The Printer Working Group

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**Working Draft**

# Mapping CIP4 JDF to PWG Print Job Ticket v1.0 (JDFMAP)

## Status: Prototype

Abstract: For interoperability between job ticket-based printing systems, this document defines a normative mapping from XML objects and attributes in the CIP4 Job Definition Format [CIP4JDF] to XML elements in the PWG Print Job Ticket and Associated Capabilities [PWG5108.7].

This document is a PWG Working Draft. For a definition of a "PWG Working Draft", see:

http://ftp.pwg.org/pub/pwg/general/pwg-process30.pdf

This document is available electronically at:

http://ftp.pwg.org/pub/pwg/sm3/wd/wd-smjdfmap10-20150604.pdf

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In general, a PWG standard is a specification that is stable, well understood, and is technically competent, has multiple, independent and interoperable implementations with substantial operational experience, and enjoys significant public support.

For additional information regarding the Printer Working Group visit:

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## About the Semantic Model Work Group

The Semantic Model Work Group is responsible for the modeling of the services - Print, Copy, Scan, Fax, Resource, System Control, and Transform hosted on Multifunction Devices . Standardization of the Multifunction Device (MFD) model and semantics will support interoperability of devices and services in local and enterprise networks enabling improved job submission, job management, remote administration, and support. The goal of the project is to define a unified semantic model and set of abstract operations for the most common and essential service and device features of the Multifunction Device. For additional information regarding SM visit:

http://www.pwg.org/sm

Implementers of this specification are encouraged to join the SM mailing list in order to participate in any discussions of the specification. Suggested additions, changes, or clarification to this specification, should be sent to the SM mailing list for consideration.

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# 1. Introduction

For interoperability between job ticket-based printing systems, this document defines a normative mapping from XML objects and attributes defined in the CIP4 Job Definition Format [CIP4JDF] to XML elements defined in the PWG Print Job Ticket and Associated Capabilities [PWG5108.07].

# 2. Terminology

## 2.1 Conformance Terminology

Capitalized terms, such as MUST, MUST NOT, RECOMMENDED, REQUIRED, SHOULD, SHOULD NOT, MAY, and OPTIONAL, have special meaning relating to conformance as defined in Key words for use in RFCs to Indicate Requirement Levels [RFC2119].

The term CONDITIONALLY REQUIRED is additionally defined for a conformance requirement that applies to a particular capability or feature.

## 2.2 Printing Terminology

Normative definitions and semantics of printing terms are imported from the Printer MIB v2 [RFC3805], Printer Finishings MIB [RFC3806], and Internet Printing Protocol/1.1: Model and Semantics [RFC2911].

This document also defines the following protocol roles in order to specify unambiguous conformance requirements:

Client: Initiator of outgoing IPP session requests and sender of outgoing IPP operation requests.

Printer: Listener for incoming IPP session requests and receiver of incoming IPP operation requests that represents one or more Physical Devices or a single Logical Device.

Proxy: A Client that sends configuration and status information to and retrieves and manages Jobs and Documents from a shared Logical Device on behalf of one or more Output Devices.

## 2.3 Other Terminology

*Document*: An object created and managed by a Printer that contains the description, processing, and status information. A Document object may have attached data and is bound to a single Job.

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*Job*: An object created and managed by a Printer that contains description, processing, and status information. The Job also contains zero or more Document objects.

*Logical Device*: a print server, software service, or gateway that processes jobs and either forwards or stores the processed job or uses one or more Physical Devices to render output.

*Output Device*: a single Logical or Physical Device.

*Physical Device*: a hardware implementation of an print device (that includes a marking engine).

## 2.4 Acronyms and Organizations

*CIP4*: International Cooperation for the Integration of Processes in Prepress, Press, and Postpress Organization, **http://www.cip4.org/**

*IANA*: Internet Assigned Numbers Authority, **http://www.iana.org/**

*IEEE*: Institute of Electrical and Electronics Engineers, **http://www.ieee.org/**

*IETF*: Internet Engineering Task Force, **http://www.ietf.org/**

*JDF*: CIP4 Job Definition Format, **http://www.cip4.org/**

*ISO*: International Organization for Standardization, **http://www.iso.org/**

*NEA*: IETF Network Endpoint Assessment WG, **http://datatracker.ietf.org/wg/nea/charter/**

*PJT*: PWG Print Job Ticket, **http://www.pwg.org/**

*PWG*: IEEE-ISTO Printer Working Group, **http://www.pwg.org/**

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# 3. Requirements

## 3.1 Rationale for Mapping of JDF to PJT

Originally, in order to print a document from a mainframe, desktop, or mobile computer, it was necessary to understand the characteristics and capabilities and configured defaults of the target printer: accessibility, supported document formats, color capability, duplex capability, etc. When submitting a print job, it has traditionally been necessary to specify (or accept default) values for each of these capabilities. Originally, when the printer supported only unidirectional or simple print protocols, printer capabilities were statically defined in specific drivers, Adobe PostScript Printer Description (PPD) files, and/or user-entered configuration information. Originally, the capabilities to be used for a given job were also embedded in the document description format such as Adobe Postscript and HP Printer Control Language (PCL). Later, as printers and print protocols evolved, capabilities and job information were exchanged via separate commands using Adobe PostScript, HP Printer Job Language (PJL). Finally, as open print standards evolved, CIP4 JDF [CIPJDF4] and IETF/PWG Internet Printing Protocol (IPP) [RFC2911] [PWG5100.12] [PWG5100.14] became widespread in production printers and digital network printers, respectively.

Creating, managing, storing, and accessing printer-specific drivers and PPDs was always time-consuming, storage-intensive, and error-prone and had high implementation costs for printer and operating system manufacturers.

It is not feasible to determine printer capabilities when there are a large number of potential targets, when the target printers are remote, and/or when there is no direct communication possible with each printer.

To address the limitations of traditional print protocols, two types of data elements have evolved in CIP4 and PWG standards:

1) A set of elements with value ranges defining printer capabilities (printer capabilities);

2) A set of element values specifying the capabilities values to be used for a specific job (print job ticket).

To enable interoperability, the CIP4 JDF [CIP4JDF] data elements should be mapped to the corresponding data elements in the PWG Print Job Ticket and Associated Capabilities [PWG5108.07].

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## 3.2 Use Cases for Mapping of JDF to PJT

This document does not define any new elements, structure or protocol; it correlates different sets of elements defined elsewhere. Therefore, end-user scenarios are not applicable. Rather, users of this information will be print service designers and clients that interface with print services seeking to better provide and use the Printer Capabilities and Submitted Job Ticket information.

### 3.2.1 Print Service Designer

A print service designer is responsible for interfacing printer devices from multiple vendors with several remote print services requiring Printer Capabilities and submitting Print Job Tickets using various standard but differing representations. All of the target printers support IPP [RFC2911] [PWG5100.12], and as such can be considered to offer interfaces fully compliant with the PWG Print Job Ticket [PWG5108.07]. The print service designer needs a consistent guide in mapping the capabilities elements accessible from the printers via IPP to the Printer Capabilities structures needed by JDF model [CIP4JDF]. Similarly, the print service designer needs a consistent guide in translating the job ticket information provided in JDF job tickets into IPP attributes.

### 3.2.2 Print Device Designer

A print device designer has a new, improved product that the marketing group wants to advertise as out-of-the box compatible with systems using various representations for Printer Capabilities and Print Job Tickets. This new printer supports IPP [RFC2911] [PWG5100.12], and the print device designer wants to be able to support IPP and the data structures supplied in JDF Job Tickets [CIP4JDF] using a common internal mapping database.

## 3.3 Out-of-Scope for Mapping of JDF to PJT

The following are out of scope for this specification:

1) Creation of any new element not in either the PWG model or the method to which it is being cross mapped.

2) Definition of a specific structure of how the Printer Characteristics and/or Job Ticket elements are to be presented.

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## 3.4 Design Requirements for Mapping of JDF to PJT

This specification should:

1) Follow the naming conventions in PWG Print Job Ticket [PWG5108.07].

2) Conform to the normative specifications for each of the Printer Characteristic and each of the Print Ticket elements in [CIP4JDF] and [PWG5108.07].

3) Map elements from [CIP4JDF] to [PWG5108.07] in a one-to-one manner, whenever possible.

4) Whenever a one-to-one element mapping is not possible, define the best practice for complex mapping between elements and groups of elements.

5) Define conformance requirements for implementations of Print Servers and Print Devices.

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# 4. Mapping of CIP4 Job Definition Format (JDF)

## 4.1 Mapping JDF Attributes to PWG Print Job Ticket Elements

JDF attributes are encoded as XML attributes in XML schema instances – instead of as XML elements as in the PWG Print Job Ticket (PJT) – this complicates JDF/PJT mapping implementations. JDF attributes are defined in the CIP4 JDF Specification Release 1.5 [CIP4JDF] and profiled for various printing environments in a series of CIP4 ICS (Interoperability Conformance Specification) documents, in particular the CIP4 Integrated Digital Printing (IDP) ICS v1.3 [CIP4IDP]. The reader is also directed to the section "Mapping of parameters into JDF elements and attributes" on pages 167-173 of Adobe PDF Creation Settings [ADOBECREATE] for information on the extent of JDF support and mapping choices in Adobe Acrobat 9.0.

Notes:

1) JDF uses 0-based ranges. The PWG PJT and IPP use 1-based ranges. Implementations of mappings defined in Table 1 need to convert ranges accordingly.

2) JDF object/attribute and PWG element pairs listed in Table 1 in bold have corresponding complex mapping discussion sections below Table 1, based on the PWG element name.

3) In PWG Web Service and IPP protocol bindings, certain elements (attributes) are sent as operation parameters ("invisible" because not saved to the corresponding Job/Document objects). XxxSupplied elements in the PWG JobTicket and JobReceipt (and corresponding IPP objects) record these elements (attributes) for each Job/Document.

4) In the future, CIP4 may deprecate the usage of the LayoutPreparation process and replace it with the Stripping process which is more general.

5) In the future, PWG may define a Compression attribute that applies to individual Documents.

**Table 1 – Mapping of CIP4 JDF to PWG PJT Elements**

| CIP4 JDF Object or Attribute | PWG Print Job Ticket Element |
|---|---|
| **FileSpec/*@Compression*** | **CompressionSupplied** (note 3) (note5) |
| [Output] ComponentLink/*@Amount* | Copies |
| <none> | CoverBack<br>CoverType<br>Media<br>MediaCol |

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| CIP4 JDF Object or Attribute | PWG Print Job Ticket Element |
|---|---|
| <none> | CoverFront<br>CoverType<br>Media<br>MediaCol |
| **FileSpec/@*Encoding*** | **DocumentCharsetSupplied** (note 3) |
| FileSpec/*@CheckSum* | DocumentDigitalSignatureSupplied (note 3) |
| **FileSpec/@*MimeType*** | **DocumentFormat** |
| **FileSpec**<br>/*@Application*<br>/*@AppVersion*<br>/*@AppOS*<br>/@OSVersion<br>/*@MimeType*<br>/*@FileTargetDeviceModel*<br><none><br>/*@DocumentNaturalLang* | **DocumentFormatDetailsSupplied** (note 3)<br>DocumentSourceApplicationName<br>DocumentSourceApplicationVersion<br>DocumentSourceOsName<br>DocumentSourceOsVersion<br>DocumentFormat<br>DocumentFormatDeviceId<br>DocumentFormatVersion<br>DocumentNaturalLanguage |
| <none> | DocumentMessageSupplied (note 3) |
| FileSpec/*@UserFileName* | DocumentName |
| FileSpec/*@Password* | DocumentPassword |
| FileSpec/*@DocumentNaturalLang* | ElementsNaturalLanguage |
| [Input] ComponentLink/*@Orientation* | FeedOrientation |
| **Finishings** | **Finishings** |
| **Finishings**<br><br>Wrapping/WrappingParams<br>/*@WrappingKind*<br><none><br>**XxxBinding** (class) or **BindingIntent/**<br>/XxxParams/HoleMakingParams/<br>*@HoleReferenceEdge*<br>***@BindingType***<br>**VarnishingParams**<br>*@Side* (Front, Back, empty)<br>Ink/*@SpecialInk*<br><none><br><br>Folding/Fold<br>/*@To*<br>/*@Travel*<br>/*@From*<br>LaminatingParams<br>/*@Side*<br>Media/*@FrontCoatings*<br>HoleMaking/HoleMakingParams<br>/*@Hole*<br>/*@Center*<br>ComponentLink/*@Orientation*<br>StitchingParams | **FinishingsCol**<br>FinishingTemplate<br>Bailing<br>BailingType<br>BailingWhen<br>**Binding**<br>BindingReferenceEdge<br><br>**BindingType**<br>**Coating**<br>CoatingSides<br>**CoatingType**<br>Covering<br>CoveringName<br>Folding<br>FoldingDirection<br>FoldingOffset<br>FoldingReferenceEdge<br>Laminating<br>LaminatingSides<br>LaminatingType<br>Punching<br>PunchingLocations<br>PunchingOffset<br>PunchingReferenceEdge<br>Stitching |

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| CIP4 JDF Object or Attribute | PWG Print Job Ticket Element |
|---|---|
| /*@StitchPositions*<br>/*@Offset*<br>ComponentLink/*@Orientation*<br>**CuttingParams/Cut** or<br>**PerforatingParams/Perforate** or<br>**CreasingParams/Crease**<br>/*@StartPosition*<br>/*@WorkingPath*<br><implicit><br><none> | StitchingLocations<br>StitchingOffset<br>StitchingReferenceEdge<br>**Trimming**<br><br><br>TrimmingOffset<br>TrimmingReferenceEdge<br>**TrimmingType**<br>TrimmingWhen |
| FontPolicy/*@PreferredFont* | FontNameRequested |
| <none> | FontSizeRequested |
| LayoutPreparationParams/InsertSheet/<br>*@SheetUsage*=”FillForceFront” (and)<br>*@SheetType*=”FillSheet” | ForceFrontSide (note 4) |
| **LayoutPreparationParams/**<br>**ExternalImpositionTemplate/FileSpec/**<br>*@UserFileName* | **ImpositionTemplate** (note 4) |
| RunList/@Page (divided by)<br>LayoutPreparationParams/NumberUp | Impressions |
| **RunList/InsertSheet**<br><br><complex mapping><br><none><br>Layout/Media<br>Layout/Media | **InsertSheet**<br>ISheet<br>InsertAfterPage<br>InsertCount<br>Media<br>MediaCol |
| CustomerInfo/*@BillingCode* | JobAccountingID |
| InsertSheet<br>*@SheetType*= ”AccountingSheet”<br><none><br>Layout/Media<br>Layout/Media<br><none> | JobAccountingSheets<br><br>JobAccountingSheetsType<br>Media<br>MediaCol<br>JobAccountingOutputBin |
| CustomerInfo/*@CustomerID* | JobAccountingUserID |
| [Output] ComponentLink/*@Amount* | JobCopies |
| <none> | JobCoverBack<br>CoverType<br>Media<br>MediaCol |
| <none> | JobCoverFront<br>CoverType<br>Media<br>MediaCol |
| <none> | JobDelayOutputUntil |
| NodeInfo/@FirstStart | JobDelayOutputUntilTime |

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| CIP4 JDF Object or Attribute | PWG Print Job Ticket Element |
|---|---|
| InsertSheet<br>*@SheetType*=”ErrorSheet”<br><none><br><none><br>Layout/Media<br>Layout/Media | JobErrorSheet<br><br>JobErrorSheetType<br>JobErrorSheetWhen<br>Media<br>MediaCol |
| **Finishings** | **JobFinishings** |
| **Finishings** | **JobFinishingsCol** |
| <none> | JobHoldUntil |
| NodeInfo/*@FirstStart* | JobHoldUntilTime |
| *@SettingsPolicy=”MustHonor” (generic JDF element attribute)* | JobMandatoryElements |
| JDF/Comment[*@Name*=”OperatorText”] | JobMessageFromOperator |
| JDF/Comment[*@Name*=”Instruction”] | JobMessageToOperator |
| <none> | JobMoreInfo |
| CustomerInfo/*@CustomerJobName* | JobName |
| Contact/*@UserID* | JobOriginatingUserName |
| <none> | JobOriginatingUserUri |
| <none> | JobPassword |
| <none> | JobPasswordEncryption |
| CustomerInfo/Contact/ComChannel/*@Locator* | JobPhoneNumber |
| **NodeInfo/@*Priority*** | **JobPriority** |
| **CustomerInfo/Contact/Person** | **JobRecipientName** |
| <none> | JobSaveDisposition<br>SaveDisposition<br>SaveInfo<br>SaveDocumentFormat<br>SaveLocation<br>SaveName |
| <none> | JobSheetMessage |
| InsertSheet/*@SheetType*=”JobSheet” | JobSheets |
| InsertSheet<br>*@SheetType*=”JobSheet”<br>@SheetUsage<br>Layout/Media<br>Layout/Media | JobSheetsCol<br><br>JobSheets<br>Media<br>MediaCol |
| **QueueEntryId** | **JobUuid** |
| <none> | KOctets |
| **Media** | **Media** |

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| CIP4 JDF Object or Attribute | PWG Print Job Ticket Element |
|---|---|
| **Media** | **MediaCol** |
| Media/*@BackCoatings* | MediaBackCoating |
| Media/@*MediaColorName* | MediaColor |
| Media/*@FrontCoatings* | MediaFrontCoating |
| Media/*@GrainDirecti*on | MediaGrain |
| Media/*@HoleTyp*e & Media/HoleList | MediaHoleCount |
| Media/Comment/*@Name*= "Description" | MediaInfo |
| Media/GeneralID | MediaKey |
| Media/*@MediaSetCoun*t | MediaOrderCount |
| **Media/@*PrePrinted*** | **MediaPreprinted** |
| **Media/@*RecycledPercentage*** | **MediaRecycled** |
| **Media/@*Dimension*** | **MediaSize** |
| (see Media/*@Dimension*) | XDimension |
| (see Media/*@Dimension*) | YDimension |
| <none> | **MediaSizeName** |
| Media/*@Thickness* | MediaThickness |
| Media/*@Texture* | MediaTooth |
| Media/*@MediaTypeDetails* | MediaType |
| Media/*@Weight* | MediaWeightMetric |
| DigitalPrintingParams/*@NonPrintableMarginBottom* | MediaBottomMargin |
| DigitalPrintingParams/*@NonPrintableMarginLeft* | MediaLeftMargin |
| DigitalPrintingParams/*@NonPrintableMarginRight* | MediaRightMargin |
| DigitalPrintingParams/*@NonPrintableMarginTop* | MediaTopMargin |
| Media/*@Location* (input tray name) | MediaSource |
| <none> | MediaInputTrayCheck |
| [Input] MediaLink/*@Amount* | MediaSheets |
| <none> | MultipleDocumentsHandling |
| **LayoutPreparationParams/@*NumberUp*** | **NumberUp** |
| LayoutPreparationParams/*@Rotate* | OrientationRequested |
| DigitalPrintingParams/*@OutputBin* | OutputBin |
| <none> | OutputDevice |

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| CIP4 JDF Object or Attribute | PWG Print Job Ticket Element |
|---|---|
| **RunListLink/Part** or other **Link/Part**<br><br><br>*@DocRunIndex*<br><br><br>***@DocIndex***<br><br><br><br>*@DocCopies*<br><br><br><br><br>*<other JDF attribute>* | **Overrides**<br>Override<br>Pages<br>PageRange<br>Lowerbound<br>Upperbound<br>**DocumentNumbers**<br>NumberRange<br>Lowerbound<br>Upperbound<br>DocumentCopies<br>PCopiesRange<br>Lowerbound<br>Upperbound<br>**OverridingElements** |
| DigitalPrintingParams/*@PageDelivery* | PageDelivery |
| FileSpec/*@PageOrder* | PageOrderReceived |
| **RunList/*@Pages*** <none><br>(see Overrides)<br>(see Overrides) | **PageRanges**<br>PageRange<br>Lowerbound<br>Upperbound |
| <none> | PagesPerSubset<br>Pages |
| <none> | PdlInitFiles<br>PdlInitFile<br>PdlInitFileLocation<br>PdlInitFileName<br>PdlInitFileEntry |
| **LayoutPreparationParams/ *@PresentationDirection*** | **PresentationDirectionNumberUp** |
| **ColorantControl/*@ProcessColorModel*** | **PrintColorMode** |
| <none> | PrintContentOptimize |
| **ColorSpaceConversionParams/ ColorSpaceConversionOp/*@RenderingIntent*** | **PrintRenderingIntent** |
| **<none>**<br>DigitalPrintingParams/ *@DirectProofAmount*<br><none><br><none> | **ProofPrint**<br>Copies<br><br>Media<br>MediaCol |
| InterpretingParams/*@PrintQuality* | Quality |
| RenderingParams/ObjectResolution/*@Resolution* | Resolution |
| InsertSheet<br>*@SheetType*=”SeparatorSheet”<br>*@SheetUsage*<br>Layout/Media<br>Layout/Media | SeparatorSheets<br><br>SeparatorSheetsType<br>Media<br>MediaCol |
| DigitalPrintingParams/*@Collate* | SheetCollate |
| DigitalPrintingParams/*@Sides* | Sides |
| <none> | TemplateCreatorUserName |

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| CIP4 JDF Object or Attribute | PWG Print Job Ticket Element |
|---|---|
| <none> | TemplateId |
| **JDF/*@TemplateVersion*** | **TemplateInfo** |
| **JDF/*@TemplateID*** | **TemplateName** |
| <none> | TemplateType |
| **LayoutPreparationParams/ImageShift/ *@PositionX*** | **XImagePosition** |
| **LayoutPreparationParams/ImageShift/ *@ShiftFront*** | **XImageShift** |
| **LayoutPreparationParams/ImageShift/ *@ShiftFront*** | **XSide1ImageShift** |
| **LayoutPreparationParams/ImageShift/ *@ShiftBack*** | **XSide2ImageShift** |
| **LayoutPreparationParams/ImageShift/ *@PositionY*** | **YImagePosition** |
| **LayoutPreparationParams/ImageShift/ *@ShiftFront*** | **YImageShift** |
| **LayoutPreparationParams/ImageShift/ *@ShiftFront*** | **YSide1ImageShift** |
| **LayoutPreparationParams/ImageShift/ *@ShiftBack*** | **YSide2ImageShift** |

### 4.1.1 Binding

PWG PJT Mapping: Binding

See detailed mappings for various JDF binding classes and attributes in section 4.2 below.

### 4.1.2 BindingType

PWG PJT Mapping: BindingType

See detailed mappings for various JDF binding classes and attributes in section 4.2 below.

### 4.1.3 CompressionSupplied

PWG PJT Mapping: CompressionSupplied (see note 3 and note 5 above)

JDF defines the FileSpec element in section 8.57 “FileSpec” of [CIP4JDF], which contains the *Compression* attribute, whose keyword values map directly to values of the PWG PJT CompressionSupplied element.

Note: The JDF *Compression* attribute only applies to the FileSpec element that it is attached to – but the PWG CompressionSupplied element applies to the entire Job.

### 4.1.4 DocumentCharsetSupplied

PWG PJT Mapping: DocumentCharsetSupplied (see note 3 above)

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JDF defines the FileSpec element in section 8.57 “FileSpec” of [CIP4JDF], which contains the *Encoding* attribute. PWG and JDF both use the IANA Charset Registry [IANACHAR].

### 4.1.5 DocumentFormat

PWG PJT Mapping: DocumentFormat

JDF defines the FileSpec element in section 8.57 “FileSpec” of [CIP4JDF], which contains the *MimeType* attribute which maps directly to the PWG PJT DocumentFormat element. PWG and JDF both use the IANA Mime Media Types Registry [IANAMIME].

### 4.1.6 Document Format (w/ Charset)

PWG PJT Mapping: Document Format, DocumentCharsetSupplied (see note 3 above)

JDF defines the FileSpec element in section 8.57 “FileSpec” of [CIP4JDF], which contains the *MimeType* attribute which maps directly to the PWG PJT DocumentFormat element. PWG and JDF both use the IANA Mime Media Types Registry [IANAMIME].

Note: When a “charset” parameter is appended to the JDF MimeType attribute, the JDF MimeType can be mapped to the PWG PJT DocumentFormat and PWG PJT DocumentCharsetSupplied elements.

### 4.1.7 DocumentFormatDetailsSupplied

PWG PJT Mapping: DocumentFormatDetailsSupplied (see note 3 above)

JDF defines the FileSpec element in section 8.57 “FileSpec” of [CIP4JDF] and the PWG PJT DocumentFormatDetailsSupplied element has similar content. Therefore, each PWG PJT DcumentFormatDetailsSupplied member element MUST be mapped directly from the corresponding JDF FileSpec element – see details in **Table 1** above.

### 4.1.8 DocumentNumbers

PWG PJT Mapping: DocumentNumbers

JDF defines the RunList resource in section 8.125 “RunList” of [CIP4JDF], which contains the *Docs* attribute.

Note: The JDF *Docs* attribute is a zero-based list of document indices in a multi-document file specified by the LayoutElement Resource – but the PWG PJT DocumentNumbers element is a single range of ‘1..MAX’. Therefore, only an approximate mapping is possible from the JDF *Docs* attribute to the PJT Document element. Also, every JDF *Docs* value MUST be incremented by one to map to the corresponding PJT DocumentNumbers value. All negative JDF Docs values MUST be calculated from the known actual range of Docs values for the given Job. For example, a JDF *Docs* value of ‘0 ~ -1’ specifies the first document through the last document in the RunList.

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### 4.1.9 DocumentPages

PWG PJT Mapping: DocumentPages

JDF defines the RunList resource in section 8.125 “RunList” of [CIP4JDF], which contains the *Pages* attribute.

Note: The JDF *Pages* attribute is a zero-based list of indices in the documents in the LayoutElement resource – but the PWG PJT DocumentPages element has a range of ‘1..MAX’ and specifies the total number of pages in the Document. Therefore, only an approximate mapping is possible from the JDF *Pages* attribute to the PJT DocumentPages element. Also, every JDF *Pages* value MUST be incremented by one to map to the corresponding PJT DocumentPages value. All negative JDF Pages values MUST be calculated from the known actual range of DocumentPages values for the given Document.

### 4.1.10 DocumentPassword

PWG PJT Mapping: DocumentPassword

JDF defines the FileSpec element in section 8.57 “FileSpec” of [CIP4JDF], which contains the *Password* attribute.

Note: The JDF *Password* attribute contains either: (a) a cleartext password; or (b) the decryption key needed to read the document file contents – but the PWG PJT DocumentPassword *operation* parameter always contains a cleartext password supplied by the IPP Client over a secure Job submission channel.

### 4.1.11 Finishings and FinishingsCol

PWG PJT Mapping: Finishings, FinishingsCol

JDF does not define a single Finishings object – instead, section 6.4 “Postpress Processes” of [CIP4JDF] defines over 50 finishing processes including: ChannelBinding, CoilBinding, Cutting, Folding, HoleMaking, PlasticCombBinding, RingBinding, SaddleStitching, Stitching, StripBinding, Trimming, and WireCombBinding.

JDF section 7 “Intents” of [CIP4JDF] defines Intent Resource elements that closely correspond to the PWG Print Job Ticket including: section 7.5 “BindingIntent” (which includes stitching), section 7.9 “FoldingIntent”, section 7.10 “HoleMakingIntent”, and section 7.13 “LayoutIntent”.

JDF section 8 “Parameters” of [CIP4JDF] defines further Resource elements that closely correspond to the PWG Print Job Ticket including: section 8.17 “CoilBindingParams”, section 8.36 “CuttingParams”, section 8.58 “FoldingParams”, section 8.66 “HoleList”, section 8.67 “HoleMakingParams”, section 8.103 “PlasticCombBindingParams”, section 8.124“RingBindingParams”, section 8.126 “SaddleStitchingParams”, section 8.143

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"StitchingParams", section 8.145 "StripBindingParams", section 8.157 "TrimmingParams", and section 8.162 "WireCombBindingParams".

### 4.1.12 ImpositionTemplate

PWG PJT Mapping: ImpositionTemplate

JDF defines the ExternalImpositionTemplate in section 8.55 of [CIP4JDF], which contains the FileSpec element, which contains the *UserFileName* attribute (user-friendly file name), which can be mapped to the PJT ImpositionTemplate element (keyword of 'None' or 'Signature' or site-specific name) defined in [PWG5100.3]. The PJT ImpositionTemplate element interacts in an implementation-specific manner with the PJT NumberUp element and PJT XImage and YImage layout elements.

### 4.1.13 InsertSheet

PWG PJT Mapping: InsertSheet, InsertAfterPage, InsertCount

JDF defines the RunList resource in section 8.125 "RunList" of [CIP4JDF], which contains the InsertSheet element defined in section 8.77 "InsertSheet" of [CIP4JDF]. The position of the InsertSheet can be inferred from the location of the InsertSheet element in the RunList for the mapping to the PWG PJT InsertPageAfter element. The chosen mapping for PWG PJT InsertCount is <none> because JDF normally has a separate InsertSheet for each inserted page.

### 4.1.14 JobFinishings and JobFinishingsCol

PWG PJT: JobFinishings and JobFinishingsCol

See section 4.1.11 Finishings and FinishingsCol above.

### 4.1.15 JobPriority

PWG PJT Mapping: JobPriority

JDF defines the NodeInfo element in section 8.91 "NodeInfo" of [CIP4JDF], which contains the *JobPriority* attribute.

Note: The JDF *JobPriority* attribute has a range of '0' (lowest) to '100' (highest) – but the PWG PJT JobPriority element has a range from '1' (lowest) to '100' (highest). Therefore, a JDF *JobPriority* value of '0' MUST be mapped to a PJT JobPriority value of '1' and all other JDF values MUST be mapped directly to the identical PJT values.

### 4.1.16 JobRecipientName

PWG PJT Mapping: JobRecipientName

JDF defines the CustomerInfo element in section 8.3 "CustomerInfo" of [CIP4JDF], which contains the Contact element defined in section 8.27 "Contact" of [CIP4JDF], which

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contains the Person dlement defined in section 10.29 “Person” of [CIP4JDF], which contains the *FirstName, FamilyName, JobTitle, NamePrefix,* and *NameSuffix* attributes (all of which SHOULD be included in the value of PWG PJT JobRecipientName).

### 4.1.17 JobUuid

PWG PJT Mapping: JobUuid

JDF defines the JobPhase element in section 5.9.9.3 “JobPhase”, the QueueEntry element in section 5.14.2 “QueueEntry”, and various other elements of [CIP4JDF], all of which contain the *QueueEntryID* attribute, a string which could contain a UUID of a Job.

Note: PJT JobUuid contains a UUID in the form of a URN that conforms to [RFC4122]. JDF *QueueEntryID* is assigned by the PrintService at Job creation time. PJT JobUuid is assigned by the Print Service at Job creation time and therefore can only appear in a PWG JobReceipt and NOT in a PWG JobTicket (before Job submission). A JDF system that plans to forwards a Job to a PWG Print Service SHOULD assign a *QueueEntryID* value in the form of a URN that conforms to [RFC4122].

### 4.1.18 Media and MediaCol

PWG PJT Mapping: Media, MediaCol

JDF defines the Media element in section 9.7 “Media” of [CIP4JDF]. Most of the PWG PJT MediaCol member elements MUST be mapped directly from the corresponding JDF Media attributes – see details in **Table 1** above.

### 4.1.19 MediaPreprinted

PWG PJT Mapping: MediaPreprinted

JDF defines the Media element in section 9.7 “Media” of [CIP4JDF] which contains the *PrePrinted* attribute which is a boolean – but the PJT MediaPrePrinted element is a keyword (Blank, PrePrinted, LetterHead are currently defined). Therefore, only a partial mapping is possible from the JDF *PrePrinted* attribute to the PJT MediaPrePrinted element.

### 4.1.20 MediaRecycled

PWG PJT Mapping: MediaRecycled

JDF defines the Media element in section 9.7 “Media” of [CIP4JDF], which contains the *RecycledPercentage* attribute.

Note: The JDF *RecycledPercentage* attribute is an integer (0 to 100) and SHOULD be mapped to the PJT MediaRecycled element, by converting a JDF value of 51 percent to a PJT keyword of “Standard” for best fidelity.

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### 4.1.21 MediaSize

PWG PJT Mapping: MediaSize

JDF defines the Media element in section 9.7 “Media” of [CIP4JDF], which contains the *Dimension* attribute.

Note: The JDF *Dimension* attribute is a pair of integers (X and Y dimensions in points) and has a direct mapping to the XDimension and YDimension members (in hundredths of millimeters) of the PJT MediaSize element [PWG5100.3]. When converting from a JDF *Dimension* attribute to a PJT MediaSize element, an approximate mapping with a tolerance of 1-2 percent SHOULD be used, in order to select the correct media actually intended by the Job Owner.

### 4.1.22 MediaSizeName

PWG PJT Mapping: MediaSizeName

JDF defines the Media element in section 9.7 “Media” of [CIP4JDF], which contains the *Dimension* attribute.

Note: The JDF *Dimension* attribute is a pair of integers (X and Y dimensions in points) and has no direct mapping to a PJT MediaSizeName element [PWG5101.1], since the class (“na”, “iso”, etc.) cannot be reliably inferred.

### 4.1.23 Number Up

PWG PJT Mapping: NumberUp

JDF defines the LayoutPreparationParams element in section 8.86 “LayoutPreparationParams” of [CIP4JDF], which contains the *NumberUp* attribute.

Note: The JDF *NumberUp* attribute is a pair of integers (the number of columns and number of rows) – but the PWG PJT NumberUp element is a single integer (1, 4, 6, 9, etc.) that does NOT constrain the column/row layout implementation choices. Therefore, only an approximate mapping is possible from the JDF *NumberUp* attribute to the PJT NumberUp element.

### 4.1.24 Overrides

PWG PJT Mapping: Overrides

JDF defines the RunList resource in section 8.125 “RunList” of [CIP4JDF] (a Process resource). See section 4.3 JDF RunList Resources and section 4.5 JDF Part Elements below for more details.

### 4.1.25 OverridingElements

PWG PJT Mapping: OverridingElements

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JDF defines Partitioned resources in section 3.11.5 “Description of Partitioned Resources” of [CIP4JDF]. See section 4.4 JDF Partitioned Resources and section 4.5 JDF Part Elements below for more details.

### 4.1.26 PageRanges

PWG PJT Mapping: InsertAfterPage, PageRanges

JDF defines the RunList resource in section 8.125 “RunList” of [CIP4JDF], which contains the *Pages* attribute.

Note: The JDF *Pages* attribute is a list of zero-based integer ranges – but the PWG PJT PageRanges element is a single range of integer (1..MAX). Therefore, only an approximate mapping is possible from the JDF *Pages* attribute to the PJT PageRanges element. Also, every JDF *Pages* value MUST be incremented by one to map to the corresponding PJT PageRanges value. All negative JDF Pages values MUST be calculated from the known actual range of PJT PageRanges values for the given Document.

### 4.1.27 PresentationDirectionNumberUp

PWG PJT Mapping: PresentationDirectionNumberUp

JDF defines the LayoutPreparationParams element in section 8.86 “LayoutPreparationParams” of [CIP4JDF], which contains the *PresentationDirection* attribute.

Note: The JDF *PresentationDirection* attribute is a keyword (either ‘FoldCatalog’ or permutations of ‘XYZ’, each letter in uppercase or lowercase to specify the order in which finished pages are flowed along each axis with respect to the coordinate system of the front side of the Sheet – but the PJT PresentationDirectionNumberUp element is a keyword (e.g., TorightTobottom, TobottomToright, ToleftTotop). Therefore, only an approximate mapping is possible from the JDF *PresentationDirection* attribute to the PJT PresentationDirectionNumberUp element.

### 4.1.28 PrintColorMode

PWG PJT Mapping: PrintColorMode

JDF defines the ColorantControl element in section 8.21 “ColorantControl” of [CIP4JDF], which contains the *ProcessColorModel* attribute.

Note: The JDF *ProcessColorModel* attribute is a keyword (DeviceCMY, DeviceCMYK, DeviceGray, DeviceN, DeviceRGB, or None) – but the PJT PrintColorMode attribute is a keyword (Auto, BiLevel, Color, Highlight, Monochrome, ProcessBiLevel, ProcessMonochrome). Therefore, only an approximate mapping is possible from the JDF *ProcessColorModel* attribute to the PJT PrintColorMode element.

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### 4.1.29 PrintRenderingIntent

PWG PJT Mapping: PrintRenderingIntent

JDF defines the ColorSpaceConversionParams element in section 8.25 of [CIP4JDF], which contains the ColorSpaceConversionOp element defined in section 10.7 of [CIP4JDF], which contains the *RenderingIntent* attribute.

Note: The JDF *RenderingIntent* attribute is an enumeration (AbsoluteColorimetric, Perceptual, RelativeColorimetric, Saturation, or ColorSpaceDependent (i.e., implementation-defined)) – but the PJT PrintRenderingIntent element is a keyword (Absolute, Auto, Perceptual, Relative, RelativeBPC, or Saturation).

Notes:

1) JDF RelativeColorimetric and equivalent PWG PJT Relative specify "white point compensation" – defined in section 5.2.4 of [PWG5100.13] as "Clip out-of-gamut colors to preserve in-gamut accuracy, adjusting the white point as necessary."

2) PWG PJT RelativeBPC specifies "black point compensation" – defined in section 5.2.4 of [PWG5100.13] as "Clip out-of-gamut colors to preserve in-gamut accuracy, adjusting both the white and black points as necessary."

**Table 2 – Mapping of CIP4 JDF to PWG PJT for Rendering Intent**

| JDF RenderingIntent | PJT PrintRenderingIntent |
|---|---|
| AbsoluteColorimetric | Absolute |
| ColorSpaceDependent | Auto |
| Perceptual | Perceptual |
| RelativeColorimetric | Relative |
| <none> | RelativeBPC (note 2) |
| Saturation | Saturation |

### 4.1.30 ProofPrint

PWG PJT Mapping: ProofPrint

There is no JDF support for specifying specific media for ProofPrint. Use standard Media or MediaCol from PrintJob for ProofPrint.

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600 **4.1.31 TemplateInfo**

601 PWG PJT Mapping: TemplateInfo

602 JDF defines the JDF Node in section 3.2 of [CIP4JDF], which contains the
603 *TemplateVersion* attribute.

604

605 **4.1.32 TemplateName**

606 PWG PJT Mapping: TemplateName

607 JDF defines the JDF Node in section 3.2 of [CIP4JDF], which contains the *TemplateID*
608 attribute.

609

610 **4.1.33 Trimming**

611 PWG PJT Mapping: Trimming

612 JDF defines the CuttingParams element in section 8.36 “CuttingParams” of [CIP4JDF],
613 which contains the Cut element defined in section 10.12 “Cut” of [CIP4JDF], which
614 contains details of the requested cutting.

615 JDF defines the PerforatingParams element in section 8.101 “PerforatingParams” of
616 [CIP4JDF], which contains the Perforate element defined in section 10.28 “Perforate” of
617 [CIP4JDF], which contains the details of the requested perforating.

618 JDF defines the CreasingParams element in section 8.32 “CreasingParams” of [CIP4JDF],
619 which contains the Crease element defined in section 10.11 “Crease” of [CIP4JDF], which
620 contains the details of the requested creasing (i.e., scoring).

621 JDF defines the Trimming element in section 6.4.49 “Trimming” of [CIP4JDF], which
622 contains the TrimmingParams element defined in section 8.1.57 “TrimmingParams” of
623 [CIP4JDF], which contains the *TrimmingType* attribute (deprecated in JDF 1.2) with values
624 of ‘Detailed’ (use *Height*, *Width*, and *TrimmingOffset* values) and ‘SystemSpecified’
625 (specified by System, but not exposed).

626 Note: Since the deprecated JDF *TrimmingType* attribute is not useful for determining the
627 equivalent value of PJT TrimmingType, the JDF Trimming element is not used in this
628 mapping specification.

629 **4.1.34 TrimmingType**

630 PWG PJT Mapping: TrimmingType

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The value of the PJT TrimmingType element [PWG5100.1] can be inferred from the use of the JDF Cutting, Perforating, or Creasing element and the details in the respective Cut, Perforate, or Crease elements. The PJT TrimmingType element contains a keyword value (Full, Partial, Perforate, Score, or Tab). The JDF Cut element maps to PJT TrimmingType value of Full. The JDF Perforate element maps to PJT TrimmingType value of Perforate. The JDF Crease element maps to PJT TrimmingType value of Score. There is no reasonable mapping to PJT TrimmingType values of Partial or Tab.

### 4.1.35 XImage Layout

PWG PJT Mapping: XImagePosition, XImageShift, XSide1ImageShift, XSide2ImageShift

JDF defines the LayoutPreparationParams resource (from JDF/1.1) in section 8.86 of [CIP4JDF], which contains the ImageShift element, which contains the *PositionX*, *ShiftFront*, and *ShiftBack* attributes with simple mappings to the equivalent PJT XImage layout elements – in this version of this JDFMAP, this is the recommended mapping for XImage layout elements. If only JDF ShiftFront is used without a ShiftBack, then JDF ShiftBack is calculated from ShiftFront so that the content remains aligned. To explicitly do JDF ShiftBack of zero, you have to specify JDF ShiftBack.

Note: In the future, CIP4 may deprecate LayoutPreparationParams, in favor of the newer and more general StrippingParams resource (from JDF/1.2) defined in section 8.146 of [CIP4JDF], which contains the Position and BinderySignature elements.

Note: PWG image shift units are Integer 1/2540th inch (1/100 of a millimetre). JDF image shift units are DoubleFloat 1/72 inch (points). Also JDF ShiftFront and ShiftBack are pair of both X and Y values.

The JDF *PositionX* attribute is a keyword (None, Center, Left, Right, or Spline), while the equivalent PJT XImagePosition element is a keyword (None, Center, Left, or Right), so there is no mapping for the JDF ‘Spline’ value.

The JDF LayoutPreparationParams resource (from JDF/1.1) in section 8.86 of [CIP4JDF] also contains the ExternalImpositionTemplate element, which contains the FileSpec element, which contains the *UserFileName* attribute (user-friendly file name), which can be mapped to the PJT ImpositionTemplate element (keyword of ‘None’ or ‘Signature’ or site-specific name) defined in [PWG5100.3]. The PJT ImpositionTemplate element interacts in an implementation-specific manner with the PJT NumberUp element and PJT XImage and YImage layout elements.

The JDF Position element contains the *MarginBottom*, *MarginLeft*, *MarginRight*, and *MarginTop* attributes (margins in points outside of the BinderySignature) and the *AbsoluteBox* attribute (absolute position in points of the BinderySignature display area).

JDF defines the BinderySignature element (a conceptual folding dummy) in section 8.7 of [CIP4JDF], which contains the *TrimBottom*, *TrimLeft*, *TrimRight*, and *TrimTop* attributes (cutoff margin widths around the sides of the BinderySignature – the remainder contains the Strips).

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The JDF BinderySignature element also contains the *NumberUp* attribute (pair of integers, columns and rows) that interacts with the PJT NumberUp element (single integer product of columns and rows). See the discussion of JDF and PJT page layout in the section 4.1.23 NumberUp above.

### 4.1.36 YImage Layout

PWG PJT Mapping: YImagePosition, YImageShift, YSide1ImageShift, YSide2ImageShift

JDF defines the LayoutPreparationParams resource (from JDF/1.1) in section 8.86 of [CIP4JDF], which contains the ImageShift element, which contains the *PositionY*, *ShiftFront*, and *ShiftBack* attributes with simple mappings to the equivalent PJT YImage layout elements – in this version of this JDFMAP, this is the recommended mapping for YImage layout elements. If only JDF ShiftFront is used without a ShiftBack, then JDF ShiftBack is calculated from ShiftFront so that the content remains aligned. To explicitly do JDF ShiftBack of zero, you have to specify JDF ShiftBack.

Note: In the future, CIP4 may deprecate LayoutPreparationParams, in favor of the newer and more general StrippingParams resource (from JDF/1.2) defined in section 8.146 of [CIP4JDF], which contains the Position and BinderySignature elements. See the discussion of the StrippingParams resource and Position and BinderySignature elements in section 4.1.35 XImage Layout above.

Note: PWG image shift units are Integer 1/2540th inch (1/100 of a millimetre). JDF image shift units are DoubleFloat 1/72 inch (points). Also JDF ShiftFront and ShiftBack are pair of both X and Y values.

The JDF *PositionY* attribute is a keyword (None, Center, Left, Right, or Spline), while the equivalent PJT YImagePosition element is a keyword (None, Center, Left, or Right), so there is no mapping for the JDF ‘Spline’ value.

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## 4.2 Mappings of JDF to PJT Binding Types

JDF defines various binding classes in section 6.4 Postpress Binding and of [CIP4JDF] and also defines the binding resource in section 7.5 “BindingIntent” of [CIP4JDF].

Notes for Table 3 and Table 4:

1) JDF Postpress WireCombBinding and JDF BindingIntent/@*BindingType* value of WireComb can be mapped to the *new* PWG PJT value of WireComb, while JDF Postpress PlasticCombBinding and and JDF BindingIntent/@*BindingType* value of can be mapped to PWG PJT value of Comb, because the PWG PJT value Comb is defined as specifically plastic comb binding.

2) JDF BindingIntent/@*BindingType* value of Adhesive is deprecated in JDF 1.1 – use JDF SoftCover or HardCover instead – JDF BindingIntent/@*BindingType* value of SoftCover includes Perfect binding – JDF PWG PJT mapping is still Adhesive???

3) JDF BindingIntent/@*BindingType* values of CornerStitch, SaddleStitch, Sewn (deprecated in JDF/1.4), SideSewn (deprecated in JDF/1.4), and SideStitch SHOULD be mapped to PWG PJT Stitch.

4) JDF BindingIntent/@*BindingType* value of ThreadSealing (deprecated in JDF/1.4) of sewing signatures at the spine and also well as Sewn (deprecated in JDF/1.4), SideSewn (deprecated in JDF/1.4), and SideStitch SHOULD be mapped to PWG PJT Stitching.

5) JDF Postpress EndSheetGluing applies to hard cover binding and differs from PWG PJT value Adhesive (which only applies the glue but does not apply the hard cover).

6) JDF BindingIntent/@*BindingType* value of None can be mapped to PWG PJT by explicitly omitting the PJT BindingType element

7) JDF PostPress RingBinding and JDF BindingIntent/@*BindingType* value of Ring both define the punching of holes for a 2/3-ring binder and the application of the actual 2/3-ring binder – use PJT Punching to punch the appropriate holes, but PJT does not support applying the actual 2/3-ring binder.

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723 **Table 3 – Mapping of CIP4 JDF Postpress Binding Class to PWG PJT BindingType**

| CIP4 JDF Postpress Binding Class | PWG PJT BindingType |
|---|---|
| AdhesiveBinding | Adhesive (note 5) |
| ChannelBinding | <none> |
| CoilBinding | Spiral |
| EndSheetGluing | <none> (note 5) |
| LongitudinalRibbonOperations | <none> |
| PlasticCombBinding | Comb (note 1) |
| RingBinding | <none> (note 7) |
| SpineTaping | Tape |
| StripBinding | Velo |
| WireCombBinding | WireComb (note 1) |

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726 **Table 4 – Mapping of CIP4 JDF BindingIntent/@*BindingType* to PWG PJT BindingType**

| CIP4 JDF BindingIntent/*@BindingType* | PWG PJT BindingType |
|---|---|
| AdhesiveBinding | Adhesive (note 2) |
| ChannelBinding | <none> |
| CoilBinding | Spiral |
| CornerStitch | <none> (note 3) |
| EdgeGluing | Padding |
| HardCover | <none> (note 2) |
| None | <no BindingType element> (note 6) |
| PlasticComb | Comb |
| Ring | <none> (note 7) |
| SaddleStitch | <none> (note 3) |
| Sewn | <none> (note 3) |
| SideSewn | <none> (note 3) |
| SideStitch | <none> (note 3) |
| SoftCover | Perfect (note 2) |
| StripBind | Velo |
| Tape | Tape |
| ThreadSealing | <none> (note 4) |
| WireComb | WireComb (note 1) |

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## 4.3 JDF RunList Resources

JDF defines the RunList resource in section 8.125 “RunList” of [CIP4JDF] (a Process resource).

RunList resources describe an ordered set of LayoutElement or ByteMap elements. Ordering and structure are defined using the generic Partitioning mechanisms as described in JDF section 3.11.5 “Description of Partitioned Resources” [CIP4JDF].

RunList resources are used whenever an ordered set of page descriptions elements are specified. Depending on the Process usage of a RunList, only certain types of LayoutElement MAY be valid.

In essence, a RunList is a virtual document or set of documents. It allows a document to either be physically spread over multiple files, or multiple documents to be contained within a single file (e.g., PPML, PDF/VT). It retains the same properties as the original documents (e.g., the pages of a document that is described by a RunList are ordered).

## 4.4 JDF Partitioned Resources

JDF defines Partitioned resources in section 3.11.5 “Description of Partitioned Resources” of [CIP4JDF]. JDF defines the Part element in section 3.11.6.2 “Part” of [CIP4JDF].

Printing workflows contain a number of Processes that are repeated over a potentially large number of individual files, Sheets, surfaces or separations. In order to define a Partitioned Resource in a concise manner without having to create a large number of individual Nodes and Resources, a set of Resources might be Partitioned by factoring them by one or more attributes. The common attributes and defaults are placed in the parent element while Partition-specific attributes and overrides are placed in the child elements. This avoids redundancy. Also, by providing a single parent ID for each Resource, it allows easy access to the entire Resource or iteration over each Part.

To reference part of a Resource, a ResourceLink references the parent Resource and supplies a Part element that contains an actual value for a Partition. The result is all the child Elements with matching Partition values, including common values and defaults from the parent Resource. If *@PartUsage = "Implicit"*, the parent Attributes are returned if there is no matching Partition.

## 4.5 JDF Part Elements

JDF defines the Part element in section 3.11.6.2 “Part” of [CIP4JDF], which contains the *DocRunIndex, DocIndex,* and *DocCopies* attributes.

The JDF *DocRunIndex* attribute (pair of signed integers that represent a range of pages) maps to the PWG PJT Overrides/Override/Pages/PageRange in the sub-elements LowerBound and UpperBound.

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The JDF *DocIndex* attribute (pair of signed integers that represent a range of documents) maps to the PWG PJT Overrides/Override/DocumentNumbers/NumberRange in the sub-elements LowerBound and UpperBound.

The JDF *DocCopies* attribute (pair of signed integers that represent a range of document copies) maps to the PWG PJT Overrides/Override/DocumentCopies/PCopies in the sub-elements LowerBound and UpperBound.

## 4.6 Mapping JDF Job State Model to PWG Job State Model

JDF defines the NodeInfo element in section 8.91 “NodeInfo” of [CIP4JDF], which contains the *NodeStatus* attribute. PWG Semantic Model [REF] defines the JobState element.

This mapping is actually for the JMF Job states (in progress jobs) and the corresponding mapping of PWG Job states is actually for the PWG JobReceipt (results, not Job submission states). The PWG Client does not directly control Job state via the submitted PWG JobTicket – instead the Spooler/Printer does so.

Notes:

1) JDF NodeStatus of Aborted may map to either PJT Aborted or Canceled (the distinction is between system Abort and operator Cancel is not preserved in JDF).

2) JDF NodeStatus of Cleanup is ephemeral and SHOULD be mapped to PJT Processing (during cleanup) or Completed (at completion of cleanup).

3) JDF NodeStatus of Setup (holding for Operator setup/load/preparation) SHOULD be mapped to PJT PendingHeld.

4) JDF NodeStatus of Stopped and Suspended SHOULD be mapped to PJT ProcessingStopped.

5) JDF NodeStatus of Waiting SHOULD be mapped to PJT Pending.

6) PJT JobStateReason of ProcessingToStopPoint can be ephemeral during various JobState transitions.

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789 **Table 5 – Mapping of CIP4 JDF Node Status to PWG SM Job States**

| JDF NodeStatus | PWG JobState | PWG JobStateReasons |
|---|---|---|
| Aborted | Aborted or Canceled (note 1) (note 6) | AbortedBySystem,<br>UnsupportedCompression,<br>CompressionError,<br>UnsupportedDocumentFormat,<br>JobCanceledByUser,<br>JobCanceledByOperator,<br>(ephemeral) ProcessingToStopPoint |
| Cleanup | Processing (note 6)<br>Completed (note 2) | (ephemeral) ProcessingToStopPoint<br><none> |
| Completed | Completed | JobCompletedSuccessfully,<br>JobCompletedWithWarnings,<br>JobCompletedWithErrors,<br>DocumentAccessError,<br>QueuedInDevice |
| InProgress | Processing | JobQueued,<br>JobInterpreting,<br>JobTransforming,<br>JobQueuedForMarker,<br>JobPrinting |
| Ready | Pending | |
| Setup | PendingHeld (note 3) | JobHoldUntilSpecified,<br>ResourcesAreNotReady,<br>JobQueuedForMarker,<br>ServiceOffline |
| Stopped | ProcessingStopped | PrinterStopped,<br>PrinterStoppedPartly |
| Suspended | ProcessingStopped (note 4) (note 6) | (ephemeral) ProcessingToStopPoint |
| Waiting | Pending (note 5) | JobDataInsufficient,<br>JobIncoming |

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# 5. Conformance Requirements

## 5.1 Print Server Conformance

Conforming Print Servers that implement this specification MUST:

1) Conform to the all of the element mappings defined in section 4.1 Mapping JDF Attributes to PWG Print Job Ticket Elements;

2) Conform to all of the state mappings defined in section 4.2 Mapping JDF State Model to PWG Printer State Model;

3) Conform to section 6 Internationalization Considerations;

4) Conform to section 7 Security Considerations.

## 5.2 Print Device Conformance

Conforming Print Devices that implement this specification MUST:

1) Conform to the all of the element mappings defined in section 4.1 Mapping JDF Attributes to PWG Print Job Ticket Elements;

2) Conform to all of the state mappings defined in section 4.2 Mapping JDF State Model to PWG Printer State Model;

3) Conform to section 6 Internationalization Considerations;

4) Conform to section 7 Security Considerations.

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# 6. Internationalization Considerations

For interoperability and basic support for multiple languages, conforming implementations MUST support the Universal Character Set (UCS) Transformation Format -- 8 bit (UTF-8) [RFC3629] encoding of Unicode [UNICODE] [ISO10646] and the Unicode Format for Network Interchange [RFC5198].

When processing human names that are being concatenated from multiple CIP4 JDF attributes (e.g., JDF “CustomerInfo/Contact/Person” object attributes such as *FirstName, FamilyName, JobTitle, NamePrefix,* and *NameSuffix*) into a PWG PJT single human-readable string attribute (e.g., JobRecipientName), the correct layout order for these components of human names is locale-dependent.

For more information on locale-dependent processing, see ICU User Guide/Software Internationalization [ICU-SWI18N].

Implementations of this specification SHOULD conform to the following standards on processing of human-readable Unicode text strings, see:

- Unicode Bidirectional Algorithm [UAX9] – left-to-right, right-to-left, and vertical
- Unicode Line Breaking Algorithm [UAX14] – character classes and wrapping
- Unicode Normalization Forms [UAX15] – especially NFC for [RFC 5198]
- Unicode Text Segmentation [UAX29] – grapheme clusters, words, sentences
- Unicode Identifier and Pattern Syntax [UAX31] – identifier use and normalization
- Unicode Collation Algorithm [UTS10] – sorting
- Unicode Locale Data Markup Language [UTS35] – locale databases

Implementations of this specification are advised to also review the following informational documents on processing of human-readable Unicode text strings:

- Unicode Character Encoding Model [UTR17] – multi-layer character model
- Unicode in XML and other Markup Languages [UTR20] – XML usage
- Unicode Character Property Model [UTR23] – character properties
- Unicode Conformance Model [UTR33] – Unicode conformance basis

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# 7. Security Considerations

Implementations of this specification MUST conform to all security requirements specified in section 8 Security Considerations of IPP/1.1 Model and Semantics [RFC2911] and in section 10 Security Considerations of IPP/2.0 Second Edition [PWG5100.12].

Implementations of this specification SHOULD conform to the following standard on processing of human-readable Unicode text strings, see:

- Unicode Security Mechanisms [UTS39] – detecting and avoiding security attacks

Implementations of this specification are advised to also review the following informational document on processing of human-readable Unicode text strings:

- Unicode Security FAQ [UNISECFAQ] – common Unicode security issues

# 8. IANA and PWG Considerations

There are no IANA or PWG registration considerations for this document.

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# 9. References

## 9.1 Normative References


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| | |
|---|---|
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| Daniel Manchala | Xerox |
| Paul Tykodi | TCS |
| William Wagner | TIC |
| Pete Zehler | Xerox |

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# 11. Change History

## 11.1 4 June 2015 – JDFMAP update by IPP WG

* June 2015 – draft in SM WG – from 06/01/15 IPP WG review
- Kept status at Prototype draft
- Revised section 4.6 and Table 5 to clarify job state reasons mapping, per IPP WG

## 11.2 1 June 2015 – JDFMAP update by SM WG and Rainer Prosi

* June 2015 – draft in SM WG – from 06/01/15 review
- Kept status at Prototype draft
- Revised section 4.1 Table 1 to delete comment on Overrides (edits now completed)
- Revised sections 4.1.x to accept all changes and delete comment on Overrides (edits now completed)
- Revised section 4.2 to accept all changes
- Revised sections 4.3 and 4.4 to delete closed ISSUE notes
- Revised section 4.5 to accept all changes (new text on JDF Part elements)
- Revised section 4.6 to accept all changes and add ProcessingToStopPoint job state reason for JDF Cleanup to PJT Completed (note 2) in Table 5

## 11.3 18 May 2015 – JDFMAP update by SM WG and Rainer Prosi

* May 2015 – draft in SM WG – from 05/18/15 review
- Kept status at Prototype draft
- Reviewed and accepted all changes through section 4.4 (except as noted below)
- Revised sections 4.1.24 and 4.1.25 to add forward reference to section 4.5 JDF Part
- Revised section 4.1.29 note 2 to correct typo in “RelativeBPC”
- Revised section 4.2 Table 4 to add new PWG PJT value of WireComb (oversight in last draft)
- Added new section 4.5 JDF Part Elements (for Overrides mapping)
- Reviewed and accepted all changes in sections 5, 6, 7, 8, and 9 (editorial)
- TODO – review section 4.5 and section 4.6

## 11.4 17 May 2015 – JDFMAP update by SM WG and Rainer Prosi

* May 2015 – draft in SM WG – from 04/29/15 review in PWG F2F
- Changed status to Prototype draft, per PWG F2F review
- Global – added gray shading to all table headers for clarity
- Revised section 3.1 Rationale, section 3.3 Out-of-Scope, section 3.4 Design Requirments, and section 4.1 Mapping JDF to correct formatting of numbered bullets
- Revised Table 1 to add “or” between CuttingParams, PerforatingParams, and CreasingParams
- Revised sections 4.1.1 and 4.1.2 to add missing “:”

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- Revised section 4.1.12 to add missing “an”
- Revised section 4.1.24 to add forward reference to new section 4.3 JDF RunList Resources
- Revised section 4.1.25 to add forward reference to new section 4.4 JDF Partioning Resources
- Revised section 4.1.29 and Table 2 to add notes about white point compensation and black point compensation with reference to IPP JPS3 (PWG 5100.13)
- Revised section 4.1.33 to break out last sentence of last paragraph into separate “Note:” paragraph as an implementor warning
- Revised section 4.1.35 to reorder notes, change “cuttings margins” to “cutting margins”, add cross-reference to section 4.1.23 NumberUp, and delete dangling final partial sentence
- Revised section 4.1.36 to reorder notes and add cross-reference to section 4.1.35 XImage Layout
- Revised section 4.2 Mappings of JDF to PJT Binding Types, Table 3, and Table 4 to move all notes to right column (PJT), expand note 4, add note 5, add note 6, add note 7, delete mapping of HardCover to Adhesive, accept mapping of StripBinding to Velo, and add mapping of WireCombBinding/WireComb to *new* PJT value of WireComb (to be added in IPP and SM 3.0)
- Added new section 4.3 JDF RunList Resources – needs more content
- Added new section 4.4 JDF Partioning Resources – needs more content
- Revised section 4.5 Mapping JDF Job State to clarify that this mapping is wholly concerned with JMF (in progress jobs) and PWG JobReceipt (results)
- Revised section 4.5 Mapping JDF Job State Table 5 to combine PJT rows for Aborted and Canceled rows, add column for JobStateReasons, and clarify in note 3 that JDF Setup is Operator hold for setup/load/preparation
- Revised section 6 Internationalization Considerations to remove trailing “+” in list
- Revised section 9.1 Normative References to add IPP JPS3 (PWG 5100.13)
- TODO – Section 4.1.x miscellaneous cleanup
- TODO – tie up looses ends for PJT Overrides and JDF RunList and Partitioning Resources

## 11.5 24 April 2015 – JDFMAP update by SM WG and Rainer Prosi

* April 2015 – draft in SM WG – from 03/30/15 review
- Kept status as Interim draft
- Reviewed and accepted all changes in mapping table and sections 4.1.x
- Revised Binding and added BindingType in sections 4.1.x
- Added ImpositionTemplate and OverridingElements in sections 4.1.x – open issues remain
- Revised TemplateInfo and TemplateName in sections 4.1.x
- Added XImage Layout and YImageLayout in sections 4.1.x with discussions of original LayoutPreparationParams and newer StrippingParams and BinderySignature mappings
- Added section 4.2 with notes and two tables for JDF Postpress Process and JDF BindingIntent@*BindingType* mappings – open issues remain
- Revised section 4.3 and added notes to state mapping

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- Revised sections 6 and 7 Internationalization and Security Considerations to correct for Informative (rather than Normative) Unicode UTR and FAQ documents
- TODO – Section 4.1.x miscellaneous cleanup
- TODO – Prototype draft for August 2015 PWG F2F

## 11.6 28 March 2015 – JDFMAP update by SM WG and Rainer Prosi

* March 2015 – draft in SM WG – from 03/09/15 review
- Kept status as Interim draft
- Reviewed and accepted all changes in mapping table
- Revised MediaSizeName and Trimming in mapping table
- Revised JobUuid, Trimming, and TrimmingType in sections 4.1.x
- Updated section 9 References for several IETF and PWG specs
- TODO – Section 4.1.x keyword mapping tables, Bindings, Layout, Conformance, Security Considerations, I18N Considerations, miscellaneous cleanup
- TODO – Prototype draft for April/May 2015 PWG F2F

## 11.7 9 March 2015 – JDFMAP update by SM WG and Rainer Prosi

* March 2015 – draft in SM WG – from 02/04/15 F2F and 02/16/15 reviews
- Kept status as Interim draft
- Reviewed and accepted all changes in mapping table
- Revised Trimming and Trimming Type in mapping table
- Added JobUuid, PrintRenderingIntent, ProofPrint, MediaRecycled, MediaSize, MediaSizeName, Trimming, TrimmingType in sections 4.1.x
- Updated section 9.1 Normative References for several PWG specs
- TODO – Section 4.1.x keyword mapping tables, Bindings, Layout, Conformance, Security Considerations, I18N Considerations, miscellaneous cleanup
- TODO – Prototype draft for April/May 2015 PWG F2F

## 11.8 15 February 2015 – JDFMAP update by SM WG and Rainer Prosi

* February 2015 – draft in SM WG – from 01/19/15 and 02/04/15 F2F reviews
- Kept status as Interim draft
- Reviewed and accepted all changes in mapping table
- Updated section 6 Internationalization Considerations, section 7 Security Considerations, and section 9 References for Unicode 7.0, UAX#9, UAX#14, UAX#15, UAX#29, UAX#31, UTS#10, UTS#35, UTS#39, UTR#17, UTR#20, UTR#23, UTR#33, and Unicode Security FAQ
- TODO – Section 4.1.x keyword mapping tables, Bindings, Layout, Conformance, Security Considerations, I18N Considerations, miscellaneous cleanup
- TODO – Prototype draft for April/May 2015 PWG F2F

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## 11.9 19 January 2015 – JDFMAP update by SM WG and Rainer Prosi

* January 2015 – draft in SM WG – from 01/19/15 review
- Kept status as Interim draft
- Reviewed and accepted all changes in mapping table
- Reviewed and accepted ImageShift (although newer non-JDF/1.1 mappings needed)
- Completed mapping table, except for Bindings and Trimming mappings
- Added empty section 4.2 for Bindings mappings
- Resume next review in sections 4.1.x
- Confirmed dates for February special calls (02/09 & 02/16)
- TODO – Section 4.1.x keyword mapping tables, Bindings, Layout, Conformance, Security Considerations, I18N Considerations, miscellaneous cleanup
- TODO – Prototype draft for February 2015 PWG F2F and PWG Last Call for April/May PWG F2F

## 11.10 12 January 2015 – JDFMAP update by SM WG and Rainer Prosi

* January 2015 – draft in SM WG – from 01/12/15 review
- Kept status as Interim draft
- Reviewed and accepted all changes in mapping table
- Deleted redundant PJT Feed (sub-element of PJT Resolution) from mapping table
- Reviewed and specified PJT Overrides mapping – still need to add JDF and PJT equivalent examples for clarity)
- Reviewed and accepted/revised all sections 4.1.x changes from December 2014
- Discussed RenderingIntent in 4.1.x – still need to add keyword mapping table
- Resume next review at ImageShift in mapping table and 4.1.x
- Discussed dates for February special calls (02/09 & 02/16)
TODO – Prototype draft for February 2015 PWG F2F and PWG Last Call for April/May PWG F2F

## 11.11 15 December 2014 – JDFMAP update by SM WG and Rainer Prosi

* December 2014 – draft in SM WG – from 12/15/14 review
- Kept status as Interim draft
- Reviewed and accepted/revised all sections 4.1.x through 4.1.21 Print RenderingIntent
- Added notes to applicable sections 4.1.x about mapping of JDF negative range values
- Reviewed and accepted/revised section 4.2 Job State mapping (though this only applies to JobReceipt (i.e., Job processing results)
- Resume next review at Overrides in mapping table
- Discussed dates for January special calls (01/12 & 01/19)
- Discussed dates for milestones – Prototype draft for February 2015 PWG F2F and PWG Last Call for April/May PWG F2F
- TODO – CLOSED –Abandoned plan for sections 4.1.x keyword mapping tables – they are either trivial or implementation-dependent
- TODO – CLOSED –Abandoned plan for section 4.3 Printer State mapping table (out-of-scope for JobTicket/JobReceipt)

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## 11.12 8 December 2014 – JDFMAP update by SM WG and Rainer Prosi

* December 2014 – draft in SM WG – from 12/08/14 review
- Kept status as Interim draft
- Restored bullets and numbering destroyed by MS Word in previous draft
- Discussed sections to be reviewed for next week (12/15)
- Discussed dates for January special calls (01/12 & 01/19)
- Resume next review at Overrides in mapping table
- TODO – add JDF to PWG keyword mapping tables in sections 4.1.x
- TODO – add JDF to PWG Device/Printer state mapping table in section 4.2

## 11.13 7 December 2014 – JDFMAP update by SM WG and Rainer Prosi

* December 2014 – draft in SM WG – from 11/10/14 review
- Kept status as Interim draft
- Continued review at section 4.1.x JobFinishings and JobFinishingsCol
- Revised all JDF attributes in table to be in italics (per JDF typographic conventions)
- Reviewed and accepted verified changes as appropriate
- Reviewed and deleted comments as appropriate (when processed in mappings)
- Added sections 4.1.x for all remaining bold PJT attributes
- Added sections 4.1.x mappings for most remaining bold PJT attributes
- Rechecked, corrected, and added JDF/1.5 section numbers throughout sections 4.1.x
- Added Job state mapping table to section 4.2
- Completed review through section 4.1.x PageRanges
- Resume next review at Overrides in mapping table
- TODO – add JDF to PWG keyword mapping tables in sections 4.1.x
- TODO – add JDF to PWG Device/Printer state mapping table in section 4.2

## 11.14 31 October 2014 – JDFMAP update by SM WG and Rainer Prosi

* October 2014 – eleventh draft in SM WG – from 10/27/14 review
- Kept status as Interim draft
- Continued review at section 4.1 (detailed mappings) – stopped at InsertSheet
- Reviewed and accepted verified changes as appropriate
- Reviewed and deleted comments as appropriate (when processed in mappings)
- Reviewed and deleted comments as appropriate (when moved to details)
- Deleted weak JDF mapping for PWG [Job]CoverBack and [Job] CoverFront, which depended on JDF elements defined in JDF 1.0 and deprecated in JDF 1.1
- Added and expanded some sections 4.1.x (detailed mappings)
- Resume next review at section 4.1.x JobFinishings and JobFinishingsCol

## 11.15 5 October 2014 – JDFMAP update by SM WG and Rainer Prosi

* October 2014 – tenth draft in SM WG – from 09/22/14 review
- Kept status as Interim draft

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- Changed font of Table 1 to TimesNewRoman (serif) per request of Rainer Prosi (sans serif fonts made some lowercase and uppercase letters ambiguous – breaking mapping)
- Continued review of mapping table – completed first complete pass through table
- Reviewed and accepted verified changes as appropriate
- Reviewed and deleted comments as appropriate (when processed in mappings)
- Reviewed and deleted comments as appropriate (when moved to details)
- Added and expanded some sections 4.1.x (detailed mappings)
- Resume next review at section 4.1

## 11.16 16 September 2014 – JDFMAP update by SM WG and Rainer Prosi

* September 2014 – ninth draft in SM WG
- Kept status as Interim draft
- Reviewed and accepted changes to Abstract and Introduction
- Numbered section 3.3 Out-of-scope and section 3.4 Design Requirements lists
- Continued review of mapping table – stopped at TemplateType
- Reviewed and added comments to PresentationDirectionNumberUp, PrintColorMode, PrintContentOptimize, PrintRenderingIntent, ProofPrint.Media, and ProofPrint.MediaCol
- Added updates and deleted old comments in sections 4.1.x (detailed mappings)
- Resume next review at XImagePosition

## 11.17 8 September 2014 – JDFMAP update by SM WG and Rainer Prosi

* September 2014 – eighth draft in SM WG
- Kept status as Interim draft
- Continued review of mapping table – stopped at PdlInitFiles
- Discussed and added comments to PageRanges, PagesPerSubset, and PdlInitFiles
- Reviewed and accepted verified changes as appropriate
- Resorted and accepted sections 4.1.x in PJT attribute order (right column of table)
- Resume next review at PresentationDirectionNumberUp

## 11.18 28 August 2014 – JDFMAP update by SM WG and Rainer Prosi

* August 2014 – seventh draft in SM WG
- Kept status as Interim draft
- Revised Abstract and section 1 Introduction to correctly refer to XML objects and attributes in JDF being mapped to XML elements in PJT
- Revised boilerplate to change “IDS” to “SM” and correct link to SM WG per Paul Tykodi
- Revised section 3.2.1 to correct spelling of “Print Job” per Paul Tykodi
- Revised section 4.1.1 title to refer to PJT CompressionSupplied
- Revised section 4.1.2 title to refer to PJT CoverXxx
- Revised section 4.1.4 title to refer to PJT DocumentNumbers
- Revised section 4.1.5 title to refer to PJT DocumentFormatDetailsSupplied
- Moved former section 4.1.8 on LayoutPreparationParams to Notes under table
- Revised section 4.1.9 title to refer to PJT DocumentFormat

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- Revised section 4.1.10 title to refer to PJT DocumentFormat (w/ Charset)
- Revised section 4.1.12 title to refer to PJT DocumentPassword
- Revised section 4.1.13 title to refer to PJT Overrides
- Revised section 4.1.14 title to refer to PJT InsertSheet
- Revised section 4.1.15 title to refer to PJT PageRanges
- Revised section 4.1.16 title to refer to PJT InsertCount
- Continued review of mapping table – stopped at PageOrderReceived
- Reviewed Finishings (needs work – especially multiple JDF Binding classes)
- Discussed and added comments to Overrides (needs work)
- Reviewed and deleted comments as appropriate (when processed in mappings)
- Reviewed and accepted verified changes as appropriate
- Resume next review at PageRanges

## 11.19 29 July 2014 – JDFMAP update by SM WG and Rainer Prosi

* July 2014 – sixth draft in SM WG
- Kept status as Interim draft
- Continued review of mapping table – stopped at OutputDevice
- Reviewed and deleted comments as appropriate (when processed in mappings)
- Reviewed and accepted all changes up to OutputDevice (except for Finishings – see below)
- Skipped over review of FinishingsCol mappings (from Mike Sweet) with IPP WG review updates from 06/16/14 – to be reviewed with Rainer in the future
- Resume next review at Overrides in mapping table

## 11.20 21 July 2014 – JDFMAP update by SM WG and Rainer Prosi

* July 2014 – fifth draft in SM WG
- Kept status as Interim draft
- Continued review of mapping table – stopped at JobSheetsCol
- Reviewed and deleted comments as appropriate (when processed in mappings)
- Capitalized and enclosed in square brackets “[Input]” and “[Output]” in mapping table per Rainer
- Skipped over review of FinishingsCol mappings (from Mike Sweet) – to be reviewed with Rainer in the future
- Added all FinishingsCol mappings (from Mike Sweet) – per IPP WG review on 06/16/14
- Resume next review at Media in mapping table

## 11.21 4 June 2014 – JDF update by Rick Yardumian and Rainer Prosi

* June 2014 – fourth draft in SM WG
- Kept status as Interim draft
- Added all of Rainer Prosi’s PDF notes on 13 May 2014 as comments in this draft – Rick
- Added all new mappings from PWG F2F on 14 May 2014 – Rick
- Added all finishing types and member attributes from PWG Finishings 2.0 – Ira

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- Added ISSUE about XxxSupplied elements (which should NOT be in a Job Ticket, but only in a Job Receipt) before Table 1 and highlighted all affected PWG elements – Ira
- Added Rick Yardumian as co-author and Rainer Prosi as major contributor – Ira

## 11.22 30 April 2014 – JDF update by Rick Yardumian

* April 2014 – third draft in SM WG
- Kept status as Interim Draft
- Added many mapping comments and questions to table and section 4.1
- Added full Xpath for all JDF objects (favoring non-intent classes)
- Accepted all font changes in table (for readability)

## 11.23 6 April 2014

* April 2014 – second draft in SM WG
- Kept status as Interim Draft, consistent with previous reviews of JDF mapping content.
- Converted spec to current PWG document template (copying each body section as plaintext to avoid format errors).
- Corrected copyright dates and headers/footers.
- Rewrote Abstract and section 1 to clarify single-mapping scope (JDF to PJT).
- Added sections 2.1 to 2.4 on conformance, printer, and other terminology and acronyms.
- Completely rewrote sections 3.1 to 3.4 on rationale, use cases, out-of-scope, and design requirements for consistency with other recent PWG specifications.
- Added section 5 on conformance requirements.
- Added sections 6 to 8 on internationalization, security, and IANA considerations.
- Added or updated references in section 9.

## 11.24 5 October 2011 to 24 October 2013

* October 2013 – first draft in SM WG (w/ Adobe PPD and MSPS mappings included) by Paul Tykodi, with additions to especially MSPS mapping.

* Five previous drafts – in Cloud WG and MFD WG.
- Initial content from Mike Sweet, Justin Hutchings, Paul Tykodi, and Ira McDonald.
- Partial mapping from JDF to PJT from Ira McDonald.

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