Abstract: Network print devices have evolved to support additional multifunction services, in particular Copy Service. When Copy Devices are installed in local office or enterprise networks, they need remote service, device, and job management capabilities so that administrators, operators, and users can monitor their health and status. In addition, such Copy Devices need remote job submission capabilities so that operators and users can create CopyJobs without depending entirely on local console interfaces. This document defines a semantic model for service, device, and job management and job submission for these Copy Devices.
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Title: Copy Service Semantic Model and Service Interface

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Contact information:

The Printer Working Group
c/o The IEEE Industry Standards and Technology Organization
445 Hoes Lane
Piscataway, NJ 08854
USA

MFD Web Page: http://www.pwg.org/mfd MFD Mailing List: mfd@pwg.org

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1 Introduction

This document specifies the PWG abstract model for Copy Services of a Multifunction Device (MFD). Included in this document is the service specific terminology, data model, the theory of operation, the Copy Service interfaces and the conformance requirements. The MFD Copy Service abstract model includes the functional models and interfaces of the associated Copy Services for a local network or enterprise-connected multifunction device.

2 Overview

The MFD service addressed in this specification is the Copy Service. The Copy Service responds to queries about its capabilities, configuration and descriptive information. It responds to queries for information about CopyJobs. It manages and processes CopyJobs with its associated CopyJobTicket.

The Copy Service, by definition, takes an input Hardcopy Document and produces an output Hardcopy Document. Although the Copy Service usually has some internal representation for the digital form of the document that is being copied, the internal representation is not visible to the user. The result of this is that a Copy Service contains zero or more Jobs and the Jobs do not contain any documents.

Each CopyJob can contain a CopyJobTicket which provides descriptive information (i.e., CopyJobDescription) as well as CopyJobProcessing and CopyDocumentProcessing instructions. CopyJobProcessing instructions apply to the Job as a whole. CopyDocumentProcessing instructions specify processing instructions applied to either the input or output Hardcopy Document. The input processing semantics are based on ScanService Semantics [WS-SCAN, PWG5108.2] while the output processing semantics are based on PrintService Semantics [RFC2911, PWG5105.1].

A client application interacting with the Copy Service contains a Copy Client. A Copy Client interacts with the End User to obtain the End User's Intent and uses the Copy Client to communicate with the Copy Service that will execute the CopyJob according to the End User Intent.

CopyJobTemplates contain instructions representing preconfigured Copy intent that can be used as is or modified by the End User. Once the End User is satisfied with the CopyJobTemplate the Copy Client uses the CopyJobTemplate as the CopyJobTicket in the job submission to the Copy Service. CopyJobTemplates may be obtained in a number of ways. Those methods are outside the scope of this specification.

The Copy scenarios addressed in this specification range from walk-up users that use MFD's front panel to initiate a CopyJob to remote users that use their computers to initiate a CopyJob. The assumption is that it is possible to implement a Network Connected Copy Client that is accessible via the device's front panel. The model also supports external security services that protects against unauthorized use of the Copy Services and access of Copy digital data.
3 Terminology

3.1 Conformance Terminology

See [RFC2119] for conformance terminology used. There are no CopyService specific conformance terms.

3.2 Service Specific Terminology

See MFD Model and Common Semantics specification [PWG5108.01] for common MFD terminology used. For this service the "<service>" in the MFD Terminology section is replaced with "Copy". There is no CopyService specific terminology.

3.3 Model Mapping Conventions

The CopyService model is described in this document as an XML schema. This is for the sake of convenience and does not require a protocol mapping involving XML. The top level objects such as SystemConfiguration, Services, and their associated Jobs can be represented in any number of ways. Abstractly they are objects which contain attributes or properties that express characteristics of the object. For the remainder of this document references to attribute or element refer to XML attributes and XML elements respectively. Either of these can be abstractly considered to be attributes or properties of abstract objects.

3.4 Naming Conventions

The MFD Model and Common Semantics specification [PWG5108.01] describes common concepts and terms used for all of the services hosted on a multifunction device. That includes the objects and their attributes in the multifunction device data model. The MFD Model and Common Semantics specification [PWG5108.01] uses abstract names for the semantic elements (e.g., Job State). This document describes a specific service and uses an XML schema to represent the objects and attributes. XML elements cannot have names with an embedded whitespace. The names for objects and their attributes used by this specification are the names from the XML Schema (e.g., JobState). The names can be easily mapped between the two specifications by inserting or removing the whitespace in the name (e.g., Job State \equiv JobState).

4 Requirements

4.1 Rationale for the CopyService Specification

This specification is based on common requirements defined in the Multifunction Device Service Model Requirements [MFDREQ]. In order to support common functionality for copying using multifunction devices, there is a need to develop a semantic model and a set of abstract operations and elements for a CopyService. In order to implement an abstract model of the operations and elements for a CopyService, there is need to map them onto implementable applications and communication protocols that support interactions between Copy Clients and CopyServices. There is a need to define a binding of the abstract model into Web Service Schema and Web Service protocol stack.

4.2 Out of Scope for CopyService

The basic CopyService model defined in this document is targeted to support enterprise Copy applications. However this document does not specify any application specific semantics. The following are out of scope:

1. Semantics of any compound service such as Copy-And-Email.
2. Semantics of any workflow protocol, i.e., sequencing and coordination of CopyJobs across multiple services.
3. Semantics of any CopyService management operations for MFDs that are not network connected.
5 MFD Model Overview

See [PWG5108.01] for the MFD model. The CopyService fits within the MFD model as one of a number of services that can be hosted on a multifunction device (i.e., System). The critical MFD container object with regard to describing CopyService is Services.

One of the MFD’s services is CopyService. There can be multiple instances of a CopyService hosted, each with its own set of defaults and capabilities (e.g., separate Job queues).

The System has a SystemConfiguration object that contains all the subunits that comprise the MFD. Each CopyService instance contains a service specific view of the subunits used by that service instance. The CopyService element CopyServiceConfiguration contains the service specific view of the associated Subunits.

6 CopyService Model Overview

Figure 1 is the top level view of the CopyService schema.

![Figure 1 High Level CopyService Schema](image)

The MFD System supports zero or more CopyServices. A CopyService is hosted locally on an MFD or remotely on another computer. The CopyService model has an Active Job queue, a Job History and a set of elements which includes CopyService status, configuration, description, defaults, and processing capabilities.

The CopyServiceCapabilities group element contains the CopyJobTicketCapabilities. The CopyJobTicketCapabilities represents the allowed values supported by the CopyService for a CopyJobTicket. The CopyJobTicketCapabilities includes three sub elements. The CopyJobDescriptionCapabilities element indicates what job description elements are supported by the service instance. The CopyDocumentProcessingCapabilities group element has all processing...
elements for scanning the input Hardcopy Document and printing the output Hardcopy Document. The CopyJobProcessingCapabilities group element includes all supported processing elements for CopyJobs. The details of each processing element are specified in §6.1.

The CopyServiceCapabilitiesReady group element represents the allowed values for a CopyJobTicket that do not require operator intervention (e.g., the media that is actually loaded in an input tray). The details are specified in §6.2 CopyServiceConfiguration provides a CopyService specific view into the Subunits that are associated with this service instance. Only Subunits that are used by the CopyService will appear in this element. The details of each subunit are detailed in §6.3. The System element provides an all-encompassing view of all the Subunits of the MFD.

The CopyServiceDescription group element includes descriptive information such as service name and information, and has extension point for vendor specific information. These description elements are settable by Administrators. The details of the CopyServiceDescription elements are specified in §6.5.

The CopyServiceDefaults group element contains the DefaultCopyJobTicket. The DefaultCopyJobTicket contains the CopyDescription, CopyJobProcessing and CopyDocumentProcessing default values. The values contained in DefaultCopyJobTicket are the values that will be used by the CopyService when processing a CopyJobTicket which does not specify a different value. The values for this are populated in an implementation specific manner. The details of the DefaultCopyJobTicket are specified in §6.4

The CopyServiceStatus group element is an extension of SystemServiceStatus class that includes elements such as ID, state, service counters, state messages and state reasons. State messages are localized state reasons. The only CopyService specific status extensions are the CopyService specific counters. The details of the elements in the CopyServiceStatus group are specified in §6.6.

A CopyService contains zero or more jobs. Since the input and output of a CopyService is a Hardcopy Document, there is no document object to represent an implementation specific internal Digital Document. The CopyService does not expose any Digital Document associated with a CopyJob. Therefore, each job has exactly zero documents. The CopyService organizes its CopyJobs in a minimum of two job queues: (1) ActiveJobs, (2) JobHistory. ActiveJobs is a queue maintaining a list of jobs that are pending or processing. The JobHistory queue maintains a log of CopyJobs that have reached a terminating state (i.e., Completed, Aborted, and Canceled). The retention period for jobs in the JobHistory list is implementation specific but MUST be at least 300 seconds. Each CopyJob can contain a CopyJobTicket which provides descriptive information as well as job processing and document processing instructions.

CopyJobProcessing instructions apply to the Job as a whole while CopyJobProcessing instructions specify processing instructions applied to either the input or output Hardcopy Documents. The input processing semantics are based on ScanService Semantics while the output processing semantics are based on PrintService Semantics.

6.1 CopyServiceCapabilities

The CopyServiceCapabilities is a container element containing CopyJobTicketCapabilities that provides information about the elements that can be used in CopyJobTickets. The values of the elements in CopyJobTicketCapabilities indicate all the supported values for a CopyJobTicket submitted to the CopyService instance (e.g., all the media loaded in the InputTrays or available in nearby storage locations). The names of the elements within the CopyJobTicketCapabilities are the same as those in the DefaultCopyJobTicket. See §7.3 for the names of theCopyDocumentProcessingCapabilities (In and Out), CopyJobDescriptionCapabilities, and CopyJobProcessingCapabilities elements.

Although most of the elements have the same name as their CopyJobTicket counterparts the syntax is often different. For example an element such as InputSource that is a single keyword in CopyJobTicket, it is a sequence of keywords in CopyServiceCapabilities. The values list the allowed values for the CopyJobTicket element. Some elements that are of the data type integer in a CopyJobTicket are a range of integers in CopyJobTicketCapabilities. Other elements that are simple strings or predefined ranges in the CopyJobTicket are simply boolean values in CopyJobTicketCapabilities, indicating support for the associated CopyJobTicket elements. See [PWG5108.01] for details on the syntax.
Table 1 CopyServiceCapabilities

<table>
<thead>
<tr>
<th>Group</th>
<th>Elements described in [PWG5108.01]</th>
</tr>
</thead>
<tbody>
<tr>
<td>CopyDocumentProcessingCapabilities (In)</td>
<td>NumberUp, PresentationDirectionNumberUp, AutoSkewCorrection, ColorEntry, ColorType, ContentType, Exposure, FilmScanMode, ImagesToTransfer, InputSource, Resolutions, Rotation, Scaling, DocumentSizeAutoDetect, ScanRegions, Sides</td>
</tr>
<tr>
<td>CopyDocumentProcessingCapabilities (Out)</td>
<td>NumberUp, PresentationDirectionNumberUp, Copies, CoverBack, CoverFront, FinishingsCol, Finishings, ForceFrontSide, ImpositionTemplate, InsertSheet, Media, MediaType, MediaColSupported, MediaInputTrayCheck, OrientationRequested, OutputBin, OutputDevice, Overrides, PageDelivery, PagesPerSubset, PageRanges, PrintContentOptimized, PrintColorMode, Quality, Resolutions, SeparatorSheets, SheetCollate, Sides, XImagePosition, XImageShift, XSide1ImageShift, XSide2ImageShift, YImagePosition, YImageShift, YSide1ImageShift, YSide2ImageShift,</td>
</tr>
<tr>
<td>CopyJobDescriptionCapabilities</td>
<td>ElementsNaturalLanguage, JobAccountingID, JobAccountingUserID, JobMandatoryElements, JobMessageFromOperator, JobMessageTypeToOperator, JobMoreInfoJobName, JobOriginatingUserName, JobOriginatingUserUri, JobPassword, JobPasswordEncryption, KOctets, TemplateCreatorName, TemplateId, TemplateInfo, TemplateName, TemplateType</td>
</tr>
<tr>
<td>CopyJobProcessingCapabilities</td>
<td>JobDelayOutputUntil, JobDelayOutputUntilTime, JobHoldUntil, JobHoldUntilTime, JobMandatoryElements, JobPhoneNumber, JobPriority, JobRecipientName, BatchMode, JobAccountingSheets, JobCopies, JobCoverBack, JobCoverFront, JobErrorSheet, JobFinishings, JobFinishingsCol, JobSaveDisposition, JobSheetMessage, JobSheets, JobSheetsCol, MultipleSetOriginal, OutputBin, Overrides</td>
</tr>
</tbody>
</table>
1 Resolution in the CopyJobTicket’s CopyDocumentProcessing is a single instance of Resolution from the sequence of Resolutions elements in CopyDocumentProcessingCapabilities. This applies to both In and Out.

2 MediaCol in the CopyJobTicket is a sequence (i.e., MediaColSupported) of MediaCol elements in CopyDocumentProcessingCapabilities

### 6.2 CopyServiceCapabilitiesReady

CopyServiceCapabilitiesReady is a container element containing CopyJobTicketCapabilities that provides information about the elements that can be used in CopyJobTickets. The values of the elements in CopyJobTicketCapabilities indicate all the values for a CopyJobTicket that can be submitted to the CopyServer instance and applied without operator intervention. (i.e., the Media currently loaded in the InputTrays). The names of the elements within CopyServiceCapabilitiesReady are the same as those in CopyServiceCapabilities. See §6.1 for the names of the CopyDocumentProcessingCapabilities (In and Out), CopyJobDescriptionCapabilities, and CopyJobProcessingCapabilities elements.

### 6.3 CopyServiceConfiguration

The types of Subunits defined in the MFD Model and Common Semantics specification [PWG5108.01] that are applicable to a CopyService are Console, Cover, Finisher, InputChannel, InputTray, Interface, Interpreter, Marker, MediaPath, OutputChannel, OutputTray, Processor, ScanMediaPath, Scanner, Storage and optionally VendorSubunits. There are no standard subunits unique to the CopyService.
6.4 CopyServiceDefaults

The CopyServiceDefaults is a Container element. It contains the DefaultCopyJobTicket that provides the values that will be used if the element is omitted in a CopyJob's CopyJobTicket. Note that the processing instructions are not bound to the CopyJob until the CopyJob is actually processed. The values from DefaultCopyJobTicket are not copied to the Job's CopyJobTicket. If CopyJobReceipt (See §7.1) is supported, the combined elements from the user supplied CopyJobTicket and the applied values from the DefaultCopyJobTicket are copied to CopyJobReceipt.
For descriptions of the elements that comprise CopyJobDescription, CopyJobProcessing and CopyDocumentProcessing see §7.3 on CopyJobTicket.

6.5 CopyServiceDescription

Figure 5 is a view of the CopyService's CopyServiceDescription. CopyServiceDescription provide descriptive information for the CopyService. The element values are administratively set. The element values can be modified directly or modified indirectly through an operation.
The elements common to all `<service>`ServiceDescriptions are described in the MFD Model and Common Semantics specification [PWG5108.01]. Those elements are identified in Figure 5 by being included in the yellow box. There are no elements specific to the CopyServiceDescription except the usual extension point (i.e., Any).

### 6.6 CopyServiceStatus

Figure 6 is a view of the CopyService’s CopyServiceStatus. CopyServiceStatus provide state information for the CopyService. The elements values are maintained by automata and cannot be directly set. The element values can be modified indirectly through an operation. For example PauseCopyService operation on the CopyService may result in the change of the State and StateReasons elements.
Figure 6 CopyServiceStatus

The elements common to all `<service>ServiceStatus` are described in the MFD Model and Common Semantics specification [PWG5108.01]. Those elements are identified in Figure 6 by being included in the yellow box. The remaining elements are taken from `<service> ServiceStatus`. These elements are described in the MFD Model and Common Semantics specification [PWG5108.01].
7 CopyJob Model

Figure 7 is the top level view of CopyJob. The jobs appear in one of two lists. Pending and active jobs appear in ActiveJobs. Jobs that have reached a terminal state (i.e., Completed, Aborted, and Canceled) appear in JobHistory. The amount of time a Job is retained in the JobHistory is implementation specific but MUST be at least 300 seconds.

Figure 7 JobTable

As indicated in Figure 8 CopyJobs MUST contain zero documents. This is because the CopyService takes as input a Hardcopy Document and produces a Hardcopy Document as output. Any internal digital document representation is not visible to the User and is handled in an implementation specific manner. The state of the job is described in CopyJobStatus. CopyJobTicket contains descriptive information about the Job (i.e., CopyJobDescription) and processing instructions for the Job (i.e., CopyJobProcessing). CopyJobTicket also contains document processing instructions (i.e., CopyDocumentProcessing). CopyDocumentProcessing are broken into two sets. The Input set applies to image acquisition (i.e., scanning) and the Output set applies to the production of the output Hardcopy Document (i.e., printing). CopyJobTicket represent the End User’s intent while CopyJobReceipt represent what the CopyService actually did.
7.1 CopyJobReceipt

This element has exactly the same structure as CopyJobTicket. For each processing element of a CopyJob, it records the actual value used by the CopyService for processing the CopyJob. It contains the elements supplied by the Copy Client and applied to the job, any element or values substitutions made by the CopyService and any default elements or values applied by the CopyService. See §7.3 for element descriptions.

7.2 CopyJobStatus

Figure 9 is a view of the CopyJob’s CopyJobStatus. CopyJobStatus provides state information for the CopyJob. The elements are maintained by automata and cannot be directly set. The element values can be modified...
indirectly through an operation. For example, CancelCopyJob operation on the CopyJob may result in the change of the State and StateReasons elements.
Figure 9 CopyJobStatus
The elements common to all <service>JobStatus are described in the MFD Model and Common Semantics specification [PWG5108.01]. Those elements are identified in Figure 9 by being included in the yellow box. The remaining elements are taken from <service>JobProcessing. These elements are described in the MFD Model and Common Semantics specification [PWG5108.01].

7.3 CopyJobTicket

CopyJobTicket contains description and processing elements provided by the Copy Client during CopyJob creation. This information is used by the CopyService during the processing of a CopyJob. This information is made available to Copy Clients through the GetCopyJobElements operation.

Figure 10 CopyJobTicket

7.3.1 CopyDocumentProcessing

CopyDocumentProcessing provides the document processing instructions that have been requested by the Copy Client at the job level. Each element has a MustHonor attribute to indicate whether documents within the job must be processed according to what the user has requested. The CopyDocumentProcessing instructions are broken into two sets. The CopyInput set applies to image acquisition (i.e., scanning) and the CopyOutput set applies to the production of the output Hardcopy Document (i.e., printing).
The elements in the CopyInput set are a subset of the ScanDocumentProcessing element in the ScanService and are described in the MFD Model and Common Semantics specification [PWG5108.01].
Figure 12 CopyDocumentProcessing (CopyOutput, Sheet 1)
The elements in the Output set are a subset of the PrintDocumentProcessing element in the PrintService and are described in the MFD Model and Common Semantics specification [PWG5108.01].

### 7.3.2 CopyJobDescription

Figure 14 is a view of the CopyJob’s CopyJobDescription. These elements are set by the Copy Client during job creation.
The elements common to all `<service>` JobDescriptions are described in the MFD Model and Common Semantics specification [PWG5108.01]. Those elements are identified in Figure 14 by being included in the yellow box. There are no elements specific to the CopyJobDescription except the usual extension point (i.e., Any).

### 7.3.3 CopyJobProcessing

CopyJobProcessing provides the job processing instructions that have been requested by the Copy Client. Each element has a MustHonor attribute. When the value of MustHonor is true, the CopyService does not process the job unless the element is supported; otherwise the CopyService processes the job with its best effort.
The elements common to all `<service>` JobProcessing are described in the MFD Model and Common Semantics specification [PWG5108.01]. Those elements are identified in Figure 15 by being included in the yellow box. The remaining elements are taken from PrintJobProcessing. These elements are described in the MFD Model and Common Semantics specification [PWG5108.01].
8 CopyService Theory of Operation

The CopyService follows the behaviors and state transitions defined in the MFD Model and Common Semantics specification [PWG5108.01].

9 CopyService Interfaces

The CopyService provides a set of service interfaces that is the same for a co-located local Copy Client or a Remote Copy Client via a local interface, a local area network, or the Internet. A user makes a CopyService request by interacting directly with the CopyService or indirectly through a local Copy Client via the MFD UI or a Remote Copy Client via its software application UI.

The semantics for these operations are the same as the operations specified in the MFD Model and Common Semantics specification [PWG5108.01]. The exception is that since the CopyService does not expose a document no operations (e.g., SetCopyDocumentElements) or elements (e.g., CopyDocumentProcessing) associated with a document object are applicable to this service. In Table 2 and Table 3 required parameters are in bold and optional operations and parameters are in italic font.

### Table 2 Mandatory User Operations

<table>
<thead>
<tr>
<th>User Operation Name</th>
<th>Input Parameters</th>
<th>Output Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>CancelCopyJob</td>
<td>ElementsNaturalLanguage, JobId, Message, RequestingUserName</td>
<td></td>
</tr>
<tr>
<td>CreateCopyJob</td>
<td>CopyJobTicket, ElementsNaturalLanguage, RequestingUserName</td>
<td>JobId, UnsupportedElements</td>
</tr>
<tr>
<td>GetActiveCopyJobs</td>
<td>ElementsNaturalLanguageRequested, limit, RequestingUserName</td>
<td>ActiveJobs, ElementsNaturalLanguage</td>
</tr>
<tr>
<td>GetCopyJobElements</td>
<td>ElementsNaturalLanguageRequested, JobId, RequestedElements, RequestingUserName</td>
<td>CopyJobElements, ElementsNaturalLanguage</td>
</tr>
<tr>
<td>GetCopyJobHistory</td>
<td>ElementsNaturalLanguageRequested, limit, RequestingUserName</td>
<td>JobHistory, ElementsNaturalLanguage</td>
</tr>
<tr>
<td>GetCopyServiceElements</td>
<td>ElementsNaturalLanguageRequested, RequestedElements, RequestingUserName</td>
<td>CopyServiceElements, ElementsNaturalLanguage</td>
</tr>
<tr>
<td>SetCopyJobElements</td>
<td>CopyJobTicket, JobId, ElementsNaturalLanguage, Message, RequestingUserName</td>
<td>UnsupportedElements</td>
</tr>
<tr>
<td>ValidateCopyJobTicket</td>
<td>CopyJobTicket, ElementsNaturalLanguage, RequestingUserName</td>
<td>UnsupportedElements</td>
</tr>
</tbody>
</table>

### Table 3 Optional User Operations

<table>
<thead>
<tr>
<th>User Operation Name</th>
<th>Input Parameters</th>
<th>Output Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>CancelCurrentCopyJob</td>
<td>ElementsNaturalLanguage, JobIds, Message, RequestingUserName</td>
<td></td>
</tr>
<tr>
<td>User Operation Name</td>
<td>Input Parameters</td>
<td>Output Parameters</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>CancelMyCopyJobs</td>
<td>ElementsNaturalLanguage, JobId, Message, RequestingUserName</td>
<td>JobIds</td>
</tr>
<tr>
<td>HoldCopyJob</td>
<td>ElementsNaturalLanguage, JobId, JobHoldUntil</td>
<td>JobHoldUntilTime, Message, RequestingUserName</td>
</tr>
<tr>
<td>ReleaseCopyJob</td>
<td>ElementsNaturalLanguage, JobId, Message, RequestingUserName</td>
<td></td>
</tr>
<tr>
<td>ResubmitCopyJob</td>
<td>CopyJobTicket, ElementsNaturalLanguage, JobId, RequestingUserName</td>
<td>JobId, UnsupportedElements</td>
</tr>
<tr>
<td>ResumeCopyJob</td>
<td>ElementsNaturalLanguage, JobId, Message, RequestingUserName</td>
<td></td>
</tr>
<tr>
<td>SuspendCurrentCopyJob</td>
<td>ElementsNaturalLanguage, JobId, Message, RequestingUserName</td>
<td></td>
</tr>
</tbody>
</table>

**Table 4 Administrative Operations**

<table>
<thead>
<tr>
<th>Administrative Operation Name</th>
<th>Input Parameters</th>
<th>Output Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>CancelCopyJobs</td>
<td>ElementsNaturalLanguage, JobIds, Message, RequestingUserName</td>
<td>JobIds</td>
</tr>
<tr>
<td>DisableCopyService</td>
<td>ElementsNaturalLanguage, Message, RequestingUserName</td>
<td></td>
</tr>
<tr>
<td>EnableCopyService</td>
<td>ElementsNaturalLanguage, Message, RequestingUserName</td>
<td></td>
</tr>
<tr>
<td>HoldNewCopyJobs</td>
<td>ElementsNaturalLanguage, JobHoldUntil</td>
<td>JobHoldUntilTime, Message, RequestingUserName</td>
</tr>
<tr>
<td>PauseCopyService</td>
<td>ElementsNaturalLanguage, Message, RequestingUserName</td>
<td></td>
</tr>
<tr>
<td>PauseCopyServiceAfterCurrentJob</td>
<td>ElementsNaturalLanguage, Message, RequestingUserName</td>
<td></td>
</tr>
<tr>
<td>PromoteCopyJob</td>
<td>ElementsNaturalLanguage, JobId, Message, PredecessorJobId, RequestingUserName</td>
<td></td>
</tr>
<tr>
<td>ReleaseNewCopyJobs</td>
<td>ElementsNaturalLanguage, Message, RequestingUserName</td>
<td></td>
</tr>
<tr>
<td>RestartCopyService</td>
<td>ElementsNaturalLanguage, Id, IsAcceptingJobs, Message, RequestingUserName, ServiceType, StartServicePaused</td>
<td></td>
</tr>
<tr>
<td>ResumeCopyService</td>
<td>ElementsNaturalLanguage, Message, RequestingUserName</td>
<td></td>
</tr>
<tr>
<td>SetCopyServiceElements</td>
<td>CopyServiceElements, ElementsNaturalLanguage, Message,</td>
<td>UnsupportedElements</td>
</tr>
</tbody>
</table>

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10 Conformance Requirements

This section describes conformance issues and requirements. This document introduces model entities such as objects, operations, elements, element syntaxes, and element values. These conformance sections describe the conformance requirements which apply to these model entities.

10.1 Client Conformance Requirements

A conforming Copy Client MUST support all REQUIRED operations as defined in this document. For each parameter included in an operation request, a conforming Copy Client MUST supply a value whose type and value syntax conforms to the requirements of the Model document as specified in Section 9. A conforming Copy Client MAY supply any extensions in an operation request, as long as they meet the requirements in Section 10.4.

When sending a request, a conforming Copy Client MAY supply any parameters that are indicated as OPTIONALLY supplied by the client.

A Copy Client MUST be able to accept any of the elements defined in the model, including their full range that may be returned to it in a response from a Copy Service.

An operation response may contain elements and/or values that the Copy Client does not expect. Therefore, a Copy Client implementation MUST gracefully handle such responses and not refuse to interoperate with a conforming Copy Service that is returning extended elements and/or values that conform to Section 10.4. Clients MUST to ignore any parameters, elements, or values that they do not understand.

10.2 Copy Service Conformance Requirements

This section specifies the conformance requirements for conforming implementations with respect to objects, operations, and attributes.

10.2.1 Objects

Conforming implementations MUST implement all of the model objects and the mandatory elements they contain as defined in this specification in the indicated sections:

Section 6 - CopyService
Section 7 - CopyJob

10.2.2 Operations

Conforming Copy Service implementations MUST implement all of the REQUIRED model operations, including REQUIRED responses, as defined in this specification in section 9:

CancelCopyJob GetActiveCopyJobs GetCopyServiceElements
Conforming Copy Service MUST support all REQUIRED operation elements and all values of such elements if so indicated in the description. Conforming Copy Service MUST ignore all unsupported or unknown operation elements received in a request, but MUST reject a CreateCopyJob request that contains an unknown element that contains the MustHonor attribute with a value of ‘true’.

10.2.3.3 Job History
Conforming CopyService implementations MUST retain every Job in the JobHistory for at least 300 seconds (see section 7).

10.3 Copy Service Elements
Conforming Copy Service MUST support all of the REQUIRED object elements, as defined in this specification.

If an object supports an element, it MUST support only those values specified in this document or through the extension mechanism described in section 10.4. It MAY support any non-empty subset of these values. That is, it MUST support at least one of the specified values and at most all of them.

10.4 Extensions
Conforming Copy Service MAY support extensions. To extend the model the extensions MUST be fully qualified. The qualified name MUST NOT be in the PWG target namespace. When extending the model with new elements the new elements MUST be added at the extension points at the end of the associated sequence of elements. Extended values for elements MUST conform to the extension patterns defined in the element schema. Implementers are free to add vendor specific operations to the service.

11 PWG Registration Considerations
This specification abides by the guidelines set forth in the MFD Model and Common Semantics specification [PWG5108.01] (section 10).

12 Internalization Considerations
This specification abides by the guidelines set forth in the MFD Model and Common Semantics specification [PWG5108.01] (section 11).

13 Security Considerations
This specification abides by the guidelines set forth in the MFD Model and Common Semantics specification [PWG5108.01] (section 12).

14 References
14.1 Normative References
[PWG5108.01]

PWG 5108.1-2011 MFD Model and Common Semantics version 1, April 15, 2011, W. Wagner, P. Zehler

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14.2 Informative References

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“Charter of the PWG Multifunction Device (MFD) Working Group”, May 4, 2007, P. Zehler, I. McDonald,  

[MFDREQ]  

15 Author’s Address

Peter Zehler  
Xerox Research Center Webster  
Email: Peter.Zehler@Xerox.com  
Voice: (585) 265-8755  
Fax: (585) 265-7441  
US Mail: Peter Zehler  
Xerox Corp.  
800 Phillips Rd.  
M/S 128-25E  
Webster NY, 14580-9701

Additional contributors: