbody>
</table>

lppPositions
Pointer to a NULL-terminated array of pointers to WFSIPMPOS structures. There is one for each of the three logical position types.

lppPositions [WFS_IPM_POSINPUT]
Points to a WFSIPMPOS structure that specifies the status of the input position. This pointer must not be NULL.

lppPositions [WFS_IPM_POSOUTPUT]
Points to a WFSIPMPOS structure that specifies the status of the output position. This pointer must not be NULL.

lppPositions [WFS_IPM_POSREFUSED]
Points to a WFSIPMPOS structure that specifies the status of the refused position. This pointer must not be NULL.

```c
typedef struct _wfs_ipm_pos
{
    WORD    wShutter;
    WORD    wPositionStatus;
    WORD    wTransport;
    WORD    wTransportMediaStatus;
} WFSIPMPOS, *LPWFSIPMPOS;
```

wShutter
Specifies the state of the shutter as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SHTCLOSED</td>
<td>The shutter is closed.</td>
</tr>
<tr>
<td>WFS_IPM_SHTOPEN</td>
<td>The shutter is open.</td>
</tr>
<tr>
<td>WFS_IPM_SHTJAMMED</td>
<td>The shutter is jammed.</td>
</tr>
</tbody>
</table>
WFS_IPM_SHTUNKNOWN
Due to a hardware error or other condition, the state of the shutter cannot be determined.

WFS_IPM_SHTNOTSUPPORTED
The physical device has no shutter or shutter state reporting is not supported.

wPositionStatus
The status of the input or output position as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_PSEMPTY</td>
<td>The position is empty.</td>
</tr>
<tr>
<td>WFS_IPM_PSNOTEMPTY</td>
<td>The position is not empty.</td>
</tr>
<tr>
<td>WFS_IPM_PSUNKNOWN</td>
<td>Due to a hardware error or other condition, the state of the position cannot be determined.</td>
</tr>
<tr>
<td>WFS_IPM_PSNOTSUPPORTED</td>
<td>The device is not capable of reporting whether or not items are at the position.</td>
</tr>
</tbody>
</table>

wTransport
Specifies the state of the transport mechanism as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_TPOK</td>
<td>The transport is in a good state.</td>
</tr>
<tr>
<td>WFS_IPM_TPINOP</td>
<td>The transport is inoperative due to a hardware failure or media jam.</td>
</tr>
<tr>
<td>WFS_IPM_TPUNKNOWN</td>
<td>Due to a hardware error or other condition, the state of the transport cannot be determined.</td>
</tr>
<tr>
<td>WFS_IPM_TPNOT_SUPPORTED</td>
<td>The physical device has no transport or transport state reporting is not supported.</td>
</tr>
</tbody>
</table>

wTransportMediaStatus
Returns information regarding items which may be present on the transport as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_TPMEDIAEMPTY</td>
<td>The transport is empty.</td>
</tr>
<tr>
<td>WFS_IPM_TPMEDIANOTEMPTY</td>
<td>The transport is not empty.</td>
</tr>
<tr>
<td>WFS_IPM_TPMEDIAUNKNOWN</td>
<td>Due to a hardware error or other condition it is not known whether there are items on the transport.</td>
</tr>
<tr>
<td>WFS_IPM_TPMEDIANOT_SUPPORTED</td>
<td>The device is not capable of reporting whether or not items are on the transport.</td>
</tr>
</tbody>
</table>

dwGuidLights [...] Specifies the state of the guidance light indicators. A number of guidance light types are defined below. Vendor specific guidance lights are defined starting from the end of the array. The maximum guidance light index is WFS_IPM_GUIDLIGHTS_MAX.

Specifies the state of the guidance light indicator as WFS_IPM_GUIDANCE_NOT_AVAILABLE, WFS_IPM_GUIDANCE_OFF or a combination of the following flags consisting of one type B, and optionally one type C.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_GUIDANCE_NOT_AVAILABLE</td>
<td>The status is not available.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_OFF</td>
<td>The light is turned off.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_SLOW_FLASH</td>
<td>The light is blinking slowly.</td>
<td>B</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_MEDIUM_FLASH</td>
<td>The light is blinking medium frequency.</td>
<td>B</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_QUICK_FLASH</td>
<td>The light is blinking quickly.</td>
<td>B</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_CONTINUOUS</td>
<td>The light is turned on continuous (steady).</td>
<td>B</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_RED</td>
<td>The light is red.</td>
<td>C</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_GREEN</td>
<td>The light is green.</td>
<td>C</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_YELLOW</td>
<td>The light is yellow.</td>
<td>C</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_BLUE</td>
<td>The light is blue.</td>
<td>C</td>
</tr>
</tbody>
</table>
WFS_IPM_GUIDANCE_CYAN The light is cyan. C
WFS_IPM_GUIDANCE_MAGENTA The light is magenta. C
WFS_IPM_GUIDANCE_WHITE The light is white. C

dwGuidLights [WFS_IPM_GUIDANCE_MEDIAIN]
Specifies the state of the guidance light indicator on the bunch media in position.

dwGuidLights [WFS_IPM_GUIDANCE_MEDIAOUT]
Specifies the state of the guidance light indicator on the bunch media out position.

dwGuidLights [WFS_IPM_GUIDANCE_MEDIAREFUSED]
Specifies the state of the guidance light indicator on the bunch media refused position.

lpszExtra
Pointer to a list of vendor-specific, or any other extended, information. The information is
returned as a series of “key=value” strings so that it is easily extensible by Service Providers.
Each string is null-terminated, with the final string terminating with two null characters. An
empty list may be indicated by either a NULL pointer or a pointer to two consecutive null
characters.

wDevicePosition
Specifies the device position. The device position value is independent of the fwDevice value, e.g.
when the device position is reported as WFS_IPM_DEVICENOTINPOSITION, fwDevice can
have any of the values defined above (including WFS_IPM_DEVONLINE or
WFS_IPM_DEVOFFLINE). If the device is not in its normal operating position (i.e.
WFS_IPM_DEVICEINPOSITION) then media may not be presented through the normal
customer interface. This value is one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_DEVICEINPOSITION</td>
<td>The device is in its normal operating position, or is fixed in place and cannot be moved.</td>
</tr>
<tr>
<td>WFS_IPM_DEVICENOTINPOSITION</td>
<td>The device has been removed from its normal operating position.</td>
</tr>
<tr>
<td>WFS_IPM_DEVICEPOSUNKNOWN</td>
<td>Due to a hardware error or other condition, the position of the device cannot be determined.</td>
</tr>
<tr>
<td>WFS_IPM_DEVICEPOSNOTSUPP</td>
<td>The physical device does not have the capability of detecting the position.</td>
</tr>
</tbody>
</table>

usPowerSaveRecoveryTime
Specifies the actual number of seconds required by the device to resume its normal operational
state from the current power saving mode. This value is zero if either the power saving mode has
not been activated or no power save control is supported.

wMixedMode
Reports if Mixed Media mode is active. See the WFS_CMD_IPM_SET_MODE command for a
description of the modes. This flag can also be set/reset by the command
WFS_CMD_CIM_SET_MODE on the CIM interface. This value is one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_MIXEDMEDIANOTACTIVE</td>
<td>Mixed media transactions are not supported by the device or Mixed Media mode is not activated.</td>
</tr>
<tr>
<td>WFS_IPM_CIMMIXEDMEDIA</td>
<td>Mixed Media mode using the CIM and IPM interfaces is activated.</td>
</tr>
</tbody>
</table>

wAntiFraudModule
Specifies the state of the anti-fraud module as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_AFMNOTSUPP</td>
<td>No anti-fraud module is available.</td>
</tr>
<tr>
<td>WFS_IPM_AFMOOK</td>
<td>Anti-fraud module is in a good state and no foreign device is detected.</td>
</tr>
<tr>
<td>WFS_IPM_AFMINOP</td>
<td>Anti-fraud module is inoperable.</td>
</tr>
<tr>
<td>WFS_IPM_AFMDVDETECTED</td>
<td>Anti-fraud module detected the presence of a foreign device.</td>
</tr>
</tbody>
</table>
WFS_IPM_AFMUNKNOWN The state of the anti-fraud module cannot be determined.

Error Codes
Only the generic error codes defined in [Ref. 1] can be generated by this command.

Comments
Applications which require or expect specific information to be present in the lpszExtra field may not be device or vendor-independent.

In the case where communications with the device has been lost, the fwDevice field will report WFS_IPM_DEVPOWEROFF when the device has been removed or WFS_IPM_DEVHWERROR if the communications are unexpectedly lost. All other fields should contain a value based on the following rules and priority:

1. Report the value as unknown.
2. Report the value as a general h/w error.
3. Report the value as the last known value.
4.2 WFS_INF_IPM_CAPABILITIES

**Description**
This command is used to request device capability information.

**Input Param**
None.

**Output Param**
LPWFSIPMCAPS lpCaps;

```c
typedef struct _wfs_ipm_caps {
    WORD wClass;
    WORD fwType;
    BOOL bCompound;
    USHORT usMaxMediaOnStacker;
    LPWFSIPMPRINTSIZE lpPrintSize;
    BOOL bStamp;
    BOOL bRescan;
    BOOL bPresentControl;
    BOOL bApplicationRefuse;
    WORD fwRetractLocation;
    WORD bRetractCountsItems;
    WORD fwImageType;
    WORD fwFrontImageColorFormat;
    WORD fwBackImageColorFormat;
    WORD wDefaultFrontScanColor;
    WORD fwBackScanColor;
    WORD wDefaultBackScanColor;
    WORD fwCodelineFormat;
    WORD fwDataSource;
    WORD fwInsertOrientation;
    LPWFSIPMPOSCAPS *lppPositions;
    DWORD dwGuidLights[WFS_IPM_GUIDLIGHTS_SIZE];
    LPSTR lpszExtra;
    BOOL bPowerSaveControl;
    BOOL bImageAfterEndorse;
    WORD fwReturnedItemsProcessing;
    WORD wMixedMode;
    BOOL bMixedDepositAndRollback;
    BOOL bAntiFraudModule;
} WFSIPMCAPS, *LPWFSIPMCAPS;
```

**wClass**
Specifies the logical service class as WFS_SERVICE_CLASS_IPM.

**fwType**
Specifies the type(s) of the physical device driven by the logical service, as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_TYPESINGLEMEDIAINPUT</td>
<td>Device accepts a single media item from the customer.</td>
</tr>
<tr>
<td>WFS_IPM_TYPEBUNCHMEDIAINPUT</td>
<td>Device accepts a bunch of media items from the customer.</td>
</tr>
</tbody>
</table>

**bCompound**
Specifies whether the logical device is part of a compound physical device.

**usMaxMediaOnStacker**
Specifies the maximum number of media items that the stacker can hold (zero if the device does not have a stacker). If the device has a bunch media input capability and the stacker is not present or has a capacity of one then the application must process each item inserted sequentially as described in section Multi-Feed Devices without a Stacker.
**lpPrintSize**

Pointer to a WFSIPMPRINTSIZE structure, NULL if device has no printing capabilities. If the media item is inserted in one of the orientations specified in `fwInsertOrientation`, the Service Provider will print on the back side of the media. If the media item is inserted in a different orientation to those specified in `fwInsertOrientation` then printing may occur on the front side, upside down or both.

```c
typedef struct _wfs_ipm_print_size {
    WORD    wRows;
    WORD    wCols;
} WFSIPMPRINTSIZE, *LPWFSIPMPRINTSIZE;
```

- **wRows**
  Specifies the maximum number of rows of text that can be printed on a media item. This value is one for single line printers.

- **wCols**
  Specifies the maximum number of characters that can be printed on a row.

**bStamp**

Specifies whether the device has stamping capabilities. If the media item is inserted in one of the orientations specified in `fwInsertOrientation`, the Service Provider will stamp on the front side of the media. If the media item is inserted in a different orientation to those specified in `fwInsertOrientation` then stamping may occur on the back, upside down or both.

**bRescan**

Specifies whether the device has the capability to either physically rescan media items after they have been inserted into the device or is able to generate any image supported by the device during the WFS_CMD_IPM_READ_IMAGE command (regardless of the images requested during the WFS_CMD_IPM_MEDIA_IN command). If TRUE then the item can be rescanned or the images can be generated using the parameters passed in the WFS_CMD_IPM_READ_IMAGE command. If FALSE then all images required (various color, file format, bit depth) must be gathered during execution of the WFS_CMD_IPM_MEDIA_IN command.

**bPresentControl**

Specifies how the presenting of media items is controlled during the WFS_CMD_IPM_MEDIA_IN_END and WFS_CMD_IPM_MEDIA_IN_ROLLBACK commands. If set to TRUE the presenting is controlled implicitly by the Service Provider. If set to FALSE the presenting must be controlled explicitly by the application using the WFS_CMD_IPM_PRESENT_MEDIA command. This field applies to all positions.

**bApplicationRefuse**

Specifies if the Service Provider supports the WFS_CMD_IPM_MEDIA_IN command mode where the application decides to accept or refuse each media item that has successfully been accepted by the device. If this value is TRUE then the Service Provider supports this mode. If this value is FALSE then the Service Provider does not support this mode (or the device does not have a stacker).

**fwRetractLocation**

Specifies the locations to which the media can be retracted using the WFS_CMD_IPM_RETRACT_MEDIA command, as a combination of the following flags (zero if retract is not supported):

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_CTRLRETRACTTOBIN</td>
<td>Retract the media to a retract bin.</td>
</tr>
<tr>
<td>WFS_IPM_CTRLRETRACTTOTRANSPORT</td>
<td>Retract the media to the transport.</td>
</tr>
<tr>
<td>WFS_IPM_CTRLRETRACTTOSTACKER</td>
<td>Retract the media to the stacker.</td>
</tr>
<tr>
<td>WFS_IPM_CTRLRETRACTTOREBUNCHER</td>
<td>Retract the media to the re-buncher.</td>
</tr>
</tbody>
</table>

**fwResetControl**

Specifies the manner in which the media can be handled on WFS_CMD_IPM_RESET, as a combination of the following flags:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_RESETEJECT</td>
<td>Eject the media.</td>
</tr>
<tr>
<td>WFS_IPM_RESETRETRACTTOBIN</td>
<td>Retract the media to retract bin.</td>
</tr>
<tr>
<td>WFS_IPM_RESETRETRACTTOTRANSPORT</td>
<td>Retract the media to the transport.</td>
</tr>
</tbody>
</table>
WFS_IPM_RESETRETRACTTOREBUNCHER

Retract the media to the re-buncher.

bRetractCountsItems

This field only applies to retract media bins. It specifies whether the bin reports the number of items retracted into the bin or just the number of retract operations. If TRUE then ulCount and ulMediaInCount include the number of media items retracted and the ulMaximumItems value defines when the threshold event is generated. If FALSE then ulCount and ulMediaInCount do not contain the number of media items retracted but ulRetractOperations reports the number of retract operations. In this case the ulMaximumRetractOperations defines when the threshold event will be generated.

fwImageType

Specifies the image format supported by this device, as a combination of following flags (zero if not supported):

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGETIF</td>
<td>The device can return scanned images in TIFF 6.0 format.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEWMF</td>
<td>The device can return scanned images in WMF (Windows Metafile) format.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEBMP</td>
<td>The device can return scanned images in windows BMP format.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEJPG</td>
<td>The device can return scanned images in JPG format.</td>
</tr>
</tbody>
</table>

fwFrontImageColorFormat

Specifies the front image color formats supported by this device, as a combination of following flags (zero if not supported):

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGECOLORBINARY</td>
<td>The device can return scanned images in binary.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGECOLORGRAYSCALE</td>
<td>The device can return scanned images in gray scale.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGECOLORFULL</td>
<td>The device can return scanned images in full color.</td>
</tr>
</tbody>
</table>

fwBackImageColorFormat

Specifies the back image color formats supported by this device, as a combination of following flags (zero if not supported):

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGECOLORBINARY</td>
<td>The device can return scanned images in binary.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGECOLORGRAYSCALE</td>
<td>The device can return scanned images in gray scale.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGECOLORFULL</td>
<td>The device can return scanned images in full color.</td>
</tr>
</tbody>
</table>

fwFrontScanColor

Specifies the front image scan colors supported by this device and individually controllable by the application. Scan colors are used to enhance the scanning results on colored scan media. This value is specified as a combination of the following flags (zero if selection of scan colors is not supported):

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SCANCOLORRED</td>
<td>The device can return images scanned with red light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORGREEN</td>
<td>The device can return images scanned with green light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORBLUE</td>
<td>The device can return images scanned with blue light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORYELLOW</td>
<td>The device can return images scanned with yellow light.</td>
</tr>
</tbody>
</table>
WFS_IPM_SCANCOLORWHITE  The device can return images scanned with white light.

`wDefaultFrontScanColor`

Specifies the default front image color format used by this device (i.e. when not explicitly set), as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SCANCOLORRED</td>
<td>The default color is red light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORGREEN</td>
<td>The default color is green light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORBLUE</td>
<td>The default color is blue light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORYELLOW</td>
<td>The default color is yellow light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORWHITE</td>
<td>The default color is white light.</td>
</tr>
</tbody>
</table>

`fwBackScanColor`

Specifies the back image scan colors supported by this device and individually controllable by the application. Scan colors are used to enhance the scanning results on colored scan media. This value is specified as a combination of the following flags (zero if selection of scan colors is not supported):

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SCANCOLORRED</td>
<td>The device can return images scanned with red light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORGREEN</td>
<td>The device can return images scanned with green light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORBLUE</td>
<td>The device can return images scanned with blue light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORYELLOW</td>
<td>The device can return images scanned with yellow light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORWHITE</td>
<td>The device can return images scanned with white light.</td>
</tr>
</tbody>
</table>

`wDefaultBackScanColor`

Specifies the default front image color format used by this device (i.e. when not explicitly set), as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SCANCOLORRED</td>
<td>The default color is red light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORGREEN</td>
<td>The default color is green light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORBLUE</td>
<td>The default color is blue light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORYELLOW</td>
<td>The default color is yellow light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORWHITE</td>
<td>The default color is white light.</td>
</tr>
</tbody>
</table>

`fwCodelineFormat`

Specifies the code line formats supported by this device, as a combination of following flags (zero if not supported):

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_CODELINECMC7</td>
<td>The device can read MICR CMC7 code lines.</td>
</tr>
<tr>
<td>WFS_IPM_CODELINEE13B</td>
<td>The device can read MICR E13B code lines.</td>
</tr>
<tr>
<td>WFS_IPM_CODELINEOCR</td>
<td>The device can read code lines using Optical Character Recognition.</td>
</tr>
</tbody>
</table>

`fwDataSource`

Specifies the reading/imaging capabilities supported by this device, as a combination of the following flags (zero if not supported):

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGEFRONT</td>
<td>The device can scan the front image of the document.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEBACK</td>
<td>The device can scan the back image of the document.</td>
</tr>
<tr>
<td>WFS_IPM_CODETLINE</td>
<td>The device can recognize the code line.</td>
</tr>
</tbody>
</table>
**fwInsertOrientation**
Specifies the media item insertion orientations supported by the Service Provider such that hardware features such as MICR reading, endorsing and stamping will be aligned with the correct edges and sides of the media item. Devices may still return code lines and images even if one of these orientations is not used during media insertion. If the media items are inserted in one of the orientations defined in this capability then any printing or stamping will be on the correct side of the media item. If the media is inserted in a different orientation then any printing or stamping may be on the wrong side, upside down or both. This value is reported based on the customer’s perspective. This value is a combination of the following flags:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_INSCODELINERIGHT</td>
<td>The media item should be inserted short edge first with the code line to the right.</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINELEFT</td>
<td>The media item should be inserted short edge first with the code line to the left.</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINEBOTTOM</td>
<td>The media item should be inserted long edge first with the code line to the bottom.</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINETOP</td>
<td>The media item should be inserted long edge first with the code line to the top.</td>
</tr>
<tr>
<td>WFS_IPM_INSFACEUP</td>
<td>The media item should be inserted with the front of the media item facing up.</td>
</tr>
<tr>
<td>WFS_IPM_INSFACEDOWN</td>
<td>The media item should be inserted with the front of the media item facing down.</td>
</tr>
</tbody>
</table>

**lppPositions**
Pointer to a NULL-terminated array of pointers to WFSIPMPOSCAPS structures. There is one structure for each of the three logical position types.

**lppPositions [WFS_IPM_POSINPUT]**
Points to a WFSIPMPOSCAPS structure that specifies the capabilities of the input position. This pointer must not be NULL.

**lppPositions [WFS_IPM_POSOUTPUT]**
Points to a WFSIPMPOSCAPS structure that specifies the capabilities of the output position. This pointer must not be NULL.

**lppPositions [WFS_IPM_POSREFUSED]**
Points to a WFSIPMPOSCAPS structure that specifies the capabilities of the refused position. This pointer must not be NULL.

```c
typedef struct _wfs_ipm_pos_caps
{
    BOOL bItemsTakenSensor;
    BOOL bItemsInsertedSensor;
    WORD fwRetractAreas;
} WFSIPMPOSCAPS, *LPWFSIPMPOSCAPS;
```

**bItemsTakenSensor**
Specifies whether or not the described position can detect when items at the exit position are taken by the user. If set to TRUE the Service Provider generates an accompanying WFS_SRVE_IPM_MEDIATAKEN event. If set to FALSE this event is not generated. This field relates to output and refused positions, so will always be set to FALSE for input positions.

**bItemsInsertedSensor**
Specifies whether the described position has the ability to detect when items have been inserted by the user. If set to TRUE the Service Provider generates an accompanying WFS_SRVE_IPM_MEDIAINSERTED event. If set to FALSE this event is not generated. This field relates to all input positions, so will always be set to FALSE for output and refuse positions.

**fwRetractAreas**
Specifies the areas to which items may be retracted from this position. This field will be set to a combination of the following flags:
Value | Meaning
--- | ---
WFS_IPM_CTRLRETRACTTOBIN | Can retract items in this position to a retract bin.
WFS_IPM_CTRLRETRACTTOTRANSPORT | Can retract items in this position to the transport.
WFS_IPM_CTRLRETRACTTOSTACKER | Can retract items in this position to the stacker.
WFS_IPM_CTRLRETRACTTOREBUNCHER | Can retract items in this position to the re-buncher.

dwGuidLights [...] Specifies which guidance lights are available. A number of guidance light types are defined below. Vendor specific guidance lights are defined starting from the end of the array. The maximum guidance light index is WFS_IPM_GUIDLIGHTS_MAX.

The elements of this array are specified as a combination of the following flags and indicate all of the possible flash rates (type B) and colors (type C) that the guidance light indicator is capable of handling. If the guidance light indicator only supports one color then no value of type C is returned. A value of WFS_IPM_GUIDANCE_NOT_AVAILABLE indicates that the device has no guidance light indicator or the device controls the light directly with no application control possible.

Value | Meaning | Type
--- | --- | ---
WFS_IPM_GUIDANCE_NOT_AVAILABLE | There is no guidance light control available at this position. | A
WFS_IPM_GUIDANCE_OFF | The light can be off. | B
WFS_IPM_GUIDANCE_SLOW_FLASH | The light can blink slowly. | B
WFS_IPM_GUIDANCE_MEDIUM_FLASH | The light can blink medium frequency. | B
WFS_IPM_GUIDANCE_QUICK_FLASH | The light can blink quickly. | B
WFS_IPM_GUIDANCE_CONTINUOUS | The light can be continuous (steady). | B
WFS_IPM_GUIDANCE_RED | The light can be red. | C
WFS_IPM_GUIDANCE_GREEN | The light can be green. | C
WFS_IPM_GUIDANCE_YELLOW | The light can be yellow. | C
WFS_IPM_GUIDANCE_BLUE | The light can be blue. | C
WFS_IPM_GUIDANCE_CYAN | The light can be cyan. | C
WFS_IPM_GUIDANCE_MAGENTA | The light can be magenta. | C
WFS_IPM_GUIDANCE_WHITE | The light can be white. | C

dwGuidLights [WFS_IPM_GUIDANCE_MEDIAIN] Specifies whether the guidance light indicator on the bunch media in position is available.

dwGuidLights [WFS_IPM_GUIDANCE_MEDIAOUT] Specifies whether the guidance light indicator on the bunch media out position is available.

dwGuidLights [WFS_IPM_GUIDANCE_MEDIAREFUSED] Specifies whether the guidance light indicator on the bunch media refused position is available.

lpszExtra

Pointer to a list of vendor-specific, or any other extended, information. The information is returned as a series of “key=value” strings so that it is easily extensible by Service Providers. Each string is null-terminated, with the final string terminating with two null characters. An empty list may be indicated by either a NULL pointer or a pointer to two consecutive null characters.

bPowerSaveControl

Specifies whether power saving control is available. This can either be TRUE if available or FALSE if not available.
bImageAfterEndorse
Specifies whether the device can generate an image after text is printed on the media item. If TRUE then the generation of the image can be specified using the WFS_CMD_IPM_GET_IMAGE_AFTER_PRINT command. If FALSE, this functionality is not available. This capability applies to media items whose destination is a media bin; the fwReturnedItemsProcessing capability indicates whether this functionality is supported for media items that are to be returned to the customer.

fwReturnedItemsProcessing
Specifies the processing that this device supports for media items that are identified to be returned to the customer using the WFS_CMD_IPM_SET_DESTINATION command, as a combination of the following flags (zero if none are supported):

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_RETITEMENDORSE</td>
<td>This device can endorse a media item to be returned to the customer; the endorsement is specified using the WFS_CMD_IPM_PRINT_TEXT command.</td>
</tr>
<tr>
<td>WFS_IPM_RETITEMENDORSEIMAGE</td>
<td>This device can generate an image of a media item to be returned to the customer after it has been endorsed; the image is generated using the WFS_CMD_IPM_GET_IMAGE_AFTER_PRINT command.</td>
</tr>
</tbody>
</table>

wMixedMode
Specifies whether the device supports accepting and processing items other than the types defined in the IPM specification. If the device does not support Mixed Media processing this field will be WFS_IPM_MIXEDMEDIANOTSUPP. Otherwise this field will be set to the following value:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_CIMMIXEDMEDIA</td>
<td>Mixed Media transactions are supported using the CIM and IPM interfaces.</td>
</tr>
</tbody>
</table>

bMixedDepositAndRollback
Specifies whether the device can deposit one type of media and rollback the other in the same Mixed Media transaction. Where bMixedDepositAndRollback is TRUE the Service Provider can accept WFS_CMD_CIM_CASH_IN_END and WFS_CMD_IPM_MEDIA_IN_ROLLBACK or WFS_CMD_CIM_CASH_IN_ROLLBACK and WFS_CMD_IPM_MEDIA_IN_END to complete the current transaction. This value can only be TRUE where wMixedMode == WFS_IPM_CIMMIXEDMEDIA. When bMixedDepositAndRollback is FALSE applications must either deposit or return ALL items to complete a transaction. Where Mixed Media transactions are not supported bMixedDepositAndRollback is FALSE.

bAntiFraudModule
Specifies whether the anti-fraud module is available. This can either be TRUE if available or FALSE if not available.

Error Codes
Only the generic error codes defined in [Ref. 1] can be generated by this command.

Comments
Applications which require or expect specific information to be present in the lpszExtra field may not be device or vendor-independent.
### 4.3 WFS_INF_IPM_CODELINE_MAPPING

**Description**
This command is used to retrieve the byte code mapping for the special banking symbols defined for image processing (e.g. check processing). This mapping must be reported as there is no standard for the fonts defined below.

**Input Param**
`LPWFSIMPCODELINEMAPPING lpCodelineMapping;`

typedef struct _wfs_ipm_codeline_mapping
{
    WORD wCodelineFormat;
} WFSIMPCODELINEMAPPING, *LPWFSIMPCODELINEMAPPING;

`wCodelineFormat`
Specifies the code line format that the mapping for the special characters is required for. This field can be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_CODELINECMC7</td>
<td>Report the CMC7 mapping.</td>
</tr>
<tr>
<td>WFS_IPM_CODELINEE13B</td>
<td>Report the E13B mapping.</td>
</tr>
</tbody>
</table>

**Output Param**
`LPWFSIMPCODELINEMAPPINGOUT lpCodelineMappingOut;`

typedef struct _wfs_ipm_codeline_mapping_out
{
    WORD wCodelineFormat;
    LPWFSIMPMXDATA lpxCharMapping;
} WFSIMPCODELINEMAPPINGOUT, *LPWFSIMPCODELINEMAPPINGOUT;

`wCodelineFormat`
Specifies the code line format that is being reported. This field can be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_CODELINECMC7</td>
<td>Report the CMC7 mapping.</td>
</tr>
<tr>
<td>WFS_IPM_CODELINEE13B</td>
<td>Report the E13B mapping.</td>
</tr>
</tbody>
</table>

`lpxCharMapping`
Defines the mapping of the font specific symbols to byte values. These byte values are used to represent the font specific characters when the code line is read. The font specific meaning of each index is defined in the following tables:

#### E13B

<table>
<thead>
<tr>
<th>Index</th>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>Transit</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>Amount</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>On Us</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Dash</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Reject / Unreadable</td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### CMC7

<table>
<thead>
<tr>
<th>Index</th>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>S1 - Internal</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>S2 - Terminator</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>S3 - Amount</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>S4 - Unused</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>S5 - Routing</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Reject / Unreadable</td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Error Codes**
Only the generic error codes defined in [Ref. 1] can be generated by this command.

**Comments**
For code lines defined in the OCR-A font then the ASCII codes will conform to Figure E1 in ANSI X3.17-1981. For code lines defined in the OCR-B font then the ASCII codes will conform to Figure C2 in ANSI X3.49-1975. In both these cases unrecognized characters will be reported as the REJECT code, 0x1A.
### 4.4 WFS_INF_IPM_MEDIA_BIN_INFO

**Description**
This command is used to obtain information about the status and contents of the media bins that can be used by IPM commands. This command does not report bins that can only be used by the other interface on a compound device.

**Input Param**
None.

**Output Param**
LPWFSIPMMEDIABININFO lpMediaBinInfo;

typedef struct _wfs_ipm_media_bin_info
{
    USHORT usCount;
    LPWFSIPMMEDIABIN *lppMediaBin;
} WFSIPMMEDIABININFO, *LPWFSIPMMEDIABININFO;

**usCount**
Number of WFSIPMMEDIABIN structures returned in lppMediaBin.

**lppMediaBin**
Pointer to an array of pointers to WFSIPMMEDIABIN structures.

typedef struct _wfs_ipm_media_bin
{
    USHORT usBinNumber;
    LPSTR lpstrPositionName;
    WORD fwType;
    WORD wMediaType;
    LPSTR lpstrBinID;
    ULONG ulMediaInCount;
    ULONG ulCount;
    ULONG ulRetractOperations;
    BOOL bHardwareSensors;
    ULONG ulMaximumItems;
    ULONG ulMaximumRetractOperations;
    USHORT usStatus;
    LPSTR lpszExtra;
} WFSIPMMEDIABIN, *LPWFSIPMMEDIABIN;

**usBinNumber**
Index number of the media bin structure. Each structure has a unique number starting with a value of one (1) for the first structure, and incrementing by one for each subsequent structure.

**lpstrPositionName**
The physical position name where the bin is inserted.

**fwType**
Specifies the type of media bin as one or more of the following flags:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_TYPEMEDIAIN</td>
<td>Media bin. This type of bin can be specified as a destination for media items.</td>
</tr>
<tr>
<td>WFS_IPM_TYPERETRACT</td>
<td>Retract bin. This type of bin can be specified as a destination for the WFS_CMD_IPM_RETRACT_MEDIA command.</td>
</tr>
</tbody>
</table>

**wMediaType**
Specifies the type of media the media bin takes. This value is specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_MEDIATYPIPM</td>
<td>The media bin takes media items via the IPM device class only.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIATYPCOMPOUND</td>
<td>The media bin takes media from the IPM device class and from another device class (e.g. CIM).</td>
</tr>
</tbody>
</table>
lpstrBinID
An application defined Media Bin Identifier.

ulMediaInCount
Count of items that have entered the media bin as a result of operations on the IPM interface. This counter is incremented whenever media enters the media bin for any reason as a result of an operation initiated through the IPM interface. This value is persistent. On a retract-only bin, if the device cannot count media during a retract operation this value will be zero. In the case of Mixed Media processing this count does not include items associated with the CIM interface.

ulCount
Total number of media in the media bin (including items that may have been added via a compound device interface). If the bin is a shared bin with a compound device interface then this value may not be the same as the value of ulMediaInCount. On a retract-only bin, if the device cannot count media during a retract operation this value will be zero.

ulRetractOperations
The number of retract operations via commands WFS_CMD_IPM_RETRACT_MEDIA and WFS_CMD_IPM_RESET and error recovery where media is moved to the bin. This value is persistent.

bHardwareSensors
A capability that specifies whether or not the threshold event, WFS_USRE_IPM_MEDIABINTHRESHOLD (WFS_IPM_STATMBHIGH), can be generated based on hardware sensors in the device. If this value is TRUE then threshold events may be generated based on hardware sensors. If applications want the threshold event to be based on the h/w sensors then the threshold limits, ulMaximumItems and ulMaximumRetractOperations, must be set to zero. If they are not set to zero then the h/w sensors are ignored.

ulMaximumItems
When ulCount reaches this value the threshold event WFS_USRE_IPM_MEDIABINTHRESHOLD (WFS_IPM_STATMBHIGH) will be generated.

ulMaximumRetractOperations
When ulRetractOperations reaches this value the threshold event WFS_USRE_IPM_MEDIABINTHRESHOLD (WFS_IPM_STATMBHIGH) will be generated. This value is zero if the bin is not a retract bin (i.e. does not contain the WFS_IPM_TYPERETRACT value in the fwType field).

usStatus
Describes the status of the media bin as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_STATMBOK</td>
<td>The media bin is in a good state.</td>
</tr>
<tr>
<td>WFS_IPM_STATMBFULL</td>
<td>The media bin is full.</td>
</tr>
<tr>
<td>WFS_IPM_STATMBHIGH</td>
<td>The media bin is almost full (threshold).</td>
</tr>
<tr>
<td>WFS_IPM_STATMBINOP</td>
<td>The media bin is inoperative.</td>
</tr>
<tr>
<td>WFS_IPM_STATMBMISSING</td>
<td>The media bin is missing.</td>
</tr>
<tr>
<td>WFS_IPM_STATMBUNKNOWN</td>
<td>The media bin is unknown.</td>
</tr>
</tbody>
</table>

lpstrExtra
Pointer to a list of vendor-specific, or any other extended, information. The information is returned as a series of “key=value” strings so that it is easily extensible by Service Providers. Each string is null-terminated, with the final string terminating with two null characters. An empty list may be indicated by either a NULL pointer or a pointer to two consecutive null characters.

Error Codes
Only the generic error codes defined in [Ref. 1] can be generated by this command.

Comments
In the case where the media bin allows both deposit and retract operations but cannot count the number of media items retracted, then the threshold event will be generated when either ulRetractOperations or ulCount reaches its associated threshold value. Since these counts are unrelated but the media items are being placed in the same bin the threshold event is very inaccurate and should be disabled in favor of h/w sensors.
4.5 WFS_INF_IPM_TRANSACTION_STATUS

Description
This command is used to request the status of the current or last media-in transaction. A media-in transaction consists of one or more WFS_CMD_IPM_MEDIA_IN commands. A media-in transaction is initiated by the WFS_CMD_IPM_MEDIA_IN command and remains active until the transaction is either confirmed through the WFS_CMD_IPM_MEDIA_IN_END command, or cancelled by the WFS_CMD_IPM_MEDIA_IN_ROLLBACK, the WFS_CMD_IPM RETRACT_MEDIA or the WFS_CMD_IPM_RESET command. Multiple calls to the WFS_CMD_IPM_MEDIA_IN command can be made while a transaction is active to obtain additional items from the customer.

Mixed Media Mode: If the device is operating in Mixed Media mode (WFSIPMSTATUS.wMixedMode == WFS_IPM_CIMMIXEDMEDIA), on completion, all members of the WFSIPMTRANSSTATUS structure refer to both IPM and CIM items. The exceptions being usTotalItems and lppMediaInfo as these members represent IPM items only.

Input Param
None.

Output Param
LPWFSIPMTRANSSTATUS lpTransStatus;

typedef struct _wfs_ipm_trans_status
{
    WORD    wMediaInTransaction;
    USHORT   usMediaOnStacker;
    USHORT   usLastMediaInTotal;
    USHORT   usLastMediaAddedToStacker;
    USHORT   usTotalItems;
    USHORT   usTotalItemsRefused;
    USHORT   usTotalBunchesRefused;
    LPWFSIPMMEDIASTATUS *lppMediaInfo;
    LPSTR    lpszExtra;
} WFSIPMTRANSSTATUS, *LPWFSIPMTRANSSTATUS;

wMediaInTransaction
Status of the media-in transaction. This value is specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_MITOK</td>
<td>The media-in transaction completed successfully.</td>
</tr>
<tr>
<td>WFS_IPM_MITACTIVE</td>
<td>There is a media-in transaction active.</td>
</tr>
<tr>
<td>WFS_IPM_MITROLLBACK</td>
<td>The media-in transaction was successfully rolled back.</td>
</tr>
<tr>
<td>WFS_IPM_MITROLLBACKAFTERDEPOSIT</td>
<td>The media-in transaction was successfully rolled back after some items had been deposited to a bin. This value only applies to devices without a stacker.</td>
</tr>
<tr>
<td>WFS_IPM_MITRETRACT</td>
<td>The media-in transaction ended with the items being successfully retracted.</td>
</tr>
<tr>
<td>WFS_IPM_MITFAILURE</td>
<td>The media-in transaction failed as the result of a device failure.</td>
</tr>
<tr>
<td>WFS_IPM_MITUNKNOWN</td>
<td>The state of the media-in transaction is unknown.</td>
</tr>
<tr>
<td>WFS_IPM_MITRESET</td>
<td>The media-in transaction ended as the result of a WFS_CMD_IPM_RESET or WFS_CMD_CIM_RESET command.</td>
</tr>
</tbody>
</table>

usMediaOnStacker
Contains the total number of media items currently on the stacker (including usLastMediaAddedToStacker), or WFS_IPM_MEDIANUMBERUNKNOWN if it is unknown. This count only applies to devices with stackers and is persistent.

usLastMediaInTotal
Contains the number of media items processed by the last WFS_CMD_IPM_MEDIA_IN command, or WFS_IPM_MEDIANUMBERUNKNOWN if it is unknown. This count is not modified for bunches of items which are refused as a single entity. This count only applies to devices with stackers and is persistent.
usLastMediaAddedToStacker
Contains the number of media items on the stacker successfully accepted by the last
WFS_CMD_IPM_MEDIA_IN command, or WFS_IPM_MEDIANUMBERUNKNOWN if it is
unknown. This count only applies to devices with stackers and is persistent.

The number of media items refused during the last command can be determined by
usLastMediaInTotal - usLastMediaAddedToStacker. This is only possible if these values contain
known values, and would not include bunches of items refused as a single entity.

usTotalItems
The total number of items that have been allocated a media ID during the whole of the current
transaction (if a transaction is active) or last transaction (if no transaction is active). This count
does not include refused items and CIM items, is WFS_IPM_MEDIANUMBERUNKNOWN if it is
unknown, and is persistent.

usTotalItemsRefused
Contains the total number of refused items during the execution of the whole transaction. This
count does not include bunches of items which are refused as a single entity without being
processed as single items, is WFS_IPM_MEDIANUMBERUNKNOWN if it is unknown, and is
persistent.

usTotalBunchesRefused
Contains the total number of refused bunches of items that were not processed as single items, is
WFS_IPM_MEDIANUMBERUNKNOWN if it is unknown, and is persistent.

lppMediaInfo
Pointer to a NULL-terminated array of pointers to WFSIPMMEDIASTATUS structures. This
array contains details of the media items processed during the current or last transaction
(depending on the value of wMediaInTransaction). The array contains one element for every item
that has been allocated a media ID (i.e. IPM items that have been reported to the application). If
there are no media items then lppMediaInfo is NULL. The WFSIPPMIMAGEDATA structure is
described in the WFS_CMD_IMP_READ_IMAGE command section. The media info is available
until a new transaction is started with the WFS_CMD_IPM_MEDIA_IN command. The media
location information may be updated after a transaction is completed, e.g. if media that was
presented to the customer is subsequently retracted. The media info is persistent.

typedef struct _wfs_ipm_mediastatus
{
    USHORT       usMediaID;
    WORD         wMediaLocation;
    USHORT       usBinNumber;
    ULONG        ulCodelineDataLength;
    LPBYTE       lpbCodelineData;
    WORD         wMagneticReadIndicator;
    LPWFSIPPMIMAGEDATA  *lppImage;
    WORD         fwInsertOrientation;
    LPWFSIPPMEDIASIZE lpMediaSize;
    WORD         wMediaValidity;
    WORD         wCustomerAccess;
} WFSIPMMEDIASTATUS, *LPWFSIPMMEDIASTATUS;

usMediaID
Specifies the sequence number (starting from 1) of the media item.

wMediaLocation
Specifies the location of the media item as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_LOCATION_DEVICE</td>
<td>The media item is inside the device in some position other than a bin.</td>
</tr>
<tr>
<td>WFS_IPM_LOCATION_BIN</td>
<td>The media item is in a bin. The bin number is defined by usBinNumber.</td>
</tr>
<tr>
<td>WFS_IPM_LOCATION_CUSTOMER</td>
<td>The media item has been returned to the customer.</td>
</tr>
<tr>
<td>WFS_IPM_LOCATION_UNKNOWN</td>
<td>The media item location is unknown.</td>
</tr>
</tbody>
</table>
usBinNumber
If wMediaLocation is WFS_IPM_LOCATION_BIN then this field contains the bin number where the media was stored.

ulCodelineDataLength
Count of bytes of the following lpbCodelineData.

BpCodelineData
Points to the code line data. lpbCodelineData contains characters in the ASCII range. If the code line was read using the OCR-A font then the ASCII codes will conform to Figure E1 in ANSI X3.17-1981. If the code line was read using the OCR-B font then the ASCII codes will conform to Figure C2 in ANSI X3.49-1975. In both these cases unrecognized characters will be reported as the REJECT code, 0x1A. The E13B and CMC7 fonts use the ASCII equivalents for the standard characters and use the byte values as reported by the WFS_INF_IPM_CODELINE_MAPPING command for the symbols that are unique to MICR fonts.

wMagneticReadIndicator
Specifies the type of technology used to read a MICR code line. This value is specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_MRI_MICR</td>
<td>The MICR code line was read using MICR technology and MICR characters were present.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_NOT_MICR</td>
<td>The MICR code line was NOT read using MICR technology.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_NO_MICR</td>
<td>The MICR code line was read using MICR technology and no magnetic characters were read.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_UNKNOWN</td>
<td>It is unknown how the MICR code line was read.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_NOTMICRFORMAT</td>
<td>The code line is not a MICR format code line.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_NOT_READ</td>
<td>No code line was read.</td>
</tr>
</tbody>
</table>

lppImage
Pointer to a NULL-terminated array of pointers to WFSIPMIMAGEDATA structures. If there is no image data then lppImage will be set to NULL. If the Service Provider has determined the orientation of the media (i.e. fwInsertOrientation is not set to WFS_IPM_INSUNKNOWN), then all images returned are in the standard orientation and the images will match the image source requested by the application. This means that images will be returned with the code line at the bottom, and the image of the front and rear of the media item will be returned in the structures associated with the WFS_IPM_IMAGEFRONT and WFS_IPM_IMAGEBACK image sources respectively.

fwInsertOrientation
This value reports how the media item was actually inserted into the input position (from the customer's perspective). This value is either WFS_IPM_INSUNKNOWN or a combination of the following flags consisting of one of type A and one of type B.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_INSUNKNOWN</td>
<td>The orientation of the inserted media is unknown.</td>
<td>N/A</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINERIGHT</td>
<td>The code line is to the right.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINELEFT</td>
<td>The code line is to the left.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINEBOTTOM</td>
<td>The code line is to the bottom.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINETOP</td>
<td>The code line is to the top.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_INSFACEUP</td>
<td>The front of the media (the side with the code line) is facing up.</td>
<td>B</td>
</tr>
<tr>
<td>WFS_IPM_INSFACEDOWN</td>
<td>The front of the media (the side with the code line) is facing down.</td>
<td>B</td>
</tr>
</tbody>
</table>

lpMediaSize
Pointer to a WFSIPMMEDIASIZE structure that specifies the size of the media item. lpMediaSize is NULL if the device does not support media size measurement.
typedef struct _wfs_ipm_media_size
{
    ULONG    ulSizeX;
    ULONG    ulSizeY;
} WFSIPMMEDIASIZE, *LPWFSIPMMEDIASIZE;

ulSizeX
Specifies the width of the media in millimeters, or zero if unknown.

ulSizeY
Specifies the height of the media in millimeters, or zero if unknown.

wMediaValidity
Media items may have special security features which can be detected by the device. This field specifies whether the media item is suspect or valid, allowing the application the choice in how to further process a media item that could not be confirmed as being valid. This value is specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_ITEMOK</td>
<td>The media item is valid.</td>
</tr>
<tr>
<td>WFS_IPM_ITEMSUSPECT</td>
<td>The validity of the media item is suspect.</td>
</tr>
<tr>
<td>WFS_IPM_ITEMUNKNOWN</td>
<td>The validity of the media item is unknown.</td>
</tr>
<tr>
<td>WFS_IPM_ITEMNOVALIDATION</td>
<td>No specific security features were evaluated.</td>
</tr>
</tbody>
</table>

wCustomerAccess
Specifies if the media item has been in customer access since it was first deposited, e.g. it has been retracted from a position with customer access. This value is specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_ACCESSUNKNOWN</td>
<td>It is not known if the media item has been in a position with customer access.</td>
</tr>
<tr>
<td>WFS_IPM_ACCESSCUSTOMER</td>
<td>The media item has been in a position with customer access.</td>
</tr>
<tr>
<td>WFS_IPM_ACCESSNONE</td>
<td>The media item has not been in a position with customer access.</td>
</tr>
</tbody>
</table>

lpszExtra
Pointer to a list of vendor-specific, or any other extended, information. The information is returned as a series of "key=value" strings so that it is easily extensible by Service Providers. Each string is null-terminated, with the final string terminating with two null characters. An empty list may be indicated by either a NULL pointer or a pointer to two consecutive null characters.

Error Codes
Only the generic error codes defined in [Ref. 1] can be generated by this command.

Comments
None.
5. Execute Commands

5.1 WFS_CMD_IPM_MEDIA_IN

Description

This command accepts media into the device from the input position.

A media-in transaction consists of one or more WFS_CMD_IPM_MEDIA_IN commands. A media-in transaction is initiated by the first WFS_CMD_IPM_MEDIA_IN command and remains active until the transaction is either confirmed through the WFS_CMD_IPM_MEDIA_IN_END command, or cancelled by the WFS_CMD_IPM_RETRACT_MEDIA or the WFS_CMD_IPM_RESET command. Multiple calls to the WFS_CMD_IPM_MEDIA_IN command can be made while a transaction is active to obtain additional items from the customer. If a media-in transaction is active (i.e. the transaction status is WFS_IPM_MITACTIVE) when a WFS_CMD_IPM_MEDIA_IN command is successfully cancelled, or the command times out then the transaction remains active.

When the command is executed, if there is no media in the input slot then the device is enabled for media entry and the WFS_EXEE_IPM_NOMEDIA event is generated when the device is ready to accept media. When the customer inserts the media a WFS_EXEE_IPM_MEDIAINSERTED event is generated and media processing begins. If media is already present at the input slot then a WFS_EXEE_IPM_MEDIAINSERTED event is generated and media processing begins immediately.

The WFS_EXEE_IPM_MEDIADATA event delivers the code line and all requested image data during execution of this command. One event is generated for each media item scanned by this command. The WFS_EXEE_IPM_MEDIADATA event is not generated for refused media items.

A failure during processing a single media item does not mean that the command has failed even if some or all of the media are refused by the media reader. In this case the command will return WFS_SUCCESS and one or more WFS_EXEE_IPM_MEDIAREFUSED events will be sent to report the reasons why the items have been refused.

Refused items are not presented back to the customer with this command. The WFS_EXEE_IPM_MEDIAREFUSED event indicates whether or not media must be returned to the customer before further media movement commands can be executed. If the WFS_EXEE_IPM_MEDIAREFUSED event indicates that the media must be returned then the application must use the WFS_CMD_IPM_PRESENT_MEDIA command to return the refused items. If the event does not indicate that the application must return the media items then the application can still elect to return the media items using the WFS_CMD_IPM_PRESENT_MEDIA command or instead allow the refused items to be returned during the WFS_CMD_IPM_MEDIA_IN_END or WFS_CMD_IPM_MEDIA_IN_ROLLBACK commands.

If there is no stacker on the device or ApplicationRefuse is TRUE then just one of the media items inserted are processed by this command, and therefore the command completes as soon as the last image for the first item is produced or when the first item is automatically refused. If there is a stacker on the device then the command completes when the last image for the last item is produced or when the last item is refused.

Mixed Media Mode: If the device is operating in Mixed Media mode (WFSIPMSTATUS.wMixedMode == WFS_IPM_CIMMIXEDMEDIA) the Service Provider will not perform any operation unless the WFS_CMD_CIM_CASH_IN command is called or has already been called on the CIM interface. On completion, the members of the WFSIPMMEDIAIN structure refer to IPM and CIM items. In Mixed Media mode application refusal is not supported.

Input Param

LPWFSIPMMEDIAINREQUEST lpMediaInRequest;

typedef struct _wfs_ipm_media_in_request
{    
    WORD wCodelineFormat;
    LPWFSIPMIMAGEREQUEST *lppImage;
    USHORT usMaxMediaOnStacker;
    BOOL bApplicationRefuse;
} WFSIPMMEDIAINREQUEST, *LPWFSIPMMEDIAINREQUEST;
**wCodelineFormat**
Specifies the code line format, as one of following values (if zero no code line data is required):

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_CODELINECMC7</td>
<td>Read CMC7 code line.</td>
</tr>
<tr>
<td>WFS_IPM_CODELINEE13B</td>
<td>Read E13B code line.</td>
</tr>
<tr>
<td>WFS_IPM_CODELINEOCR</td>
<td>Read code line using OCR.</td>
</tr>
</tbody>
</table>

**lppImage**
Pointer to a NULL-terminated array of pointers to WFSIPMIMAGEREQUEST structures. The array contains one pointer to a WFSIPMIMAGEREQUEST structure for every image that should be read for each media item. If *lppImage* is NULL no images are required.

```c
typedef struct _wfs_ipm_image_request
{
    WORD    wImageSource;
    WORD    wImageType;
    WORD    wImageColorFormat;
    WORD    wImageScanColor;
    LPSTR   lpszImagePath;
} WFSIPMIMAGEREQUEST, *LPWFSIPMIMAGEREQUEST;
```

**wImageSource**
Specifies the source as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGEFRONT</td>
<td>The returned image is for the front of the media item.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEBACK</td>
<td>The returned image is for the back of the media item.</td>
</tr>
</tbody>
</table>

**wImageType**
Specifies the format of the image returned by this command as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGETIF</td>
<td>The returned image is in TIFF 6.0 format. The output file name will have the .tif extension appended to the filename.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEWMF</td>
<td>The returned image is in WMF (Windows Metafile) format. The output file name will have the .wmf extension appended to the filename.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEBMP</td>
<td>The returned image is in Windows BMP format. The output file name will have the .bmp extension appended to the filename.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEJPG</td>
<td>The returned image is in JPG format. The output file name will have the .jpg extension appended to the filename.</td>
</tr>
</tbody>
</table>

**wImageColorFormat**
Specifies the color format of the requested image as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGECOLORBINARY</td>
<td>The scanned images has to be returned in binary (image contains two colors, usually the colors black and white).</td>
</tr>
<tr>
<td>WFS_IPM_IMAGECOLORGRAYSCALE</td>
<td>The scanned images has to be returned in gray scale (image contains multiple gray colors).</td>
</tr>
<tr>
<td>WFS_IPM_IMAGECOLORFULL</td>
<td>The scanned images has to be returned in full color (image contains colors like red, green, blue etc.).</td>
</tr>
</tbody>
</table>
**wImageScanColor**
Selects the color that should be used to scan the image. The value is specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SCANCOLORDEFAULT</td>
<td>Select the default color for the side of the item being scanned.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORRED</td>
<td>Select the red scan color.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORGREEN</td>
<td>Select the green scan color.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORBLUE</td>
<td>Select the blue scan color.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORYELLOW</td>
<td>Select the yellow scan color.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORWHITE</td>
<td>Select the white scan color.</td>
</tr>
</tbody>
</table>

**lpszImagePath**
Specifies the full path name of the folder where the image will be stored, e.g. “C:\TEMP”. The actual file name for the image produced will be vendor specific. The name used is reported in the event containing the item data for each media item. The Service Provider may reuse file names from the start of each media-in transaction, so applications must manage the file lifetime as required. If NULL is provided for this field then the command will be rejected with the WFS_ERR_INVALID_DATA error. If the folder does not exist or cannot be accessed by the Service Provider then the command will be rejected with the WFS_ERR_IPM_FILEIOERROR error. This value is terminated with a single null character and cannot contain UNICODE characters.

**usMaxMediaOnStacker**
Maximum number of media items allowed on the stacker during the media-in transaction. This value is used to limit the total number of media items on the stacker. When this limit is reached all further media items will be refused and a WFS_EXEE_IPM_MEDIAREFUSED event will be generated reporting WFS_IPM_REFUSED_STACKERFULL. This value cannot exceed the value reported in the usMaxMediaOnStacker field of the Capabilities or the Service Provider will return a WFS_ERR_INVALID_DATA error. If this value is zero then the maximum number of items allowed on the stacker reported in the usMaxMediaOnStacker field of the Capabilities will be used. This value must be the same during all calls to the WFM_CMD_IPM_MEDIA_IN command within a single media-in transaction or the Service Provider will return a WFS_ERR_INVALID_DATA error. This value is ignored on devices without stackers.

**bApplicationRefuse**
Specifies if the application wants to make the decision to accept or refuse each media item that has successfully been accepted by the device. If this value is TRUE then the application must decide to accept or refuse each item. The application must use the WFS_CMD_IPM_ACCEPT_ITEM and WFS_CMD_IPM_GET_NEXT_ITEM commands in a sequential manner to process the bunch of media inserted during the WFS_CMD_IPM_MEDIA_IN command. If this value is FALSE then any decision on whether an item should be refused is left to the device/Service Provider. This value must have the same value within all calls to WFS_CMD_IPM_MEDIA_IN within a transaction. This value must be FALSE when the bApplicationRefuse capability is FALSE. This value must be FALSE when the wMixedMode status is WFS_IPM_CIMMIXEDMEDIA.

**Output Param**
LPWFSIPMMEDIAIN lpMediaIn;

```
typedef struct _wfs_ipm_media_in
{
    USHORT   usMediaOnStacker;
    USHORT   usLastMedia;
    USHORT   usLastMediaOnStacker;
    WORD     wMediaFeeder;
} WFSIPMMEDIAIN, *LPWFSIPMMEDIAIN;
```

**usMediaOnStacker**
Contains the total number of media items on the stacker (including usLastMediaOnStacker), or WFS_IPM_MEDIANUMBERUNKNOWN if it is unknown. This count only applies to devices with stackers.

**usLastMedia**
Contains the number of media items processed by this instance of the command execution, or WFS_IPM_MEDIANUMBERUNKNOWN if it is unknown. This count only applies to devices with stackers.
usLastMediaOnStacker
Contains the number of media items on the stacker successfully accepted by this instance of the command execution, or WFS_IPM_MEDIANUMBERUNKNOWN if it is unknown. This count only applies to devices with stackers.

The number of refused media items can be determined by usLastMedia - usLastMediaOnStacker. This is only possible if these values contain known values, and would not be possible if a bunch of items were refused as a single entity.

wMediaFeeder
Supplies the state of the media feeder. This value indicates if there are items on the media feeder waiting for processing via the WFS_CMD_IPM_GET_NEXT_ITEM command. This value can be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_FEEDEREMPTY</td>
<td>The media feeder is empty.</td>
</tr>
<tr>
<td>WFS_IPM_FEEDERNOTEMPTY</td>
<td>The media feeder is not empty.</td>
</tr>
<tr>
<td>WFS_IPM_FEEDERNOTSUPP</td>
<td>The physical device has no media feeder.</td>
</tr>
</tbody>
</table>

Error Codes
In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_STACKERFULL</td>
<td>The internal stacker is already full or has already reached the limit specified as an input parameter. No media items can be accepted.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SHUTTERFAIL</td>
<td>Open or close of the shutter failed due to manipulation or hardware error.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIAJAMMED</td>
<td>The media is jammed.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_FILEIOERROR</td>
<td>Directory does not exist or file IO error while storing the image to the hard disk.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_REFUSEDITEMS</td>
<td>Programming error: refused items that must be returned via the WFS_CMD_IPM_PRESENT_MEDIA command have not been presented (see bPresentRequired in the WFS_EXEE_IPM_MEDIAREFUSED event parameters).</td>
</tr>
<tr>
<td>WFS_ERR_IPM_ALLBINSFULL</td>
<td>All media bins are full so no further items can be accepted.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SCANNERINOP</td>
<td>Only images were requested by the application and these cannot be obtained because the image scanner is inoperative.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MICRINOP</td>
<td>Only MICR data was requested by the application and it cannot be obtained because the MICR reader is inoperative.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_POSITIONNOTEMPTY</td>
<td>One of the input/output/refused positions is not empty and items cannot be inserted until the media items in the position are removed.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_FEEDERNOTEMPTY</td>
<td>The media feeder is not empty. The only applies when the WFS_CMD_IPM_GET_NEXT_ITEM command should be used to retrieve the next media item.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIAREJECTED</td>
<td>The media was rejected before it was fully inserted within the device. The WFS_EXEE_IPM_MEDIAREJECTED event is posted with the details. The device is still operational.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_FEEDERINOPERATIVE</td>
<td>The media feeder is inoperative.</td>
</tr>
</tbody>
</table>
WFS_ERR_IPM_MEDIAPRESENT: Media from a previous transaction is present in the device when an attempt to start a new media-in transaction was made. The media must be cleared before a new transaction can be started.

Events

In addition to the generic events defined in [Ref. 1], the following events can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_EXEE_IPM_NOMEDIA</td>
<td>No media is present in the input position and the device is ready for the customer to insert media.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIAINSERTED</td>
<td>Media has been inserted into the device.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIAREJECTED</td>
<td>The media has been rejected before it was fully inserted within the device and has been presented back to the user. It is available at the input position. When the media is removed, a WFS_SRVE_IPM_MEDIATAKEN event will be generated.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIADATA</td>
<td>Delivers media data (images and code line) during the command.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIAINSERTED</td>
<td>Media has been refused.</td>
</tr>
<tr>
<td>WFS_USRE_IPM_SCANNERTHRESHOLD</td>
<td>The imaging scanner is fading or inoperative. Note that this event is sent only once, at the point at which the status changes.</td>
</tr>
<tr>
<td>WFS_USRE_IPM_MICRTHRESHOLD</td>
<td>The MICR reader performance is degraded or the reader is inoperative. Note that this event is sent only once, at the point at which the status changes.</td>
</tr>
</tbody>
</table>

Comments

None.
5.2 WFS_CMD_IPM.MEDIA_IN_END

Description
This command ends a media-in transaction. If media items are on the stacker as a result of a WFS_CMD_IPM.MEDIA_IN command, the actions predefined through the WFS_CMD_IPM.PRINT_TEXT (stamping & endorsing) and WFS_CMD_IPM.GET_IMAGE_AFTER_PRINT commands are executed and then these media items are moved to the destination defined by the WFS_CMD_IPM_SET_DESTINATION command. If no action (print, stamp, rescan) has been predefined then the items are just moved to their destination. If the destination has not been set for a media item then the Service Provider will decide which bin to put the item into. If no items are in the device the command will complete with the WFS_ERR_IPM.NOMEDIAPRESENT error and the transaction status will be set to WFS_IPM_MITOK.

The way in which media is returned to the customer as a result of this command is defined by the bPresentControl flag reported by the WFS_INF_IPM.CAPABILITIES command. If the bPresentControl flag is FALSE the application must call the WFS_CMD_IPM_PRESENT_MEDIA command to present the media items to be returned as a result of this command. If the bPresentControl flag is TRUE the Service Provider presents any returned items implicitly and the application does not need to call the WFS_CMD_IPM_PRESENT_MEDIA command.

If items have been refused and the WFS_IPM.EXEE.MEDIAREFUSED event has indicated that the items must be returned (i.e. bPresentRequired is TRUE) then these items must be returned using the WFS_CMD_IPM_PRESENT_MEDIA command before the WFS_CMD_IPM.MEDIA_IN_END command is issued, otherwise a WFS_ERR_IPM.REFUSEDITEMS error will be returned. If items have been refused and the WFS_IPM.EXEE.MEDIAREFUSED event has indicated that the items do not need to be returned (i.e. bPresentRequired is FALSE) then the WFS_CMD_IPM.MEDIA_IN_END command causes any refused items which have not yet been returned to the customer (via the WFS_CMD_IPM_PRESENT_MEDIA command) to be returned along with any items that the application has selected to return to the customer (via the WFS_CMD_IPM_SET_DESTINATION command). Even if all items are being deposited, previously refused items will be returned to the customer by this command. The WFS_EXEE_IPM.MEDIAPRESENTED event(s) inform the application of the position where the media has been presented to.

This command completes when all the media items have been put into their specified bins and in the case where media is returned to the customer as a result of this command, after the last bunch of media items to be returned to the customer has been presented, but before the last bunch is taken.

The media-in transaction is ended even if this command does not complete successfully.

Mixed Media Mode: If the device is operating in Mixed Media mode (WFSIPMSTATUS.wMixedMode == WFS_IPM.CIMMIXEDMEDIA) the Service Provider will not perform any operation unless the WFS_CMD_CIM.CASH_IN_END command is called or has already been called on the CIM interface. Alternatively, if the WFSIPMCAPS.bMixedDepositAndRollback is TRUE, then the WFS_CMD_CIM.CASH_IN_ROLLBACK command could be used instead of the WFS_CMD_CIM.CASH_IN_END command in order to deposit the checks and return the bills. On completion, the members of the WFSIPMMEDIAINEND structure will refer to IPM items.

Input Param
None.

Output Param
LPWFSIPMMEDIAINEND lpMediaInEnd;

typedef struct _wfs_ipm_media_in_end
{
  USHORT usItemsReturned;
  USHORT usItemsRefused;
  USHORT usBunchesRefused;
  LPWFSIPMMEDIABININFO lpMediaBinInfo;
} WFSIPMMEDIAINEND, *LPWFSIPMMEDIAINEND;
usItemsReturned
Contains the number of media items that were returned to the customer by application selection through the WFS_CMD_IPM_SET_DESTINATION command during the current transaction. This does not include items that were refused.

usItemsRefused
Contains the total number of items automatically returned to the customer during the execution of the whole transaction. This count does not include bunches of items which are refused as a single entity without being processed as single items.

usBunchesRefused
Contains the total number of refused bunches of items that were automatically returned to the customer without being processed as single items.

lpMediaBinInfo
Pointer to a WFSIPMMEDIABININFO structure containing a list of media bins that have taken media during the current transaction. For a description of the WFSIPMMEDIABININFO structure see the definition of the WFS_INF_IPM_MEDIA_BIN_INFO command. This pointer must always point to a WFSIPMMEDIABININFO structure, it cannot be NULL. The structure returned only contains data related to the current transaction, i.e. ulCount and ulMediaInCount define the number of media in the media bin for this transaction.

Error Codes
In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_NOMEDIAPRESENT</td>
<td>No media is present in the device.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SHUTTERFAIL</td>
<td>Open or close of the shutter failed due to manipulation or hardware error.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIAJAMMED</td>
<td>The media is jammed.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIABINERROR</td>
<td>A problem occurred with a media bin. A WFS_EXEE_IPM_MEDIABINERROR event will be sent with the details.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_POSITIONNOTEMPTY</td>
<td>One of the input/output/refused positions is not empty.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SEQUENCEINVALID</td>
<td>Programming error: invalid command sequence, e.g. this command was executed when there was no active transaction.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_REFUSEDITEMS</td>
<td>Programming error: refused items that must be returned via the WFS_CMD_IPM_PRESENT_MEDIA command have not been presented (see bPresentRequired in the WFS_EXEE_IPM_MEDIAREFUSED event parameters).</td>
</tr>
<tr>
<td>WFS_ERR_IPM_FEEDERNOTEMPTY</td>
<td>The media feeder is not empty.</td>
</tr>
</tbody>
</table>

Events
In addition to the generic events defined in [Ref. 1], the following events can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_USRE_IPM_MEDIABINTHRESHOLD</td>
<td>A threshold condition has occurred in one of the media bins.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIADATA</td>
<td>Delivers media images scanned after the item has been printed.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIABINERROR</td>
<td>A problem occurred with a media bin. The toner or ink supply is low or empty or the printing contrast with ribbon is weak or not sufficient, operator intervention is required. Note that this event is sent only once, at the point at which the supply becomes low or empty. It is sent with WFS_IPM_TONERLOW or WFS_IPM_TONEROUT status.</td>
</tr>
<tr>
<td>WFS_USRE_IPM_TONERTHRESHOLD</td>
<td>A threshold condition has occurred in one of the media bins.</td>
</tr>
<tr>
<td>Event Code</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>WFS_USRE_IPM_INKTHRESHOLD</td>
<td>The stamp ink supply is low or empty, operator intervention is required. Note that this event is sent only once, at the point at which the supply becomes low or empty. It is sent with WFS_IPM_INKLOW or WFS_IPM_INKOUT status.</td>
</tr>
<tr>
<td>WFS_USRE_IPM_SCANNER_THRESHOLD</td>
<td>The imaging scanner is fading or inoperative. Note that this event is sent only once, at the point at which the status changes.</td>
</tr>
<tr>
<td>WFS_SRVE_IPM_MEDIATAKEN</td>
<td>The media has been taken by the user.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIAPRESENTED</td>
<td>Media has been presented for removal.</td>
</tr>
</tbody>
</table>

Comments: None.
5.3 WFS_CMD_IPM_MEDIA_IN_ROLLBACK

Description

This command ends a media-in transaction. All media that is in the device as a result of WFS_CMD_IPM_MEDIA_IN commands is returned to the customer. Nothing is printed on the media. If no items are in the device the command will complete with the WFS_ERR_IPM_NOMEDIAPRESENT error and the transaction status will be set to WFS_IPM_MITROLLBACK.

The way in which media is returned to the customer as a result of this command is defined by the bPresentControl flag reported by the WFS_INF_IPM_CAPABILITIES command. If the bPresentControl flag is FALSE the application must call the WFS_CMD_IPM_PRESENT_MEDIA command to present the media items to be returned as a result of this command. If the bPresentControl flag is TRUE the Service Provider presents any returned items implicitly and the application does not need to call the WFS_CMD_IPM_PRESENT_MEDIA command.

If items have been refused and the WFS_IPM_EXEE_MEDIAREFUSED event has indicated that the items must be returned (i.e. bPresentRequired is TRUE) then these items must be returned using the WFS_CMD_IPM_PRESENT_MEDIA command before the WFS_CMD_IPM_MEDIA_IN_ROLLBACK command is issued, otherwise a WFS_ERR_IPM_REFUSEDITEMS error will be returned. If items have been refused and the WFS_IPM_EXEE_MEDIAREFUSED event has indicated that the items do not need to be returned (i.e. bPresentRequired is FALSE) then the WFS_CMD_IPM_MEDIA_IN_ROLLBACK command causes any refused items which have not yet been returned to the customer (via the WFS_CMD_IPM_PRESENT_MEDIA command) to be returned along with any items that are returned as a result of the rollback. The WFS_EXEE_IPM_MEDIAPRESENTED event(s) inform the application of the position where the media has been presented to.

In the case where media is returned to the customer as a result of this command, this command completes when the last bunch of media items to be returned to the customer has been presented, but before the last bunch is taken.

The media-in transaction is ended even if this command does not complete successfully.

Mixed Media Mode: If the device is operating in Mixed Media mode (WFSIPMSTATUS.wMixedMode == WFS_IPM_CIMMIXEDMEDIA) the Service Provider will not perform any operation unless the WFS_CMD_CIM_CASH_IN_ROLLBACK command is called or has already been called on the CIM interface. Alternatively, if the WFSIPMCAPS.bMixedDepositAndRollback is TRUE, then the WFS_CMD_CIM_CASH_IN_END command could be used instead of the WFS_CMD_CIM_CASH_IN_ROLLBACK command in order to deposit the bills and return the checks.

Input Param

None.

Output Param

None.

Error Codes

In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_NOMEDIAPRESENT</td>
<td>No media is present in the device.</td>
</tr>
<tr>
<td>WFS_ERR_IPM.MEDIAJAMMED</td>
<td>The media is jammed.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SEQUENCEINVALID</td>
<td>Programming error: invalid command sequence (e.g. no transaction active).</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SHUTTERFAIL</td>
<td>Open or close of the shutter failed due to manipulation or hardware error.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_POSITIONNOTEMPTY</td>
<td>The output position is not empty.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_REFUSEDITEMS</td>
<td>Programming error: refused items that must be returned via the WFS_CMD_IPM_PRESENT_MEDIA command have not been presented (see bPresentRequired in the WFS_EXEE_IPM_MEDIAREFUSED event parameters).</td>
</tr>
</tbody>
</table>
In addition to the generic events defined in [Ref. 1], the following events can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_SRVE_IPM_MEDIATAKEN</td>
<td>The media has been taken by the user.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIAPRESENTED</td>
<td>Media has been presented for removal.</td>
</tr>
</tbody>
</table>

Comments None.
5.4 WFS_CMD_IPM_READ_IMAGE

Description
On devices where items can be physically rescanned or all the supported image formats can be generated during this command (regardless of the images requested during the WFS_CMD_IPM_MEDIA_IN command), i.e. where \texttt{bRescan} capability is TRUE, then this command is used to obtain additional images and/or reread the code line for media already in the device.

On devices where \texttt{bRescan} capability is FALSE, this command is used to retrieve an image or code line that was initially obtained when the media was initially processed (e.g. during the WFS_CMD_IPM_MEDIA_IN or WFS_CMD_IPM_GET_NEXT_ITEM command). In this case, all images required must have been previously been requested during the WFS_CMD_IPM_MEDIA_IN command.

The media has to be inserted using the command WFS_CMD_IPM_MEDIA_IN. If no media is present the command returns the error code WFS_ERR_IPM_NOMEDIAPRESENT.

Input Param
\texttt{LPWFSIPMREADIMAGEIN lpReadImageIn;}

\begin{verbatim}
typedef struct _wfs_ipm_read_image_request
{
    USHORT   usMediaID;
    WORD    wCodelineFormat;
    LPWFSIPMIMAGEREQUEST *lppImage;
} WFSIPMREADIMAGEIN, *LPWFSIPMREADIMAGEIN;
\end{verbatim}

\texttt{usMediaID}
Specifies the sequence number of a media item. Valid IDs are 1 to the maximum media ID assigned within the transaction.

\texttt{wCodelineFormat}
Specifies the code line format, as a one of following values (zero if source not selected):

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_CODELINECMC7</td>
<td>Read CMC7 code line.</td>
</tr>
<tr>
<td>WFS_IPM_CODELINEE13B</td>
<td>Read E13B code line.</td>
</tr>
<tr>
<td>WFS_IPM_CODELINEOCR</td>
<td>Read code line using OCR.</td>
</tr>
</tbody>
</table>

\texttt{lppImage}
Pointer to a NULL-terminated array of pointers to WFSIPMIMAGEREQUEST structures describing the required images. If NULL no images are required.

\begin{verbatim}
typedef struct _wfs_ipm_image_request
{
    WORD    wImageSource;
    WORD    wImageType;
    WORD    wImageColorFormat;
    WORD    wImageScanColor;
    LPSTR    lpszImagePath;
} WFSIPMIMAGEREQUEST, *LPWFSIPMIMAGEREQUEST;
\end{verbatim}

\texttt{wImageSource}
Specifies the source as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGEFRONT</td>
<td>The returned image is for the front of the media item.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEBACK</td>
<td>The returned image is for the back of the media item.</td>
</tr>
</tbody>
</table>

\texttt{wImageType}
Specifies the format of the image returned by this command as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGETIF</td>
<td>The returned image is in TIFF 6.0 format. The output file name will have the .tif extension appended to the filename.</td>
</tr>
</tbody>
</table>
WFS_IPM_IMAGEWMF  The returned image is in WMF (Windows Metafile) format. The output file name will have the .wmf extension appended to the filename.

WFS_IPM_IMAGEBMP  The returned image is in Windows BMP format. The output file name will have the .bmp extension appended to the filename.

WFS_IPM_IMAGEJPG  The returned image is in JPG format. The output file name will have the .jpg extension appended to the filename.

**wImageColorFormat**
Specifies the color format of the requested image as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGECOLORBINARY</td>
<td>The scanned images has to be returned in binary (image contains two colors, usually the colors black and white).</td>
</tr>
<tr>
<td>WFS_IPM_IMAGECOLORGRAYSCALE</td>
<td>The scanned images has to be returned in gray scale (image contains multiple gray colors).</td>
</tr>
<tr>
<td>WFS_IPM_IMAGECOLORFULL</td>
<td>The scanned images has to be returned in full color (image contains colors like red, green, blue etc.).</td>
</tr>
</tbody>
</table>

**wImageScanColor**
Selects the scan color. The value is specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SCANCOLORDEFAULT</td>
<td>Select the default scan color for the side of the item being scanned.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORRED</td>
<td>Select the red scan color.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORGREEN</td>
<td>Select the green scan color.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORBLUE</td>
<td>Select the blue scan color.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORYELLOW</td>
<td>Select the yellow scan color.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORWHITE</td>
<td>Select the white scan color.</td>
</tr>
</tbody>
</table>

**lpszImagePath**
Specifies the full path and file name where the image will be stored. If NULL is provided for this field then the command will be rejected with the WFS_ERR_INVALID_DATA error. If the folder does not exist or cannot be accessed by the Service Provider then the command will be rejected with the WFS_ERR_IPM_FILEIOERROR error. This value is terminated with a single null character and cannot contain UNICODE characters.

**Output Param**  LPWFSIPMMEDIADATA lpMediaData;

```c
typedef struct _wfs_ipm_mediadata
{
    USHORT usMediaID;
    ULONG ulCodelineDataLength;
    LPBYTE lpbCodelineData;
    WORD wMagneticReadIndicator;
    LPWFSIPMMAGEDATA *lppImage;
    WORD fwInsertOrientation;
    LPWFSIPMMEDIASIZE lpMediaSize;
    WORD wMediaValidity;
} WFSIPMMEDIADATA, *LPWFSIPMMEDIADATA;
```

**usMediaID**
Specifies the sequence number (starting from 1) of the media item.

**ulCodelineDataLength**
Count of bytes of the following lpbCodelineData.
Points to the code line data. \textit{lpbCodelineData} contains characters in the ASCII range. If the code line was read using the OCR-A font then the ASCII codes will conform to Figure E1 in ANSI X3.17-1981. If the code line was read using the OCR-B font then the ASCII codes will conform to Figure C2 in ANSI X3.49-1975. In both these cases unrecognized characters will be reported as the REJECT code, 0x1A. The E13B and CMC7 fonts use the ASCII equivalents for the standard characters and use the byte values as reported by the WFS\_INF\_IPM\_CODELINE\_MAPPING command for the symbols that are unique to MICR fonts.

\textit{wMagneticReadIndicator}

Specifies the type of technology used to read a MICR code line.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_MRI_MICR</td>
<td>The MICR code line was read using MICR technology and MICR characters were present.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_NOT_MICR</td>
<td>The MICR code line was NOT read using MICR technology.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_NO_MICR</td>
<td>The MICR code line was read using MICR technology and no magnetic characters were read.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_UNKNOWN</td>
<td>It is unknown how the MICR code line was read.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_NOTMICRFORMAT</td>
<td>The code line is not a MICR format code line.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_NOT_READ</td>
<td>No code line was read.</td>
</tr>
</tbody>
</table>

\textit{lppImage}

Pointer to a NULL-terminated array of pointers to WFS\_IPM\_IMAGEDATA structures. If image data items have not been requested then \textit{lppImage} will be set to NULL. If the Service Provider has determined the orientation of the media (i.e. \textit{fwInsertOrientation} is not set to WFS\_IPM\_INSUNKNOWN), then all images returned are in the standard orientation and the images will match the image source requested by the application. This means that images will be returned with the code line at the bottom, and the image of the front and rear of the media item will be returned in the structures associated with the WFS\_IPM\_IMAGEFRONT and WFS\_IPM\_IMAGEBACK image sources respectively.

```c
typedef struct _wfs_ipm_image_data
{
    WORD    wImageSource;
    WORD    wImageType;
    WORD    wImageColorFormat;
    WORD    wImageScanColor;
    WORD    wImageStatus;
    LPSTR    lpszImageFile;
} WFSIPMIMAGEDATA, *LPWFSIPMIMAGEDATA;
```

\textit{wImageSource}

Specifies the source of the data returned by this item as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGEFRONT</td>
<td>The returned image is for the front of the media item.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEBACK</td>
<td>The returned image is for the back of the media item.</td>
</tr>
</tbody>
</table>

\textit{wImageType}

Specifies the format of the image returned by this item as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGETIF</td>
<td>The returned image is in TIFF 6.0 format.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEWMF</td>
<td>The returned image is in WMF (Windows Metafile) format.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEBMP</td>
<td>The returned image is in Windows BMP format.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEJPG</td>
<td>The returned image is in JPG format.</td>
</tr>
</tbody>
</table>
wImageColorFormat
Specifies the color format of the image returned by this item as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGECOLORBINARY</td>
<td>The scanned image is returned in binary format (image contains two colors, usually the colors black and white).</td>
</tr>
<tr>
<td>WFS_IPM_IMAGECOLORGRAYSCALE</td>
<td>The scanned image is returned in binary format (image contains multiple gray colors).</td>
</tr>
<tr>
<td>WFS_IPM_IMAGECOLORFULL</td>
<td>The scanned image is returned in full color (image contains colors like red, green, blue, etc.).</td>
</tr>
</tbody>
</table>

wImageScanColor
Specifies the scan color of the image returned by this item as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SCANCOLORRED</td>
<td>The image was scanned with red light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORGREEN</td>
<td>The image was scanned with green light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORBLUE</td>
<td>The image was scanned with blue light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORYELLOW</td>
<td>The image was scanned with yellow light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORWHITE</td>
<td>The image was scanned with white light.</td>
</tr>
</tbody>
</table>

wImageStatus
Status of the requested image data. Possible values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_DATAOK</td>
<td>The data is OK.</td>
</tr>
<tr>
<td>WFS_IPM_DATASRCNOTSUPP</td>
<td>The data source or image attributes are not supported by the Service Provider, e.g. scan color not supported.</td>
</tr>
<tr>
<td>WFS_IPM_DATASRCMISSING</td>
<td>The requested image could not be obtained.</td>
</tr>
</tbody>
</table>

lpszImageFile
Specifies the full path and file name where the image is stored, e.g. “C:\Temp\FrontImage.bmp”. This value is terminated with a single null character and cannot contain UNICODE characters. The path and file name used is selected by the input parameters.

fwInsertOrientation
This value reports how the media item was actually inserted into the input position (from the customer’s perspective). This value is either WFS_IPM_INSUNKNOWN or a combination of the following flags consisting of one of type A and one of type B.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_INSUNKNOWN</td>
<td>The orientation of the inserted media is unknown.</td>
<td>N/A</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINERIGHT</td>
<td>The code line is to the right.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINELEFT</td>
<td>The code line is to the left.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINEBOTTOM</td>
<td>The code line is to the bottom.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINETOP</td>
<td>The code line is to the top.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_INSFACEUP</td>
<td>The front of the media (the side with the code line) is facing up.</td>
<td>B</td>
</tr>
<tr>
<td>WFS_IPM_INSFACEDOWN</td>
<td>The front of the media (the side with the code line) is facing down.</td>
<td>B</td>
</tr>
</tbody>
</table>

lpMediaSize
Pointer to a WFSIPMMEDIASIZE structure that specifies the size of the media item. lpMediaSize is NULL if the device does not support media size measurement.
typedef struct _wfs_ipm_media_size
{
    ULONG    ulSizeX;
    ULONG    ulSizeY;
} WFSIPMMEDIASIZE, *LPWFSIPMMEDIASIZE;

ulSizeX
Specifies the width of the media in millimeters, or zero if unknown.

ulSizeY
Specifies the height of the media in millimeters, or zero if unknown.

wMediaValidity
Media items may have special security features which can be detected by the device. This field specifies whether the media item is suspect or valid, allowing the application a choice in how to further process a media item that could not be confirmed as being valid. This value is specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_ITEMOK</td>
<td>The media item is valid.</td>
</tr>
<tr>
<td>WFS_IPM_ITEMSUSPECT</td>
<td>The validity of the media item is suspect.</td>
</tr>
<tr>
<td>WFS_IPM_ITEMUNKNOWN</td>
<td>The validity of the media item is unknown.</td>
</tr>
<tr>
<td>WFS_IPM_ITEMNOVALIDATION</td>
<td>No specific security features were evaluated.</td>
</tr>
</tbody>
</table>

Error Codes
In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_MEDIAJAMMED</td>
<td>The media is jammed.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_FILEIOERROR</td>
<td>Directory does not exist or file IO error while storing the image to the hard disk.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SCANNERINOP</td>
<td>Only images were requested by the application and these cannot be obtained because the image scanner is inoperative.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MICRINOP</td>
<td>Only MICR data was requested by the application and it cannot be obtained because the MICR reader is inoperative.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_NOMEDIAPRESENT</td>
<td>No media is present in the device.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SEQUENCEINVALID</td>
<td>Programming error: invalid command sequence.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_INVALIDMEDIAID</td>
<td>The requested media ID does not exist.</td>
</tr>
</tbody>
</table>

Events
In addition to the generic events defined in [Ref. 1], the following events can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_USRE_IPM_SCANNERTHRESHOLD</td>
<td>The imaging scanner is fading or inoperative. Note that this event is sent only once, at the point at which the status changes.</td>
</tr>
<tr>
<td>WFS_USRE_IPM_MICRTHRESHOLD</td>
<td>The MICR reader performance is degraded or the reader is inoperative. Note that this event is sent only once, at the point at which the status changes.</td>
</tr>
</tbody>
</table>

Comments
None.
5.5 WFS_CMD_IPM_SET_DESTINATION

Description
This command is used to predefine the destination of the specified media item. The media is not moved immediately by this command. On devices with stackers, the command WFS_CMD_IPM_MEDIA_IN_END transports the corresponding media item to the defined destination. On devices without stackers, the command WFS_CMD_IPM_ACTION_ITEM transports the corresponding media item to the defined destination.

The Service Provider will determine which bin to use for any items that have not had a destination set by the application.

Input Param
LPWFSIPMSETDESTINATION lpSetDestination;

typedef struct _wfs_ipm_set_destination
{
    USHORT        usMediaID;
    USHORT        usBinNumber;
} WFSIPMSETDESTINATION, *LPWFSIPMSETDESTINATION;

usMediaID
Specifies the sequence number of a media item. Valid IDs are 1 to the maximum media ID assigned within the transaction. Zero selects all media on the stacker.

usBinNumber
Specifies the number of a media bin or zero to return the media items to the customer. The media bins that can accept deposited items can be obtained through the WFS_INF_IPM_MEDIA_BIN_INFO command.

Output Param
None.

Error Codes
In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_NOMEDIAPRESENT</td>
<td>No media is present in the device.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SEQUENCEINVALID</td>
<td>Programming error: invalid command sequence.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_INVALIDMEDIAID</td>
<td>The requested media ID does not exist.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_INVALIDBIN</td>
<td>The specified bin cannot take media, either it is a retract only bin or it is missing.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_NOBIN</td>
<td>The specified bin does not exist.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIABINFULL</td>
<td>The media bin is already full and no media can be placed in the specified bin.</td>
</tr>
</tbody>
</table>

Events
Only the generic events defined in [Ref. 1] can be generated by this command.

Comments
None.
5.6 WFS_CMD_IPM_PRESENT_MEDIA

Description

This command is used to present media items to the customer. Applications can use this command to return refused items without terminating the media-in transaction. This allows customers to correct the problem with the media item and reinsert during execution of a subsequent WFS_CMD_IPM_MEDIA_IN command.

This command is also used to return items after a WFS_CMD_IPM_MEDIA_IN_END or WFS_CMD_IPM_MEDIA_IN_ROLLBACK command when the bPresentControl flag reported by the WFS_INF_IPM_CAPABILITIES command is FALSE.

A WFS_EXEE_IPM_MEDIAPRESENTED event is generated when media is presented and a WFS_SRVE_IPM_MEDIATAKEN event is generated when the media is taken (if the position has a taken sensor (WFSIPMPOSCAPS.bItemsTakenSensor == TRUE)).

This command completes when the last bunch of media items to be returned to the customer has been presented, but before the last bunch is taken.

Mixed Media Mode: If the device is operating in Mixed Media mode (WFSIPMSTATUS.wMixedMode == WFS_IPM_CIMMIXEDMEDIA) the Service Provider will not perform any operation unless the WFS_CMD_CIM_PRESENT_MEDIA command is called or has already been called on the CIM interface.

Input Param

LPWFSIPMPRESENTMEDIA lpPresentMedia;

typedef struct _wfs_ipm_present_media
  {
    WORD wPosition;
  } WFSIPMPRESENTMEDIA, *LPWFSIPMPRESENTMEDIA;

wPosition

Specifies the position where items are returned from as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_REFUSE_INPUT</td>
<td>Items in the input position are presented to the customer.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSE_REFUSED</td>
<td>Items in the refused media position are presented to the customer.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSE_REBUNCHER</td>
<td>Items in the refuse/return re-buncher are presented to the customer.</td>
</tr>
</tbody>
</table>

If wPosition is zero then all refused items are returned from all positions in a sequence determined by the Service Provider. In general the media items in the input position should be returned before those in any other position.

Output Param

None.

Error Codes

In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_NOMEDIAPRESENT</td>
<td>The control action could not be completed because there is no media in the position specified.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SHUTTERFAIL</td>
<td>Open of the shutter failed due to manipulation or hardware error.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIAJAMMED</td>
<td>The media is jammed.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SEQUENCEINVALID</td>
<td>Programming error: invalid command sequence.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_POSITIONNOTEMPTY</td>
<td>One of the input/output/refused positions is not empty.</td>
</tr>
</tbody>
</table>

Events

In addition to the generic events defined in [Ref. 1], the following events can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_SRVE_IPM_MEDIATAKEN</td>
<td>The media has been taken by the user.</td>
</tr>
<tr>
<td>Comments</td>
<td>None.</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIAPRESENTED</td>
<td>Media has been presented for removal.</td>
</tr>
</tbody>
</table>
5.7 **WFS_CMD_IPM_RETRACT_MEDIA**

**Description**

The media is removed from its present position (media present in device, media entering, unknown position) and stored in the area specified in the input parameters.

A threshold event is sent if the high or full condition is reached as a result of this command. If the bin is already full and the command cannot be executed, an error is returned and the media remains in its present position.

If media items are to be endorsed/stamped during this operation, then the `WFS_CMD_IPM_PRINT_TEXT` command must be called prior to the `WFS_CMD_IPM_RETRACT_MEDIA` command. Where endorsing is specified, the same text will be printed on all media items that are detected.

This command ends the current media-in transaction.

If no items are in the device the command will complete with the `WFS_ERR_IPM_NOMEDIAPRESENT` error and the transaction status will be set to `WFS_IPM_MITRETRACT`.

**Mixed Media Mode:** If the device is operating in Mixed Media mode (WFSIPMSTATUS.wMixedMode == WFS_IPM_CIMMIXEDMEDIA) the Service Provider will not perform any operation unless the `WFS_CMD_CIM_RETRACT` command is called or has already been called on the CIM interface. Where the items are to be retracted to a media bin, the bin must support a `wMediaType` of `WFS_IPM_MEDIATYPCOMPOUND`. On completion, the members of the WFSIPMRETRACTMEDIAOUT structure will refer to IPM items.

**Input Param**

`LPWFSIPMPRETRACTMEDIA lpRetractMedia;`

If the application does not wish to specify a position it can set `lpRetractMedia` to NULL. In this case the Service Provider will determine where to move any items found.

```c
typedef struct _wfs_ipm_retract_media {
    WORD    wRetractLocation;
    USHORT   usBinNumber;
} WFSIPMRETRACTMEDIA, *LPWFSIPMRETRACTMEDIA;
```

- **wRetractLocation**
  
  Specifies the location for the retracted media. See the `fwRetractLocation` capability to determine the supported locations. This field can take one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_CTRLRETRACTTOBIN</td>
<td>Retract the media to the retract bin specified in <code>usBinNumber</code>.</td>
</tr>
<tr>
<td>WFS_IPM_CTRLRETRACTTOTRANSPORT</td>
<td>Retract the media to the transport.</td>
</tr>
<tr>
<td>WFS_IPM_CTRLRETRACTTOSTACKER</td>
<td>Retract the media to the stacker.</td>
</tr>
<tr>
<td>WFS_IPM_CTRLRETRACTTOREBUNCHER</td>
<td>Retract the media to the re-buncher.</td>
</tr>
</tbody>
</table>

- **usBinNumber**
  
  If `wRetractLocation` is `WFS_IPM_CTRLRETRACTTOBIN` then this field contains the `usBinNumber` of the media bin where the media should be retracted to. This media bin must have a `fwType` field that includes the `WFS_IPM_TYPERETRACT` flag. If `wRetractLocation` is not `WFS_IPM_CTRLRETRACTTOBIN` then this field is ignored.

**Output Param**

`LPWFSIPMPRETRACTMEDIAOUT lpRetractMediaOut;`

```c
typedef struct _wfs_ipm_retract_media_out {
    USHORT   usMedia;
    WORD    wRetractLocation;
    USHORT   usBinNumber;
} WFSIPMRETRACTMEDIAOUT, *LPWFSIPMRETRACTMEDIAOUT;
```

- **usMedia**
  
  Contains the number of media items retracted as a result of this command or `WFS_IPM_MEDIANUMBERUNKNOWN` if the number of items is unknown (e.g. device cannot count retracted items).
**wRetractLocation**
Contains the location of the retracted items as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_CTRLRETRACTTOBIN</td>
<td>The media has been retracted to the bin specified in <em>usBinNumber</em>.</td>
</tr>
<tr>
<td>WFS_IPM_CTRLRETRACTTOTRANSPORT</td>
<td>The media has been retracted to the transport.</td>
</tr>
<tr>
<td>WFS_IPM_CTRLRETRACTTOSTACKER</td>
<td>The media has been retracted to the stacker.</td>
</tr>
<tr>
<td>WFS_IPM_CTRLRETRACTTOREBUNCHER</td>
<td>The media has been retracted to the re-buncher.</td>
</tr>
</tbody>
</table>

**usBinNumber**
The *usBinNumber* of the media bin where the items were retracted to. This value is zero if the *wRetractLocation* is not WFS_IPM_CTRLRETRACTTOBIN.

**Error Codes**
In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_NOMEDIAPRESENT</td>
<td>No media present on retract. Either there was no media present (in a position to be retracted) when the command was called or the media was removed during the retract.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIAJAMMED</td>
<td>The media is jammed.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_STACKERFULL</td>
<td>The stacker or re-buncher is full.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_INVALIDBIN</td>
<td>The specified bin cannot retract media.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_NOBIN</td>
<td>The specified bin does not exist.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIABINERROR</td>
<td>A problem occurred with a media bin. A WFS_EXEE_IPM_MEDIABINERROR event will be sent with the details.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SHUTTERFAIL</td>
<td>Open or close of the shutter failed due to manipulation or hardware error.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_FOREIGNITEMSDETECTED</td>
<td>Foreign items have been detected in the input position.</td>
</tr>
</tbody>
</table>

**Events**
In addition to the generic events defined in [Ref. 1], the following events can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_USRE_IPM_MEDIABINTHRESHOLD</td>
<td>A threshold condition has occurred in the retract bin.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIABINERROR</td>
<td>A problem occurred with the retract bin.</td>
</tr>
<tr>
<td>WFS_SRV restoration MEDIATAKEN</td>
<td>The media has been taken by the user.</td>
</tr>
</tbody>
</table>

**Comments**
If a retract request is received by a device with no retract capability, the WFS_ERR_UNSUPP_COMMAND error is returned.
5.8 WFS_CMD_IPM_PRINT_TEXT

Description
This command is used to predefine the data that will be printed on a media item and nothing is printed during execution of this command. On devices with stackers the data is printed when the bunch is processed through the WFS_CMD_IPM_MEDIA_IN_END command. The request will not be performed if the bunch is returned with the WFS_CMD_IPM_MEDIA_IN_ROLLBACK command. On devices without stackers the data is printed when the WFS_CMD_IPM_ACTION_ITEM command is executed.

The data will be printed on media items that are identified to be returned to the customer using the WFS_CMD_IPM_SET_DESTINATION command if the fwReturnedItemsProcessing capability has the WFS_IPM_RETITEMENDORSE flag set.

For devices that can print multiple lines each line is separated by a Carriage Return (Unicode 0x000D) and Line Feed (Unicode 0x000A) sequence.

The media has to be inserted before this command is called. If no media is present the command returns the error code WFS_ERR_IPM_NOMEDIAPRESENT.

This command can also be used to endorse/stamp media items detected during both WFS_CMD_IPM_RETRACT_MEDIA and WFS_CMD_IPM_RESET commands. In this case, usMediaID must be zero and the same text will be printed on all media items that are detected. When usMediaID is zero, the data that is specified in the WFS_CMD_IPM_PRINT_TEXT command will override any text that has previously been specified in any earlier WFS_CMD_IPM_PRINT_TEXT commands in the current media-in transaction.

Input Param
LPWFSIPMPRINTTEXT lpPrintText;

typedef struct _wfs_ipm_print_text
{
   USHORT usMediaID;
   BOOL bStamp;
   LPWSTR lpszPrintData;
} WFSIPMPRINTTEXT, *LPWFSIPMPRINTTEXT;

usMediaID
Specifies the sequence number of a media item. Valid IDs are 1 to the maximum media ID assigned within the transaction. Zero selects all media on the stacker.

bStamp
Specifies whether the media will be stamped.

lpszPrintData
Specifies the UNICODE data that will be printed on the media item that is entered by the customer. If a UNICODE character is not supported by the device it will be replaced by a vendor dependent substitution character.

Output Param
None.

Error Codes
In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_TONEROUT</td>
<td>Toner or ink supply is empty or printing contrast with ribbon is not sufficient.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_INKOUT</td>
<td>No stamping possible, stamping ink supply empty.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_NOMEDIAPRESENT</td>
<td>No media is present in the device.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_INVALIDMEDIAID</td>
<td>The requested media ID does not exist.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SEQUENCEINVALID</td>
<td>Programming error: invalid command sequence.</td>
</tr>
</tbody>
</table>

Events
Only the generic events defined in [Ref. 1] can be generated by this command.

Comments
None.
5.9 WFS_CMD_IPM_SET_MEDIA_BIN_INFO

Description
This command is used to adjust information about the status and contents of the media bins present in the IPM.

This command generates the service event WFS_SRVE_IPM_MEDIABININFOCHANGED to inform applications that media bin information has been changed.

This command can only be used to change the application defined bin identifier, software counters and thresholds. All other fields in the input structure will be ignored.

The following fields of the WFSIPPMEDIABIN structure may be updated by this command:

- lpstrBinID
- ulMediaInCount
- ulCount
- ulRetractOperations
- ulMaximumItems
- ulMaximumRetractOperations

The WFS_EXEE_IPM_MEDIABINERROR event can be generated if there is a problem accessing a media bin on systems that store media bin data on the bin hardware. This event can be generated when the command fails with a WFS_ERR_IPM_MEDIABINERROR error or completes with WFS_SUCCESS. WFS_SUCCESS will be reported when some media bin details are changed successfully but some fail. If no bins are changed the WFS_ERR_IPM_MEDIABINERROR error will be returned.

Input Param
LPWFSIPPMEDIABININFO lpMediaBinInfo;

The WFSIPPMEDIABININFO structure is specified in the documentation of the WFS_INF_IPM_MEDIA_BIN_INFO command. All media bins must be included not just the media bins whose values are to be changed.

Output Param
None.

Error Codes
In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_INVALIDBIN</td>
<td>Invalid media bin.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIABINERROR</td>
<td>A problem occurred with the media bins, no bin settings have been changed. The WFS_EXEE_IPM_MEDIABINERROR event will be report the error details.</td>
</tr>
</tbody>
</table>

Events
In addition to the generic events defined in [Ref. 1], the following events can be generated as a result of this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_USRE_IPM_MEDIABINTHRESHOLD</td>
<td>A threshold condition has been reached or cleared in one of the media bins.</td>
</tr>
<tr>
<td>WFS_SRVE_IPM_MEDIABININFOCHANGED</td>
<td>A media bin was updated as a result of this command.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIABINERROR</td>
<td>A problem occurred with a media bin. Note: This event can be generated even when the command completes with WFS_SUCCESS.</td>
</tr>
</tbody>
</table>

Comments
None.
5.10 WFS_CMD_IPM_RESET

Description

This command is used by the application to perform a hardware reset which will attempt to return
the IPM device to a known good state. This command does not override a lock obtained on
another application or service handle.

The device will attempt to retract or eject any items found anywhere within the device. This may
not always be possible because of hardware problems. One or more
WFS_SRVE_IPM.MEDIADETECTED events will inform the application where items were
actually moved to.

If media items are to be endorsed/stamped during this operation, then the
WFS_CMD_IPM_PRINT_TEXT must be called prior to the WFS_CMD_IPM_RESET
command. Where endorsing is specified, the same text will be printed on all media items that are
detected.

This command ends a media-in transaction started by the WFS_CMD_IPM.MEDIA_IN
command.

Mixed Media Mode: Where the items are to be moved to a media bin, the bin must support a
wMediaType of WFS_IPM.MEDIAATYPECOMPOUND.

Input Param

LPWFSIPMRESET lpReset;

Specifies where media that is found in the device should be moved to. The media destinations
supported by the Service Provider are reported by the WFS_INF_IPM_CAPABILITIES
command. If the application does not wish to specify a position it can set lpReset to NULL. In this
case the Service Provider will determine where to move any items found.

typedef struct _wfs_ipm_reset
{ |
    WORD    wMediaControl;
    USHORT   usBinNumber;
 } WFSIPMRESET, *LPWFSIPMRESET;

wMediaControl

Specifies the manner in which the media should be handled, as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_RESETEJECT</td>
<td>Eject the media, i.e. return the media to the</td>
</tr>
<tr>
<td></td>
<td>customer. Note that more than one position</td>
</tr>
<tr>
<td></td>
<td>may be used to return media.</td>
</tr>
<tr>
<td>WFS_IPM_RESETRETRACTTOBIN</td>
<td>Retract the media to the retract bin as</td>
</tr>
<tr>
<td></td>
<td>specified in usBinNumber.</td>
</tr>
<tr>
<td>WFS_IPM_RESETRETRACTTOTRANSPORT</td>
<td>Retract the media to the transport.</td>
</tr>
<tr>
<td>WFS_IPM_RESETRETRACTTOREBUNCHER</td>
<td>Retract the media to the re-buncher.</td>
</tr>
</tbody>
</table>

usBinNumber

Number of the retract bin the media is retracted to. It is only relevant if wMediaControl equals
WFS_IPM_RESETRETRACTTOBIN. The numbers of available media bins can be obtained
through the usBinNumber and fwType fields returned by the
WFS_INF_IPM.MEDIA_BIN_INFO command.

Output Param

None.

Error Codes

In addition to the generic error codes defined in [Ref. 1], the following error codes can be
generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_SHUTTERFAIL</td>
<td>Open or close of the shutter failed due</td>
</tr>
<tr>
<td></td>
<td>to manipulation or hardware error.</td>
</tr>
<tr>
<td>WFS_ERR_IPM.MEDIAJAMMED</td>
<td>The media is jammed. Operator intervention</td>
</tr>
<tr>
<td></td>
<td>is required.</td>
</tr>
<tr>
<td>WFS_ERR_IPM.MEDIABINERROR</td>
<td>A problem occurred with a media bin. A</td>
</tr>
<tr>
<td></td>
<td>WFS_EXEE_IPM.MEDIABINERROR event will be</td>
</tr>
<tr>
<td></td>
<td>sent with the details.</td>
</tr>
</tbody>
</table>
**WFS_ERR_IPM_INVALIDBIN**  The bin cannot accept retracted items.

**Events**  In addition to the generic events defined in [Ref. 1], the following events can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_SRVE_IPM_MEDIADETECTED</td>
<td>A media is detected in the device during a reset operation.</td>
</tr>
<tr>
<td>WFS_USRE_IPM_MEDIABINTHRESHOLD</td>
<td>A threshold condition has occurred in the retract bin.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIABINERROR</td>
<td>A problem occurred with the retract bin.</td>
</tr>
<tr>
<td>WFS_SRVE_IPM_MEDIATAKEN</td>
<td>The media has been taken by the user.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIAPRESENTED</td>
<td>Media has been presented for removal.</td>
</tr>
</tbody>
</table>

**Comments**  None.
5.11 WFS_CMD_IPM_SET_GUIDANCE_LIGHT

**Description**
This command is used to set the status of the IPM guidance lights. This includes defining the flash rate and the color. When an application tries to use a color that is not supported then the Service Provider will return the generic error WFS_ERR_UNSUPP_DATA.

**Input Param**

<table>
<thead>
<tr>
<th>LPWFSIPMSETGUIDLIGHT lpSetGuidLight;</th>
</tr>
</thead>
<tbody>
<tr>
<td>typedef struct _wfs_ipm_set_guidlight</td>
</tr>
<tr>
<td>{</td>
</tr>
<tr>
<td>WORD wGuidLight;</td>
</tr>
<tr>
<td>DWORD dwCommand;</td>
</tr>
<tr>
<td>} WFSIPMSETGUIDLIGHT, *LPWFSIPMSETGUIDLIGHT;</td>
</tr>
</tbody>
</table>

- **wGuidLight** Specifies the index of the guidance light to be set as one of the values defined within the capabilities section.

- **dwCommand** Specifies the state of the guidance light indicator as WFS_IPM_GUIDANCE_OFF or a combination of the following flags consisting of one type B, and optionally one type C. If no value of type C is specified then the default color is used. The Service Provider determines which color is used as the default color.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_GUIDANCE_OFF</td>
<td>The light indicator is turned off.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_SLOW_FLASH</td>
<td>The light indicator is set to flash slowly.</td>
<td>B</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_MEDIUM_FLASH</td>
<td>The light indicator is set to flash medium frequency.</td>
<td>B</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_QUICK_FLASH</td>
<td>The light indicator is set to flash quickly.</td>
<td>B</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_CONTINUOUS</td>
<td>The light indicator is turned on continuously (steady).</td>
<td>B</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_RED</td>
<td>The light indicator color is set to red.</td>
<td>C</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_GREEN</td>
<td>The light indicator color is set to green.</td>
<td>C</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_YELLOW</td>
<td>The light indicator color is set to yellow.</td>
<td>C</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_BLUE</td>
<td>The light indicator color is set to blue.</td>
<td>C</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_CYAN</td>
<td>The light indicator color is set to cyan.</td>
<td>C</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_MAGENTA</td>
<td>The light indicator color is set to magenta.</td>
<td>C</td>
</tr>
<tr>
<td>WFS_IPM_GUIDANCE_WHITE</td>
<td>The light indicator color is set to white.</td>
<td>C</td>
</tr>
</tbody>
</table>

**Output Param**
None.

**Error Codes**
In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_INVALID_PORT</td>
<td>An attempt to set a guidance light to a new value was invalid because the guidance light does not exist.</td>
</tr>
</tbody>
</table>

**Events**
Only the generic events defined in [Ref. 1] can be generated by this command.

**Comments**
The slow and medium flash rates must not be greater than 2.0 Hz. It should be noted that in order to comply with American Disabilities Act guidelines only a slow or medium flash rate must be used.
5.12 WFS_CMD_IPM_GET_NEXT_ITEM

Description
This command is used to get the next item from the multi-item feed unit and capture the item data. The data and the format of the data that is generated by this command are defined by the input parameters of the WFS_CMD_IPM_MEDIA_IN command. The media data is reported via the WFS_EXEE_IPM_MEDIADATA event.

This command must be supported by all Service Providers where the hardware does not have a stacker or where the Service Provider supports the application making the accept/refuse decision. On single item feed devices this command simply returns the error code WFS_ERR_IPM_NOMEDIAPRESENT. This allows a single application flow to be used on all devices without a stacker.

Input Param
None.

Output Param
LPWFSIPMNEXTITEMOUT lpNextItemOut;

typedef struct _wfs_ipm_next_item_out
{
    WORD wMediaFeeder;
} WFSIPMNEXTITEMOUT, *LPWFSIPMNEXTITEMOUT;

wMediaFeeder
Supplies the state of the media feeder. This value indicates if there are items on the media feeder waiting for processing via the WFS_CMD_IPM_GET_NEXT_ITEM command. This value can be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_FEEDEREMPTY</td>
<td>The media feeder is empty.</td>
</tr>
<tr>
<td>WFS_IPM_FEEDERNOTEMPTY</td>
<td>The media feeder is not empty.</td>
</tr>
<tr>
<td>WFS_IPM_FEEDERNOTSUPP</td>
<td>The physical device has no media feeder.</td>
</tr>
</tbody>
</table>

Error Codes
In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_NOMEDIAPRESENT</td>
<td>No media is present on the media feeder.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIAJAMMED</td>
<td>The media is jammed.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_FILEIOERROR</td>
<td>Directory does not exist or file IO error while storing the image to the hard disk.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_REFUSEDITEMS</td>
<td>Programming error: refused items that must be returned via the WFS_CMD_IPM_PRESENT_MEDIA command have not been presented (see bPresentRequired in the WFS_EXEE_IPM_MEDIAREFUSED event parameters).</td>
</tr>
<tr>
<td>WFS_ERR_IPM_POSITIONNOTEMPTY</td>
<td>One of the input/output/refused positions is not empty.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SCANNERINOP</td>
<td>Only images were requested by the application and these cannot be obtained because the image scanner is inoperative.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MICRINOP</td>
<td>Only MICR data was requested by the application and it cannot be obtained because the MICR reader is inoperative.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SEQUENCEINVALID</td>
<td>Programming error: invalid command sequence.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_FEEDERINOPERATIVE</td>
<td>The media feeder is inoperative.</td>
</tr>
</tbody>
</table>

Events
In addition to the generic events defined in [Ref. 1], the following events can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_EXEE_IPM_MEDIAREFUSED</td>
<td>Media has been refused.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM_MEDIADATA</td>
<td>Delivers media data (images and code line) during the command.</td>
</tr>
<tr>
<td>Event Code</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>WFS_USRE_IPM_SCANNER_THRESHOLD</td>
<td>The imaging scanner is fading or inoperative. Note that this event is sent only once, at the point at which the status changes.</td>
</tr>
<tr>
<td>WFS_USRE_IPM_MICR_THRESHOLD</td>
<td>The MICR reader performance is degraded or the reader is inoperative. Note that this event is sent only once, at the point at which the status changes.</td>
</tr>
</tbody>
</table>

**Comments**
None.
5.13 WFS_CMD_IPM_ACTION_ITEM

Description
This command is used to cause the predefined actions (move item to destination, stamping, endorsing, re-imaging) to be executed on the current media item. This command only applies to devices without stackers and on devices with stackers this command is not supported.

Input Param
None.

Output Param
None.

Error Codes
In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_SHUTTERFAIL</td>
<td>Open or close of the shutter failed due to manipulation or hardware error.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIABINERROR</td>
<td>A problem occurred with a media bin. A WFS_EXEE_IPM_MEDIABINERROR event will be sent with the details.</td>
</tr>
<tr>
<td>WFS_ERR_IPM.MEDIAJAMMED</td>
<td>The media is jammed.</td>
</tr>
<tr>
<td>WFS_ERR_IPM.TONEROUT</td>
<td>Toner or ink supply is empty or printing contrast with ribbon is not sufficient.</td>
</tr>
<tr>
<td>WFS_ERR_IPM.INKOUT</td>
<td>No stamping possible, stamping ink supply empty.</td>
</tr>
<tr>
<td>WFS_ERR_IPM.NOMEDIAPRESENT</td>
<td>No media is present in the device.</td>
</tr>
<tr>
<td>WFS_ERR_IPM.SEQUENCEINVALID</td>
<td>Programming error: invalid command sequence.</td>
</tr>
<tr>
<td>WFS_ERR_IPM.FILEIOERROR</td>
<td>Directory does not exist or file IO error while storing the image to the hard disk.</td>
</tr>
<tr>
<td>WFS_ERR_IPM.ScannerINOP</td>
<td>The scanner is inoperative.</td>
</tr>
<tr>
<td>WFS_ERR_IPM.REFUSEDITEMS</td>
<td>Programming error: refused items that must be returned via the WFS_CMD_IPM_PRESENT_MEDIA command have not been presented (see bPresentRequired in the WFS_EXEE_IPM_MEDIAREFUSED event parameters).</td>
</tr>
<tr>
<td>WFS_ERR_IPM.POSITIONNOTEMPTY</td>
<td>One of the input/output/refused positions is not empty.</td>
</tr>
</tbody>
</table>

Events
In addition to the generic events defined in [Ref. 1], the following events can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_SRVE_IPM.MEDIATAKEN</td>
<td>The media has been taken by the user.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM.MEDIAPRESENTED</td>
<td>Media has been presented for removal.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM.MEDIADATA</td>
<td>Delivers media images scanned after the item has been printed.</td>
</tr>
<tr>
<td>WFS_USRE_IPM.MEDIABINTHRESHOLD</td>
<td>A threshold condition has occurred in one of the media bins.</td>
</tr>
<tr>
<td>WFS_EXEE_IPM.MEDIABINERROR</td>
<td>A problem occurred with a media bin.</td>
</tr>
<tr>
<td>WFS_USRE_IPM.TONERITHRESHOLD</td>
<td>The toner or ink supply is low or empty or the printing contrast with ribbon is weak or not sufficient, operator intervention is required. Note that this event is sent only once, at the point at which the supply becomes low or empty. It is sent with WFS_IPM_TONERLOW or WFS_IPM_TONEROUT status.</td>
</tr>
<tr>
<td>Event Name</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>WFS_USRE_IPM_INKTHRESHOLD</td>
<td>The stamp ink supply is low or empty, operator intervention is required. Note that this event is sent only once, at the point at which the supply becomes low or empty. It is sent with WFS_IPM_INKLOW or WFS_IPM_INKOUT status.</td>
</tr>
<tr>
<td>WFS_USRE_IPM_SCANNERTHRESHOLD</td>
<td>The imaging scanner is fading or inoperative. Note that this event is sent only once, at the point at which the status changes.</td>
</tr>
</tbody>
</table>

**Comments**

None.
5.14 WFS_CMD_IPM_EXPEL_MEDIA

**Description**
The media that has been presented to the customer will be expelled out of the device.
This command completes after the bunch has been expelled from the device.
This command does not end the current media-in transaction. The application must deal with any
media remaining within the device, e.g. by using the
WFS_CMD_IPM_MEDIA_IN_ROLLBACK, WFS_CMD_IPM_MEDIA_IN_END, or
WFS_CMD_IPM_RETRACT_MEDIA command.

**Input Param**
None.

**Output Param**
None.

**Error Codes**
In addition to the generic error codes defined in [Ref. 1], the following error codes can be
generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_NOMEDIAPRESENT</td>
<td>No media present to expel.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIAJAMMED</td>
<td>The media is jammed.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SHUTTERFAIL</td>
<td>Open or close of the shutter failed due to</td>
</tr>
<tr>
<td></td>
<td>manipulation or hardware error.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SEQUENCEINVALID</td>
<td>Programming error: invalid command sequence.</td>
</tr>
</tbody>
</table>

**Events**
Only the generic events defined in [Ref. 1] can be generated by this command.

**Comments**
None.
5.15 WFS_CMD_IPM_GET_IMAGE_AFTER_PRINT

Description
This command is used to indicate that an image of the item should be generated after the text is printed on the item. The image is not generated during execution of this command.

On devices with stackers, the image will be scanned during execution of the WFS_CMD_IPM_MEDIA_IN_END command. On devices without stackers, the image will be scanned during execution of the WFS_CMD_IPM_ACTION_ITEM command.

Input Param
LPWFSIPMGETIMAGEAFTERPRINT lpGetImageAfterPrint;

typedef struct _wfs_ipm_get_image_after_print
{
    USHORT   usMediaID;
    LPWFSIPMIMAGEREQUEST *lppImage;
} WFSIPMGETIMAGEAFTERPRINT, *LPWFSIPMGETIMAGEAFTERPRINT;

usMediaID
Specifies the sequence number of a media item. Valid IDs are 1 to the maximum media ID assigned within the transaction. Zero selects all media on the stacker.

lppImage
Pointer to a NULL-terminated array of pointers to WFSIPMIMAGEREQUEST structures describing the required images.

typedef struct _wfs_ipm_image_request
{
    WORD    wImageSource;
    WORD    wImageType;
    WORD    wImageColorFormat;
    WORD    wImageScanColor;
    LPSTR   lpszImagePath;
} WFSIPMIMAGEREQUEST, *LPWFSIPMIMAGEREQUEST;

wImageSource
Specifies the source as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGEFRONT</td>
<td>The returned image is for the front of the media item.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEBACK</td>
<td>The returned image is for the back of the media item.</td>
</tr>
</tbody>
</table>

wImageType
Specifies the format of the image returned by this command as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGEGTF</td>
<td>The returned image is in TIFF 6.0 format. The output file name will have the .tif extension appended to the filename.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEWMF</td>
<td>The returned image is in WMF (Windows Metafile) format. The output file name will have the .wmf extension appended to the filename.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEBMP</td>
<td>The returned image is in Windows BMP format. The output file name will have the .bmp extension appended to the filename.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEJPG</td>
<td>The returned image is in JPG format. The output file name will have the .jpg extension appended to the filename.</td>
</tr>
</tbody>
</table>

wImageColorFormat
Specifies the color format of the requested image as one of the following values:
Value Meaning
WFS_IPM_IMAGECOLORBINARY The scanned images has to be returned in binary (image contains two colors, usually the colors black and white).
WFS_IPM_IMAGECOLORGRAYSCALE The scanned images has to be returned in grayscale (image contains multiple gray colors).
WFS_IPM_IMAGECOLORFULL The scanned images has to be returned in full color (image contains colors like red, green, blue etc.).

\textit{wImageScanColor}
Selects the image scan color. The value is specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SCANCOLORDEFAULT</td>
<td>Select the default scan color for the side of the item being scanned.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORRED</td>
<td>Select the red scan color.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORGREEN</td>
<td>Select the green scan color.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORBLUE</td>
<td>Select the blue scan color.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORYELLOW</td>
<td>Select the yellow scan color.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORWHITE</td>
<td>Select the white scan color.</td>
</tr>
</tbody>
</table>

\textit{lpszImagePath}
Specifies the full path name of the folder where the image will be stored, e.g. “C:TEMPP”. The actual file name for the image produced will be vendor specific. The name used is reported in the event containing the image data. The Service Provider may reuse file names from the start of each media-in transaction, so applications must manage the file lifetime as required. If NULL is provided for this parameter then the command will be rejected with the WFS_ERR_IPM_FILEIOERROR error. If the folder does not exist or cannot be accessed by the Service Provider then the command will be rejected with the WFS_ERR_IPM_FILEIOERROR error.

Output Param None.
Error Codes In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_MEDIAJAMMED</td>
<td>The media is jammed.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_FILEIOERROR</td>
<td>Directory does not exist or access denied.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SCANNERINCREMENT</td>
<td>Image scanner is inoperative so no image can be produced.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_NOMEDIAPRESENT</td>
<td>No media is present in the device.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SEQUENCEINVALID</td>
<td>Programming error: invalid command sequence.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_INVALIDMEDIAID</td>
<td>The requested media ID does not exist.</td>
</tr>
</tbody>
</table>

Events Only the generic events defined in [Ref. 1] can be generated by this command.
Comments None.
5.16 WFS_CMD_IPM_ACCEPT_ITEM

**Description**
This command is used by applications to indicate if the current media item should be accepted or refused. Applications only use this command when the WFS_CMD_IPM_MEDIA_IN command is used in the mode where the application can decide if each physically acceptable media item should be accepted or refused, i.e. the \texttt{bApplicationRefuse} parameter is TRUE.

**Input Param**
LPWFSIPMACCEPTITEM lpAcceptItem;

typedef struct \_wfs_ipm_accept_item
{
    BOOL    bAccept;
} WFSIPMACCEPTITEM, *LPWFSIPMACCEPTITEM;

\texttt{bAccept}
Specifies if the item should be accepted or refused. If this value is TRUE then the item is accepted and moved to the stacker. If this value is FALSE then the item is moved to the re-buncher/refuse position.

**Output Param**
None.

**Error Codes**
In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_MEDIAJAMMED</td>
<td>The media is jammed.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_NOMEDIAPRESENT</td>
<td>No media is present in the device.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_SEQUENCEINVALID</td>
<td>Programming error: invalid command sequence.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_REFUSEDITEMS</td>
<td>Programming error: refused items that must be returned via the WFS_CMD_IPM_PRESENT_MEDIA command have not been presented (see \texttt{bPresentRequired} in the WFS_EXEE_IPM_MEDIAREFUSED event parameters).</td>
</tr>
<tr>
<td>WFS_ERR_IPM_POSITIONNOTEMPTY</td>
<td>One of the input/output/refused positions is not empty.</td>
</tr>
</tbody>
</table>

**Events**
Only the generic events defined in [Ref. 1] can be generated by this command.

**Comments**
None.
5.17 WFS_CMD_IPM_SUPPLY_REPLENISH

**Description**

After the supplies have been replenished, this command is used to indicate that one or more
supplies have been replenished and are expected to be in a healthy state.

Hardware that cannot detect the level of a supply and reports on the supply’s status using metrics
(or some other means), must assume the supply has been fully replenished after this command is
issued. The appropriate threshold event must be broadcast.

Hardware that can detect the level of a supply must update its status based on its sensors, generate
a threshold event if appropriate, and succeed the command even if the supply has not been
replenished. If it has already detected the level and reported the threshold before this command
was issued, the command must succeed and no threshold event is required.

**Input Param**

LPWFSIPMSUPPLYREPLEN lpSupplyReplen;

typedef struct _wfs_ipm_supply_replen
{
    WORD     fwSupplyReplen;
} WFSIPMSUPPLYREPLEN, *LPWFSIPMSUPPLYREPLEN;

*fwSupplyReplen*

Specifies the supply that was replenished as a combination of the following flags:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_REPLEN_TONER</td>
<td>The toner supply was replenished.</td>
</tr>
<tr>
<td>WFS_IPM_REPLEN_INK</td>
<td>The ink supply was replenished.</td>
</tr>
</tbody>
</table>

**Output Param**

None.

**Error Codes**

Only the generic error codes defined in [Ref. 1] can be generated by this command.

**Events**

In addition to the generic events defined in [Ref. 1], the following events can be generated by this
command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_USRE_IPM_TONERTHRESHOLD</td>
<td>This user event is used to specify that the state of the toner (or ink) supply threshold has been cleared.</td>
</tr>
<tr>
<td>WFS_USRE_IPM_INKTHRESHOLD</td>
<td>This user event is used to specify that the state of the stamping ink supply threshold has been cleared.</td>
</tr>
</tbody>
</table>

**Comments**

If any one of the specified supplies is not supported by a Service Provider,
WFS_ERR_UNSUPP_DATA should be returned, and no replenishment actions will be taken by
the Service Provider.
5.18 WFS_CMD_IPM_POWER_SAVE_CONTROL

**Description**

This command activates or deactivates the power saving mode.

If the Service Provider receives another execute command while in power saving mode, the Service Provider automatically exits the power saving mode, and executes the requested command. If the Service Provider receives an information command while in power saving mode, the Service Provider will not exit the power saving mode.

**Input Param**

`LPWFSIPMPOWERSAVECONTROL lpPowerSaveControl;`

```c
typedef struct _wfs_ipm_power_save_control
{
    USHORT usMaxPowerSaveRecoveryTime;
} WFSIPMPOWERSAVECONTROL, *LPWFSIPMPOWERSAVECONTROL;
```

- **usMaxPowerSaveRecoveryTime**
  Specifies the maximum number of seconds in which the device must be able to return to its normal operating state when exiting power saving mode. The device will be set to the highest possible power saving mode within this constraint. If `usMaxPowerSaveRecoveryTime` is set to zero then the device will exit the power saving mode.

**Output Param**

None.

**Error Codes**

In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_POWERSAVETOOSHORT</td>
<td>The power saving mode has not been activated because the device is not able to resume from the power saving mode within the specified <code>usMaxPowerSaveRecoveryTime</code> value.</td>
</tr>
<tr>
<td>WFS_ERR_IPM POWERSAVE MEDIAPRESENT</td>
<td>The power saving mode has not been activated because media is present inside the device.</td>
</tr>
</tbody>
</table>

**Events**

In addition to the generic events defined in [Ref. 1], the following events can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_SRVE_IPM POWER_SAVE_CHANGE</td>
<td>The power save recovery time has changed.</td>
</tr>
</tbody>
</table>

**Comments**

None.
5.19 WFS_CMD_IPM_SET_MODE

Description
This execute command is used to set the deposit mode for the device and is only applicable for Mixed Media processing. The deposit mode determines how the device will process non IPM items that are inserted. The deposit mode applies to all subsequent transactions. The deposit mode is persistent and is unaffected by a device reset by the WFS_CMD_IPM_RESET command or reset on another interface. The command will fail with the WFS_ERR_INVALID_DATA error where an attempt is made to set a mode that is not supported.

Input Param
LPWFSIPMSETMODE lpMode;

typedef struct _wfs_ipm_setmode
{
    WORD wMixedMode;
} WFSIPMSETMODE, *LPWFSIPMSETMODE;

wMixedMode
Specifies the Mixed Media mode of the device as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_MIXEDMEDIANOTACTIVE</td>
<td>Mixed Media transactions are deactivated.</td>
</tr>
<tr>
<td></td>
<td>This is the default mode.</td>
</tr>
<tr>
<td>WFS_IPM_CIMMIXEDMEDIA</td>
<td>Mixed Media transactions are activated in combination with the CIM interface as defined by the capability wMixedMode.</td>
</tr>
</tbody>
</table>

Output Param
None.

Error Codes
In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_ERR_IPM_CASHINACTIVE</td>
<td>A cash-in transaction is active on the CIM interface.</td>
</tr>
<tr>
<td>WFS_ERR_IPM_MEDIAINACTIVE</td>
<td>An item processing transaction is active.</td>
</tr>
</tbody>
</table>

Events
Only the generic events defined in [Ref. 1] can be generated by this command.

Comments
The commands WFS_CMD_CIM_SET_MODE and WFS_CMD_IPM_SET_MODE are equivalent; an application can use either to control the Mixed Media mode. If the requested mode is already active WFS_CMD_CIM_SET_MODE command returns with WFS_SUCCESS.
6. Events

6.1 WFS_EXEE_IPM_NOMEDIA

**Description**
This execute event specifies that the physical media must be inserted into the device in order for the execute command to proceed.

**Event Param**
None.

**Comments**
None.
### 6.2 WFS_EXEE_IPM_MEDIAINSERTED

<table>
<thead>
<tr>
<th>Description</th>
<th>This execute event specifies that the physical media has been inserted into the device.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event Param</td>
<td>None.</td>
</tr>
<tr>
<td>Comments</td>
<td>The application may use this event to, for example, remove a message box from the screen telling the user to insert media.</td>
</tr>
</tbody>
</table>
6.3 WFS_USRE_IPM_MEDIABINTHRESHOLD

Description
This user event specifies that a threshold condition has occurred in one of the media bins or the threshold condition is removed.

Event Param
LPWFSIPMMEDIABIN lpMediaBin;

lpMediaBin
Pointer to WFSIPMMEDIABIN structure, describing the media bin on which the threshold condition occurred. See lpMediaBin->usStatus for the type of condition. For a description of the WFSIPMMEDIABIN structure, see the definition of the WFS_INF_IPM_MEDIA_BIN_INFO command.

Comments
None.
6.4 WFS_SRVE_IPM_MEDIABININFOCHANGED

**Description**  
This service event specifies that a media bin has changed in configuration. A media bin may have been removed or inserted or a media bin parameter may have changed. This event will also be posted on successful completion of the following commands from the IPM interface:

WFS_CMD_IPM_SET_MEDIA_BIN_INFO

For Mixed Media processing the event may be posted on successful completion of the following commands from the CIM interface:

WFS_CMD_CIM_SET_CASH_UNIT_INFO
WFS_CMD_CIM_END_EXCHANGE
WFS_CMD_CIM_CONFIGURE_CASH_IN_UNITS

If an application receives this event it should issue a WFS_INF_IPM_MEDIA_BIN_INFO command to obtain updated media bin information.

**Event Param**  
LPWFSIPMMEDIABIN lpMediaBin;

> lpMediaBin

Pointer to the changed media bin structure. For a description of the WFSIPMMEDIABIN structure see the definition of the WFS_INF_IPM_MEDIA_BIN_INFO command.

**Comments**  
None.
6.5 WFS_EXEE_IPM_MEDIABINERROR

Description
This execute event specifies that a media bin was addressed which caused a problem.

Event Param
LPWFSIPMMBERROR lpMediaBinError;
typedef struct _wfs_ipm_mb_error
{
    WORD wFailure;
    LPWFSIPMMEIBIN lpMediaBin;
} WFSIPMMBERROR, *LPWFSIPMMBERROR;

wFailure
Specifies the kind of failure that occurred in the media bin. This value is specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_MEDIABINJAMMED</td>
<td>Specified media bin is jammed.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIABINERROR</td>
<td>Specified media bin has malfunctioned.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIABINFULL</td>
<td>Specified media bin is full.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIABINNOTCONF</td>
<td>Specified media bin is not configured due to being removed and/or replaced with a different media bin.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIABININVALID</td>
<td>Specified media bin ID is invalid.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIABINCONFIG</td>
<td>Attempt to change the setting of a self-configuring media bin.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIABINFEEDPROBLEM</td>
<td>A problem has been detected with the feeding module.</td>
</tr>
</tbody>
</table>

lpMediaBin
Pointer to a WFSIPMMEDIABIN structure containing the details of the media bin structure that caused the problem. For a description of the WFSIPMMEDIABIN structure see the definition of the WFS_INF_IPM_MEDIA_BIN_INFO command.

Comments
None.
6.6 **WFS_SRVE_IPM_MEDIATAKEN**

**Description**
This service event is sent when the media is taken by the customer.

**Event Param**
LPWFSIPMPOSITION lpPosition;

typedef struct _wfs_ipm_position
{
    WORD wPosition;
} WFSIPMPOSITION, *LPWFSIPMPOSITION;

*wPosition*
Specifies the position where the media has been taken from. This value can be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_POSINPUT</td>
<td>Input position.</td>
</tr>
<tr>
<td>WFS_IPM_POSOUTPUT</td>
<td>Output position.</td>
</tr>
<tr>
<td>WFS_IPM_POSREFUSED</td>
<td>Refused media item position.</td>
</tr>
</tbody>
</table>

**Comments**
Note that since this event occurs after the completion of a function that includes a media eject, it is not an execute event.
6.7 WFS_USRE_IPM_TONERTHRESHOLD

Description: This user event is used to specify that the state of the toner (or ink) reached a threshold.

Event Param:

```c
LPWFSIPMTHRESHOLD lpTonerThreshold;
typedef struct _wfs_ipm_threshold
{
    WORD wThreshold;
} WFSIPMTHRESHOLD, *LPWFSIPMTHRESHOLD;
```

**wThreshold**
Specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_TONERFULL</td>
<td>The toner (or ink) in the device is in a good state.</td>
</tr>
<tr>
<td>WFS_IPM_TONERLOW</td>
<td>The toner (or ink) in the device is low.</td>
</tr>
<tr>
<td>WFS_IPM_TONEROUT</td>
<td>The toner (or ink) in the device is out.</td>
</tr>
</tbody>
</table>

Comments: None.
### 6.8 WFS_USRE_IPM_SCANNERTHRESHOLD

**Description**
This user event is used to specify that the state of the imaging scanner reached a threshold.

**Event Param**
LPWFSIPMSCANNERTHRESHOLD lpScannerThreshold;

typedef struct _wfs_ipm_scanner_threshold
{
    WORD    wScanner;
    WORD    wThreshold;
} WFSIPMSCANNERTHRESHOLD, *LPWFSIPMSCANNERTHRESHOLD;

**wScanner**
Identifies the scanner where the threshold has been reached, specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_FRONTSCANNER</td>
<td>Front image scanner.</td>
</tr>
<tr>
<td>WFS_IPM_BACKSCANNER</td>
<td>Back image scanner.</td>
</tr>
</tbody>
</table>

**wThreshold**
Specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SCANNEROK</td>
<td>The imaging scanner is in a good state.</td>
</tr>
<tr>
<td>WFS_IPM_SCANNERFADING</td>
<td>The imaging scanner performance is degraded.</td>
</tr>
<tr>
<td>WFS_IPM_SCANNERINOP</td>
<td>The imaging scanner is inoperative.</td>
</tr>
</tbody>
</table>

**Comments**
None.
6.9  WFS_USRE_IPM_INKTHRESHOLD

**Description**  
This user event is used to specify that the state of the stamping ink reached a threshold.

**Event Param**  
`LPWFSIPMTHRESHOLD lpInkThreshold;`

```c
typedef struct _wfs_ipm_threshold
{
    WORD    wThreshold;
} WFSIPMTHRESHOLD, *LPWFSIPMTHRESHOLD;
```

**wThreshold**  
Specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_INKFULL</td>
<td>The stamping ink in the device is in a good state.</td>
</tr>
<tr>
<td>WFS_IPM_INKLOW</td>
<td>The stamping ink in the device is low.</td>
</tr>
<tr>
<td>WFS_IPM_INKOUT</td>
<td>The stamping ink in the device is out.</td>
</tr>
</tbody>
</table>

**Comments**  
None.
6.10 WFS_SRVE_IPM_MEDIADETECTED

**Description**
This service event is generated when media is detected in the device during a reset operation.

**Event Param**
LPWFSIPMMEDIADETECTED lpMediaDetected;

typedef struct _wfs_ipm_media_detected
{
    WORD    wPosition;
    USHORT   usRetractBinNumber;
} WFSIPMMEDIADETECTED, *LPWFSIPMMEDIADETECTED;

**wPosition**
Specifies the media position after the reset operation, as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_MEDIARETRACTED</td>
<td>The media was retracted during the reset operation.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIAPRESENT</td>
<td>The media is in the device.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIAPosition</td>
<td>The media is at one or more of the input, output and refused positions.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIAJAMMED</td>
<td>The media is jammed in the device.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIARETURNED</td>
<td>The media has been returned and taken by the customer.</td>
</tr>
<tr>
<td>WFS_IPM_MEDIAUNKNOWN</td>
<td>The media is in an unknown position.</td>
</tr>
</tbody>
</table>

**usRetractBinNumber**
Number of the retract bin the media was retracted to. This number has to be between one and the number of bins supported by this device. It is only relevant if *wPosition* equals WFS_IPM_MEDIARETRACTED.

**Comments**
None.
6.11 WFS_EXEE_IPM_MEDIAPRESENTED

**Description**

This execute event is used to indicate when media has been presented to the customer for removal.

**Event Param**

LPWFSIPMMEDIAPRESENTED lpMediaPresented;

typedef struct _wfs_ipm_media_presented
{
    WORD wPosition;
    USHORT usBunchIndex;
    USHORT usTotalBunches;
} WFSIPMMEDIAPRESENTED, *LPWFSIPMMEDIAPRESENTED;

*wPosition*

Specifies the position where the media has been presented to. This value can be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_POSINPUT</td>
<td>Input position.</td>
</tr>
<tr>
<td>WFS_IPM_POSOUTPUT</td>
<td>Output position.</td>
</tr>
<tr>
<td>WFS_IPM_POSREFUSED</td>
<td>Refused media item position.</td>
</tr>
</tbody>
</table>

*usBunchIndex*

Specifies the index (starting from one) of the presented bunch (one or more items presented as a bunch).

*usTotalBunches*

Specifies the total number of bunches to be returned from all positions. The total represents the number of bunches that will be returned as a result of a single command that presents media. This value is zero if the total number of bunches is not known.

**Comments**

None.
6.12 WFS_EXEE_IPM_MEDIAREFUSED

**Description**
This execute event is sent when a media item is refused. One event is sent for every media item or bunch of media items that has been refused.

**Event Param**
LPWFSIPMMEDIAREFUSED lpMediaRefused;

typedef struct _wfs_ipm_media_refused
{
    WORD    wReason;
    WORD    wMediaLocation;
    BOOL    bPresentRequired;
    LPWFSIPMMEDIASIZE lpMediaSize;
} WFSIPMMEDIAREFUSED, *LPWFSIPMMEDIAREFUSED;

wReason
Specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_REFUSED_FOREIGNITEMS</td>
<td>Foreign items were detected in the input position.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_STACKERFULL</td>
<td>The stacker is full or the maximum number of items that the application wants to be allowed on the stacker has reached (see usMaxMediaOnStacker input parameter in the WFS_CMD_IPM_MEDIA_IN command).</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_CODELINEINVALID</td>
<td>The code line data was found but was invalid.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_INVALIDMEDIA</td>
<td>The media item is not a check, and in the case of Mixed Media processing not a cash item either.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_TOOLONG</td>
<td>The media item (or bunch of items) was too long.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_TOOSHORT</td>
<td>The media item (or bunch of items) was too short.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_TOOWIDE</td>
<td>The media item (or bunch of items) was too wide.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_TOONARROW</td>
<td>The media item (or bunch of items) was too narrow.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_TOOTHICK</td>
<td>The media item was too thick.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_INVALIDORIENTATION</td>
<td>The media item was inserted in an invalid orientation.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_DOUBLEDETECT</td>
<td>The media items could not be separated.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_REFUSEPOSEFULL</td>
<td>There are too many items in the refuse area.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_RETURNBLOCKED</td>
<td>Processing of the items did not take place as the bunch of items is blocking the return of other items.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_INVALIDBUNCH</td>
<td>Processing of the items did not take place as the bunch of items presented is invalid, e.g. it is too large or was presented incorrectly.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_OTHERITEM</td>
<td>The item was refused for some reason not covered by the other reasons.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_OTHERBUNCH</td>
<td>The bunch was refused for some reason not covered by the other reasons.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_JAMMING</td>
<td>The media item is causing a jam.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSED_METAL</td>
<td>Metal (e.g. staple, paperclip, etc) was detected in the input position.</td>
</tr>
</tbody>
</table>
wMediaLocation
Specifies where the refused media should be presented to the customer from. It can be one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_REFUSE_INPUT</td>
<td>The media is presented to the customer by passing WFS_IPM_REFUSE_INPUT to the WFS_CMD_IPM_PRESENT_MEDIA command. The media needs to be presented before any further input can take place.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSE_REFUSED</td>
<td>The media is presented to the customer by passing WFS_IPM_REFUSE_REFUSED to the WFS_CMD_IPM_PRESENT_MEDIA command.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSE_REBUNCHER</td>
<td>The media is presented to the customer by passing WFS_IPM_REFUSE_REBUNCHER to the WFS_CMD_IPM_PRESENT_MEDIA command.</td>
</tr>
<tr>
<td>WFS_IPM_REFUSE_STACKER</td>
<td>The media is in the stacker and will be presented to the customer at the end of the transaction.</td>
</tr>
</tbody>
</table>

bPresentRequired
This flag indicates if the media needs to be presented to the customer before any additional media movement commands can be executed. If this value is TRUE then the media must be presented to the customer via the WFS_CMD_IPM_PRESENT_MEDIA command before further media movement commands can be executed. If this value is FALSE then the device can continue without the media being returned to the customer.

lpMediaSize
Pointer to a WFSIPMMEDIASIZE structure that specifies the size of the refused media (or bunch of media). lpMediaSize is NULL if the device does not support media size measurement.

```c
typedef struct _wfs_ipm_media_size
{
    ULONG    ulSizeX;
    ULONG    ulSizeY;
} WFSIPMMEDIASIZE, *LPWFSIPMMEDIASIZE;
```

ulSizeX
Specifies the width of the media in millimeters, or zero if unknown.

ulSizeY
Specifies the height of the media in millimeters, or zero if unknown.

Comments
None.
6.13 WFS_EXEE_IPM_MEDIADATA

**Description**  
This execute event returns the code line and all the images requested for each item processed. This event can be generated during the WFS_CMD_IPM_MEDIA_IN, WFS_CMD_IPM_MEDIA_IN_END, WFS_CMD_IPM_GET_NEXT_ITEM and WFS_CMD_IPM_ACTION_ITEM commands. One event is generated for each item processed, no event is generated for refused items.

**Event Param**  
LPWFSIPMMEDIADATA lpMediaData;

typedef struct _wfs_ipm_mediadata {
    USHORT   usMediaID;
    ULONG    ulCodelineDataLength;
    LPBYTE   lpbCodelineData;
    WORD    wMagneticReadIndicator;
    LPWFSIPMIMAGEDATA *lppImage;
    WORD    fwInsertOrientation;
    LPWFSIPPMEDIASIZE lpMediaSize;
    WORD    wMediaValidity;
} WFSIPMMEDIADATA, *LPWFSIPMMEDIADATA;

usMediaID  
Specifies the sequence number (starting from 1) of the media item.

ulCodelineDataLength  
Number of bytes of the following lpbCodelineData.

lpbCodelineData  
Points to the code line data. lpbCodelineData contains characters in the ASCII range. If the code line was read using the OCR-A font then the ASCII codes will conform to Figure E1 in ANSI X3.17-1981. If the code line was read using the OCR-B font then the ASCII codes will conform to Figure C2 in ANSI X3.49-1975. In both these cases unrecognized characters will be reported as the REJECT code, 0x1A. The E13B and CMC7 fonts use the ASCII equivalents for the standard characters and use the byte values as reported by the WFS_INF_IPM_CODELINE_MAPPING command for the symbols that are unique to MICR fonts.

wMagneticReadIndicator  
Specifies the type of technology used to read a MICR code line.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_MRI_MICR</td>
<td>The MICR code line was read using MICR technology and MICR characters were present.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_NOT_MICR</td>
<td>The MICR code line was NOT read using MICR technology.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_NO_MICR</td>
<td>The MICR code line was read using MICR technology and no magnetic characters were read.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_UNKNOWN</td>
<td>It is unknown how the MICR code line was read.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_NOTMICRFORMAT</td>
<td>The code line is not a MICR format code line.</td>
</tr>
<tr>
<td>WFS_IPM_MRI_NOT_READ</td>
<td>No code line was read.</td>
</tr>
</tbody>
</table>

lppImage  
Pointer to a NULL-terminated array of pointers to WFSIPMIMAGEDATA structures. If image data items are not used lppImage will be set to NULL. If the Service Provider has determined the orientation of the media (i.e. fwInsertOrientation is not set to WFS_IPM_INSUNKNOWN), then all images returned are in the standard orientation and the images will match the image source requested by the application. This means that images will be returned with the code line at the bottom, and the image of the front and rear of the media item will be returned in the structures associated with the WFS_IPM_IMAGEFRONT and WFS_IPM_IMAGEBACK image sources respectively.
typedef struct _wfs_ipm_image_data
{
    WORD    wImageSource;
    WORD    wImageType;
    WORD    wImageColorFormat;
    WORD    wImageScanColor;
    WORD    wImageStatus;
    LPSTR    lpszImageFile;
} WFSIPMIMAGEDATA, *LPWFSIPMIMAGEDATA;

wImageSource
Specifies the source of the data returned by this item as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGEFRONT</td>
<td>The returned image is for the front of the media item.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEBACK</td>
<td>The returned image is for the back of the media item.</td>
</tr>
</tbody>
</table>

wImageType
Specifies the format of the image returned by this item as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGETIF</td>
<td>The returned image is in TIFF 6.0 format.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEWMF</td>
<td>The returned image is in WMF (Windows Metafile) format.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEBMP</td>
<td>The returned image is in Windows BMP format.</td>
</tr>
<tr>
<td>WFS_IPM_IMAGEJPG</td>
<td>The returned image is in JPG format.</td>
</tr>
</tbody>
</table>

wImageColorFormat
Specifies the color format of the image returned by this item as one of following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_IMAGECOLORBINARY</td>
<td>The scanned image is returned in binary format (image contains two colors, usually the colors black and white).</td>
</tr>
<tr>
<td>WFS_IPM_IMAGECOLORGRAYSCALE</td>
<td>The scanned image is returned in binary format (image contains multiple gray colors).</td>
</tr>
<tr>
<td>WFS_IPM_IMAGECOLORFULL</td>
<td>The scanned image is returned in full color (image contains colors like red, green, blue, etc.).</td>
</tr>
</tbody>
</table>

wImageScanColor
Specifies the scan color of the image returned by this item as one of following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_SCANCOLORRED</td>
<td>The image was scanned with red light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORGREEN</td>
<td>The image was scanned with green light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORBLUE</td>
<td>The image was scanned with blue light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORYELLOW</td>
<td>The image was scanned with yellow light.</td>
</tr>
<tr>
<td>WFS_IPM_SCANCOLORWHITE</td>
<td>The image was scanned with white light.</td>
</tr>
</tbody>
</table>

wImageStatus
Status of the requested image data. Possible values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_DATAOK</td>
<td>The data is OK.</td>
</tr>
<tr>
<td>WFS_IPM_DATASRCNOTSUPP</td>
<td>The data source or image attributes are not supported by the Service Provider, e.g. scan color not supported.</td>
</tr>
<tr>
<td>WFS_IPM_DATASRCMISSING</td>
<td>The requested image could not be obtained.</td>
</tr>
</tbody>
</table>
Specifies the full path and file name where the image is stored, e.g. “C:\Temp\FrontImage.bmp”. Each image requested is stored in a unique file with a unique name allocated by the Service Provider. The folder location where the file is stored is specified in the input parameters of the WFS_CMD_IPM_MEDIA_IN command. File names which are allocated by the Service Provider will be reused in the next transaction. This value is terminated with a single null character and cannot contain UNICODE characters.

This value reports how the media item was actually inserted into the input position (from the customer's perspective). This value is either WFS_IPM_INSUNKNOWN or a combination of the following flags consisting of one of type A and one of type B.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_INSUNKNOWN</td>
<td>The orientation of the inserted media is unknown.</td>
<td>N/A</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINERIGHT</td>
<td>The code line is to the right.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINELEFT</td>
<td>The code line is to the left.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINEBOTTOM</td>
<td>The code line is to the bottom.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_INSCODELINETOP</td>
<td>The code line is to the top.</td>
<td>A</td>
</tr>
<tr>
<td>WFS_IPM_INSFACEUP</td>
<td>The front of the media (the side with the code line) is facing up.</td>
<td>B</td>
</tr>
<tr>
<td>WFS_IPM_INSFACEDOWN</td>
<td>The front of the media (the side with the code line) is facing down.</td>
<td>B</td>
</tr>
</tbody>
</table>

Pointer to a WFSIPMMEDIASIZE structure that specifies the size of the media item. lpMediaSize is NULL if the device does not support media size measurement.

typedef struct _wfs_ipm_media_size  
{  
    ULONG ulSizeX;  
    ULONG ulSizeY;  
} WFSIPMMEDIASIZE, *LPWFSIPMMEDIASIZE;

Specifies the width of the media in millimeters, or zero if unknown.

Specifies the height of the media in millimeters, or zero if unknown.

Media items may have special security features which can be detected by the device. This field specifies whether the media item is suspect or valid, allowing the application a choice in how to further process a media item that could not be confirmed as being valid. This value is specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_ITEMOK</td>
<td>The media item is valid.</td>
</tr>
<tr>
<td>WFS_IPM_ITEMMSUSPECT</td>
<td>The validity of the media item is suspect.</td>
</tr>
<tr>
<td>WFS_IPM_ITEMUNKNOWN</td>
<td>The validity of the media item is unknown.</td>
</tr>
<tr>
<td>WFS_IPM_ITEMNOVALIDATION</td>
<td>No specific security features were evaluated.</td>
</tr>
</tbody>
</table>

None.
6.14 WFS_USRE_IPM_MICRTHRESHOLD

**Description**  
This user event is used to specify that the state of the MICR reader reached a threshold.

**Event Param**  
LPWFSIPMTHRESHOLD lpMICRThreshold;

```c
typedef struct _wfs_ipm_threshold {
    WORD    wThreshold;
} WFSIPMTHRESHOLD, *LPWFSIPMTHRESHOLD;
```

**wThreshold**  
Specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_MICROK</td>
<td>The MICR reader is in a good state.</td>
</tr>
<tr>
<td>WFS_IPM_MICRFADING</td>
<td>The MICR reader performance is degraded.</td>
</tr>
<tr>
<td>WFS_IPM_MICRINOP</td>
<td>The MICR reader is inoperative.</td>
</tr>
</tbody>
</table>

**Comments**  
None.
6.15 WFS_EXEE_IPM_MEDIAREJECTED

**Description**

This execute event is generated to report that an attempt to insert media into the device has been rejected before the media was fully inside the device, i.e. no WFS_EXEE_IPM_MEDIAINserted event has been generated. Rejection of the media will cause the WFS_CMD_IPM_MEDIA_IN command to complete with a WFS_ERR_IPM_MEDIAREJECTED error, at which point the media should be removed.

**Event Param**

LPWFSIPMMEDIAREJECTED lpMediaRejected;

typedef struct _wfs_ipm_media_rejected
{
    WORD wReason;
} WFSIPPMEDIAREJECTED, *LPWFSIPPMEDIAREJECTED;

wReason

Specified as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_REJECT_LONG</td>
<td>The rejected media was too long.</td>
</tr>
<tr>
<td>WFS_IPM_REJECT_THICK</td>
<td>The rejected media was too thick.</td>
</tr>
<tr>
<td>WFS_IPM_REJECT_DOUBLE</td>
<td>More than one media item was detected (this value only applies to devices without a media feeder).</td>
</tr>
<tr>
<td>WFS_IPM_REJECT_TRANSPORT</td>
<td>The media could not be moved inside the device.</td>
</tr>
<tr>
<td>WFS_IPM_REJECT_SHUTTER</td>
<td>The media was rejected due to the shutter failing to close.</td>
</tr>
<tr>
<td>WFS_IPM_REJECT_REMOVED</td>
<td>The media was removed (no WFS_SRVE_IPM_MEDIATAKEN event is expected).</td>
</tr>
<tr>
<td>WFS_IPM_REJECT_METAL</td>
<td>Metal (e.g. staple, paperclip, etc) was detected in the input position.</td>
</tr>
<tr>
<td>WFS_IPM_REJECT_FOREIGNITEMS</td>
<td>The media was rejected because foreign items were detected in the input position.</td>
</tr>
<tr>
<td>WFS_IPM_REJECT_OTHER</td>
<td>The media was rejected due to a reason other than those listed above.</td>
</tr>
</tbody>
</table>

**Comments**

The application may use this event to, for example, display a message box on the screen indicating why the media was rejected, and telling the user to remove and reinsert the media.
### 6.16 WFS_SRVE_IPMDEVICEPOSITION

**Description**  
This service event reports that the device has changed its position status.

**Event Param**  
LPWFSIPMDEVICEPOSITION lpDevicePosition;
```
typedef struct _wfs_ipm_device_position
{
    WORD    wPosition;
} WFSIPMDEVICEPOSITION, *LPWFSIPMDEVICEPOSITION;
```

`wPosition`  
Position of the device as one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFS_IPM_DEVICEINPOSITION</td>
<td>The device is in its normal operating position.</td>
</tr>
<tr>
<td>WFS_IPM_DEVICENOTINPOSITION</td>
<td>The device has been removed from its normal operating position.</td>
</tr>
<tr>
<td>WFS_IPM_DEVICEPOSUNKNOWN</td>
<td>The position of the device cannot be determined.</td>
</tr>
</tbody>
</table>

**Comments**  
None.
6.17 WFS_SRVE_IPM_POWER_SAVE_CHANGE

**Description**
This service event specifies that the power save recovery time has changed.

**Event Param**
LPWFSIPMPOWERSAVECHANGE lpPowerSaveChange;

```c
typedef struct _wfs_ipm_power_save_change
{
    USHORT   usPowerSaveRecoveryTime;
} WFSIPMPOWERSAVECHANGE, *LPWFSIPMPOWERSAVECHANGE;
```

*usPowerSaveRecoveryTime*
Specifies the actual number of seconds required by the device to resume its normal operational state. This value is zero if the device exited the power saving mode.

**Comments**
If another device class compounded with this device enters into a power saving mode this device will automatically enter into the same power saving mode and this event will be generated.
## 7. Command and Event Flows

### 7.1 Devices with Stacker

#### 7.1.1 Bunch Media Processing (OK flow)

<table>
<thead>
<tr>
<th>Step</th>
<th>Application / Customer</th>
<th>XFS IPM Service</th>
</tr>
</thead>
</table>
| 1.   | WFS_CMD_IPM_MEDIA_IN   | Event: WFS_EXEE_IPM_NOMEDIA  
(1) Wait for media insertion. |
| 2.   | Customer deposits a bunch of media items. | Event: WFS_EXEE_IPM_MEDIAINSERTED  
- Test and separate media items.  
- Send one WFS_EXEE_IPM_MEDIADATA event for every media item.  
- Completion: WFS_CMD_IPM_MEDIA_IN |
| 3.   | WFS_INF_IPM_TRANSACTION_STATUS | Report media status and positions. |
| 4.   | If more media is to be inserted: Goto step 1. Otherwise loop over all accepted media items: steps 5.-8. |
| 5.   | If additional images are required then WFS_CMD_IPM_READ_IMAGE | Reads data from the selected media item.  
- Writes image data to the specified files.  
- Completion: WFS_CMD_IPM_READ_IMAGE |
| 6.   | WFS_CMD_IPM_PRINT_TEXT | Specifies if the item is to be stamped and specifies the data to print on the selected media item.  
- Completion: WFS_CMD_IPM_PRINT_TEXT |
| 7.   | WFS_CMD_IPM_SET_DESTINATION | Specifies the destination of the selected media item.  
- Completion: WFS_CMD_IPM_SET_DESTINATION |
| 8.   | Continue with individual media item processing: Goto step 5. |
| 9.   | WFS_CMD_IPM_MEDIA_IN_END | End processing for the inserted media items.  
- Print on the individual media items.  
- Transport the individual media items to the specified destinations.  
- Completion: WFS_CMD_IPM_MEDIA_IN_END |
| 10.  |                         |                 |
### 7.1.2 Bunch Media Processing (Some Media Items Returned)

<table>
<thead>
<tr>
<th>Step</th>
<th>Application / Customer</th>
<th>XFS IPM Service</th>
</tr>
</thead>
</table>
| 1.   | WFS_CMD_IPM_MEDIA_IN   | - Event: WFS_EXEE_IPM_NOMEDIA  
|      |                        | - Wait for media insertion. |
| 2.   | Customer deposits a bunch of media items. | - Event: WFS_EXEE_IPM_MEDIAINSERTED  
|      |                        | - Test and separate media items.  
|      |                        | - Send one WFS_EXEE_IPM_MEDIADATA event for every media item.  
|      |                        | - Completion: WFS_CMD_IPM_MEDIA_IN |
| 3.   | WFS_INF_IPM_TRANSACTION_STATUS | - Report media status and positions. |
| 4.   | If more media is to be inserted: Goto step 1. Otherwise loop over all accepted media items: Repeat steps 5-8. | - Reads data from the selected media item.  
|      |                        | - Writes image data to the specified files.  
|      |                        | - Completion: WFS_CMD_IPM_READ_IMAGE |
| 5.   | If additional images are required then | - Specifies if the item is to be stamped and specifies the data to print on the selected media item.  
|      | WFS_CMD_IPM_READ_IMAGE | - Completion: WFS_CMD_IPM_PRINT_TEXT |
| 6.   | WFS_CMD_IPM_PRINT_TEXT  | - Specifies the destination of the selected media item (bin or output).  
|      |                        | - For some media items the output position is selected.  
|      |                        | - Completion: WFS_CMD_IPM_SET_DESTINATION |
| 7.   | WFS_CMD_IPM_SET_DESTINATION | - End processing for the inserted media items.  
|      |                        | - Print on the individual media items.  
|      |                        | - Transport the individual media items to the specified destinations. |
| 8.   | Continue with individual media item processing: Goto step 5. | - If $bPresentControl = $TRUE:  
|      |                        | - Present the returned media items to the customer.  
|      |                        | - Event: WFS_EXEE_IPM_MEDIAPRESENTED  
| 9.   | WFS_CMD_IPM_MEDIA_IN_END | - Completion: WFS_CMD_IPM_MEDIA_IN_END |
| 10.  | If $bPresentControl = $FALSE:  
|      | WFS_CMD_IPM_PRESENT_MEDIA | - Present the returned media items to the customer.  
|      |                        | - Event: WFS_EXEE_IPM_MEDIAPRESENTED  
|      |                        | - Completion: WFS_CMD_IPM_PRESENT_MEDIA |
| 11.  | Customer takes returned media items. | - Event: WFS_SRVE_IPM_MEDIATAKEN |
7.1.3 Bunch Media Processing with Errors

<table>
<thead>
<tr>
<th>Step</th>
<th>Application / Customer</th>
<th>XFS IPM Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>WFS_CMD_IPM_MEDIA_IN</td>
<td>Event: WFS_EXEE_IPM_NOMEDIA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wait for media insertion.</td>
</tr>
<tr>
<td>2.</td>
<td>Customer deposits a bunch of media items.</td>
<td>Event: WFS_EXEE_IPM_MEDIAINserted</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Test and separate media items.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Send one WFS_EXEE_IPM_MEDIADATA event for every accepted media item.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Event: WFS_EXEE_IPM_MEDIAREFUSED (wReason == WFS_IPM_REFUSED_FOREIGNITEMS) if foreign items are detected and/or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Event: WFS_EXEE_IPM_MEDIAREFUSED (wReason == WFS_IPM_REFUSEDSTACKERFULL) if the stacker becomes full and/or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Event: WFS_EXEE_IPM_MEDIAREFUSED (wReason == WFS_IPM_REFUSED_CODECLINEINVALID) if the code line could not be read.</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>Completion: WFS_CMD_IPM_MEDIA_IN</td>
</tr>
<tr>
<td>4.</td>
<td>If the application chooses to return refused items before the end of transaction WFS_CMD_IPM_PRESENT_MEDIA. Otherwise continue with step 4. of the OK flow.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>For all bunches except for the last bunch returned to the customer repeat steps 6.-7. For the last bunch: Goto step 8.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td>Present the media items to the customer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Event: WFS_EXEE_IPM_MEDIAPRESENTED</td>
</tr>
<tr>
<td>7.</td>
<td>Customer takes returned media items.</td>
<td>Event: WFS_SRVE_IPM_MEDIATAKEN</td>
</tr>
<tr>
<td>8.</td>
<td>Present last bunch to customer.</td>
<td>Present the media items to the customer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Event: WFS_EXEE_IPM_MEDIAPRESENTED</td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td>Completion: WFS_CMD_IPM_PRESENT_MEDIA</td>
</tr>
<tr>
<td>10.</td>
<td>Customer takes returned media items.</td>
<td>Event: WFS_SRVE_IPM_MEDIATAKEN</td>
</tr>
<tr>
<td>11.</td>
<td>Continue with step 4. of the OK flow.</td>
<td></td>
</tr>
</tbody>
</table>

7.1.4 Bunch media processing with Rollback

<table>
<thead>
<tr>
<th>Step</th>
<th>Application / Customer</th>
<th>XFS IPM Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.-8.</td>
<td>See OK flow.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>WFS_CMD_IPM_MEDIA_IN_ROLLBACK</td>
<td>Without printing, all media items from the stacker (plus any refused notes not already returned) are transported to the output position.</td>
</tr>
<tr>
<td>10.</td>
<td>If bPresentControl == TRUE: WFS_CMD_IPM_PRESENT_MEDIA</td>
<td>Present the media items to the customer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Event: WFS_EXEE_IPM_MEDIAPRESENTED</td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td>Completion: WFS_CMD_IPM_ROLLBACK</td>
</tr>
<tr>
<td>12.</td>
<td>If bPresentControl == FALSE: WFS_CMD_IPM_PRESENT_MEDIA</td>
<td>Present the returned media items to the customer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Event: WFS_EXEE_IPM_MEDIAPRESENTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Completion: WFS_CMD_IPM_PRESENT_MEDIA</td>
</tr>
<tr>
<td>13.</td>
<td>Customer takes returned media items.</td>
<td>Event: WFS_SRVE_IPM_MEDIATAKEN</td>
</tr>
</tbody>
</table>
### 7.1.5 Bunch media processing with Retract

<table>
<thead>
<tr>
<th>Step</th>
<th>Application / Customer</th>
<th>XFS IPM Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.-8.</td>
<td>See OK flow.</td>
<td>- Stops processing of media items.</td>
</tr>
<tr>
<td>9.</td>
<td>WFS_CMD_IPM_RETRACT_MEDIA</td>
<td>- Without printing, all media items from the stacker are transported to the retract cassette. - Completion: WFS_CMD_IPM_RETRACT_MEDIA</td>
</tr>
</tbody>
</table>

### 7.1.6 Bunch Media Processing - Application Refuse Decision (All OK flow)

<table>
<thead>
<tr>
<th>Step</th>
<th>Application / Customer</th>
<th>XFS IPM Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>WFS_CMD_IPM_MEDIA_IN (bApplicationRefuse == TRUE)</td>
<td>- Event: WFS_EXEE_IPM_NOMEDIA - Wait for media insertion.</td>
</tr>
<tr>
<td>2.</td>
<td>Customer deposits a bunch of media items.</td>
<td>- Event: WFS_EXEE_IPM_MEDIAINSERTED - Test and separate media item. - Send one WFS_EXEE_IPM_MEDIADATA event for first media item. - Completion: WFS_CMD_IPM_MEDIA_IN</td>
</tr>
<tr>
<td>3.</td>
<td>Application processes media data and decides to keep media item. WFS_CMD_IPM_ACCEPT_ITEM (TRUE)</td>
<td>- Move item to stacker. - Completion: WFS_CMD_IPM_ACCEPT_ITEM</td>
</tr>
<tr>
<td>4.</td>
<td>WFS_CMD_IPM_GET_NEXT_ITEM</td>
<td>- If item successfully read then send one WFS_EXEE_IPM_MEDIADATA event for next media item. - Completion: WFS_CMD_IPM_GET_NEXT_ITEM</td>
</tr>
<tr>
<td>5.</td>
<td>If the item was read successfully continue with step 3. Otherwise if there are no more items then continue with Step 6.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>If more media is to be inserted: Goto step 1. Otherwise loop over all accepted media items: Repeat steps 7.-9.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>WFS_CMD_IPM_PRINT_TEXT</td>
<td>- Specifies if the item is to be stamped and specifies the data to print on the selected media item. - Completion: WFS_CMD_IPM_PRINT_TEXT</td>
</tr>
<tr>
<td>8.</td>
<td>WFS_CMD_IPM_SET_DESTINATION</td>
<td>- Specifies the destination of the selected media item. - Completion: WFS_CMD_IPM_SET_DESTINATION</td>
</tr>
<tr>
<td>9.</td>
<td>Continue with individual media item processing: Goto step 5.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>WFS_CMD_IPM_MEDIA_IN_END</td>
<td>- End processing for the inserted media items. - Print on the individual media items. - Transport the individual media items to the specified destinations.</td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td>- Completion: WFS_CMD_IPM_MEDIA_IN_END</td>
</tr>
</tbody>
</table>
### 7.1.7 Bunch Media Processing - Application Refuse Decision (Some items refused)

<table>
<thead>
<tr>
<th>Step</th>
<th>Application / Customer</th>
<th>XFS IPM Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>WFS_CMD_IPM_MEDIA_IN</td>
<td>Event: WFS_EXEE_IPM_NOMEDIA, Wait for media insertion.</td>
</tr>
<tr>
<td></td>
<td>(bApplicationRefuse (\approx) TRUE)</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Customer deposits a bunch of media items.</td>
<td>Event: WFS_EXEE_IPM_MEDIAINSERTED, Test and separate media item, Send one WFS_EXEE_IPM_MEDIADATA event for first media item, Completion: WFS_CMD_IPM_MEDIA_IN</td>
</tr>
<tr>
<td>3.</td>
<td>Application processes media data and decides to keep/or refuse media item WFS_CMD_IPM_ACCEPT_ITEM (TRUE/FALSE)</td>
<td>Move item to stacker or refuse position/re-buncher, Completion: WFS_CMD_IPM_ACCEPT_ITEM</td>
</tr>
<tr>
<td>4.</td>
<td>WFS_CMD_IPM_GET_NEXT_ITEM</td>
<td>If item successfully read then send one WFS_EXEE_IPM_MEDIADATA event for next media item, Completion: WFS_CMD_IPM_GET_NEXT_ITEM</td>
</tr>
<tr>
<td>5.</td>
<td>If the item was read successfully continue with step 3. Otherwise if there are no more items then continue with Step 6.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>If the application chooses to return refused items before the end of transaction WFS_CMD_IPM_PRESENT_MEDIA. Otherwise continue with Step 13.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>For all bunches except for the last bunch returned to the customer repeat steps 8.-9. For the last bunch: Goto step 10.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td>Present the media items to the customer, Event: WFS_EXEE_IPM_MEDIAPRESENTED</td>
</tr>
<tr>
<td>10.</td>
<td>Present last bunch to customer.</td>
<td>Present the media items to the customer, Event: WFS_EXEE_IPM_MEDIAPRESENTED</td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td>Completion: WFS_CMD_IPM_PRESENT_MEDIA</td>
</tr>
<tr>
<td>12.</td>
<td>Customer takes returned media items.</td>
<td>Event: WFS_SRVE_IPM_MEDIATAKEN</td>
</tr>
<tr>
<td>13.</td>
<td>If more media is to be inserted: Goto step 1. Otherwise loop over all accepted media items: Repeat steps 14.-16.</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>WFS_CMD_IPM_PRINT_TEXT</td>
<td>Specifies if the item is to be stamped and specifies the data to print on the selected media item, Completion: WFS_CMD_IPM_PRINT_TEXT</td>
</tr>
<tr>
<td>15.</td>
<td>WFS_CMD_IPM_SET_DESTINATION</td>
<td>Specifies the destination of the selected media item, Completion: WFS_CMD_IPM_SET_DESTINATION</td>
</tr>
<tr>
<td>16.</td>
<td>Continue with individual media item processing: Goto step 5.</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>WFS_CMD_IPM_MEDIA_IN_END</td>
<td>End processing for the inserted media items, Print on the individual media items, Transport the individual media items to the specified destinations, Completion: WFS_CMD_IPM_MEDIA_IN_END</td>
</tr>
<tr>
<td>18.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7.2 Devices without Stacker

Note that in the following flows that the single and bunch media devices follow the same flow except only one item is inserted and the WFS_CMD_GET_NEXT_ITEM command always returns reporting that there are no more items to process.

7.2.1 Bunch Media Processing (OK flow)

<table>
<thead>
<tr>
<th>Step</th>
<th>Application / Customer</th>
<th>XFS IPM Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>WFS_CMD_IPM_MEDIA_IN</td>
<td>Event: WFS_EXEE_IPM_NOMEDIA</td>
</tr>
<tr>
<td>2.</td>
<td>Customer deposits a bunch of media items.</td>
<td>Event: WFS_EXEE_IPM_MEDIAINSERTED</td>
</tr>
<tr>
<td>3.</td>
<td>WFS_INF_IPM_TRANSACTION_STATUS</td>
<td>Report media status and positions.</td>
</tr>
<tr>
<td>4.</td>
<td>If additional images are required then WFS_CMD_IPM_READ_IMAGE</td>
<td>Reads data from the selected media item.</td>
</tr>
<tr>
<td>5.</td>
<td>WFS_CMD_IPM_PRINT_TEXT</td>
<td>Specifies if the item is to be stamped and specifies the data to print on the selected media item.</td>
</tr>
<tr>
<td>6.</td>
<td>WFS_CMD_IPM_SET_DESTINATION</td>
<td>Specifies the destination of the selected media item.</td>
</tr>
<tr>
<td>7.</td>
<td>WFS_CMD_IPM_ACTION_ITEM</td>
<td>Print and deposit item in bin as specified by application in previous commands.</td>
</tr>
<tr>
<td>8.</td>
<td>WFS_CMD_IPM_GET_NEXT_ITEM</td>
<td>If item successfully read then send one WFS_EXEE_IPM_MEDIADATA event for next media item.</td>
</tr>
<tr>
<td>9.</td>
<td>If the item was read successfully continue with step 3. Otherwise if there are no more items then continue with Step 10.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>If more media is to be inserted: Goto step 1. Otherwise continue with step 11.</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>WFS_CMD_IPM_MEDIA_IN_END</td>
<td>End transaction.</td>
</tr>
<tr>
<td>12.</td>
<td></td>
<td>Completion: WFS_CMD_IPM_MEDIA_IN_END</td>
</tr>
</tbody>
</table>
## 7.2.2 Bunch Media Processing (Some Media Items Returned)

<table>
<thead>
<tr>
<th>Step</th>
<th>Application / Customer</th>
<th>XFS IPM Service</th>
</tr>
</thead>
</table>
| 1.   | WFS_CMD_IPM_MEDIA_IN   | Event: WFS_EXEE_IPM_NOMEDIA  
        |                       | Wait for media insertion. |
| 2.   | Customer deposits a bunch of media items. | Event: WFS_EXEE_IPM_MEDIAINserted  
        |                       | Send one WFS_EXEE_IPM_MEDIADATA event  
        |                       | for first media item.  
        |                       | Completion: WFS_CMD_IPM_MEDIA_IN |
| 3.   | WFS_INF_IPM_TRANSACTION_STATUS | Report media status and positions. |
| 4.   | If additional images are required then WFS_CMD_IPM_READ_IMAGE | Reads data from the selected media item.  
        |                       | Writes image data to the specified files.  
        |                       | Completion: WFS_CMD_IPM_READ_IMAGE |
| 5.   | If item is to be kept continue at step 6. Otherwise continue at step 10. | |
| 6.   | WFS_CMD_IPM_PRINT_TEXT | Specifies if the item is to be stamped and specifies the data to print on the selected media item.  
        |                       | Completion: WFS_CMD_IPM_PRINT_TEXT |
| 7.   | WFS_CMD_IPM_SET_DESTINATION | Specifies the destination of the selected media item.  
        |                       | Completion: WFS_CMD_IPM_SET_DESTINATION |
| 8.   | WFS_CMD_IPM_ACTION_ITEM | Print and deposit item in bin as specified by application in previous commands.  
        |                       | Completion: WFS_CMD_IPM_ACTION_ITEM |
| 10.  | WFS_CMD_IPM_SET_DESTINATION | Specifies the destination of the selected media item as Return to Customer.  
        |                       | Completion: WFS_CMD_IPM_SET_DESTINATION |
| 11.  | WFS_CMD_IPM_ACTION_ITEM | Present the returned media item to the customer.  
        |                       | Event: WFS_EXEE_IPM_MEDIAPRESENTED  
        |                       | Completion: WFS_CMD_IPM_ACTION_ITEM |
| 12.  | Customer takes returned item. | WFS_SRVE_IPM_MEDIATAKEN |
| 13.  | WFS_CMD_IPM_GET_NEXT_ITEM | If item successfully read then send one WFS_EXEE_IPM_MEDIADATA event for next media item.  
        |                       | Completion: WFS_CMD_IPM_GET_NEXT_ITEM |
| 14.  | If the item was read successfully continue with step 3. Otherwise if there are no more items then continue with step 15. | |
| 15.  | If more media is to be inserted: Goto step 1. Otherwise continue with step 16. | |
| 16.  | WFS_CMD_IPM_MEDIA_IN_END | End transaction. |
| 17.  |                        | Completion: WFS_CMD_IPM_MEDIA_IN_END |
### 7.2.3 Bunch Media Processing with Errors

<table>
<thead>
<tr>
<th>Step</th>
<th>Application / Customer</th>
<th>XFS IPM Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>WFS_CMD_IPM_MEDIA_IN</td>
<td>Event: WFS_EXEE_IPM_NOMEDIA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wait for media insertion.</td>
</tr>
<tr>
<td>2.</td>
<td>Customer deposits a bunch of media items.</td>
<td>Event: WFS_EXEE_IPM_MEDIAINSERTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Send one WFS_EXEE_IPM_MEDIADATA event for first media item.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Completion: WFS_CMD_IPM_MEDIA_IN</td>
</tr>
<tr>
<td>3.</td>
<td>WFS_INF_IPM_TRANSACTION_STATUS</td>
<td>Report media status and positions.</td>
</tr>
<tr>
<td>4.</td>
<td>If additional images are required then WFS_CMD_IPM_READ_IMAGE</td>
<td>Event: WFS_EXEE_IPM_MEDIAINSERTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reads data from the selected media item.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Writes image data to the specified files.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Completion: WFS_CMD_IPM_READ_IMAGE</td>
</tr>
<tr>
<td>5.</td>
<td>If item is to be kept continue at step 6. Otherwise continue at step 10.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>WFS_CMD_IPM_PRINT_TEXT</td>
<td>Specifies if the item is to be stamped and specifies the data to print on the selected media item.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Completion: WFS_CMD_IPM_PRINT_TEXT</td>
</tr>
<tr>
<td>7.</td>
<td>WFS_CMD_IPM_SET_DESTINATION</td>
<td>Specifies the destination of the selected media item.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Completion: WFS_CMD_IPM_SET_DESTINATION</td>
</tr>
<tr>
<td>8.</td>
<td>WFS_CMD_IPM_ACTION_ITEM</td>
<td>Print and deposit item in bin as specified by application in previous commands.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Completion: WFS_CMD_IPM_ACTION_ITEM</td>
</tr>
<tr>
<td>10.</td>
<td>WFS_CMD_IPM_SET_DESTINATION</td>
<td>Specifies the destination of the selected media item as Return to Customer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Completion: WFS_CMD_IPM_SET_DESTINATION</td>
</tr>
<tr>
<td>11.</td>
<td>WFS_CMD_IPM_ACTION_ITEM</td>
<td>Present the returned media item to the customer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Event: WFS_EXEE_IPM_MEDIAPRESENTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Completion: WFS_CMD_IPM_ACTION_ITEM</td>
</tr>
<tr>
<td>12.</td>
<td>Customer takes returned item.</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>WFS_CMD_IPM_GET_NEXT_ITEM</td>
<td>Event: WFS_EXEE_IPM_MEDIAREJECTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(wReason == WFS_IPM_REFUSED_CODELINEINVALID) if code line could not be read.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Present the media items to the customer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Completion: WFS_CMD_IPM_GET_NEXT_ITEM (ITEM REFUSED)</td>
</tr>
<tr>
<td>14.</td>
<td>WFS_CMD_IPM_PRESENT_MEDIA</td>
<td>Event: WFS_EXEE_IPM_MEDIAPRESENTED</td>
</tr>
<tr>
<td>15.</td>
<td></td>
<td>Completion: WFS_CMD_IPM_PRESENT_MEDIA</td>
</tr>
<tr>
<td>16.</td>
<td>Customer takes returned media item</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>If the item was REFUSED continue with step 13. If the item was read successfully continue with step 3. Otherwise if there are no more items then continue with step 18.</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>If more media is to be inserted: Goto step 1. Otherwise continue with step 19.</td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>WFS_CMD_IPM_MEDIA_IN_END</td>
<td>End transaction.</td>
</tr>
<tr>
<td>20.</td>
<td></td>
<td>Completion: WFS_CMD_IPM_MEDIA_IN_END</td>
</tr>
</tbody>
</table>
8. ATM Mixed Media Transaction Flow – Application Guidelines

Application guidelines covering Mixed Media processing for CIM and IPM are covered in the CIM Specification [Ref. 2].
#ifndef __INC_XFSIPM_H
#define __INC_XFSIPM_H

#ifdef __cplusplus
extern "C"
{
#endif

#include <xfsapi.h>

/* be aware of alignment */
#pragma pack(push,1)

/* Value of WFSIPMCAPS.wClass */
#define WFS_SERVICE_CLASS_IPM (16)
#define WFS_SERVICE_CLASS_VERSION_IPM (0x1403) /* Version 3.20 */
#define WFS_SERVICE_CLASS_NAME_IPM "IPM"

#define IPM_SERVICE_OFFSET (WFS_SERVICE_CLASS_IPM * 100)

/* IPM Info Commands */

#define WFS_INF_IPM_STATUS (IPM_SERVICE_OFFSET + 1)
#define WFS_INF_IPM_CAPABILITIES (IPM_SERVICE_OFFSET + 2)
#define WFS_INF_IPM_CODELINE_MAPPING (IPM_SERVICE_OFFSET + 3)
#define WFS_INF_IPM_MEDIA_BIN_INFO (IPM_SERVICE_OFFSET + 4)
#define WFS_INF_IPM_TRANSACTION_STATUS (IPM_SERVICE_OFFSET + 5)

/* IPM Execute Commands */

#define WFS_CMD_IPM_MEDIA_IN (IPM_SERVICE_OFFSET + 1)
#define WFS_CMD_IPM_MEDIA_IN_END (IPM_SERVICE_OFFSET + 2)
#define WFS_CMD_IPM_MEDIA_IN_ROLLBACK (IPM_SERVICE_OFFSET + 3)
#define WFS_CMD_IPM_READ_IMAGE (IPM_SERVICE_OFFSET + 4)
#define WFS_CMD_IPM_SET_DESTINATION (IPM_SERVICE_OFFSET + 5)
#define WFS_CMD_IPM_PRESENT_MEDIA (IPM_SERVICE_OFFSET + 6)
#define WFS_CMD_IPM_RETRACT_MEDIA (IPM_SERVICE_OFFSET + 7)
#define WFS_CMD_IPM_PRINT_TEXT (IPM_SERVICE_OFFSET + 8)
#define WFS_CMD_IPM_WRITE_MEDIA_BIN_INFO (IPM_SERVICE_OFFSET + 9)
#define WFS_CMD_IPM_RESUME (IPM_SERVICE_OFFSET + 10)
#define WFS_CMD_IPM_SET_GUIDANCE_LIGHT (IPM_SERVICE_OFFSET + 11)
#define WFS_CMD_IPM_GET_NEXT_ITEM (IPM_SERVICE_OFFSET + 12)
#define WFS_CMD_IPM_ACTION_ITEM (IPM_SERVICE_OFFSET + 13)
#define WFS_CMD_IPM_EXPEL_MEDIA (IPM_SERVICE OFFSET + 14)
#define WFS_CMD_IPM_GET_IMAGE_AFTER_PRINT (IPM_SERVICE_OFFSET + 15)
#define WFS_CMD_IPM_ACCEPT_ITEM (IPM_SERVICE_OFFSET + 16)
#define WFS_CMD_IPM_SUPPLY_REPLENISH (IPM_SERVICE_OFFSET + 17)
#define WFS_CMD_IPM_POWER_SAVE_CONTROL (IPM_SERVICE_OFFSET + 18)
#define WFS_CMD_IPM_SET_MODE (IPM_SERVICE_OFFSET + 19)

/* IPM Messages */

#define WFS_EXEE_IPM_NOMEDIA (IPM_SERVICE_OFFSET + 1)
#define WFS_EXEE_IPM.MEDIAINSERTED (IPM_SERVICE_OFFSET + 2)
#define WFS_USRE_IPM_MEDIAINSERTED (IPM_SERVICE_OFFSET + 2)
#define WFS_SRVIE_IPM_MEDIAINSERTED (IPM_SERVICE_OFFSET + 3)
#define WFS_SRVIE_IPM.MEDIAINSERTED (IPM_SERVICE_OFFSET + 4)
#define WFS_SRVIE_IPM.MEDIAINSERTED (IPM_SERVICE_OFFSET + 5)
#define WFS_SRVIE_IPM.MEDIAINSERTED (IPM_SERVICE_OFFSET + 6)
#define WFS_SRVIE_IPM.MEDIAINSERTED (IPM_SERVICE_OFFSET + 7)
#define WFS_USRE_IPM_SCANNERTHRESHOLD (IPM_SERVICE_OFFSET + 8)
#define WFS_USRE_IPM_INKTHRESHOLD (IPM_SERVICE_OFFSET + 9)
#define WFS_SRVE_IPM_MEDIADETECTED (IPM_SERVICE_OFFSET + 10)
#define WFS_EXEE_IPM_MEDIAPRESENTED (IPM_SERVICE_OFFSET + 11)
#define WFS_EXEE_IPM_MEDIAREJECTED (IPM_SERVICE_OFFSET + 15)
#define WFS_SRVE_IPM_DEVICEPOSITION (IPM_SERVICE_OFFSET + 16)
#define WFS_SRVE_IPM_POWER_SAVE_CHANGE (IPM_SERVICE_OFFSET + 17)

/* Values of WFSIPMSTATUS.fwDevice */
#define WFS_IPM_DEVONLINE WFS_STAT_DEVONLINE
#define WFS_IPM_DEVOFFLINE WFS_STAT_DEVOFFLINE
#define WFS_IPM_DEVPOWEROFF WFS_STAT_DEVPOWEROFF
#define WFS_IPM_DEVNODEVICE WFS_STAT_DEVNODEVICE
#define WFS_IPM_DEVHERROR WFS_STAT_DEVHERROR
#define WFS_IPM_DEVUSERERROR WFS_STAT_DEVUSERERROR
#define WFS_IPM_DEVBUSY WFS_STAT_DEVBUSY
#define WFS_IPM_DEVFRAUDATTEMPT WFS_STAT_DEVFRAUDATTEMPT
#define WFS_IPM_DEVPOTENTIALFRAUD WFS_STAT_DEVPOTENTIALFRAUD

/* Values of WFSIPMSTATUS.wAcceptor */
#define WFS_IPM_ACCBINOK (0)
#define WFS_IPM_ACCBINSTATE (1)
#define WFS_IPM_ACCBINSTOP (2)
#define WFS_IPM_ACCBINUNKNOWN (3)

/* Values of WFSIPMSTATUS.wMedia and WFSIPMMEDIADETECTED.wPosition */
#define WFS_IPM_MEDIAPRESENT (0)
#define WFS_IPM_MEDIANOTPRESENT (1)
#define WFS_IPM_MEDIAMJammed (2)
#define WFS_IPM_MEDIANTSUPP (3)
#define WFS_IPM_MEDIABUSY (4)
#define WFS_IPM_MEDIARRETRACTED (5)
#define WFS_IPM_MEDIARETURNED (6)

/* Values of WFSIPMSTATUS.wToner and WFSIPMTHRESHOLD.wThreshold */
#define WFS_IPM_TONERFULL (0)
#define WFS_IPM_TONERLOW (1)
#define WFS_IPM_TONEROUT (2)
#define WFS_IPM_TONERNOTSUPP (3)
#define WFS_IPM_TONERUNKNOWN (4)

/* Values of WFSIPMSTATUS.wInk and WFSIPMTHRESHOLD.wThreshold */
#define WFS_IPM_INKFULL (0)
#define WFS_IPM_INKLOW (1)
#define WFS_IPM_INKOUT (2)
#define WFS_IPM_INKNOTSUPP (3)
#define WFS_IPM_INKUNKNOWN (4)

/* Values of WFSIPMSTATUS.wFrontImageScanner, WFSIPMSTATUS.wBackImageScanner and WFSIPMSCANNERTHRESHOLD.wThreshold */
#define WFS_IPM_SCANNEROK (0)
#define WFS_IPM_SCANNERFADING (1)
#define WFS_IPM_SCANNERINOP (2)
#define WFS_IPM_SCANNERNOTSUPP (3)
#define WFS_IPM_SCANNERUNKNOWN (4)
/* Values of WFSIPMSTATUS.wMICRReader and WFSIPMTHRESHOLD.wThreshold */
#define WFS_IPM_MICROK (0)
#define WFS_IPM_MICRFADING (1)
#define WFS_IPM_MICRINOP (2)
#define WFS_IPM_MICRNOTSUPP (3)
#define WFS_IPM_MICRUNKNOWN (4)

/* Values of WFSIPMSTATUS.wStacker */
#define WFS_IPM_STACKEREMPTY (0)
#define WFS_IPM_STACKERNOTEMPTY (1)
#define WFS_IPM_STACKERFULL (2)
#define WFS_IPM_STACKERINOP (3)
#define WFS_IPM_STACKERUNKNOWN (4)
#define WFS_IPM_STACKERNOTSUPP (5)

/* Values of WFSIPMSTATUS.wReBuncher */
#define WFS_IPM_REBUNCHEREMPTY (0)
#define WFS_IPM_REBUNCHERNOTEMPTY (1)
#define WFS_IPM_REBUNCHERFULL (2)
#define WFS_IPM_REBUNCHERINOP (3)
#define WFS_IPM_REBUNCHERUNKNOWN (4)
#define WFS_IPM_REBUNCHERNOTSUPP (5)

/* Values of WFSIPMSTATUS.wMediaFeeder and WFSIPMMEDIAIN.wMediaFeeder */
#define WFS_IPM_FEEDEREMPTY (0)
#define WFS_IPM_FEEDERNOTEMPTY (1)
#define WFS_IPM_FEEDERINOP (2)
#define WFS_IPM_FEEDERUNKNOWN (3)
#define WFS_IPM_FEEDERNOTSUPP (4)

/* Values of WFSIPMSTATUS.wDevicePosition and WFSIPMDEVICEPOSITION.wPosition */
#define WFS_IPM_DEVICEINPOSITION (0)
#define WFS_IPM_DEVICENOTINPOSITION (1)
#define WFS_IPM_DEVICEPOSUNKNOWN (2)
#define WFS_IPM_DEVICEPOSNOTSUPP (3)

/* Values of WFSIPMTRANSSTATUS.usMediaOnStacker, WFSIPMTRANSSTATUS.usLastMediaInTotal, WFSIPMTRANSSTATUS.usLastMediaAddedToStacker, WFSIPMTRANSSTATUS.usTotalItems, WFSIPMTRANSSTATUS.usTotalItemsRefused, WFSIPMTRANSSTATUS.usTotalBunchesRefused, WFSIPMMEDIAIN.usMediaOnStacker, WFSIPMMEDIAIN.usLastMedia, WFSIPMMEDIAIN.usLastMediaOnStacker and WFSIPMRETRACTMEDIAOUT.usMedia */
#define WFS_IPM_MEDIANUMBERUNKNOWN (0xFFFF)

/* Indices for WFSIPMSTATUS.lppPositions and WFSIPMCAPS.lppPositions, Values of WFSIPMPOSITION.wPosition and WFSIPMMEDIAPRESENTED.wPosition */
#define WFS_IPM_POSINPUT (0)
#define WFS_IPM_POSOUTPUT (1)
#define WFS_IPM_POSREFUSED (2)

/* Values of WFSIPMPOS.wShutter */
#define WFS_IPM_SHTCLOSED (0)
#define WFS_IPM_SHTOPEN (1)
#define WFS_IPM_SHTJAMMED (2)
#define WFS_IPM_SHTUNKNOWN (3)
#define WFS_IPM_SHTNOTSUPPORTED (4)

/* Values of WFSIPMCAPS.wMixedMode */
#define WFS_IPM_MIXEDMEDIANOTSUPP (0)
#define WFS_IPM_CIMMIXEDMEDIA (1)

/* Values of WFSIPMSETMODE.wMixedMode and WFSIPMSTATUS.wMixedMode */
#define WFS_IPM_MIXEDMEDIANOTACTIVE (0)

/* Values of WFSIPMPOS.wPositionStatus */
#define WFS_IPM_PSEMPTY (0)
#define WFS_IPM_PSNOTEMPTY (1)
#define WFS_IPM_PSUNKNOWN (2)
#define WFS_IPM_PSNOTSUPPORTED (3)

/* Values of WFSIPMPOS.wTransport */
#define WFS_IPM_TPOK (0)
#define WFS_IPM_TPINOP (1)
#define WFS_IPM_TPUNKNOWN (2)
#define WFS_IPM_TPNOTSUPPORTED (3)

/* Values of WFSIPMPOS.wTransportMediaStatus */
#define WFS_IPM_TPMEDIAEMPTY (0)
#define WFS_IPM_TPMEDIANOTEMPTY (1)
#define WFS_IPM_TPMEDIAUNKNOWN (2)
#define WFS_IPM_TPMEDIANOTSUPPORTED (3)

/* Size and max index of dwGuidLights array */
#define WFS_IPM_GUIDLIGHTS_SIZE (32)
#define WFS_IPM_GUIDLIGHTS_MAX (WFS_IPM_GUIDLIGHTS_SIZE - 1)

/* Indices of WFSIPMSTATUS.dwGuidLights [...], WFSIPMCAPS.dwGuidLights [...], and Values of WFSIPMSETGUIDLIGHT.wGuidLight */
#define WFS_IPM_GUIDANCE_MEDIAIN (0)
#define WFS_IPM_GUIDANCE_MEDIAOUT (1)
#define WFS_IPM_GUIDANCE_MEDIAREFUSED (2)

/* Values of WFSIPMSTATUS.dwGuidLights [...], WFSIPMCAPS.dwGuidLights [...], and WFSIPMSETGUIDLIGHT.dwCommand */
#define WFS_IPM_GUIDANCE_NOTAVAILABLE (0x00000000)
#define WFS_IPM_GUIDANCE_OFF (0x0000000001)
#define WFS_IPM_GUIDANCE_SLOW_FLASH (0x0000000004)
#define WFS_IPM_GUIDANCE_MEDIUM_FLASH (0x0000000008)
#define WFS_IPM_GUIDANCE_QUICK_FLASH (0x0000000010)
#define WFS_IPM_GUIDANCE_CONTINUOUS (0x0000000080)
#define WFS_IPM_GUIDANCE_RED (0x0000000100)
#define WFS_IPM_GUIDANCE_GREEN (0x0000000200)
#define WFS_IPM_GUIDANCE_YELLOW (0x0000000400)
#define WFS_IPM_GUIDANCE_BLUE (0x0000000800)
#define WFS_IPM_GUIDANCE_CYAN (0x0000001000)
#define WFS_IPM_GUIDANCE_MAGENTA (0x0000002000)
#define WFS_IPM_GUIDANCE_WHITE (0x0000004000)

/* Values of WFSIPMCAPS.fwType */
#define WFS_IPM_TYPESINGLEMEDIAINPUT (0x0000)
#define WFS_IPM_TYPEBUNCHMEDIAINPUT (0x0002)
/* Values of WFSIPMCAPS.fwRetractLocation,  
   WFSIPWPOSCAPS.fwRetractAreas,  
   WFSIPMRETRACTMEDIA.wRetractLocation and  
   WFSIPMRETRACTMEDIAOUT.wRetractLocation */
#define WFS_IPM_CTRLRETRACTTOBIN (0x0001)
#define WFS_IPM_CTRLRETRACTTOTRANSPORT (0x0002)
#define WFS_IPM_CTRLRETRACTTOSTACKER (0x0004)
#define WFS_IPM_CTRLRETRACTTOREBUNCHER (0x0008)

/* Values of WFSIPMCAPS.fwResetControl and  
   WFSIPMRESET.wMediaControl */
#define WFS_IPM_RESETEJECT (0x0001)
#define WFS_IPM_RESETRETRACTTOBIN (0x0002)
#define WFS_IPM_RESETRETRACTTOTRANSPORT (0x0004)
#define WFS_IPM_RESETRETRACTTOREBUNCHER (0x0008)

/* Values of WFSIPMCAPS.fwImageType,  
   WFSIPMIMAGEREQUEST.wImageType and  
   WFSIPMIMAGEDATA.wImageType */
#define WFS_IPM_IMAGETIF (0x0001)
#define WFS_IPM_IMAGEWMF (0x0002)
#define WFS_IPM_IMAGEBMP (0x0004)
#define WFS_IPM_IMAGEJPG (0x0008)

/* Values of WFSIPMCAPS.fwFrontImageColorFormat,  
   WFSIPMCAPS.fwBackImageColorFormat,  
   WFSIPMIMAGEREQUEST.wImageColorFormat and  
   WFSIPMIMAGEDATA.wImageColorFormat */
#define WFS_IPM_IMAGECOLORBINARY (0x0001)
#define WFS_IPM_IMAGECOLORGRAYSCALE (0x0002)
#define WFS_IPM_IMAGECOLORFULL (0x0004)

/* Values of WFSIPMCAPS.fwFrontScanColor,  
   WFSIPMCAPS.fwBackScanColor,  
   WFSIPMCAPS.wDefaultFrontScanColor,  
   WFSIPMCAPS.wDefaultBackScanColor,  
   WFSIPMIMAGEREQUEST.wImageScanColor and  
   WFSIPMIMAGEDATA.wImageScanColor */
#define WFS_IPM_SCANCOLORDEFAULT (0x0000)
#define WFS_IPM_SCANCOLORRED (0x0001)
#define WFS_IPM_SCANCOLORBLUE (0x0002)
#define WFS_IPM_SCANCOLORGREEN (0x0004)
#define WFS_IPM_SCANCOLORYELLOW (0x0008)
#define WFS_IPM_SCANCOLORWHITE (0x0010)

/* Values of WFSIPMCAPS.fwCodelineFormat,  
   WFSIPMCODELINEMAPPING.wCodelineFormat,  
   WFSIPMCODELINEMAPPINGOUT.wCodelineFormat,  
   WFSIPMMEDIAINREQUEST.wCodelineFormat and  
   WFSIPMREADIMAGEIN.wCodelineFormat */
#define WFS_IPM_CODELINECMC7 (0x0001)
#define WFS_IPM_CODELINEE13B (0x0002)
#define WFS_IPM_CODELINEOCR (0x0004)

/* Values of WFSIPMCAPS.fwDataSource,  
   WFSIPMIMAGEREQUEST.wImageSource and  
   WFSIPMIMAGEDATA.wImageSource */
#define WFS_IPM_IMAGEFRONT (0x0001)
#define WFS_IPM_IMAGEBACK (0x0002)
#define WFS_IPM_CODELINE (0x0004)

/* Values of WFSIPMCAPS.fwReturnedItemsProcessing */
#define     WFS_IPM_RETITEMENDORSE              (0x0001)
#define     WFS_IPM_RETITEMENDORSEIMAGE         (0x0002)
/* Values of WFSIPMMEDIABIN.fwType */
#define     WFS_IPM_TYPEMEDIAIN                 (0x0001)
#define     WFS_IPM_TYPERETRACT                 (0x0002)
/* Values of WFSIPMMEDIABIN.wMediaType */
#define     WFS_IPM_MEDIATYPIPM                 (0x0001)
#define     WFS_IPM_MEDIATYPCOMPOUND            (0x0002)
/* Values of WFSIPMMEDIABIN.usStatus */
#define     WFS_IPM_STATMBOK                    (1)
#define     WFS_IPM_STATMBFULL                  (2)
#define     WFS_IPM_STATMBHIGH                  (3)
#define     WFS_IPM_STATMBINOP                  (4)
#define     WFS_IPM_STATMBMISSING               (5)
#define     WFS_IPM_STATMBUNKNOWN               (6)
/* Values of WFSIPMTRANSSTATUS.wMediaInTransaction */
#define     WFS_IPM_MITOK                       (0)
#define     WFS_IPM_MITACTIVE                   (1)
#define     WFS_IPM_MITROLLBACK                 (2)
#define     WFS_IPM_MITROLLBACKAFTERDEPOSIT     (3)
#define     WFS_IPM_MITRETRACT                  (4)
#define     WFS_IPM_MITFAILURE                  (5)
#define     WFS_IPM_MITUNKNOWN                  (6)
#define     WFS_IPM_MITRESET                    (7)
/* Values of WFSIPMMEDIASTATUS.wMediaLocation */
#define     WFS_IPM_LOCATION_DEVICE             (0)
#define     WFS_IPM_LOCATION_BIN                (1)
#define     WFS_IPM_LOCATION_CUSTOMER           (2)
#define     WFS_IPM_LOCATION_UNKNOWN            (3)
/* Values of WFSIPMMEDIASTATUS.wCustomerAccess */
#define     WFS_IPM_ACCESSUNKNOWN               (0)
#define     WFS_IPM_ACCESSCUSTOMER              (1)
#define     WFS_IPM_ACCESSNONE                  (2)
/* Values of WFSIPMMIMAGEDATA.wImageStatus */
#define     WFS_IPM_DATAOK                      (0)
#define     WFS_IPM_DATASRCNOTSUPP              (1)
#define     WFS_IPM_DATASRCMISSING              (2)
/* Values of WFSIPMMEDIASTATUS.wMagneticReadIndicator and WFSIPMMEDIADATA.wMagneticReadIndicator */
#define     WFS_IPM_MRI_MICR                    (0)
#define     WFS_IPM_MRI_NOT_MICR                (1)
#define     WFS_IPM_MRI_NO_MICR                 (2)
#define     WFS_IPM_MRI_UNKNOWN                 (3)
#define     WFS_IPM_MRI_NOTMICRFORMAT           (4)
#define     WFS_IPM_MRI_NOT_READ                (5)
/* Values of WFSIPMCAPS.fwInsertOrientation, WFSIPMMEDIASTATUS.fwInsertOrientation and WFSIPMMEDIADATA.fwInsertOrientation */
#define     WFS_IPM_INSUNKNOWN                  (0x0000)
#define     WFS_IPM_INSCODELINERIGHT            (0x0001)
#define     WFS_IPM_INSCODELINELEFT             (0x0002)
#define WFS_IPM_INSCODELINEBOTTOM (0x0004)
#define WFS_IPM_INSCODELINETOP (0x0008)
#define WFS_IPM_INSFACEUP (0x0010)
#define WFS_IPM_INSFACEDOWN (0x0020)

/* Values of WFSIPMMEDIASTATUS.wMediaValidity and WFSIPMMEDIADATA.wMediaValidity */
#define WFS_IPM_ITEMOK (0)
#define WFS_IPM_ITEMSUSPECT (1)
#define WFS_IPM_ITEMUNKNOWN (2)
#define WFS_IPM_ITEMNOVALIDATION (3)

/* Values of WFSIPMSUPPLYREPLEN.fwSupplyReplen */
#define WFS_IPM_REPLEN_TONER (0x0001)
#define WFS_IPM_REPLEN_INK (0x0002)

/* Values of WFSIPMMEDIAREFUSED.wReason */
#define WFS_IPM_REFUSED_FOREIGNITEMS (1)
#define WFS_IPM_REFUSED_STACKERFULL (2)
#define WFS_IPM_REFUSED_CODELINEINVALID (3)
#define WFS_IPM_REFUSED_INVALIDMEDIA (4)
#define WFS_IPM_REFUSED_TOOLONG (5)
#define WFS_IPM_REFUSED_TOOSHORT (6)
#define WFS_IPM_REFUSED_TOOWIDE (7)
#define WFS_IPM_REFUSED_TOONARROW (8)
#define WFS_IPM_REFUSED_TOOTHICK (9)
#define WFS_IPM_REFUSED_INVALIDORIENTATION (10)
#define WFS_IPM_REFUSED_DOUBLEDETECT (11)
#define WFS_IPM_REFUSED_REFUSEPOSFULL (12)
#define WFS_IPM_REFUSED_REFERBLOCKED (13)
#define WFS_IPM_REFUSED_INVALIDBUNCH (14)
#define WFS_IPM_REFUSED_OTHERITEM (15)
#define WFS_IPM_REFUSED_OTHERBUNCH (16)
#define WFS_IPM_REFUSED_JAMMING (17)
#define WFS_IPM_REFUSED_METAL (18)

/* Values of WFSIPMMEDIAREFUSED.wMediaLocation and WFSIPMPRESENTMEDIA.wPosition */
#define WFS_IPM_REFUSE_INPUT (1)
#define WFS_IPM_REFUSE_REFUSED (2)
#define WFS_IPM_REFUSE_REBUNCHER (3)
#define WFS_IPM_REFUSE_STACKER (4)

/* Values of WFSIPMBERROR.wFailure */
#define WFS_IPM_MEDIABINJAMMED (1)
#define WFS_IPM_MEDIABINERROR (2)
#define WFS_IPM_MEDIABINFULL (3)
#define WFS_IPM_MEDIABINNOTCONF (4)
#define WFS_IPM_MEDIABININVALID (5)
#define WFS_IPM_MEDIABINCONFIG (6)
#define WFS_IPM_MEDIABINFEEDPROBLEM (7)

/* Values of WFSIPMMEDIAREJECTED.wReason */
#define WFS_IPM_REJECT_LONG (1)
#define WFS_IPM_REJECT_THICK (2)
#define WFS_IPM_REJECT_DOUBLE (3)
#define WFS_IPM_REJECT_TRANSPORT (4)
#define WFS_IPM_REJECT_SHUTTER (5)
#define WFS_IPM_REJECT_REMOVED (6)
#define WFS_IPM_REJECT_METAL (7)
#define WFS_IPM_REJECT_FOREIGNITEMS (8)
#define WFS_IPM_REJECT_OTHER (9)

/* Values of WFSIPMSCANNER_THRESHOLD.wScanner */
#define WFS_IPM_FRONTSCANNER (1)
#define WFS_IPM_BACKSCANNER (2)

/* Values of WFSIPMSTATUS.wAntiFraudModule */

#define WFS_IPM_AFMNOTSUPP (0)
#define WFS_IPM_AFMOK (1)
#define WFS_IPM_AFMINOP (2)
#define WFS_IPM_AFMDEVICEDETECTED (3)
#define WFS_IPM_AFMUNKNOWN (4)

/* XFS IPM Errors */

#define WFS_ERR_IPM_NOMEDIAPRESENT (-IPM_SERVICE_OFFSET + 1)
#define WFS_ERR_IPM_MEDIABINFULL (-IPM_SERVICE_OFFSET + 2)
#define WFS_ERR_IPM_STACKERFULL (-IPM_SERVICE_OFFSET + 3)
#define WFS_ERR_IPM_FILEIOERROR (-IPM_SERVICE_OFFSET + 4)
#define WFS_ERR_IPM_INKOUT (-IPM_SERVICE_OFFSET + 5)
#define WFS_ERR_IPM_TONEROUT (-IPM_SERVICE_OFFSET + 6)
#define WFS_ERR_IPM_SCANNERINOP (-IPM_SERVICE_OFFSET + 7)
#define WFS_ERR_IPM_AFMINOP (-IPM_SERVICE_OFFSET + 8)
#define WFS_ERR_IPM_SCANERROR (-IPM_SERVICE_OFFSET + 9)
#define WFS_ERR_IPM_MICRINOP (-IPM_SERVICE_OFFSET + 10)
#define WFS_ERR_IPM_SEQUENCEINVALID (-IPM_SERVICE_OFFSET + 11)
#define WFS_ERR_IPM_INVALID_PORT (-IPM_SERVICE_OFFSET + 12)
#define WFS_ERR_IPM_FOREIGNITEMSDETECTED (-IPM_SERVICE_OFFSET + 13)
#define WFS_ERR_IPM_INVALIDMEDIAID (-IPM_SERVICE_OFFSET + 14)
#define WFS_ERR_IPM_MEDIAJAMMED (-IPM_SERVICE_OFFSET + 15)
#define WFS_ERR_IPM_MEDIABINERROR (-IPM_SERVICE_OFFSET + 16)
#define WFS_ERR_IPM_POSITIONNOTEMPTY (-IPM_SERVICE_OFFSET + 17)
#define WFS_ERR_IPM_ALLBINSFULL (-IPM_SERVICE_OFFSET + 18)
#define WFS_ERR_IPM_MEDIAREJECTED (-IPM_SERVICE_OFFSET + 19)
#define WFS_ERR_IPM_MEDIAREJECTED (-IPM_SERVICE_OFFSET + 20)
#define WFS_ERR_IPM_FEEDERNOTEMPTY (-IPM_SERVICE_OFFSET + 21)
#define WFS_ERR_IPM_FEEDERINOPERATIVE (-IPM_SERVICE_OFFSET + 22)
#define WFS_ERR_IPM_MEDIAPRESENT (-IPM_SERVICE_OFFSET + 23)
#define WFS_ERR_IPM_POWERSAVETOOSHORT (-IPM_SERVICE_OFFSET + 24)
#define WFS_ERR_IPM_POWERSAVEMEDIAPRESENT (-IPM_SERVICE_OFFSET + 25)
#define WFS_ERR_IPM_CASHINACTIVE (-IPM_SERVICE_OFFSET + 26)
#define WFS_ERR_IPM_MEDIAINACTIVE (-IPM_SERVICE_OFFSET + 27)
#define WFS_ERR_IPM_MEDIAINACTIVE (-IPM_SERVICE_OFFSET + 28)

/*=================================================================*
/* IPM Info Command Structures */
/*=================================================================*/

typedef struct _wfs_ipm_pos {
    WORD wShutter;
    WORD wPositionStatus;
    WORD wTransport;
    WORD wTransportMediaStatus;
} WFSIPMPOS, *LPWFSIPMPOS;

typedef struct _wfs_ipm_status {
    WORD fwDevice;
    WORD wAcceptor;
    WORD wMedia;
    WORD wToner;
    WORD wInk;
    WORD wFrontImageScanner;
    WORD wBackImageScanner;
    WORD wMICRReader;
    WORD wStacker;
    WORD wReBuncher;
    WORD wMediaFeeder;
    LPWFSIPMPOS *lppPositions;
    DWORD dwGuidLights[WFS_IPM_GUIDLIGHTS_SIZE];
}
typedef struct _wfs_ipm_print_size
{
    WORD wRows;
    WORD wCols;
} WFSIPMPRINTSIZE, *LPWFSIPMPRINTSIZE;

typedef struct _wfs_ipm_pos_caps
{
    BOOL bItemsTakenSensor;
    BOOL bItemsInsertedSensor;
    WORD fwRetractAreas;
} WFSIPMPOSCAPS, *LPWFSIPMPOSCAPS;

/* WFS_INF_IPM_CAPABILITIES output structures */
typedef struct _wfs_ipm_caps
{
    WORD wClass;
    WORD fwType;
    BOOL bCompound;
    USHORT usMaxMediaOnStacker;
    LPWFSIPMPRINTSIZE lpPrintSize;
    BOOL bStamp;
    BOOL bRescan;
    BOOL bPresentControl;
    BOOL bApplicationRefuse;
    WORD fwRetractLocation;
    WORD fwResetControl;
    BOOL bRetractCountsItems;
    WORD fwImageType;
    WORD fwFrontImageColorFormat;
    WORD fwBackImageColorFormat;
    WORD fwFrontScanColor;
    WORD wDefaultFrontScanColor;
    WORD fwBackScanColor;
    WORD wDefaultBackScanColor;
    WORD fwCodelineFormat;
    WORD fwDataSource;
    WORD fwInsertOrientation;
    LPWFSIPMPOSCAPS *lppPositions;
    DWORD dwGuidLights[WFS_IPM_GUIDLIGHTS_SIZE];
    LPSTR lpszExtra;
    BOOL bPowerSaveControl;
    BOOL bImageAfterEndorse;
   WORD fwReturnedItemsProcessing;
    WORD wMixedMode;
    BOOL bMixedDepositAndRollback;
    BOOL bAntiFraudModule;
} WFSIPMCAPS, *LPWFSIPMCAPS;

typedef struct _wfs_ipm_hex_data
{
    USHORT usLength;
    LPBYTE lpData;
} WFSIPMXDATA, *LPWFSIPMXDATA;

/* WFS_INF_IPM_CODELINE_MAPPING input and output structures */
typedef struct _wfs_ipm_codeline_mapping
{
    WORD wCodelineFormat;
} WFSIPMCODELINEMAPPING, *LPWFSIPMCODELINEMAPPING;
typedef struct _wfs_ipm_codeline_mapping_out
{
    WORD                   wCodelineFormat;
    LPWFSIPMXDATA          lpxCharMapping;
} WFSIPMCODELINEMAPPINGOUT, *LPWFSIPMCODELINEMAPPINGOUT;

/* WFS_INF_IPM_MEDIA_BIN_INFO output structures */
typedef struct _wfs_ipm_media_bin
{
    USHORT                 usBinNumber;
    LPSTR                  lpstrPositionName;
    WORD                   fwType;
    WORD                   wMediaType;
    LPSTR                  lpstrBinID;
    ULONG                  ulMediaInCount;
    ULONG                  ulCount;
    ULONG                  ulRetractOperations;
    BOOL                   bHardwareSensors;
    ULONG                  ulMaximumItems;
    ULONG                  ulMaximumRetractOperations;
    USHORT                 usStatus;
    LPSTR                  lpszExtra;
} WFSIPMMEDIABIN, *LPWFSIPMMEDIABIN;

typedef struct _wfs_ipm_media_bin_info
{
    USHORT                 usCount;
    LPWFSIPMMEDIABIN       *lppMediaBin;
} WFSIPMMEDIABININFO, *LPWFSIPMMEDIABININFO;

typedef struct _wfs_ipm_image_data
{
    WORD                   wImageSource;
    WORD                   wImageType;
    WORD                   wImageColorFormat;
    WORD                   wImageScanColor;
    WORD                   wImageStatus;
    LPSTR                  lpszImageFile;
} WFSIPMIMAGEDATA, *LPWFSIPMIMAGEDATA;

typedef struct _wfs_ipm_media_size
{
    ULONG                  ulSizeX;
    ULONG                  ulSizeY;
} WFSIPMMEDIASIZE, *LPWFSIPMMEDIASIZE;

typedef struct _wfs_ipm_media_status
{
    USHORT                 usMediaID;
    WORD                   wMediaLocation;
    USHORT                 usBinNumber;
    ULONG                  ulCodelineDataLength;
    LPBYTE                 lpbCodelineData;
    WORD                   wMagneticReadIndicator;
    LPWFSIPMIMAGEDATA      *lppImage;
    WORD                   fwInsertOrientation;
    LPWFSIPMMEDIASIZE      lpMediaSize;
    WORD                   wMediaValidity;
    WORD                   wCustomerAccess;
} WFSIPMMEDIASTATUS, *LPWFSIPMMEDIASTATUS;

/* WFS_INF_IPM_TRANSACTION_STATUS output structures */
typedef struct _wfs_ipm_trans_status
{
    WORD                   wMediaInTransaction;
    USHORT                 usMediaOnStacker;
    USHORT                 usLastMediaInTotal;
    USHORT                 usLastMediaAddedToStacker;
}
typedef struct _wfs_ipm_image_request
{
    WORD wImageSource;
    WORD wImageType;
    WORD wImageColorFormat;
    WORD wImageScanColor;
    LPSTR lpszImagePath;
} WFSIPMIMAGEREQUEST, *LPWFSIPMIMAGEREQUEST;

typedef struct _wfs_ipm_media_in_request
{
    WORD wCodelineFormat;
    LPWFSIPMIMAGEREQUEST *lppImage;
    USHORT usMaxMediaOnStacker;
    BOOL bApplicationRefuse;
} WFSIPMMEDIAINREQUEST, *LPWFSIPMMEDIAINREQUEST;

typedef struct _wfs_ipm_media_in
{
    USHORT usMediaOnStacker;
    USHORT usLastMedia;
    USHORT usLastMediaOnStacker;
    WORD wMediaFeeder;
} WFSIPMMEDIAIN, *LPWFSIPMMEDIAIN;

/* WFS_CMD_IPM_MEDIA_IN_END structures */

typedef struct _wfs_ipm_media_in_end
{
    USHORT usItemsReturned;
    USHORT usItemsRefused;
    USHORT usBunchesRefused;
    LPWFSIPMMEDIABININFO lpMediaBinInfo;
} WFSIPMMEDIAINEND, *LPWFSIPMMEDIAINEND;

typedef struct _wfs_ipm_read_image_request
{
    USHORT usMediaID;
    WORD wCodelineFormat;
    LPWFSIPMIMAGEREQUEST *lppImage;
} WFSIPMREADIMAGEIN, *LPWFSIPMREADIMAGEIN;

typedef struct _wfs_ipm_medidata
{
    USHORT usMediaID;
    ULONG ulCodelineDataLength;
    LPBYTE lpbCodelineData;
    WORD wMagneticReadIndicator;
    LPWFSIPMIMAGEDATA *lppImage;
    WORD fwInsertOrientation;
    LPWFSIPMMEDIASIZE lpMediaSize;
    WORD wMediaValidity;
} WFSIPMMEDIADATA, *LPWFSIPMMEDIADATA;

/* WFS_CMD_IPM_SET_DESTINATION structures */

typedef struct _wfs_ipm_set_destination
{
    USHORT usMediaID;
}
USHORT usBinNumber;
} WFSIPMSETDESTINATION, *LPWFSIPMSETDESTINATION;

typedef struct _wfs_ipm_next_item_out
{
    WORD wMediaFeeder;
} WFSIPMNEXTITEMOUT, *LPWFSIPMNEXTITEMOUT;

/* WFS_CMD_IPM_PRESENT_MEDIA structures */
typedef struct _wfs_ipm_present_media
{
    WORD wPosition;
} WFSIPMPRESENTMEDIA, *LPWFSIPMPRESENTMEDIA;

/* WFS_CMD_IPM_RETRACT_MEDIA structures */
typedef struct _wfs_ipm_retract_media
{
    WORD wRetractLocation;
    USHORT usBinNumber;
} WFSIPMRETRACTMEDIA, *LPWFSIPMRETRACTMEDIA;

typedef struct _wfs_ipm_retract_media_out
{
    USHORT usMedia;
    WORD wRetractLocation;
    USHORT usBinNumber;
} WFSIPMRETRACTMEDIAOUT, *LPWFSIPMRETRACTMEDIAOUT;

/* WFS_CMD_IPM_PRINT_TEXT structures */
typedef struct _wfs_ipm_print_text
{
    USHORT usMediaID;
    BOOL bStamp;
    LPWSTR lpszPrintData;
} WFSIPMPRINTTEXT, *LPWFSIPMPRINTTEXT;

/* WFS_CMD_IPM_GET_IMAGE_AFTER_PRINT structures */
typedef struct _wfs_ipm_get_image_after_print
{
    USHORT usMediaID;
    LPWFSIPMIMAGEREQUEST *lppImage;
} WFSIPMGETIMAGEAFTERPRINT, *LPWFSIPMGETIMAGEAFTERPRINT;

/* WFS_CMD_IPM_ACCEPT_ITEM structures */
typedef struct _wfs_ipm_accept_item
{
    BOOL bAccept;
} WFSIPMACCEPTITEM, *LPWFSIPMACCEPTITEM;

/* WFS_CMD_IPM_RESET structures */
typedef struct _wfs_ipm_reset
{
    WORD wMediaControl;
    USHORT usBinNumber;
} WFSIPMRESET, *LPWFSIPMRESET;

/* WFS_CMD_IPM_SUPPLY_REPLENISH structures */
typedef struct _wfs_ipm_supply_replen
{
    WORD fwSupplyReplen;
} WFSIPMSUPPLYREPLEN, *LPWFSIPMSUPPLYREPLEN;

/* WFS_CMD_IPM_SET_GUIDANCE_LIGHT structures */
typedef struct _wfs_ipm_set_guidlight
{
    WORD       wGuidLight;
    DWORD      dwCommand;
} WFSIPMSETGUIDLIGHT, *LPWFSIPMSETGUIDLIGHT;

/* WFS_CMD_IPM_POWER_SAVE_CONTROL structure */
typedef struct _wfs_ipm_power_save_control
{
    USHort      usMaxPowerSaveRecoveryTime;
} WFSIPMPWERSAVECONTROL, *LPWFSIPMPWERSAVECONTROL;

typedef struct _wfs_ipm_setmode
{
    WORD       wMixedMode;
} WFSIPMSETMODE, *LPWFSIPMSETMODE;

/*=================================================================*
/* IPM Message Structures */
/*=================================================================* /

/* WFS_EXEE_IPM_MEDIABINERROR structure */
typedef struct _wfs_ipm_mb_error
{
    WORD       wFailure;
    LPWFSIPMMEDIABIN lpMediaBin;
} WFSIPMMBERROR, *LPWFSIPMMBERROR;

/* WFS_SRVE_IPM_MEDIATAKEN structure */
typedef struct _wfs_ipm_position
{
    WORD       wPosition;
} WFSIPMPOSITION, *LPWFSIPMPOSITION;

/* WFS_USRE_IPM_TONERTHRESHOLD and WFS_USRE_IPM_INKTHRESHOLD structures */
typedef struct _wfs_ipm_threshold
{
    WORD       wThreshold;
} WFSIPMTHRESHOLD, *LPWFSIPMTHRESHOLD;

/* WFS_SRVE_IPM_SCANNERTHRESHOLD structure */
typedef struct _wfs_ipm_scanner_threshold
{
    WORD       wScanner;
    WORD       wThreshold;
} WFSIPMSCANNERTHRESHOLD, *LPWFSIPMSCANNERTHRESHOLD;

/* WFS_SRVE_IPM_MEDIADETECTED structure */
typedef struct _wfs_ipm_media_detected
{
    WORD       wPosition;
    USHort     usRetractBinNumber;
} WFSIPMMEDIADETECTED, *LPWFSIPMMEDIADETECTED;

/* WFS_EXEE_IPM_MEDIAPRESENTED structure */
typedef struct _wfs_ipm_media_presented
{
    WORD       wPosition;
    USHort     usBunchIndex;
    USHort     usTotalBunches;
} WFSIPMMEDIAPISENTED, *LPWFSIPMMEDIAPISENTED;
/* WFS_EXEE_IPM_MEDIAREFUSED structure */
typedef struct _wfs_ipm_media_refused {
    WORD wReason;
    WORD wMediaLocation;
    BOOL bPresentRequired;
    LPWFSIPMMEDIASIZE lpMediaSize;
} WFSIPMMEDIAREFUSED, *LPWFSIPMMEDIAREFUSED;

/* WFS_EXEE_IPM_MEDIAREJECTED structure */
typedef struct _wfs_ipm_media_rejected {
    WORD wReason;
} WFSIPMMEDIAREJECTED, *LPWFSIPMMEDIAREJECTED;

/* WFS_SRVE_IPM_DEVICEPOSITION structure */
typedef struct _wfs_ipm_device_position {
    WORD wPosition;
} WFSIPMDEVICEPOSITION, *LPWFSIPMDEVICEPOSITION;

/* WFS_SRVE_IPM POWERSAVECHANGE structure */
typedef struct _wfs_ipm_power_Save_change {
    USHORT usPowerSaveRecoveryTime;
} WFSIPMPOWERSAVECHANGE, *LPWFSIPMPOWERSAVECHANGE;

/* restore alignment */
#pragma pack(pop)

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

#endif    /* __INC_XFSIPM__H */