

Integrated Digital Printing ICS

Date: 2006-02-27

Version 1.0 Errata Revision A

File: *ICS-IDP-1.0RevA.doc*, .pdf

Digital Printing WG

Abstract

This CIP4 JDF Interoperability Conformance Specification (ICS) specifies the Conformance Requirements for a subset of JDF defined as Level 1 Integrated Digital Printing. This subset is useful for black and white and limited color integrated digital printing systems with in-line finishing capabilities. It encompasses production printing IPP semantics [IPP-std].

This version applies to interactions using JDF version 1.2.



Copyright Notice

Copyright © 2000-2005, International Cooperation for Integration of Processes in Prepress, Press and Postpress, hereinafter referred to as CIP4. All Rights Reserved

Permission is hereby granted, free of charge, to any person obtaining a copy of the Specification and associated documentation files (the “Specification”) to deal in the Specification, including without limitation the rights to use, copy, publish, distribute, and/or sublicense copies of the Specification, and to permit persons to whom the Specification is furnished to do so, subject to the following conditions. The above copyright notice and this permission notice must be included in all copies or substantial portions of the Specification.

THE SPECIFICATION IS PROVIDED “AS IS”, WITHOUT WARRANTY OF ANY KIND, EXPRESS, IMPLIED, OR OTHERWISE, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT WILL CIP4 BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF, OR IN CONNECTION WITH THE SPECIFICATION OR THE USE OR OTHER DEALINGS IN THE SPECIFICATION.

Except as contained in this notice or as allowed by membership in CIP4, the name of CIP4 must not be used in advertising or otherwise to promote the use or other dealings in this Specification without prior written authorization from CIP4.

Licenses and Trademarks

International Cooperation for Integration of Processes in Prepress, Press and Postpress, CIP4, Job Description Format, JDF and the CIP4 logo are trademarks of CIP4.

Rather than put a trademark symbol in every occurrence of other trademarked names, we state that we are using the names only in an editorial fashion, and to the benefit of the trademark owner, with no intention of infringement of the trademark.

Table of Contents

1	Introduction	5
1.1	Scope	5
1.2	Conformance Requirements	5
1.3	Terminology	5
2	Conformance Rules – JDF Combined Node.....	6
2.1	Processes of the Combined Node	6
2.1.1	Sequence of Processes	6
3	Conformance Tables – Processes.....	8
3.1	Combined Node – Digital Printing	8
4	Conformance Tables – JDF Instances.....	10
4.1	JDF Node.....	10
4.1.1	Comment	12
4.1.2	NodeInfo.....	12
4.2	ResourceLinks	13
4.2.1	ComponentLink	13
5	Conformance Tables – Resources	14
5.1	ColorantControl.....	14
5.2	ColorCorrectionParams	14
5.3	ColorSpaceConversionParams	15
5.4	Component – Intermediate	15
5.5	CoverApplicationParams.....	15
5.6	DigitalPrintingParams	16
5.7	Disjointing	16
5.8	FileSpec	17
5.9	FitPolicy	17
5.10	FoldingParams	18
5.11	HoleMakingParams	19
5.12	InsertSheet	20
5.13	InterpretingParams	21
5.14	LayoutElement	21
5.15	LayoutPreparationParams.....	22
5.16	Media.....	23
5.17	RunList	25
5.18	ScreeningParams	26
5.19	SeparationSpec	26
5.20	Sheet	26
5.21	SpineTapingParams	27
5.22	StitchingParams	27
5.23	TrappingDetails	28
5.24	TrimmingParams	28
6	References.....	29
6.1	Normative References	29
6.2	Informative References.....	29
Appendix A: Errata Revision A Summary, 2006-02-27		30

Tables

Table 1: Sequencing of Processes – DigitalPrinting and Before	7
Table 2: Sequencing of Processes – DigitalPrinting and After	7
Table 3: Supported Input Resources	8
Table 4: Supported Output Resources	9
Table 5: Supported Intermediate Resources	10
Table 6: JDF Combined DigitalPrinting Node	10
Table 7: Comment	12
Table 8: NodeInfo.....	12
Table 9: ComponentLink.....	13
Table 10: AmountPool.....	13
Table 11: PartAmount	13
Table 12: ColorantControl.....	14
Table 13: ColorantParams	14
Table 14: ColorCorrectionParams	14
Table 15: ColorSpaceConversionParams	15
Table 16: Component – Intermediate	15
Table 17: CoverApplicationParams.....	15
Table 18: DigitalPrintingParams	16
Table 19: Disjointing	16
Table 20: FileSpec	17
Table 21: Container	17
Table 22: FitPolicy	17
Table 23: FoldingParams	18
Table 24: HoleMakingParams	19
Table 25: InsertSheet	20
Table 26: InterpretingParams	21
Table 27: LayoutElement	21
Table 28: LayoutPreparationParams.....	22
Table 29: PageCell.....	23
Table 30: ImageShift	23
Table 31: Media.....	23
Table 32: Location.....	25
Table 33: RunList	25
Table 34: ScreeningParams	26
Table 35: ScreenSelector	26
Table 36: SeparationSpec	26
Table 37: Sheet	26
Table 38: SpineTapingParams	27
Table 39: StitchingParams	27
Table 40: TrappingDetails	28
Table 41: TrimmingParams	28

1 Introduction

JDF is a very comprehensive job ticket format that allows for many different ways to specify a digital print job. To minimize complexity and to better guarantee interoperability between JDF producers and consumers, this ICS identifies a relatively small subset of JDF for Digital Printing.

This ICS defines a subset of JDF referred to as Level 1. Level 1 is useful for color and black and white integrated digital printing systems with in-line finishing capabilities. It encompasses production printing IPP semantics.

A companion Integrated Digital Printing Application Note [IDP-AN] explains this ICS in more detail, but does not contain any normative material, i.e., does not contain any material that defines conformance to this ICS.

1.1 Scope

This ICS defines a subset of JDF referred to as Level 1. Level 1 is useful for black and white and limited color integrated digital printing systems with in-line finishing capabilities. It encompasses production printing IPP semantics [IPP-std].

1.2 Conformance Requirements

This ICS defines one Conformance Level of Conformance Requirements for defining an Integrated Digital Printing node in a JDF Instance.

To be conformant to this ICS, an *Integrated Digital Printing Controller* MUST satisfy the Conformance Requirements for a Manager in:

- The [Base-ICS] Level 0 or higher
- This ICS Level 1

To be conformant to this ICS, an *Integrated Digital Printer* MUST satisfy the Conformance Requirements for a Worker in:

- The [Base-ICS] Level 0 or higher
- This ICS Level 1

Restrictions that are defined in [Base-ICS] apply and are not explicitly repeated here.

1.3 Terminology

This section defines terminology used throughout this document. References to other documents are indicated with square brackets, e.g. [JDF1.2]. For most terms, see the Terminology section in [JDF1.2] and [Base-ICS].

Combined Digital Printing Node – A JDF *Combined* node (value of the *Type* Attribute is "*Combined*") that contains a *DigitalPrinting* Process and that conforms to the requirements of this ICS.

Controller/Agent – as defined by the JDF Specification [JDF1.2] is a JDF Controller/Agent that writes and routes JDF, representing a job, to a *Device*.

Device – as defined in the JDF Specification [JDF1.2] interprets JDF and executes instructions representing a job.

Integrated Digital Printer – a *Device* that supports the *DigitalPrinting* Process along with some Prepress Processes and perhaps some Postpress Processes. The term *Worker* refers to the **Integrated Digital Printer** in this ICS.

Integrated Digital Printing Controller – a Controller that sends a JDF Instance to an *Integrated Digital Printer*. The term *Manager* refers to the Integrated Digital Printing Controller in this ICS.

2 Conformance Rules – JDF Combined Node

In defining conformance for *Integrated Digital Printer*, this ICS specifies the required and optional JDF that the *Integrated Digital Printer* supports in a *Combined Digital Printing Node*.

A conforming *Integrated Digital Printer* MUST execute a *Combined Digital Printing Node*.

2.1 Processes of the Combined Node

A *Combined Digital Printing Node* MUST be a JDF *Combined* node as specified in [JDF1.2]. For details of the Processes that can be in a Combined Node for this ICS, see Table 1 and Table 2 below and the *Types* Attribute in Table 6: JDF Combined Digital Printing Node

2.1.1 Sequence of Processes

The following table shows the Processes that are possible successors of other Processes. The Processes listed across the top of the tables are the Processes that are immediate successors of the Processes listed along the left side. An “→” indicates a Successor Process that MAY *immediately* follow the Process in the left column. Each process in the left column MAY be *immediately* followed by one of the Successor processes indicated by an “→” in that row. A blank indicates that the successor process MUST NOT *immediately* follow the Process in the left column.

The Processes that a Manager MUST include in the value of the *Types* Attribute are in **bold typeface** and MUST occur in the order that the **bold typeface** values appear in the first column of the tables.

Example: The *Types* attribute MUST begin with *LayoutPreparation* and *Imposition*. According to the table, only one of two possible processes MAY immediately follow *Imposition*. They are: *Trapping* (vector) and *Interpreting* as indicated by the two “→” arrows in the second row. If *Interpreting* is selected as the successor of *Imposition*, then according to the table, the possible successor processes to *Interpreting* are *Trapping* (vector) or *Rendering* as indicated in the two “→” arrows in the fourth row. Etc.

Table 1: Sequencing of Processes – DigitalPrinting and Before

Process	Possible Immediate Successor Process									
	LayoutPreparation	Imposition	Trapping (vector)	Interpreting	Rendering	ColorCorrection	ColorSpaceConversion	Trapping (raster)	Screening	DigitalIPrinting
LayoutPreparation		→								
Imposition			→	→						
Trapping (vector)		→		→	→					
Interpreting			→		→					
Rendering						→	→	→	→	→
ColorCorrection			→	→	→		→	→	→	→
ColorSpaceConversion			→	→	→	→	→	→	→	→
Trapping (raster)									→	→
Screening										→

Table 2: Sequencing of Processes – DigitalPrinting and After

Process	Possible Immediate Successor Process							
	DigitalPrinting	Stitching	Folding	Trimming	HoleMaking	CoverApplication	SpineTaping	Approval
DigitalPrinting		→	→	→	→	→	→	→
Stitching		→	→	→	→	→	→	→
Folding		→	→	→	→	→	→	→
Trimming		→	→	→	→	→	→	→
HoleMaking		→	→	→	→	→	→	→
CoverApplication		→	→	→	→			→
SpineTaping		→	→	→	→			→
Approval								

3 Conformance Tables – Processes

3.1 Combined Node – Digital Printing

This section specifies Processes that a conforming implementation supports.

The tables in this section, section 4 and section 5 follow the format as defined in the [Base-ICS].

The following 3 tables specify the input, output, and intermediate Resources (respectively) that [IDP-ICS] supports.

Table 3: Supported Input Resources

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
ColorantControl	W←			r			MUST NOT appear more than once. If present, MUST be an input to both DigitalPrinting and Interpreting . See Table 12: ColorantControl
ColorCorrectionParams	W←			r			MUST NOT appear more than once. MUST be present if JDF/@ <i>Types</i> includes "ColorCorrection". See Table 14: ColorCorrectionParams
ColorSpaceConversionParams	W←			r			MUST NOT appear more than twice. MUST be present if JDF/@ <i>Types</i> includes "ColorSpaceConversion". See Table 15: ColorSpaceConversionParams
CoverApplicationParams	W←			r?			MUST NOT appear more than once. MUST be present if JDF/@ <i>Types</i> includes "CoverApplication". See Table 17: CoverApplicationParams
DigitalPrintingParams	W			r			MUST appear once. See Table 18: DigitalPrintingParams
FoldingParams	W←			r?			MUST NOT appear more than once. MUST be present if JDF/@ <i>Types</i> includes "Folding". See Table 23: FoldingParams
HoleMakingParams	W←			r?			MUST NOT appear more than once. MUST be present if JDF/@ <i>Types</i> includes "HoleMaking". See Table 24: HoleMakingParams
InterpretingParams	W			r			MUST appear once. See Table 26: InterpretingParams
LayoutPreparationParams	W			r			MUST appear once. See Table 28: LayoutPreparationParams

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
Media	W←			r			MAY appear more than once. See Table 31: Media
RenderingParams	W			r			MUST appear once. For this ICS, all RenderingParams Attributes are optional; there is no table to reference.
RunList (Document)	W			r			MUST appear once. See Table 33: RunList
ScreeningParams	W←			r			MUST NOT appear more than once. MUST be present if JDF/@Types includes "Screening". See Table 34: ScreeningParams
SpineTapingParams	W←			r?			MUST NOT appear more than once. MUST be present if JDF/@Types includes "SpineTaping". See Table 38: SpineTapingParams
StitchingParams	W←			r?			MUST NOT appear more than once. MUST be present if JDF/@Types includes "Stitching". See Table 39: StitchingParams
TrappingDetails	W←			r			MUST NOT appear more than once. MUST be present if JDF/@Types includes "Trapping". See Table 40: TrappingDetails
TrimmingParams	W←			r?			MUST NOT appear more than once. MUST be present if JDF/@Types includes "Trimming". See Table 41: TrimmingParams

Table 4: Supported Output Resources

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
Component	W			r			MUST appear once.

Table 5: Supported Intermediate Resources

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
Component	w←			r?			MAY appear more than once. See Table 16: Component – Intermediate

4 Conformance Tables – JDF Instances

The tables in this section summarize the JDF Resources and elements that are supported by the [IDP-ICS].

4.1 JDF Node

Table 6: JDF Combined DigitalPrinting Node

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Activation</i>	w			r			
<i>Active</i>	w←			r			Required by [Base-ICS].
<i>Held</i>	w←			r			
<i>Category</i>	w			r			
<i>DigitalPrinting</i>	w			r			
<i>ICSVersions</i>	w			r?			
<i>IDP_L1-1.0</i>	w			r			
<i>Status</i>	w			r			
<i>Ready</i>	w			r			
<i>Type</i>	w			r			
<i>Combined</i>	w			r			
<i>Types</i>	w			r			See Table 1: Sequencing of Processes – DigitalPrinting and Before and Table 2: Sequencing of Processes – DigitalPrinting and After for the order of the values.
<i>Approval</i>	w←			r?			Exactly one MUST be present if final approval is requested.
<i>ColorCorrection</i>	w←			r?			Exactly one MUST be present if color correction is requested.
<i>ColorSpaceConversion</i>	w←			r?			Either one or two MUST be present if color space <i>conversion</i> is requested.
<i>CoverApplication</i>	w←			r?			MUST be present if cover application is requested. Multiple MAY be present.

Name or Value	Manager			Worker			Description	
	Level →	1	2	3	1	2		3
<i>DigitalPrinting</i>		w			r			Exactly one MUST be present
<i>Folding</i>		w←			r?			MUST be present if folding is requested. Multiple MAY be present.
<i>HoleMaking</i>		w←			r?			MUST be present if hole-making is requested. Multiple MAY be present.
<i>Imposition</i>		w			r			Exactly one MUST be present
<i>Interpreting</i>		w			r			Exactly one MUST be present
<i>LayoutPreparation</i>		w			r			Exactly one MUST be present
<i>Rendering</i>		w			r			Exactly one MUST be present
<i>Screening</i>		w←			r?			Exactly one MUST be present if screening is requested.
<i>SpineTaping</i>		w←			r?			MUST be present if spine taping is requested. Multiple MAY be present.
<i>Stitching</i>		w←			r?			MUST be present if stitching is requested. Multiple MAY be present.
<i>Trapping</i>		w←			r?			Exactly one MUST be present if trapping is requested.
<i>Trimming</i>		w←			r?			MUST be present if trimming is requested. Multiple MAY be present.
<i>all remaining values</i>		!w			r?			
Comment		w←			r?			If Comment[@Name="Instruction"] is present and the Worker displays instructions to the operator, the Worker MUST display the instruction part of this Comment to the operator. See Table 7: Comment
NodeInfo		w←			r			If present, MUST be local. Is not inherited from an ancestor node. See Table 8: NodeInfo

4.1.1 Comment

Table 7: Comment

Referenced by: JDF Combined DigitalPrinting Node

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Language</i>	w?			r			
<i>Name</i>	w			r			
<i>Description</i>	w←			r?			The Manager MUST supply at MOST one Comment with this value in a JDF Node.
<i>JobDescription</i>	w←			r?			The Manager MUST supply at MOST one Comment with this value in a JDF Node. If present, MUST appear in the root JDF Node
<i>Instruction</i>	w←			r			The Worker MUST display the content of each Comment Element having this value, regardless of the number of such Comment Elements in a JDF Node.
<content of element>	w			r			

4.1.2 NodeInfo

Table 8: NodeInfo

Referenced by: JDF Combined DigitalPrinting Node

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>JobPriority</i>	w←			r			

4.2 ResourceLinks

4.2.1 ComponentLink

Table 9: ComponentLink
 Referenced by: ResourceLinkPool

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Amount</i>	W←			r			
<i>Orientation</i>	W←			r			It is more common to specify the <i>Rotate</i> values than the <i>Flip</i> values. Thus, support of the <i>Flip</i> values is not required.
<i>Rotate0</i>	W←			r			
<i>Rotate90</i>	W←			r?			
<i>Rotate180</i>	W←			r?			
<i>Rotate270</i>	W←			r?			
AmountPool	W←			r?			MUST be present to specify the <i>Orientation</i> for partitions. See Table 10: AmountPool

Table 10: AmountPool
 Referenced by: ComponentLink

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
PartAmount	W←			r			See Table 11: PartAmount

Table 11: PartAmount
 Referenced by: AmountPool

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Orientation</i>	W←			r			
<i>Rotate0</i>	W←			r			
<i>Rotate90</i>	W←			r?			
<i>Rotate180</i>	W←			r?			
<i>Rotate270</i>	W←			r?			
Part	W←			r			For the Attributes of Part, see <i>PartIDKeys</i> in Table 16: Component – Intermediate

5 Conformance Tables – Resources

5.1 ColorantControl

Table 12: ColorantControl
Input to: *DigitalPrinting, Interpreting*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>PartIDKeys</i>	w←			r			
<i>DocIndex</i>	w←			r			MUST not be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>	w←			r			MUST not be present if <i>RunIndex</i> is present.
<i>RunIndex</i>	w←			r			MUST not be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.
<i>ProcessColorModel</i>	w←			r			
<i>DeviceCMYK</i>	w←			r?			Color Devices MUST support <i>DeviceCMYK</i> . Black and white Devices MAY convert color to black and white.
<i>DeviceGray</i>	w←			r			
ColorantParams	w←			r?			See Table 13: ColorantParams

Table 13: ColorantParams
Referenced by: *ColorantControl*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
SeparationSpec	w			r			Table 36: SeparationSpec

5.2 ColorCorrectionParams

Table 14: ColorCorrectionParams
Input to: *ColorCorrection*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
							No attributes are supported

5.3 ColorSpaceConversionParams

Table 15: ColorSpaceConversionParams

Input to: *ColorSpaceConversion*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
							No attributes are supported

5.4 Component – Intermediate

Table 16: Component – Intermediate

Input to: *Stitching, Folding, Trimming, HoleMaking, CoverApplication, SpineTaping*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ComponentType</i>		w			r		
<i>PartialProduct</i>		w			r		
<i>PartIDKeys</i>		w←			r		
<i>DocIndex</i>		w←			r		MUST not be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>		w←			r		MUST not be present if <i>RunIndex</i> is present.
<i>RunIndex</i>		w←			r		MUST not be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.
<i>PipeProtocol</i>		w			r		
<i>Internal</i>		w			r		

5.5 CoverApplicationParams

Table 17: CoverApplicationParams

Input to: *CoverApplication*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>NoOp</i>		w←			r		
<i>PartIDKeys</i>		w←			r		
<i>DocIndex</i>		w←			r		MUST not be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>		w←			r		MUST not be present if <i>RunIndex</i> is present.
<i>RunIndex</i>		w←			r		MUST not be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.

5.6 DigitalPrintingParams

Table 18: DigitalPrintingParams

Input to: *DigitalPrinting*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Collate</i>	W←				r		MUST NOT occur in a partition
<i>None</i>	W←				r		
<i>Sheet</i>	W←				r		
<i>DirectProofAmount</i>	W←				r?		
<i>ManualFeed</i>	W←				r?		
<i>OutputBin</i>	W←				r?		MUST support if Device has multiple output bins.
<i>LargeCapacity</i>	W←				r		
<i>Top</i>	W←				r		
<i>PartIDKeys</i>	W←				r		
<i>DocIndex</i>	W←				r		MUST NOT be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>	W←				r		MUST NOT be present if <i>RunIndex</i> is present.
<i>RunIndex</i>	W←				r		MUST NOT be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.
Disjointing	W←				r?		MUST NOT occur in a partition See Table 19: Disjointing
Media	W←				r		See Table 31: Media

5.7 Disjointing

Table 19: Disjointing

Referenced by: *DigitalPrintingParams*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>OffsetDirection</i>	W←				r		
<i>Alternate</i>	W←				r		
<i>None</i>	W←				r		

5.8 FileSpec

Table 20: FileSpec
 Referenced by: Container, LayoutElement

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Compression</i>	W←			r			Device MUST NOT process the file for any values that it does not support
<i>None</i>	W←			r			
<i>MimeType</i>	W			r			Device MUST NOT process the file for any values that it does not support.
<i>application/pdf</i>	W←			r?			
<i>URL</i>	W			r			
<i>cid:</i>	W←			r			Required for MIME multipart/related.
<i>file:</i>	W←			r			
<i>http:</i>	W←			r?			
Container	W←			r?			MUST be present if <i>Compression</i> is not <i>None</i> . See Table 21: Container

Table 21: Container
 Referenced by: FileSpec

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
FileSpec	W			r			See Table 20: FileSpec

5.9 FitPolicy

Table 22: FitPolicy
 Referenced by: LayoutPreparationParams, PageCell

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>SizePolicy</i>	W←			r			
<i>ClipToMaxPage</i>	W←			r			
<i>ReduceToFit</i>	W←			r			

5.10 FoldingParams

Table 23: FoldingParams

Input to: *Folding*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>FoldCatalog</i>	W←			r?			
<i>F4-1</i>	W←			r?			booklets
<i>F6-2</i>	W←			r?			brochures
<i>F6-4</i>	W←			r?			c-fold
<i>F6-6</i>	W←			r?			z-fold
<i>NoOp</i>	W←			r			
<i>PartIDKeys</i>	W←			r			
<i>DocIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>RunIndex</i>	W←			r			MUST not be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.

5.11 HoleMakingParams

Table 24: HoleMakingParams

Input to: *HoleMaking*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>HoleType</i>	W			r?			
<i>S-generic</i>	W←			r?			
<i>S1-generic</i>	W←			r?			
<i>R2-generic</i>	W←			r?			
<i>R3-generic</i>	W←			r?			
<i>R4-generic</i>	W←			r?			
<i>R5-generic</i>	W←			r?			
<i>NoOp</i>	W←			r			
<i>PartIDKeys</i>	W←			r			
<i>DocIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>RunIndex</i>	W←			r			MUST not be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.

5.12 InsertSheet

Table 25: InsertSheet
 Referenced by: **LayoutPreparationParams, RunList**

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>SheetFormat</i>	W←			r			
<i>Blank</i>	W←			r			
<i>Standard</i>	W←			r			
<i>SheetType</i>	W			r			
<i>FillSheet</i>	W←			r			
<i>InsertSheet</i>	W←			r			
<i>JobSheet</i>	W←			r			
<i>SeparatorSheet</i>	W←			r			
<i>SheetUsage</i>	W			r			
<i>FillForceBack</i>	W←			r			
<i>FillForceFront</i>	W←			r			
<i>Header</i>	W←			r			
<i>Trailer</i>	W←			r			
<i>Slip</i>	W←			r			
<i>SlipCopy</i>	W←			r			
Sheet	W←			r			See Table 37: Sheet

5.13 InterpretingParams

Table 26: InterpretingParams

Input to: *Interpreting*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>PrintQuality</i>	W←			r			
<i>Draft</i>	W←			r?			
<i>High</i>	W←			r?			
<i>Normal</i>	W←			r			
<i>PartIDKeys</i>	W←			r			
<i>DocIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>RunIndex</i>	W←			r			MUST not be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.

5.14 LayoutElement

Table 27: LayoutElement

Referenced by: *RunList*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>FileSpec</i>	W←			r			See Table 20: FileSpec

5.15 LayoutPreparationParams

Table 28: LayoutPreparationParams

Input to: *LayoutPreparation*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>NumberUp</i>	W←				r		
<i>PageDistributionScheme</i>	W←				r		
<i>Perfect</i>	W←				r		
<i>Saddle</i>	W←				r		
<i>Sequential</i>	W←				r		
<i>PageOrder</i>	W←				r		
<i>Booklet</i>	W←				r?		
<i>Reader</i>	W←				r		
<i>PresentationDirection</i>	W←				r		
<i>FoldCatalog</i>	W←				r		
<i>YXz</i>	W←				r		
<i>Rotate</i>	W←				r		
<i>all values</i>	W←				r		
<i>Sides</i>	W←				r		
<i>OneSidedBackFlipX</i>	W←				r?		
<i>OneSidedBackFlipY</i>	W←				r?		
<i>OneSidedFront</i>	W←				r		
<i>TwoSidedFlipX</i>	W←				r?		Worker MUST support for duplexing printers.
<i>TwoSidedFlipY</i>	W←				r?		Worker MUST support for duplexing printers.
<i>PartIDKeys</i>	W←				r		
<i>DocIndex</i>	W←				r		MUST not be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>	W←				r		MUST not be present if <i>RunIndex</i> is present.
<i>RunIndex</i>	W←				r		MUST not be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.
FitPolicy	W←				r		See Table 22: FitPolicy
<i>ImageShift</i>	W←				r		See Table 30: ImageShift
InsertSheet	W←				r		See Table 25: InsertSheet
<i>PageCell</i>	W←				r		See Table 29: PageCell

Table 29: PageCell
Referenced by: LayoutPreparationParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Rotate</i>	W←				r		
<i>all values</i>	W←				r		
FitPolicy	W←				r		See Table 22: FitPolicy

Table 30: ImageShift
Referenced by: LayoutPreparationParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ShiftBack</i>	W←				r		
<i>ShiftFront</i>	W←				r		

5.16 Media

Table 31: Media
Referenced by: DigitalPrintingParams, Sheet
Input to: DigitalPrinting

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>BackCoatings</i>	W←				r?		
<i>all values</i>	W←				r?		
<i>Brand</i>	W←				r?		
<i>DescriptiveName</i>	W←				r		
<i>Dimension</i>	W←				r?		.
<i>FrontCoatings</i>	W←				r?		See <i>BackCoatings</i> for valid values
<i>HoleType</i>	W←				r?		
<i>None</i>	W←				r?		
<i>S-generic</i>	W←				r?		
<i>S1-generic</i>	W←				r?		
<i>R2-generic</i>	W←				r?		
<i>R3-generic</i>	W←				r?		
<i>R4-generic</i>	W←				r?		
<i>R5-generic</i>	W←				r?		

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ImagableSide</i>	W←			r?			
<i>all values</i>	W←			r?			
<i>MediaColorName</i>	W←			r?			
<i>MediaColorNameDetails</i>	W←			r?			
<i>MediaSetCount</i>	W←			r?			
<i>MediaType</i>	W←			r?			
<i>Paper</i>	W←			r?			
<i>Transparency</i>	W←			r?			
<i>MediaTypeDetails</i>	W←			r?			
<i>CardBoard</i>	W←			r?			
<i>ContinuousLong</i>	W←			r?			
<i>ContinuousShort</i>	W←			r?			
<i>Envelope</i>	W←			r?			
<i>EnvelopePlain</i>	W←			r?			
<i>EnvelopeWindow</i>	W←			r?			
<i>FullCutTabs</i>	W←			r?			
<i>Labels</i>	W←			r?			
<i>Letterhead</i>	W←			r?			
<i>MultiLayer</i>	W←			r?			
<i>MultiPartForm</i>	W←			r?			
<i>Photographic</i>	W←			r?			
<i>PreCutTabs</i>	W←			r?			
<i>Stationery</i>	W←			r?			Same as Paper
<i>TabStock</i>	W←			r?			
<i>Tractor</i>	W←			r?			
<i>MediaUnit</i>	W←			r?			
<i>all values</i>	W←			r?			
<i>Opacity</i>	W←			r?			
<i>all values</i>	W←			r?			
<i>PartIDKeys</i>	W←			r			
<i>Location</i>	W←			r			

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>PrePrinted</i>	w←			r?			
<i>ProductID</i>	w←			r?			
<i>StockType</i>	w←			r?			Required if worker is to calculate US weight.
<i>all values</i>	w←			r?			
<i>Weight</i>	w←			r?			
<i>Location</i>	w←			r?			MUST support if Device has multiple input bins. See Table 32: Location

Table 32: Location
Referenced by: **Media**

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>LocationName</i>	w			r			
<i>LargeCapacity</i>	w←			r			Same as Main
<i>Top</i>	w←			r			Same as Upper

5.17 RunList

Table 33: RunList
Input to: *LayoutPreparation, Imposition*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ComponentGranularity</i>	w←			r			
<i>All</i>	w←			r			
<i>Document</i>	w←			r			
<i>Directory</i>	w?			r			
<i>EndOfDocument</i>	w←			r			
<i>NPage</i>	w←			r			
<i>Pages</i>	w←			r			
<i>PartIDKeys</i>	w←			r			
<i>Run</i>	w←			r			
<i>InsertSheet</i>	w←			r			See Table 25: InsertSheet
<i>LayoutElement</i>	w←			r			See Table 27: LayoutElement

5.18 ScreeningParams

Table 34: ScreeningParams

Input to: *Screening*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>PartIDKeys</i>	w←			r			
<i>DocIndex</i>	w←			r			MUST not be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>	w←			r			MUST not be present if <i>RunIndex</i> is present.
<i>RunIndex</i>	w←			r			MUST not be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.
ScreenSelector	w←			r			See Table 35: ScreenSelector

Table 35: ScreenSelector

Referenced by: *ScreeningParams*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ScreeningFamily</i>	w←			r?			
<i>ScreeningType</i>	w←			r			

5.19 SeparationSpec

Table 36: SeparationSpec

Referenced by: *ColorantParams*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Name</i>	w			r			

5.20 Sheet

Table 37: Sheet

Referenced by: *InsertSheet*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Media</i>	w←			r			See Table 31: Media

5.21 SpineTapingParams

Table 38: SpineTapingParams

Input to: *SpineTaping*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>NoOp</i>	W←			r			
<i>PartIDKeys</i>	W←			r			
<i>DocIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>RunIndex</i>	W←			r			MUST not be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.

5.22 StitchingParams

Table 39: StitchingParams

Input to: *Stitching*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>NoOp</i>	W←			r			
<i>PartIDKeys</i>	W←			r			
<i>DocIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>RunIndex</i>	W←			r			MUST not be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.
<i>StitchType</i>	W←			r			

5.23 TrappingDetails

Table 40: TrappingDetails

Input to: *Trapping*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>NoOp</i>	W←			r			
<i>PartIDKeys</i>	W←			r			
<i>DocIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>RunIndex</i>	W←			r			MUST not be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.

5.24 TrimmingParams

Table 41: TrimmingParams

Input to: *Trimming*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>NoOp</i>	W←			r			
<i>PartIDKeys</i>	W←			r			
<i>DocIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>DocRunIndex</i>	W←			r			MUST not be present if <i>RunIndex</i> is present.
<i>RunIndex</i>	W←			r			MUST not be present if either of <i>DocIndex</i> or <i>DocRunIndex</i> is present.

6 References

CIP4 documents are available at <http://www.cip4.org>.

6.1 Normative References

- [Base-ICS] Base ICS, Version 1.0, published December 2004, available at <http://www.cip4.org>.
- [JDF1.2] Job Definition Format (JDF), Version 1.2, published May 7, 2004, available at: <http://www.cip4.org>.
- [IPP-std] Internet Printing Protocol/1.1: Model and Semantics, RFC 2911, September 2000. All IETF (Internet Engineering Task Force) RFCs (Request for Comments) are available at RFC Database search: <http://www.rfc-editor.org/rfcsearch.html>.

6.2 Informative References

- [IDP-AN] Integrated Digital Printing Application Note, Version 1.0, work in progress, available at <http://www.cip4.org>

Appendix A: Errata Revision A Summary, 2006-02-27

The following section summarizes normative errata that were found after publication of the IDP ICS 1.0, 2005-01-29:

Location	Description
1. Section 1.3 Terminology, 1 st paragraph	Changed the reference to Terminology sections in other documents from “[MIS-ICS] and [Base-ICS]” to “[JDF1.2] and [Base-ICS]”, since most of the terms defined in the [MIS-ICS] moved back to the [Base-ICS] and the [MIS-ICS] only defines “Gray Box” which isn’t used in the IDP ICS.
2. Section 1.3 Terminology, 2 nd paragraph	Changed “Types Attribute” to “Type Attribute”, since it is the Type attribute which has the value of “Combined” for a combined process node.
3. Section 2.1.1 Sequence of Processes	Changed: “An “→” indicates that the Successor Process can follow the Process in the left column.” to: “An “→” indicates a Successor Process that MAY <i>immediately</i> follow the Process in the left column. Each process in the left column MAY be <i>immediately</i> followed by one of the Successor processes indicated by an “→” in that row. A blank indicates that the successor process MUST NOT <i>immediately</i> follow the Process in the left column.” in order to clarify that the table is specifying the required order, allowed order, and disallowed order of sequences of processes in the Types attribute.
4. Section 2.1.1 Sequence of Processes	Changed: “ Note: The Processes that a Manager MUST include in the value of the <i>Types</i> Attribute are in bold typeface.” to: “The Processes that a Manager MUST include in the value of the <i>Types</i> Attribute are in bold typeface and MUST occur in the order that the bold typeface values appear in the first column of the tables.” in order to clarify that the table is specifying the required processes and their required order in the Types attribute.
5. Section 2.1.1 Sequence of Processes	Added the following example to explain how to read Table 1 and 2: Example: The <i>Types</i> attribute MUST begin with <i>LayoutPreparation</i> and <i>Imposition</i> . According to the table, only one of two possible processes MAY immediately follow <i>Imposition</i> . They are: <i>Trapping</i> (vector) and <i>Interpreting</i> as indicated by the two “→” arrows in the second row. If <i>Interpreting</i> is selected as the successor of <i>Imposition</i> , then according to the table, the possible successor processes to <i>Interpreting</i> are <i>Trapping</i> (vector) or <i>Rendering</i> as indicated in the two “→” arrows in the fourth row. Etc.
6. Section 4.1 JDF Node, Table 6	Changed the Table title from “JDF Node” to “JDF Combined DigitalPrinting Node”, since Table 6 does not apply to every JDF node in a JDF Instance, only to the Combined DigitalPrinting nodes.
7. Table 6: JDF Combined DigitalPrinting Node	Removed “Root Node of: JDF Instance” line, since Table 6 specifies IDP ICS conformance for combined DigitalPrinting node(s) wherever they occur in the JDF Instance.
8. Table 25: InsertSheet	Changed the Manager conformances for all the values of InsertSheet/@SheetUsage from “w” to “w<-”, since “w” would mean that the Manager MUST write all of the values in every JDF Instance.

Location	Description
9. Table 31: Media	Removed: “SHOULD supply if Layout is specified” from the Description of the Dimension attribute. It isn’t clear what an IntegratedDigitalPrinting process would do if a Layout is supplied as an input. This ICS does NOT mention the Layout resource.