

DWF ICS

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Digital Print Workflow / Wide Format WG

Abstract

This Interoperability Conformance Specification (ICS) details the JDF Nodes, Resources, sub-elements and attributes used in Wide Format Printing. For supported attributes, where appropriate, this ICS also lists required values.



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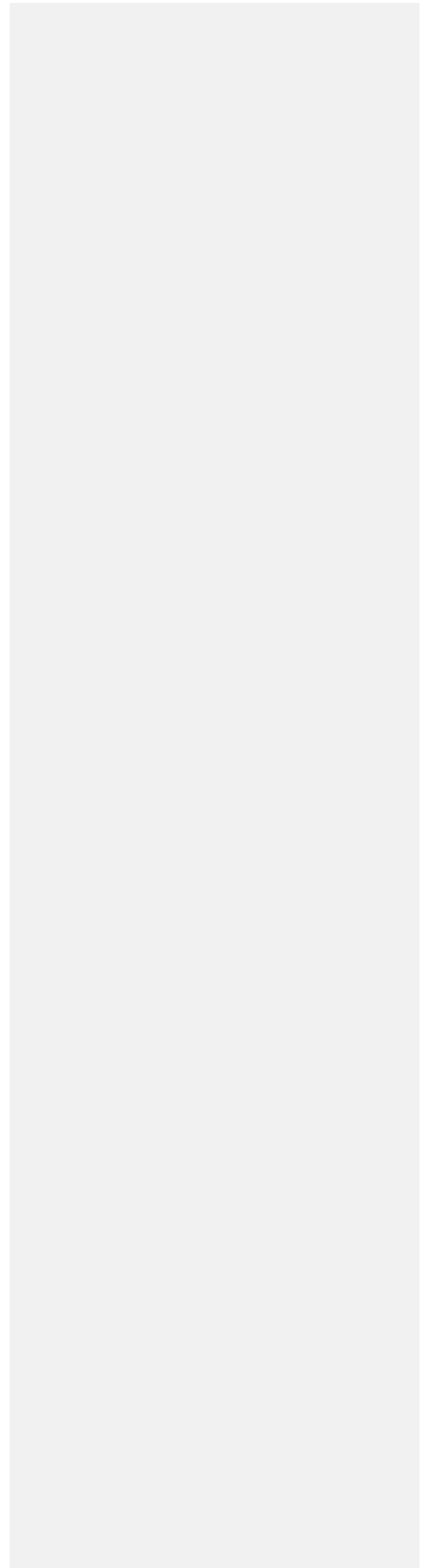
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1 Introduction

[JDF1.5] 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 IS identifies a relatively small subset of JDF for digital Wide Format printing.

A description of the Conformance Tables and other ICS notation can be found in the CIP4 [Base-ICS].

1.1 Scope

This ICS defines [JDF1.5] process interface to the Combined Process for DPW Wide Format (DPW-WF). It is intended that this ICS can be used stand-alone, requiring only the Base ICS for the definition of values and limits. This ICS can be enhanced by simultaneously claiming adherence to one or both of the WFM2RIP and WFM2RDP Services ICSs used in the definition of the CDP (Commercial Digital Printing) ICS.

2 Color Shading Conventions

Color shading is used to indicate whether the text and tables have been copied from another ICS or are new to this ICS. The table below describes the meaning of each of the shadings.

Table 1: Color Shading Conventions

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>DeviceStatus</i>	r?				w		This shading is for an attribute or element defined in this ICS. Note if this shading appears in a table from another ICS, this item is new to this ICS.
<i>Unknown</i>	r?				w←		This shading is for a value defined in this ICS. Note if this shading appears in a table from another ICS, this value is new to this ICS.
<i>Exact</i>		w?			r		This shading is for an attribute or element in a table that is copied from [Base-ICS].
<i>false</i>		w←			r		This shading is for a value in a table that is copied from [Base-ICS].
<i>Exact</i>		w?			r		This shading is for an attribute or element in a table that is copied from [JMF-ICS].
<i>false</i>		w←			r		This shading is for a value in a table that is copied from [JMF-ICS].
<i>Exact</i>		w?			r		This shading is for an attribute or element in a table that is copied from [MIS-ICS].
<i>false</i>		w←			r		This shading is for a value in a table that is copied from [MIS-ICS].
<i>Exact</i>		w?			r		This shading is for an attribute or element in a table that is copied from [MISPRES-ICS].

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>false</i>		w←			r		This shading is for a value in a table that is copied from [MISPRE-ICS].
<i>Exact</i>		w?			r		This shading is for an attribute or element in a table that is copied from [UsageCtr-AN].
<i>false</i>		w←			r		This shading is for a value in a table that is copied from [UsageCtr-AN].

3 Glossary

This section defines terminology used throughout this document. References to other documents are indicated with square brackets, e.g. [JDF1.5]. Table 2 also includes the Glossary tables in [Base-ICS], [JMF-ICS], [MIS-ICS] and [UsageCtr-AN].

Table 2: Glossary

Term	Definition
<i>Abstract Element</i>	An <i>Element</i> that is a placeholder for other <i>Elements</i> and may describe <i>Traits</i> that are common to other <i>Elements</i> . Such other <i>Elements</i> are said to be derived from the <i>Abstract Element</i> . For example, <i>Audit</i> is an <i>Abstract Element</i> . The <i>Created Element</i> and <i>Modified Element</i> are both derived from the <i>Audit Abstract Element</i> . An <i>Abstract Element</i> does not appear in a <i>JDF Instance</i> .
<i>Agent</i>	See [JDF1.5]Section 1.4 “Glossary” and see <i>Producer</i> in this [JDF1.5].
<i>Attribute</i>	See [JDF1.5] Section 1.4 “Glossary”.
<i>Attribute Value</i>	The value of an <i>Attribute</i> .
<i>Category</i>	A subset of <i>UsageCounter/@CounterTypes</i> values that are related.
<i>Click</i>	A <i>Click</i> is the basic unit that the machine vendor uses to charge for usage of the machine. The machine MAY increment a counter by a different number of clicks for different events – as determined by the machine vendor. Also its type is double (not integer) so that the <i>Click</i> increment MAY be greater than or less than 1.0. For example, a machine vendor MAY charge a click value greater than 1.0 for impressions that cost more (e.g., color), slow down the machine (e.g., large media), or cause more wear and tear (e.g., image to the edge of the media). As another example, a machine vendor MAY charge a click value of 1.0 for printing on one side of a simplex sheet and a click value of 0.75 for printing on each side of a duplex sheet to encourage duplex usage, so that duplex sheets would cost 1.5 clicks, instead of 2.0 clicks.
<i>Click Counter</i>	A counter that counts <i>Clicks</i> . A <i>Click Counter</i> is commonly used in the industry by digital printer vendors.
<i>Conformance Level</i>	Defines a subset of <i>Conformance Requirements</i> for an <i>ICS</i> . Level-1 <i>Conformance Requirements</i> from a subset of Level-2 <i>Conformance Requirements</i> , and so on for higher levels.

Term	Definition
Conformance Requirement	A single requirement that a conforming JDF-enabled Product SHALL meet. An <i>ICS</i> specifies a set of <i>Conformance Requirements</i> that a conforming JDF-enabled Product SHALL meet in order to achieve interoperability with other conforming JDF-enabled Products that meet the same <i>Conformance Requirements</i> .
Conformance Table	Describes the <i>Conformance Requirements</i> for a single <i>Element</i> of a <i>JDF Instance</i> or <i>JMF Message</i> . Each row of a <i>Conformance Table</i> contains a single Trait of the <i>Element</i> . Each such Trait is subject to two <i>Conformance Requirements</i> , one that applies to a conforming <i>Manager</i> and another that applies to a conforming Worker.
Consumer	A <i>Manager</i> or Worker in a role where it consumes a <i>JDF Instance</i> or <i>JMF Message</i> , i.e. reads and processes a JDF Instance or <i>JMF Message</i> . See Producer in this section. See also “ JDF Consumer ” in [JDF1.5] Section 1.4 “Glossary”.
Controller	See [JDF1.5] Section 1.4 “Glossary”.
Countable Event	An event that can be counted by a UsageCounter resource and is either a <i>Separation Countable Event</i> or a <i>Surface Countable Event</i> .
CounterTypes Value	A single value of UsageCounter/@ <i>CounterTypes</i> . Each such value belongs to a <i>Category</i> .
Derived Element	An <i>Element</i> that is based on some <i>Abstract Element</i> . See <i>Abstract Element</i> for an example.
Device	See [JDF1.5] Section 1.4 “Glossary”.
Device Worker	The Worker part of a <i>Device</i> .
Element	See [JDF1.5] Section 1.4 “Glossary”.
Gray Box	A <i>Gray Box</i> specifies a loose combination of several Processes with a specific goal. A <i>Gray Box</i> does not specify all Processes or all Resources – except for Output Resources. When an <i>MIS</i> (acting as a Manager) uses <i>Gray Boxes</i> , it specifies only the Processes and Resources that are of real interest to the <i>MIS</i> , that is, everything it needs to track the produced Output Resources. When a Worker receives a <i>Gray Box</i> , it fills in the details. For more details, see [JDF1.5] Section 3.4.2.1 “Use of the Types Attribute in Process Group Nodes – Gray Boxes”, and [JDF1.5] Table 3-4 “JDF Node”, row for @ <i>Types</i> Attribute.
Hot Folder	A folder that is watched by the Worker, so that when the <i>Manager</i> writes a file into the <i>Hot Folder</i> , the Worker interprets that action as a Job submission and attempts to perform the actions specified in the <i>JDF Instance</i> or <i>JMF Message</i> contained in the file.
Impression	Either a <i>Separation Impression</i> or a <i>Surface Impression</i> .
Interoperability Conformance Specification (ICS)	A specification developed by a CIP4 WG and approved by the CIP4 Technical Steering Committee (TSC). An ICS specifies the <i>Manager Conformance Requirements</i> for an interface that a conforming JDF-enabled Product SHALL meet in order to achieve interoperability with other conforming JDF-enabled Products that meet the corresponding Worker <i>Conformance Requirements</i> .
JDF	See [JDF1.5] Section 1.4 “Glossary”.
JDF Instance	An XML document that is a valid JDF Node according to [JDF1.5]. The JDF Node describes a print Job or some portion thereof.

Term	Definition
JDF Instance File	A file that contains a <i>JDF Instance</i> only.
JDF MIME Instance	A MIME Multipart/Related data stream [RFC 2387] whose first body part is a <i>JDF Instance</i> and each remaining body part is identified by a <i>Content-ID Header</i> [RFC 2392] and is referenced from the <i>JDF Instance</i> body part using a "cid" URL [RFC 2392].
JDF MIME File	A file that contains a <i>JDF MIME Instance</i> .
JMF	See [JDF1.5] Section 1.4 "Glossary".
JMF Message	An XML document that is a valid JMF <i>Element</i> according to the JDF Schema.
Manager	The software that implements the <i>Manager Interface</i> .
Manager Interface	The interface that sends <i>JDF Instances</i> , <i>JMF Messages</i> and other data (possibly via the network) to a Worker in a <i>Device</i> or <i>Controller</i> in the hierarchy below (see [JDF1.5] Figure 2.1 "Example of JDF and JMF workflow interactions") and may receive information back (possibly via the network) from a Worker in a <i>Device</i> or <i>Controller</i> .
MAY	See [JDF1.5] Section 1.4.1 Conformance Terminology".
MIS	See [JDF1.5] Section 1.4 "Glossary".
MIS Manager	The <i>Manager Interface</i> of the <i>MIS</i> .
NEED NOT	Indicates an action that is not required for conformance, but MAY be performed. See [JDF1.5] Section 1.4.1 Conformance Terminology".
Node	See [JDF1.5] Section 1.4 "Glossary".
Process	See [JDF1.5] Section 1.4 "Glossary".
Producer	A <i>Manager</i> or Worker in a role where it produces or modifies either a <i>JDF Instance</i> or <i>JMF Message</i> , i.e. writes or updates a <i>JDF Instance</i> or <i>JMF Message</i> . See <i>Agent</i> and <i>Consumer</i> in this section.
Product-Sector ICS	An <i>ICS</i> that specifies the <i>Conformance Requirements</i> for a JDF-enabled Product in a specific Product sector. For example, an <i>ICS</i> for a Product sector that includes binding is likely to have a requirement for a <i>Stitching</i> Process.
Referenced File	A file that is referenced via a URI from a <i>JDF Instance</i> or a <i>JMF Message</i> . For example, a PDF file could be a Referenced File.
Root Node	The root Node, i.e. the Node at the top level.
Separation	A portion of a color image that will be printed in one basic color [Delmar97].
Separation Countable Event	A <i>Countable Event</i> that occurs for each <i>Separation Impression</i> . For example, if a printer applies CMYK, four <i>Separation Countable Events</i> occur. The <i>Separation</i> and <i>Varnish</i> (overcoat) Colorant <i>Category</i> values describe <i>Separation Countable Events</i> .
Separation Impression	The application of a single Colorant (ink, toner or varnish of any kind) to a sheet surface. For example, a process color primary, such as cyan, would be a single <i>Separation Impression</i> .

Term	Definition
SHALL, SHALL NOT	See [JDF1.5] Section 1.4.1 “Conformance Terminology”.
SHOULD	See [JDF1.5] Section 1.4.1 “Conformance Terminology”.
Signaler	A Manager or Worker in a role where it consumes a subscription request, i.e. reads and processes a Query or Registration containing a Subscription Element.
Subelement	An Element that is a child of another Element .
Subnode	A Node that is below the Root Node, i.e. a Node that is not a Root Node.
Subscriber	A Manager or Worker in a role where it writes a Query or Registration that includes a Subscription Element.
Support	See [JDF1.5] Section 1.4 “Glossary”.
Surface Countable Event	A Countable Event that occurs for each Surface Impression . For example, if a printer applies CMYK, one Surface Countable Event occurs. The Black , HighlightColor and Color Colorant Category values each describe separate Surface Countable Events .
Surface Impression	The passage of the entire side of a sheet through the printing system, regardless of the number of colorants (ink, toner, spot varnish, or overcoat varnish) that it applies to the sheet surface. Note: a blank Surface Impression (zero colorant) counts as a Surface Impression .
Trait	In the context of an Element , a single Subelement of it, a single Attribute of it or a single Attribute Value of one of its Attributes . In the context of the [JDF1.5], a table for an Element contains all Traits of the Element .
Worker Interface	The interface that receives JDF Instances , JMF Messages and other data (possibly via the network) from a Manager in a Controller or MIS in the hierarchy above (see [JDF1.5] Figure 2-1 “Example of JDF and JMF workflow interactions”) and may send information back (possibly via the network) to a Manager in a Controller or MIS .
Worker	The software that implements the Worker Interface.

4 Conformance Levels

This ICS specifies one **Conformance Levels** of Conformance Requirements.

See [Base-ICS]_Appendix A “How to Read ICS Documents” in [JDF1.5] for an explanation of Conformance Tables.

To be conformant to a level of this ICS specified in the first column of Table 3, an **MIS** SHALL conform to the Manager part and a Controller or Device SHALL conform to the Worker part of the ICSs and levels specified in Table 3 below.

Comment [r1]: Should MISPRE be mentioned since this ICS uses some of its tables?

Table 3: Conformance Levels

Level of this ICS	[Base-ICS]	[JMF-ICS]	[MIS-ICS]	Description
1	0	-	-	This combination of ICS levels includes: <ul style="list-style-type: none"> • Fire and Forget (whether using JMF or not); subset of DWF Level 1.
2	2	1	2	This combination of ICS levels adds: <ul style="list-style-type: none"> • Adds JMF used for Job Submission, Job return and Queue management.
3	2	1	3	This combination of ICS levels adds: <ul style="list-style-type: none"> • Adds Reliable channels for JMF. • More complex setup of wide format devices.

5 Conformance Tables – JDF Instances

The tables in this section pertain to a Combined Process for DPW Wide Format (DPW-WF),

5.1 JDF Node

Table 4: JDF Node
From: [JDF1.5] Table 3-4
Root Node of: JDF Instance

Name or Value	Manager			Worker			Description	
	Level →	1	2	3	1	2		3
<i>Activation</i>		w?		r?	r		w←	SHALL be set if the JDF Instance is a snapshot in a JobPhase. See [JDF1.5] Section 4.2.1 "Determining Executable Nodes".
<i>Active</i>		w←			r			
<i>Category</i>		w			r			See Types When the Node is a <i>Gray Box</i> defined by an ICS, the Manager SHALL supply @ <i>Category</i> with the following syntax. <ICSShortName>.<rest of Gray Box name> For example, the [MISPRE] defines the <i>Gray Box</i> name: "MISPRE.PrePressPreparation". The Manager MAY supply @ <i>Category</i> for any other Node type.
<i>DPW.WideFormat</i>		w			r			SHALL be specified if <i>Category</i> is provided in JDF Combined node

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>all values</i>	w←			r?			
<i>CommentURL</i>	w?			r?			Links to a human readable description of the Job in any format. This <i>ICS</i> makes no statement about Supported formats or how a Worker should deal with the data referenced by the URL. The Job description referenced by this URL does NOT affect the value of any Attributes in the JDF Node, even when there is an apparent name similarity. If the scheme is not " <i>cid</i> ", the Manager SHALL keep the Comment available for the Worker to retrieve at least until the Worker completes or aborts the Job.
<i>file:...</i>	w←			r			URL whose scheme is " <i>file</i> ".
<i>http:...</i>		w←			r		URL whose scheme is " <i>http</i> ".
<i>https:...</i>		w?			r?		URL whose scheme is " <i>https</i> ".
<i>cid:...</i>		w←			r		URL whose scheme is " <i>cid</i> ".
<i>all remaining values</i>	!w			r?			
<i>DescriptiveName</i>	w w←			r r?			SHALL occur in Root Node, indicating a single line Job Title; SHOULD occur in Subnodes with other values. If the Worker identifies the JDF Node to an operator, it SHOULD include the <i>DescriptiveName</i> in any such identification. Note: many Devices have limited possibilities to display the Job description. The string value SHOULD be as short as possible. Same description in [Base-ICS].
<i>ICSVersions</i>	w←			r?			Root note for the ICS Versions
<i>DPW_L1-1.5</i>	w←			r?			
<i>DPW_L2-1.5</i>		w←			r?		
<i>DPW_L3-1.5</i>	w←			r?			
<i>MISPRES_L1-1.5</i>	w←			r?			Specifies that the JDF Instance conforms to [MIS-ICS] level 1.
<i>MISPRES_L2-1.5</i>		w←		r?			Specifies that the JDF Instance conforms to [MIS-ICS] level 1.
<i>MIS_L1-1.5</i>	w			r?			Specifies that the JDF Instance conforms to [MIS-ICS] level 1.
<i>MIS_L2-1.5</i>		w		r?			Specifies that the JDF Instance conforms to

Comment [r2]: Should there be 3 levels?

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
							[MIS-ICS] level 2.
<i>MIS_L3-1.5</i>			w	r?			Specifies that the JDF Instance conforms to [MIS-ICS] level 3.
<i>JMF_L1-1.5</i>	w			r?			Specifies that the JMF Element conforms to [JMF-ICS] level 1.
<i>Base_L1-1.5</i>	w			r?			Specifies that the JDF Node conforms to [Base-ICS] level 1.
<i>Base_L2-1.5</i>		w		r?			Specifies that the JDF Node conforms to [Base-ICS] level 2.
<i>all remaining values</i>	w←			r?			Values specified in other ICSs.
<i>ID</i>	w r?			r? w←			SHALL be supplied if a new Node is created. SHALL NOT be modified.
<i>JobID</i>	w←			r			SHALL occur in Root Node, MAY occur in <i>Subnodes</i> . r-Test: Worker SHALL preserve @ <i>JobID</i> values, and SHALL use this value when sending Messages that require the Node's @ <i>JobID</i> and SHALL use this value to identify Jobs that are specified in received Messages.
<i>JobPartID</i>	w r?			r w←			Each JDF Node (Product, Process Group, Combined Process, and Process) SHALL have a @ <i>JobPartID</i> and its value SHALL be unique within the context of all <i>JDF Instances</i> that have the same @ <i>JobID</i> in the print shop's workflow. When creating a JDF <i>Subnode</i> , a Worker SHALL generate the new @ <i>JobPartID</i> by adding a suffix to the parent JDF Node's @ <i>JobPartID</i> . Each suffix SHALL start with a period "." and SHALL NOT exceed 3 characters including the <i>period</i> . The resulting @ <i>JobPartID</i> SHALL NOT exceed 63 characters. Note: @ <i>JobPartID</i> is required even at the root level. r-Test: Worker SHALL preserve @ <i>JobPartID</i> values and SHALL use this value when sending Messages that require the Node's @ <i>JobPartID</i> and SHALL use this value to identify Nodes that are specified in received Messages.
<i>MaxVersion</i>	w←			r			SHALL be in Root Node, MAY be in <i>Subnodes</i> . r-Test: Returned JDF Node contains no Elements or Attributes from newer versions of JDF than specified version.
<i>1.5</i>	w			r			A value higher than 1.5 MAY be specified.

Comment [r3]: Instructions said to delete rw direction, but all but this one and JobPartID were shaded red to denote a future deletion. Delete this rw or keep?

Comment [r4]: Instructions said to delete rw direction, but all but this one and JobPartID were shaded red to denote a future deletion. Delete this rw or keep?

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ProjectID</i>	w?			r?			SHALL NOT be specified in Subnodes. An ID assigned by the <i>MIS</i> for grouping multiple Jobs into one "Customer Order".
<i>RelatedJobID</i>	w←			r?			SHALL be present if @ <i>RelatedJobPartID</i> is present. SHALL be present if the Node parameters are the same as the Node parameters of the @ <i>RelatedJobID</i> .
<i>RelatedJobPartID</i>	w?			r?			MAY be present if the Node parameters are the same as the Node parameters of the @ <i>RelatedJobPartID</i> .
<i>Status</i>	w r?			r w			See [JDF1.5] Sections 3.2 "JDF Node" and 4.3 "Execution Model", and this document (Base ICS) Section A.1 "Interfaces for Conformance Requirements" of this document. r-Test: A Worker SHALL NOT execute Nodes whose status is "Completed" or "Aborted".
<i>all values</i>	w← r?			r w←			
<i>Type</i>	w			r			See <i>Types</i> .
<i>Combined</i>	w←			r			<i>Combined</i> SHOULD be specified when targeting an individual device. Specifies that this Node describes multiple Processes (specified by the @ <i>Types</i> Attribute).
<i>ProcessGroup</i>	w←			r			<i>ProcessGroup</i> SHOULD be specified when targeting a Controller or Workflow system (Gray Box). Specifies that this Node describes multiple Processes and that it may take several Devices to process them, possibly with spawning.
<i>Product</i>	w←			r?			Specifies that this Node describes a final or Partial Product and it MAY have nested JDF Subnodes.
< <i>Process Name</i> >	w←			r?			Specifies that this Node describes a single Process (specified by the value of this Attribute).
<i>all remaining values</i>	!w			r?			
<i>Types</i>	w←			r?			The respective values for @ <i>Category</i> , @ <i>Type</i> and @ <i>Types</i> in this Specification SHALL be correct for this ICS. SHALL be specified if @ <i>Type</i> ="Combined".
<i>ColorSpaceConversion</i>	w			r			SHALL be specified exactly once. See Table 5: DPW-WF – Input Resources.

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
							See Table 28: ColorSpaceConversionParams.
<i>Cutting</i>		w			r		SHALL be specified at most once if CuttingParams is in the ResourcePool. See Table 5: DPW-WF – Input Resources. See Table 31: CuttingParams.
<i>DieLayoutProduction</i>			w		r?		SHALL be specified at most once if DieLayoutProductionParams is in the ResourcePool. See Table 5: DPW-WF – Input Resources. See Table 34: DieLayoutProductionParams.
<i>DigitalPrinting</i>	w			r			SHALL be specified exactly once. See Table 5: DPW-WF – Input Resources. See Table 37: DigitalPrintingParams.
<i>Folding</i>			w?		r?		SHALL be specified at most once if FoldingParams is in the ResourcePool. See Table 5: DPW-WF – Input Resources. See Table 41: FoldingParams.
<i>Imposition</i>	w			r?			SHALL be specified at exactly once.
<i>Interpreting</i>	w			r			SHALL be specified exactly once. See Table 5: DPW-WF – Input Resources. See Table 43: InterpretingParams.
<i>Rendering</i>	w			r			SHALL be specified exactly once. See Table 5: DPW-WF – Input Resources. See Table 50: RenderingParams.
<i>Stitching</i>			w?		r?		SHALL be specified at most once if StitchingParams is in the ResourcePool. See Table 5: DPW-WF – Input Resources. See Table 52: StitchingParams.
<i>Stripping</i>	w?			r?			SHALL be specified exactly once. See Table 5: DPW-WF – Input Resources. See Table 53: StrippingParams.
<i>Tiling</i>	w?			r?			SHALL be specified at most once if Tile is in the ResourcePool. See Table 5: DPW-WF – Input Resources. See Table 57: Tile.
<i>Varnishing</i>	w?			r?			SHALL be specified if VarnishingParams is in the ResourcePool. See Table 5: DPW-WF – Input Resources. See VarnishingParams in [JDF1.5].

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Version</i>		w			r		See <i>Types</i> .
1.45		w			r		
<i>xmlns</i>		w←			r?		SHALL be in Root Node, MAY be in Subnodes. The namespace for JDF MAY be the default namespace or any prefixed namespace.
<i>http://www.CIP4.org/JDFSchema_1_1</i>		w			r?		Note: that for all 1.x versions of [JDF1.5], the namespace URI is the same.
<i>xmlns:xsi</i>		w←			r?		SHALL be in Root Node, MAY be in Subnodes.
<i>http://www.w3.org/2001/XMLSchema-instance</i>		w			r?		
<i>xsi:type</i>		w			r?		Helps JDF Schema aware implementations to identify specific Node types.
<i>AuditPool</i>		w?			r		See Table 9: AuditPool.
Comment		w?			r		If <i>Comment[@Name="Instruction"]</i> is present the Worker SHOULD display instructions to the operator. See Table 19: Comment.
GeneralID		w?			r		See Section 6.5.2 “GeneralID (Preset)” with <i>DataType = "NamedFeature"</i> .
ResourcePool		w			r		Container for all input and referenced resources. See Table 8: ResourcePool.
ResourceLinkPool		w			r		Container for all ResourceLink elements to input resources. See [JDF1.5].

Comment [r5]: In MIS ICS, this is w<- and it is optional for subnodes. Make this like MIS ICS?

Comment [r6]: Check that 1.5 is everywhere

Comment [r7]: Rgh: I assume that the elements here and rest of this table override similar rows in MIS ICS. And none should be marked as copied from Base ICS. Correct?

6.1.1 DPW-WF – Input Resources

Table 5: DPW-WF – Input Resources

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
ColorSpaceConversionParams		w←			r		SHALL be present when defining Input/Output ICC profiles or rendering intents. See Table 28: ColorSpaceConversionParams.

Comment [r8]: Should any resources from MIS ICS or MISPRE ICE be copied. I assume not. Only Device is copied from BaseICS. From MISPRR the following are in both but not similar: Layout, Media, RunList, StrippingParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
CuttingParams		w←				r	See Table 31: CuttingParams.
Device		w←			r		Description of the Device that SHALL execute this Node. See Table 32: Device.
DigitalPrintingParams		w			r		SHALL be specified. Details of Collation, Page Delivery Order, Sheet indexes or Output Bin destination are specified here. See Table 37: DigitalPrintingParams.
DieLayoutProductionParams				w←		r	SHALL be specified if using DieLayoutProduction for step & repeat. See Table 34: DieLayoutProductionParams.
FoldingParams				w←		r	See Table 41: FoldingParams.
Ink		w←			r		SHALL be present to associate specific inks with separations. See Table 42: Ink.
InterpretingParams		w←			r		SHALL be present if "Interpreting" is in <i>Types</i> . See Table 4: JDF Node: JDF/[@Types=" Interpreting "] for the condition in which this Resource is required. See Table 43: InterpretingParams.
Layout		w?			r?		Layout is used as an exchange resource <u>if @Type contains "Stripping" and Layout SHALL be complete only if @Types contains "Imposition" and not "Stripping" and NEED NOT be explicitly specified.</u> See [JDF1.5].
Media		w			r		See Table 46: Media.
RenderingParams		w←			r		SHALL be present if <i>Rendering</i> is in <i>Types</i> . See Table 50: RenderingParams.
RunList		w			r		See Table 51: RunList
StitchingParams				w←		r	See Table 52: StitchingParams.
StrippingParams		w?			r?		See Table 53: StrippingParams.

Comment [r9]: Check this paragraph for accuracy.

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
Tile		w←			r		SHALL be present if Tiling is used. Structured list of imposed page contents or Byte Maps that are to be decomposed to produce the images for each tile. See Table 57: Tile.
UsageCounter				w← r		r w←	See Table 58: UsageCounter.

6.1.2 DPW-WF – Output Resources

Table 6: DPW-WF – Output Resources

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
Component (Output)		w			r		See Table 30: Component (Output).
DieLayout				r?		w?	Produced by <i>DieLayoutProduction</i> Process See Table 33: DieLayout.

6.1.3 JDF Node (Worker Updated)

When a Worker returns a JDF Instance to its Manager, the Worker SHALL return the same JDF Instance that it received from the Manager except for certain parts of the JDF Instance that a Worker MAY modify. In particular, the Worker SHALL add information into the AuditPool of the Combined Process and each Process node that was executed. The Worker SHALL NOT return a portion of the JDF Instance that it received from the Manager.

Table 7: JDF Node (Worker Updated)

From: [JDF1.5] Table 3-4

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
AuditPool		w r?			r? w		The Worker SHALL add an AuditPool Element if the Combined Process for DPW Wide Format (DPW-WF) doesn't already have one. See [JDF1.5] and Table 10: List of Audit Elements. See Table 9: AuditPool.

6.2 ResourcePool

From [Base-ICS].

Note that *Conformance Requirements* for the ResourcePool, while appearing in the same table, are not meant to imply that all Resources shown in the table appear in the local JDF *Nodes* ResourcePool, or even in the same ResourcePool. Resources appearing in ResourcePool *Conformance Tables* in any *ICS* are only stating that the Resources SHALL appear in some ResourcePool, and are linked to one or more JDF *Nodes*. See [JDF1.5] Sections 3.8 “ResourcePool and its Resource Children” and 3.9 “ResourceLinkPool and ResourceLink”.

Table 8: ResourcePool
From: [JDF1.5] Table 3-9
Referenced by: JDF Node

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
Resource	w←				r←		For a list of possible Resources, see Section 7 “Conformance Tables – Resources”.

6.3 AuditPool

From [Base-ICS]

This section specifies the AuditPool. See other ICS s, such as the [MIS-ICS] for additional AuditPool requirements.

Table 9: AuditPool
From: [JDF1.5] Table 3-29
Referenced by: JDF Node, JDF Node (Worker Updated)

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
Audit	w←				r?		See Table 10: List of Audit Elements.

6.4 List of Audit Elements

When a Worker returns a JDF Instance to its Manager, the Worker SHALL return the same JDF Instance that it received from the Manager except for certain parts of the JDF Instance that a Worker MAY modify. In particular, the Worker SHALL add information into the AuditPool of the Process Node that was executed.

Note: the abstract Audit attributes are in each Audit element listed in the table below.

Table 10: List of Audit Elements
From: [JDF1.5] Table 3-31
Referenced by: AuditPool

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
Created		r? w			w r?		See Table 11: Created
PhaseTime			r?			w	See Table 12: PhaseTime
ProcessRun			r?		w		See Table 15: ProcessRun
ResourceAudit		r? w			w?		See Table 16: ResourceAudit. Ink and Media is the most relevant resource for this audit.

Comment [r10]: Should this table show that its rows are copied from Base ICS and MIS ICS except the rw values are at different levels.

Comment [r11]: Should Modified be shown as copied from BaseICS?

Comment [r12]: Are wr changes OK?

6.4.1 Created

Table 11: Created
From: [JDF1.5] Table 3-32
Referenced by: List of Audit Elements

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
AgentName		r?			w		SHALL be specified to indicate the audit authoring application.
AgentVersion		r?			w		SHALL be specified to indicate the audit authoring application version.
ID		r?			w		
TimeStamp		r?			w		Date/time when the audit element was added.

Comment [r13]: Should this table be shown as copied from BaseICS with only the rw direction copied?

6.4.2 PhaseTime

The following paragraphs discuss overlapping PhaseTime Elements versus overlapping ModulePhase Elements.

Starting with JDF 1.4, there is a single method to supply Audit Elements for Devices with Modules, namely Audit Elements with overlapping PhaseTime Elements.

Starting with JDF 1.4, remove reference to 1.5

The PhaseTime Elements MAY overlap only if each PhaseTime separately contains one or more non-identical ModulePhase Elements. The ModulePhase Elements indicate which modules were used during the entire PhaseTime. @Status and duration (@Start and @End) Attributes of the PhaseTime Element indicate the status and duration of the phase for all modules specified by ModulePhase Subelements.

Comment [r14]: RGH I copied the text from the MIS ICS here, but not elsewhere as an experiment. Should such text be copied or not?

Table 12: PhaseTime
From: [JDF1.5] Table 3-37
Referenced by: List of Audit Elements

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>AgentName</i>			r?			w	SHALL be specified to indicate the audit authoring application.
<i>AgentVersion</i>			r?			w	SHALL be specified to indicate the audit authoring application version.
<i>End</i>			r?			w?	
<i>End</i>			r			w	Required in [JDF1.5] Table 3-37 PhaseTime. r-Test: The Manager SHALL create Job costing based on the PhaseTime Elements, calculating the duration specified by @ <i>Start</i> and @ <i>End</i> .
<i>ID</i>			r?			w	
<i>ID</i>			r			w	Optional in [JDF1.5] Table 3-30 Abstract Audit. Any Audit supplied by a Worker SHALL have an @ <i>ID</i> Attribute whose value SHALL be unique within the context of all Audit Elements in all JDF Instances that have the same @ <i>JobID</i> in the print shop's workflow. r-Test: Manager SHALL NOT create costing data from the same Audit more than once.
<i>refID</i>			r			w←	Optional in [JDF1.5] Table 3-30 Abstract Audit. Once an Audit is supplied, it SHALL NOT be modified. The only exception to this is that a Worker may "close" an "open" PhaseTime Audit Element by supplying the @ <i>End</i> Attribute. If the Worker determines that a previously supplied Audit is incorrect, it SHALL supply another Audit with the correct data, and specify the incorrect Audit Element's @ <i>ID</i> value in this @ <i>refID</i> Attribute. r-Test: If an Audit references another Audit via @ <i>refID</i> , the Manager SHALL replace any costing data in the referenced Audit with the costing data in the Audit with the @ <i>refID</i> .
<i>Start</i>			r?			w	
<i>Start</i>			r			w	r-Test: See @ <i>End</i> .
<i>Status</i>			r?			w	For values, see Table 13: PhaseTime/@ <i>Status</i>
<i>Status</i>			r			w	Required in [JDF1.5] Table 3-37 PhaseTime. r-Test: The Manager SHALL show actual duration for the sum of all values of @ <i>Status</i> or

Comment [r15]: Rgh: should this row be deleted since it can be copied with more detail from MIS ICS?

Comment [r16]: Rgh: should this row be deleted since it can be copied with more detail from MIS ICS?

Comment [r17]: Rgh: should this row be deleted since it can be copied with more detail from MIS ICS?

Comment [r18]: Rgh: should this row be deleted since it can be copied with more detail from MIS ICS?

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
							for individual values of @Status. The duration for @Status = "Suspended" SHALL be excluded from the costing. The duration for @Status = "Stopped" MAY be excluded from the costing. For values, see Table 13: PhaseTime/@Status.
StatusDetails			r?			w?	
TimeStamp			r?			w	Required in [JDF1.5] Abstract Audit Table 30.Date/time when the audit element was added.
MISDetails			r?			w?	See Table 47: MISDetails.
ModulePhase			r?			w←	If there are ModulePhase elements. See Table 14: ModulePhase.
Part			r?			w←	If this Audit Element doesn't describe all parts of a Process, then the Worker SHALL supply this Part Element and it SHALL specify the parts of a Process that this Audit Element belongs to. See [JDF1.5]

Comment [r19]: Rgh: rest of rows not copied from MIS ICS because they are all "w?".

Comment [r20]: Should Activity in MIS ICS be copied to a new row above this row?

6.4.2.1 PhaseTime/@Status

From [MIS-ICS]

Table 13: PhaseTime/@Status

From: [JDF1.5] Table 3-37/@Status and [MIS-ICS]Table 66

Referenced by: PhaseTime

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
Setup			r			w←	A Worker SHALL supply this value during the setup phase for a Device that has such a phase for each Job.
InProgress			r			w←	
Cleanup			r			w←	A Worker SHALL supply this value during the cleanup phase for a Device that has such a phase for each Job.
Stopped			r			w←	
Completed			r			w←	Not used for PhaseTime
Aborted			r			w←	Not used for PhaseTime
Suspended			r			w←	

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>all remaining values</i>			r			w?	.

6.4.2.2 ModulePhase

Table 14: ModulePhase
From: [JDF1.5] Table 3-39
Referenced by: PhaseTime

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>DeviceID</i>			r?			w	Required in [JDF1.5]
<i>DeviceStatus</i>			r?			w← w	
<i>Unknown</i>			r?			w←	
<i>Idle</i>			r?			w←	
<i>Down</i>			r?			w←	
<i>Setup</i>			r?			w←	
<i>Running</i>			r?			w←	
<i>Cleanup</i>			r?			w←	
<i>Stopped</i>			r?			w←	
<i>ModuleID</i>			r?			w?	
<i>ModuleIndex</i>			r?			w?	
<i>ModuleType</i>			r?			w	
<i>StatusDetails</i>			r?			w?	

6.4.3 ProcessRun

Table 15: ProcessRun
From: [JDF1.5] Table 3-40
Referenced by: List of Audit Elements

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>AgentName</i>		r?			w		SHALL be specified to indicate the audit

Comment [r21]: Should this be shown as copied from Base ICS with rw at level 2 instead of level 1? Same question for AgentVersion, End, EndStatus, ID, Start and TimeStamp?

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
							authoring application.
<i>AgentVersion</i>		r?			w		SHALL be specified to indicate the audit authoring application version.
<i>Duration</i>		r?			w		
<i>End</i>		r?			w		End time of the job.
<i>EndStatus</i>		r?			w		Status of the job.
<i>Aborted</i>		r?			w←		
<i>Completed</i>		r?			w←		
<i>all remaining values</i>		r?			w←		
<i>ID</i>		r?			w		
<i>Start</i>		r?			w		Start time of the job.
<i>TimeStamp</i>		r?			w		Date/time when the audit element was added.
<i>Part</i>		r?			w←		If this Audit Element doesn't describe all parts of a Process, then the Worker SHALL supply this Part Element and it SHALL specify the parts of a Process that this Audit Element belongs to. See [JDF1.5].

Comment [r22]: The rows @End and @EndStatus are identical in this ICS and MIS ICS. Which should show here?

Comment [r23]: Because other rows copied from MIS ICS are changed to level 2, should do likewise to this row?

Comment [r24]: Same in MIS ICS. Should it be shown as copied?

Comment [r25]: In MIS ICS there is "r" where this row has "r?": which is correct? And should it be shown as copied from MIS ICS?

6.4.4 ResourceAudit

Primarily used to accommodate usage data for *ProcessRun* activities to report on consumption of ink and media during a processing a job.

Table 16: ResourceAudit
From: [JDF1.5] Table 3-41
Referenced by: List of Audit Elements

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>AgentName</i>		r?			w←		SHALL be specified to indicate the audit authoring application.
<i>AgentVersion</i>		r?			w←		SHALL be specified to indicate the audit authoring application version.
<i>ID</i>		r?			w←		

Comment [r26]: Should this row and the next row be shown as copied from Base ICS

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ID</i>		r			w		Any Audit supplied by a Worker SHALL have an @ID Attribute whose value SHALL be unique within the context of all Audit Elements in all JDF Instances that have the same @JobID in the print shop's workflow. r-Test: Manager SHALL NOT create costing data from the same Audit more than once.
<i>refID</i>		r			w←		Once an Audit is supplied, it SHALL NOT be modified. The only exception to this is that a Worker may "close" an "open" PhaseTime Audit Element by supplying the @End Attribute. If the Worker determines that a previously supplied Audit is incorrect, it SHALL supply another Audit with the correct data, and specify the incorrect Audit Element's @ID value in this @refID Attribute. r-Test: If an Audit references another Audit via @refID, the Manager SHALL update any costing data in the referenced Audit with the costing data in the Audit with the @refID.
<i>NodeStatus</i>		r?			w?		
<i>Reason</i>		r			w?		r-Test: The Manager SHALL NOT create costing entries for ResourceAudit Elements with @Reason = "PlanChange".
<i>ProcessResult</i>		r			w		
<i>all remaining values</i>		r?			w?		
<i>TimeStamp</i>		r?			w←		Date/time when the audit element was added.
<i>TimeStamp</i>		r			w		Required in [JDF1.5] Abstract Audit Table 30. Date/time when the audit element was added.
<i>InkLink</i>		r			w←		If Ink consumption is tracked, the <i>ActualAmount</i> attribute SHALL be updated. See Table 42: Ink and Table 61: InkLink.
<i>MediaLink</i>		r			w←		The <i>ActualAmount</i> attribute SHALL be updated. Note that Media will be measured in square meters (m2). See Table 46: Media and Table 62: MediaLink.
<i>Part</i>		r?			w←		SHALL be supplied if a Part was executed. See [JDF1.5].

Comment [r27]: Should this copied row be kept and above row deleted?

Comment [r28]: Which TimeStamp row should be deleted.

6.5 GeneralID

6.5.1 GeneralID (DeviceProductID)

Table 17: GeneralID (DeviceProductID)

From: [JDF1.5] Table 3-6

Referenced by: Media

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<u>DataType</u>		w			r		
<u>String</u>		w			r		
IDUsage		w			r		
DeviceProductID		w			r		
IDValue		w			r		The name of a Media as known by the Combined Process for DPW Wide Format (DPW-WF) if it is different from the ProductID known to an MIS.

Comment [r29]: Check this change

6.5.2 GeneralID (Preset)

A GeneralID with an IDUsage of "Preset" describes a general set of features that are combined into one named preset.

Table 18: GeneralID (Preset)

From: [JDF1.5] Table 3-6

Referenced by: JDF Node

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
DataType							
NamedFeature		w			r		The data type of NamedFeatures is always "NamedFeature". See NamedFeature in the [JDF1.5] Glossary.
IDUsage		w			r		
Preset		w			r		
IDValue		w			r		The name of the preset.

6.6 Comment

From [JMF-ICS]

Table 19: Comment
From: [JDF1.5] Table 3-5
Referenced by: JDF Node

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Name</i>		w			r?		
<i>Instruction</i>		w←			r?		Additional information provided from the Manager to the Worker about the Queue entry being acted upon (e.g. explanation for why it is being aborted).
<i>all remaining values</i>		w?			r?		
<content of Element>		w			r?		

7 Conformance Tables – Resources

This section specifies Conformance Tables for many Resources. The Resources appear in alphabetical order. Each subsection specifies one Resource with a few notes, Resource Properties, and one or more Conformance Tables.

7.1 AutomatedOverprintParams

Table 20: AutomatedOverprintParams
From: [JDF1.5] Table 10-2
Referenced by: RenderingParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>TextBlackLevel</i>		w←			r?		A value between 0.0 and 1.0 which indicates the minimum black level for the text stroke or fill colors that cause the text to be set to overprint.
<i>TextSizeThreshold</i>		w←			r?		Indicates the point size for text below which black text will be set to overprint. For asymmetrically scaled text, the minimum point size between both axes will be used. If not specified, all text is set to overprint.

7.2 BinderySignature

Table 21: BinderySignature
From: [JDF1.5] Table 8-10
Referenced by: StrippingParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>BinderySignatureType</i>	w			r			
<i>Grid</i>	w←			r			
<i>Die</i>			w←			r	
<i>Fold</i>			w←			r	
<i>NumberUp</i>	w←			r			Specifies a regular, multi-up grid of <i>SignatureCell</i> Elements into which content pages are mapped. The first value specifies the number of columns of <i>SignatureCell</i> Elements, and the second value specifies the number of rows of <i>SignatureCell</i> Elements in the multi-up grid (both numbers are integers). When the <i>BinderySignature</i> is Partitioned (e.g., by <i>WebName</i>), <i>NumberUp</i> MAY be different from leaf to leaf.
<i>DieLayout</i>			w←			r?	See Table 33: <i>DieLayout</i> .

7.3 ByteMap

Table 22: ByteMap
From: [JDF1.5] Table 8-19
Referenced by: RunList

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>FileSpec</i>	w			r			See Table 39: <i>FileSpec</i> .

7.4 ColorantControl

Table 23: ColorantControl
 From: [JDF1.5] Table 8-32

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>InternalColorModel</i>	w←				r?		
<i>Basic</i>	w←				r		
<i>Enhanced</i>	w←				r		
<i>Explicit</i>	w?				r?		
<i>ProcessColorModel</i>	w				r		
ColorantAlias		w←			r		
ColorantParams		w←			r		
ColorandOrder		w←			r		Specifies the colors in the press to be processed. SHOULD be used ONLY when you want to use a specific color for something else than being a pigment: white as a base, or laminate to provide an effect, or DIE cut. See Table 26: ColorandOrder.
ColorPool	w←				r?		

7.5 ColorPool

Table 24: ColorPool
 From: [JDF1.5] Table 8-42
 Referenced by: ColorantControl

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
Color	w←				r?		Additional details of the color. Representations of colors used by the device SHOULD include all physical colorants that are to be reported back by the device. See Table 25: Color.

7.5.1 Color

From [MISPRE-ICS]

Table 25: Color
From: [JDF1.5]Table 8-27 and [MISPRE-ICS] Table 51
Referenced by: ColorPool

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
ColorBook	w?			r?			SHOULD specify if the color is part of a color book.
ColorBookEntry	w?			r?			SHOULD specify if the color is part of a color book.
CMYK	w←			r			SHALL be supplied if the color is a standard CMYK Process colorant regardless of the value of @Name. For example, a black text plate can be defined with (@Separation="Text" and @CMYK="0 0 0 1"). r-Test: the proof shows the specified <i>CMYK</i> value for a color that is not part of a color book.
Name	w			r			The value of <i>Name</i> SHALL be a real color name from the PDL. r-Test: the proof shows the specified color if the <i>Name</i> value is part of a color book that the Worker Supports.

7.5.2 ColorantOrder

From [MISPRE-ICS]

Table 26: ColorandOrder
From: [JDF1.5] Table 8-34 and [MISPRE-ICS]Table 53
Referenced by: ColorPool

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
SeparationSpec		w			r		See Table 27: SeparationSpec.

7.5.3 SeparationSpec

From [MISPRE-ICS]

Table 27: SeparationSpec
From: [JDF1.5] Table 10-37 and [MISPRE-ICS] Table 80
Referenced by: ColorantOrder

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
Name		w			r		

7.6 ColorSpaceConversionParams

Table 28: ColorSpaceConversionParams
From: [JDF1.5] Table xx-xx
Member of: DPW-WF – Input Resources
Input to: *ColorSpaceConversion*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
ColorSpaceConversionOp	w←				r		See: Table 29: ColorSpaceConversionOp.
FileSpec	w?				r		The FileSpec element SHALL indicate ICC profile. See Table 39: FileSpec.

7.6.1 ColorSpaceConversionOp

Table 29: ColorSpaceConversionOp
From: [JDF1.5] Table 10-7
Referenced by: ColorSpaceConversionParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>PreserveBlack</i>	w←				r		If present will preserve black during source CS conversions.
<i>True</i>	w←				r		
<i>RGBGrayToBlack</i>	w?				r		
<i>RGBGrayToBlackThreshold</i>	w?				r		
<i>SourceRenderingIntent</i>	w?				r		See [JDF1.5] for acceptable values.
<i>SourceCS</i>	w				r		
<i>All</i>	w←				r		
<i>SourceObjects</i>	w				r		

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>All</i>	w←				r		
<i>FileSpec</i>	w?				r		Zero or more FileSpec elements to indicate ICC profiles. See Table 39: FileSpec.

7.7 Component (Output)

Table 30: Component (Output)
From: [JDF1.5] Tables 9-4 and [MIS-ICS] Table 20
From: [JDF1.5] Table xx-xx
Member of: DPW-WF – Output Resources

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ComponentType</i>	w				r?		
<i>PartialProduct</i>	w←				r		
<i>FinalProduct</i>	w←				r		
<i>Proof</i>	w←				r		
<i>Ribbon</i>	w←				r		
<i>Sheet</i>	w←				r		
<i>Web</i>	w←				r		
<i>ProductType</i>	w				r?		
<i>BackCover</i>	w←				r		
<i>Body</i>	w←				r		
<i>Cover</i>	w←				r		
<i>Flatwork</i>	w←				r		
<i>Folded</i>	w←				r		
<i>FrontCover</i>	w←				r		
<i>Poster</i>	w←				r		

Comment [r30]: Rgh: should this attribute and nearly all values be shown as copied from MIS ICS

7.8 CuttingParams

Table 31: CuttingParams

From: [JDF1.5] Table 8-59

Member of: DPW-WF – Input Resources

Input to: *Cutting*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Cut</i>		w			r←		Cut Elements describe an individual cut.

7.9 Device

From [Base-ICS]

This section defines general Conformance Requirements for the **Device** (Implementation) Resource, which a Manager MAY supply in any Combined, Process or Process Group Node.

Table 32: Device

From: [JDF1.5] Table 9-3 and [Base-ICS]Table 23

Member of: DPW-WF – Input Resources

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>DeviceID</i>		w?			r		r-Test: If the <i>DeviceID</i> specified does not match the Worker's <i>DeviceID</i> , the Worker SHALL NOT execute the Node.
<i>DeviceClass</i>		w?			r?		This ICS adds the following tokens to Device/@ <i>DeviceClass</i> : WideFormatPrinter

Comment [r31]: This is "w" in MISPRE. Change?

7.10 DieLayout

Table 33: DieLayout

From: [JDF1.5] Table 8-68

Member of: DPW-WF – Output Resources

Referenced by: BinderySignature

Name or Value	Manager			Worker			Description
	1	2	3	1	2	3	
<i>FileSpec</i>			w			r?	See Table 39: FileSpec.

7.11 DieLayoutProductionParams

Table 34: DieLayoutProductionParams

From: [JDF1.5] Table 8-71

Member of: DPW-WF – Input Resources

Input to: *DieLayoutProduction*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
ConvertingConfig			w			r?	See Table 35: ConvertingConfig.
RepeatDesc			w			r?	Table 36: RepeatDesc

7.11.1 ConvertingConfig

Table 35: ConvertingConfig

From: [JDF1.5] Table 10-12

Referenced by: DieLayoutProductionParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
MarginBottom			w←			r?	
MarginLeft			w←			r?	
MarginRight			w←			r?	
MarginTop			w←			r?	
SheetHeight			w←			r?	Starting with JDF 1.5, <i>SheetHeight</i> is optional.
SheetWidth			w←			r?	Starting with JDF 1.5, <i>SheetWidth</i> is optional.

7.11.2 RepeatDesc

Table 36: RepeatDesc

From: [JDF1.5] Table 8-72

Referenced by: DieLayoutProductionParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
LayoutStyle			w			r?	
GutterX			w←			r?	
GutterX2			w←			r?	

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>GutterY</i>			w←			r?	
<i>GutterY2</i>			w←			r?	
<i>StraightNest</i>			w←			r?	
<i>ReverseSecondRow</i>			w←			r?	
<i>ReverseSecondRowAligned</i>			w←			r?	
<i>ReverseSecondColumn</i>			w←			r?	
<i>ReverseSecondColumnAligned</i>			w←			r?	

7.12 DigitalPrintingParams

Table 37: DigitalPrintingParams
 From: [JDF1.5] Table 8-74
 Member of: DPW-WF – Input Resources
 Input to: *DigitalPrinting*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>OutputBin</i>	w←			r?			
<i>PageDelivery</i>	w←			r?			
<i>SameOrderFaceUp</i>	w←			r?			First reader sheet is face-up and on the top
<i>SameOrderFaceDown</i>	w←			r?			First reader sheet is face-down and on the bottom. I.e., if the stack of sheets were to be turned over as a unit, the result would be the same as " <i>SameOrderFaceUp</i> ".
<i>ReverseOrderFaceUp</i>	w←			r?			
<i>ReverseOrderFaceDown</i>	w←			r?			
<i>Sides</i>	w			r			Values from LayoutPreparationParams/@Sides " (Table 7-261 in [JDF1.5]).

7.13 ExternalImpositionTemplate

Table 38: ExternalImpositionTemplate
 From: [JDF1.5] Table 8-81
 Referenced by: StrippingParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
FileSpec		w			r?		See Table 39: FileSpec.

7.14 FileSpec

Table 39: FileSpec
 From: [JDF1.5] Table 8-86
 Referenced by: ByteMap, ColorSpaceConversionOp, ColorSpaceConversionParams, DieLayout, ExternalImpositionTemplate, LayoutElement

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Compression</i>		!w			r		
<i>MimeType</i>		w			r		Device SHALL NOT process the file for any values that it does not support.
<i>application/pdf</i>		w←			r←		Also used for PDF/VT jobs
<i>application/pdfc</i>		w←			r←		
<i>application/postscript</i>		w←			r←		
<i>application/vnd.iccprofile</i>		w←			r←		
<i>application/x-vnd.pdfc</i>		w←			r←		
<i>image/jpeg</i>		w←			r←		
<i>image/tiff</i>		w←			r←		
<i>all remaining values</i>		w?			r?		
<i>ResourceUsage</i>		w←			r		SHALL be specified if FileSpec is referenced from ByteMap
<i>RasterFileLocation</i>		w←			r		
<i>FinalTargetDevice</i>		w←			r		
<i>SourceProfile</i>		w←			r?		
<i>UID</i>		w←			r←		If there is a cache and the <i>UID</i> attribute value is different from a previous FileSpec with the same <i>URL</i> attribute value, the file SHALL be replaced in

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
							the cache.
<i>URL</i>	w←			r←			SHALL specify URL values that can be resolved by the Worker to obtain the files to be used.
<i>file:</i>	w←			r←			If the data is referenced by name rather than by explicit URL, <i>UserFileName</i> is used. At least one of <i>UserFileName</i> or <i>URL</i> SHALL be specified. If both are specified, the search sequence is implementation dependent. NOTE: Unless otherwise specified relative URLs are relative to the location of the JDF
<i>all remaining values</i>	w?			r?			
<i>UserFileName</i>	w←			r			If the data is referenced by name rather than by explicit URL, <i>UserFileName</i> is used. At least one of <i>UserFileName</i> or <i>URL</i> SHALL be specified. If both are specified, the search sequence is implementation dependent.

7.15 FitPolicy

Table 40: FitPolicy
 From: [JDF1.5] Table 10-20
 Referenced by: InterpretingParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>SizePolicy</i>	w←			r			
<i>ClipToMaxPage</i>	w←			r			
<i>Abort</i>	w←			r			
<i>FitToPage</i>	w←			r?			
<i>Tile</i>	w←			r?			
<i>RotatePolicy</i>	w?			r			
<i>NoRotate</i>	w?			r			
<i>RotateOrthogonal</i>	w?			r?			
<i>RotateClockwise</i>	w?			r?			
<i>RotateCounterClockwise</i>	w?			r?			

7.16 FoldingParams

Table 41: FoldingParams

From: [JDF1.5] Table 8-90

Member of: DPW-WF – Input Resources

Input to: *Folding*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>FoldCatalog</i>			w			r?	Should be understood in the same way as GeneralID (Preset) for presets. The name here will imply a set of options. Values that are not predefined in [JDF1.5] SHALL be interpreted as device dependent folds.

7.17 Ink

Table 42: Ink

Member of: DPW-WF – Input Resources

From: [JDF1.5] Table 9-12

Input to: *DigitalPrinting, Interpreting*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Family</i>		w			r?		
<i>PANTONE</i>		w?			r?		
<i>HKS</i>		w?			r?		
<i>Toyo</i>		w?			r?		
<i>ISO</i>		w?			r?		
<i>InkJet</i>		w?			r?		
<i>Varnish</i>		w?			r?		
<i>Silicon</i>		w?			r?		
<i>Toner</i>		w?			r?		
<i>TonerPrimer</i>		w?			r?		
<i>InkName</i>		w			r		
<i>PartIDKeys</i>		w			r		SHALL be specified on the partition root.
<i>Separation</i>		w			r		Partition Ink by Separation

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Separation</i>	w			r			SHALL be specified on partition leaves to associate an ink with a separation. Note: additional separations that are not present in ColorantControl, e.g., Light Cyan or Light Magenta, may be present in the returned JMF messages for tracking.
<i>Unit</i>	w			r			
1	w			r			Ink SHALL be measured in liters.

7.18 InterpretingParams

Table 43: InterpretingParams
From: [JDF1.5] Table 8-127
Member of: DPW-WF – Input Resources
Input to: *Interpreting*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Polarity</i>	w?			r			
<i>Positive</i>	w			r			This is the default.
<i>Negative</i>	w			r?			
<i>PrintQuality</i>	w?			r			
<i>High</i>	w←			r←			
<i>Normal</i>	w←			r			This is the default
<i>Draft</i>	w←			r←			
<i>FitPolicy</i>	w←			r			See Table 40: FitPolicy.

7.19 JobField

Table 44: JobField
From: [JDF1.5] Table 10-25
Referenced by: StripMark

Name or Value	Manager			Worker			Description	
	Level →	1	2	3	1	2		3
<i>ShowList</i>	w←				r←			All desired values below SHALL occur as a single space-separated string value of <i>ShowList</i> .
<i>Barcode</i>	w?				r←			
<i>BarcodeText</i>	w?				r←			
<i>PrintingTime</i>	w?				r←			
<i>CustomerName</i>	w?				r←			
<i>Comment</i>	w?				r←			
<i>CurrentSheetOfTotalSheetsInJob</i>	w?				r←			
<i>CurrentSheetOfSheetsInCopyOfCopyNumber</i>	w?				r←			
<i>CurrentCopyOfTotalCopies</i>	w?				r←			
<i>ImpositionTemplate</i>	w?				r←			
<i>all remaining values</i>	w?				r?			

7.20 LayoutElement

Table 45: LayoutElement
From: [JDF1.5] Table 8-150
Referenced by: RunList

Name or Value	Manager			Worker			Description	
	Level →	1	2	3	1	2		3
FileSpec	w				r			See Table 39: FileSpec.

7.21 Media

Table 46: Media
From: [JDF1.5] Table 9-13
Member of: DPW-WF – Input Resources
Input to: *DigitalPrinting*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>BackCoatings</i>	w?				r←		The preprocess that has been applied to this media before printing on the back part of it. Note: This process may have occurred at the media factory or at the printing location.
<i>None</i>	w←				r		From [JDF1.5]
<i>Coated</i>	w←				r		From [JDF1.5]
<i>Glossy</i>	w←				r		From [JDF1.5]
<i>HighGloss</i>	w←				r		From [JDF1.5]
<i>Matte Polymer</i>	w←				r		From [JDF1.5]
<i>Silver</i>	w←				r		From [JDF1.5]
<i>Satin</i>	w←				r		From [JDF1.5]
<i>SemiGloss</i>	w←				r		From [JDF1.5]
<i>Brand</i>		w				r	
<i>DescriptiveName</i>		w				r	
<i>Dimension</i>	w?				r		For landscape printing, define the X dimension greater than the Y. E.g., <i>Dimension</i> ="792 612". For roll size media, specify Roll Dimension Y as 0, and Roll Dimension X as the roll width. E.g., <i>Dimension</i> ="792 0".
<i>FrontCoatings</i>	w?				r←		The preprocess that has been applied to this media before printing on the front part of it. Note: This process may have occurred at the media factory or at the printing location.
<i>None</i>	w←				r		From [JDF1.5]
<i>Coated</i>	w←				r		From [JDF1.5]
<i>Glossy</i>	w←				r		From [JDF1.5]
<i>HighGloss</i>	w←				r		From [JDF1.5]
<i>Matte Polymer</i>	w←				r		From [JDF1.5]

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Silver</i>	w←				r		From [JDF1.5]
<i>Satin</i>	w←				r		From [JDF1.5]
<i>SemiGloss</i>	w←				r		From [JDF1.5]
<i>MediaUnit</i>	w				r		
<i>Roll</i>	w←				r		
<i>Sheet</i>	w←				r		
<i>MediaType</i>	w				r		
<i>Paper</i>	w←				r←		Only <i>MediaType</i> of " <i>Paper</i> " SHALL be supported for Synchronization
<i>CorrugatedBoard</i>	w←				r←		
<i>Textile</i>	w←				r←		
<i>Vinyl</i>	w←				r←		A type of plastic resin made from ethylene (found in crude oil) and chlorine (found in regular salt). Invented in 1920, Vinyl has become the second largest manufactured and sold plastic resin in the entire world.
<i>Other</i>	w←				r←		Printing on non-paper material such as bricks, wood or other non-paper materials SHOULD be specified as <i>Other</i> .
<i>all remaining values</i>	w?				r?		
<i>MediaTypeDetails</i>	w←				r←		
<i>Backlit</i>	w←				r←		May be used for any media type.
<i>ScrimBanner</i>	w←				r←		Details to Vinyl
<i>WallPaper</i>	w←				r←		Details to Paper
<i>PrintingTechnology</i>	w←				r←		Describes the printing technology that the media or coatings on the media are intended for or optimized for. Note: the first two values are new to this ICS.
<i>UV</i>	w←				r←		UV inks are cured by lighting the printed surface with a specific wave length light that triggers

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
							polymerization of the ink to stick to almost any material (wood, metal, plastic, etc). Does not need much drying.
<i>Latex</i>	w←			r←			Latex inks are cured by heating the ink up to a certain temperature. At that point, latex particles create a polymer layer that sticks to the surface and protects the colorant pigment particles from scratches. The ink is water based and needs drying to complete the printing process
<i>all remaining values</i>	w?			r?			See Media/@PrintingTechnology for other values [JDF1.5].
<i>ProductID</i>	w?			r←			<i>ProductID</i> specifies the ID of the substrate in the context of the MIS.
<i>Thickness</i>	w?			r			
<i>Unit</i>	w			r			For m2 consumption (ganging).
<i>m2</i>	w			r			
<i>Weight</i>	w←			r			If @MediaType equals Paper then weight SHALL be specified.
GeneralID (DeviceProductID)	w?			r←			GeneralID [@IDUsage = "DeviceProductID"] is the first place checked to find a substrate. If supplied, this name SHALL be a well known string value in the context of the recipient device. SHALL be supplied by Worker that has a Paper Catalog with Worker specific IDs. See Table 17: GeneralID (DeviceProductID).

7.22 MISDetails

From [MIS-ICS]

Table 47: MISDetails

From: [JDF1.5]Table 10-31 and [MIS-ICS]Table 29

Referenced by: PhaseTime

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>CostType</i>		r			w?		r-Test: Manager SHALL store the <i>CostType</i> against the actual hours.
<i>all values</i>		r			w←		

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>DeviceOperationMode</i>		r			w←		The Worker SHALL supply this Attribute for an attended Device. The Worker MAY supply it for an unattended Device. r-Test: The Manager SHALL only create costing entries with <i>DeviceOperationMode</i> = "Productive".
<i>all values</i>		r			w←		
<i>WorkType</i>		r			w?		r-Test: Manager SHALL store the <i>WorkType</i> against the actual hours.
<i>all values</i>		r			w←		

7.23 NodeInfo

Table 48: NodeInfo
 From: [JDF1.5]Table 8-165 and [MIS-ICS] Table 30
 Contained in: ResourcePool

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>JobPriority</i>		w←			r		SHALL be provided if setting priority for job.
0 ~ 100							SHALL be an integer value between 0 ~ 100. Mapping ranges for priority are: 0~25 – Priority= "Low" 26~50 – Priority= "Medium" 51~99 – Priority= "High" 100 – Priority= "Rush"
<i>NodeStatus</i>		w← r?			r← w←		SHALL be written and evaluated if and only if JDF/@Status = "Part". r-Test: Workers SHALL NOT execute Node Partitions whose status is "Completed" or "Aborted".
<i>Start</i>				w?			r?
<i>Employee</i>		w←			r?		SHALL appear in the Root Node and MAY appear in Subnodes. The employee is an internal customer service representative. See [MIS-ICS] Table 24 Employee – CSR.

Comment [r32]: Should this Employee table be copied from MIS ICS?

7.24 ObjectResolution

Table 49: ObjectResolution
From: [JDF1.5] Table 10-32
Referenced by: RenderingParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>LineSmoothing</i>	w			r?			SHALL be supplied to enable a device specific line-smoothing algorithm. Starting with JDF 1.5, <i>LineSmoothing</i> exists.
<i>Resolution</i>	w←			r?			If the agent supports resolution then output resolution specified in DPI.

7.25 RenderingParams

Table 50: RenderingParams
From: [JDF1.5] Table 8-219
Member of: DPW-WF – Input Resources
Input to: *Rendering*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>AutomatedOverprintParams</i>	w←			r			SHALL be specified for black overprint control. See Table 20: <i>AutomatedOverprintParams</i>
<i>ObjectResolution</i>	w←			r			SHALL be specified to select values. See Table 49: <i>ObjectResolution</i> .

7.26 RunList

Table 51: RunList
From: [JDF1.5] Table 8-226
Member of: DPW-WF – Input Resources
Input to: *ColorSpaceConversion, DigitalPrinting, Interpreting, Rendering, Tiling*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>NPage</i>	w←			r			SHALL be present if <i>DigitalPrintingParams</i> or <i>Media</i> is partitioned using relative, e.g., "- 1" indexing.

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>PartIDKeys</i>	w←			r			
<i>Run</i>	w			r			SHALL be present to partition RunList.
<i>all remaining values</i>	w?			r?			
<i>Run</i>	w←			r			SHALL be present in a leaf to partition RunList.
ByteMap	w←			r			Exactly one of ByteMap or LayoutElement SHALL be supplied. See Table 22: ByteMap.
LayoutElement	w←			r			Exactly one of ByteMap or LayoutElement SHALL be supplied. See Table 45: LayoutElement.

7.27 StitchingParams

Table 52: StitchingParams
From: [JDF1.5] Table 8-249
Member of: DPW-WF – Input Resources
Input to: *Stitching*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Angle</i>			w←			r?	
<i>StitchType</i>			w←			r?	
<i>Corner</i>			w←			r?	
<i>Side</i>			w←			r?	

7.28 StrippingParams

StrippingParams is partitioned by **BinderySignature** only to place multiple products on one print.

Table 53: StrippingParams
From: [JDF1.5] Table 8-252
Member of: DPW-WF – Input Resources
Input to: *Stripping*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
BinderySignature	w←			r?			Either just ExternalImpositionTemplate

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
							or some (one to four) of BinderySignature, Position, StripCellParams and StripMark. See Table 21: BinderySignature.
ExternallImpositionTemplate	w←			r?			Either just ExternallImpositionTemplate or some (one to four) of BinderySignature, Position, StripCellParams and StripMark. See Table 38: ExternalImpositionTemplate.
Position	w←			r?			Either just ExternallImpositionTemplate or some (one to four) of BinderySignature, Position, StripCellParams and StripMark. See Table 54: Position.
StripCellParams	w←			r?			Either just ExternallImpositionTemplate or some (one to four) of BinderySignature, Position, StripCellParams and StripMark. See Table 55: StripCellParams.
StripMark	w←			r?			Either just ExternallImpositionTemplate or some (one to four) of BinderySignature, Position, StripCellParams and StripMark. See Table 56: StripMark.

7.28.1 Position

Table 54: Position
 From: [JDF1.5] Table 8-253
 Referenced by: StrippingParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
AbsoluteBox	w←			r			
MarginBottom	w←			r?			
MarginLeft	w←			r			
MarginRight	w←			r			
MarginTop	w←			r?			
Orientation	w←			r			

7.28.2 StripCellParams

Table 55: StripCellParams
From: [JDF1.5] Table 8-254
Referenced by: StrippingParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Sides</i>	w?			r?			
<i>OneSided</i>	w←			r?			
<i>TwoSidedHeadtoFoot</i>	w←			r?			
<i>TwoSidedHeadtoHead</i>	w←			r?			

7.28.3 StripMark

Table 56: StripMark
From: [JDF1.5] Table 8-255
Referenced by: StrippingParams

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Anchor</i>	w			r			
<i>MarkContext</i>	w			r			
<i>BinderySignature</i>	w←			r?			
<i>Tile</i>	w←			r?			
<i>MarkName</i>	w			r			
<i>CutMark</i>	w←			r			
<i>JobField</i>	w←			r?			
<i>TrimMark</i>	w←			r?			
<i>RegisterMark</i>	w←			r?			
<i>GrommetMark</i>	w←			r?			An eyelet-like shape placed in a hole in a sheet or panel to protect or insulate a rope or cable or fixing element passed through it or to prevent the sheet, panel or tile from being torn. Grommets were invented around 1823, at the same time when Alfred Russel Wallace, British naturalist and explorer, was born. This is a new NMTOKEN defined by this ICS.
<i>Flood</i>	w←			r?			Layer of defined color to cover entire surface, e.g., in backlit printing to preserve transparency.

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
MarkSide	w			r?			
JobField	w←			r?			SHALL be provided if <i>MarkName</i> is " <i>JobField</i> ". See Table 44: JobField.

7.29 Tile

Table 57: Tile
From: [JDF1.5] Table 8-260
Member of: DPW-WF – Input Resources

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
TileID	w			r			Individual tiles are selected and matched by this attribute, which is described in Table3-28, “Part Element” on page103. Note: If the media width varies, use <i>TileID</i> to partition.
CTM	w			r			Coordinate transformation matrix mapping the ClipBox for this Tile to the rectangle 0 0 X Y, where X and Y are the extents of the media that the Tile will be imaged onto.
ClipBox	w			r			This is the box that defines the content that is to be placed in the tile. Defined in the coordinate system of the surface.
TrimBox	w←			r			This is the box that defines how the tile will be trimmed. When the <i>ClipBox</i> is larger than the <i>TrimBox</i> is when you have the overlap that often is required in WideFormat to mount tiles. Defined in the coordinate system of the surface Proposed for JDF 1.5
MarkObject	w←			r?			List of marks that are placed on the tile. MarkObject/@CTM applies to the coordinate system of the Tile.

7.30 UsageCounter

From [UsageCtr-AN].

Table 58 defines the conformance requirements for **UsageCounter** instances supplied by Managers and Workers. The term "support" means support in *at least one UsageCounter* instance, while the term "supply" means to supply in *each UsageCounter* instance.

Table 58: UsageCounter
From: [JDF1.5] Table 9-22
Member of: DPW-WF – Input Resources
Referenced by: ResourcePool
 Input to: *DigitalPrinting*

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>CounterID</i>		w? r			r w←		The name of the UsageCounter instance as defined by the Worker. See [UsageCtr-AN] section 3.1.2 for additional conformance requirements.
<i>CounterTypes</i>		!w r			r? w←		This attribute indicates the Countable Events that this counter counts, whether or not these Countable Events actually occurred. Each value of this attribute belongs to a Category , which is shown below with its values: <ul style="list-style-type: none"> • Media Sides: <i>OneSided, TwoSided</i> • Colorant: <i>Black, Blank, Color, Separation, Varnish</i> • Usage: <i>User, Auxiliary</i> The Worker SHALL supply for this attribute: <ul style="list-style-type: none"> • At least one Colorant value. • At least one Media Sides value • Zero or more Media Size values • Zero or more Usage values • Zero or more values in each new extension Category See [UsageCtr-AN] section 3.1.2 for additional conformance requirements and [UsageCtr-AN] Appendix A: "Examples".
<i>Auxiliary</i>		r			w←		Describes a Countable Event that produces something not requested by the user, such as an automatically-supplied banner, confirmation, slip, separator, or error sheets.
<i>Black</i>		r			w←		Describes a Surface Countable Event where the Printer uses black colorant on a sheet surface that uses only black colorant. A Worker SHALL support this value if it supports Surface Countable Events . By contrast, a counter that counts Separation Countable Events SHALL use the <i>Separation</i> Colorant value to count the application of a black colorant.

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Blank</i>		r			w←		Describes a <i>Countable Event</i> where the Printer uses no colorant on blank or pre-printed media. A counter MAY support a Blank value as a <i>Surface Countable Event</i> or a <i>Separation Countable Event</i> , depending on implementation.
<i>Color</i>		r			w←		Describes a <i>Surface Countable Event</i> where the Printer prints with full color (such as CMYK). A color Printer SHALL support this value if it supports <i>Surface Countable Events</i> . By contrast, a counter that counts <i>Separation Countable Events</i> SHALL use the <i>Separation Colorant</i> value to count the application of each CMYK colorant. <i>Color</i> takes precedence over <i>Black</i> or <i>HighlightColor</i> on a given sheet surface (i.e., the most complex process SHALL be counted). See [PWG-Counter-Std].
<i>HighlightColor</i>		r			w←		Describes a <i>Surface Countable Event</i> where the Printer prints with a highlight color, spot color, or spot varnish. This <i>Countable Event</i> typically occurs when a Printer uses a black colorant plus one other colorant, but this rule MAY vary by implementation. See <i>Black</i> and <i>Color</i> values. A Worker for any highlight color Printer SHALL support this value if it supports <i>Surface Countable Events</i> . By contrast, a counter that counts <i>Separation Countable Events</i> SHALL use the <i>Separation Colorant</i> value to count the application of each spot color or spot varnish colorant.
<i>Insert</i>		r			w←		Describes a <i>Countable Event</i> where the Printer produces a post-fuser insert sheet. If <i>CounterTypes</i> contains only "Insert", "Blank" and some <i>Units Category</i> value, then the counter counts only post-fuser insert sheets.
<i>InsertPrefuser</i>		r			w←		Describes a <i>Countable Event</i> where the Printer produces a pre-fuser insert sheet. If <i>CounterTypes</i> contains only "InsertPrefuser", "Blank" and some <i>Units Category</i> value, then the counter counts only pre-fuser insert sheets. This value is not defined in [JDF1.5].
<i>LargeSize</i>		r			w←		Describes a <i>Countable Event</i> where the Printer prints on a large size sheet.

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
NormalSize		r			w←		Describes a <i>Countable Event</i> where the Printer prints on a normal-size sheet.
OneSided		r			w←		Describes a <i>Countable Event</i> where the Printer prints on one side of a sheet with the intention of printing on only one side of a sheet. The Worker SHALL NOT use this event to count one side of a duplexed sheet. All Printers SHALL support this value.
Separation		r			w←		Describes a <i>Separation Countable Event</i> where the Printer prints a layer of any color of toner, ink, spot color, or spot varnish. A Printer SHALL support this value if it supports <i>Separation Countable Events</i> , regardless of whether it prints black only, spot color, spot varnish or CMYK. By contrast, a counter that counts <i>Surface Countable Events</i> SHALL use the <i>Black</i> , <i>HighlightColor</i> , or <i>Color</i> Colorant value to count the application of all colorants on a surface. This value is not defined in [JDF1.5].
TwoSided		r			w←		Describes a <i>Countable Event</i> where the Printer prints on one side of a sheet with the intention of printing on both sides of a sheet. The Worker SHALL NOT use this event to count one side of a simplex sheet. All duplex Printers SHALL support this value.
User		r			w←		Describes a <i>Countable Event</i> where the Printer prints pages of the document supplied by the user or special sheets requested by the user, such as inserts or Separator Sheets.
Varnish		r			w←		Describes a Separation Countable Event where the Printer prints an overcoating varnish layer. This value is not defined in [JDF1.5]
Waste		r?			!w		Waste is deleted. Count Waste (and Good) for Media by partitioning it with Condition.
all remaining values		r			w?		A Worker MAY include other implementation-defined values for an existing <i>Category</i> or a new <i>Category</i> . r-Test: A Manager SHALL ignore values that it doesn't support.
Scope		wr			r w		r-Test: This attribute SHALL have a "Job" value.

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Job</i>		wr			r w←		This ICS covers only Job counts. If the Worker supplies a UsageCounter , it SHALL supply this attribute with a “ <i>Job</i> ” value.

8 Conformance Tables – JDF ResourceLinks

8.1 ResourceLink

All JDF resource links derive from the : [ResourceLink](#).

From [Base-ICS]

Table 59: ResourceLink

From: [JDF1.5] Table 3-16

From: [JDF1.5] Tables 3-16 and [Base-ICS] Table 17

Comment [r33]: This table was copied from abstract ResourceLink in Base ICS. Abstract ResourceLink was merged into ResourceLink in base ics. Should ResourceLink in this ICS be copied from ResourceLink in Base ics or even better MIS ICS?

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>MinStatus</i>		w? r?			r w←		If a Worker adds a new ResourceLink, it SHALL write this value. r-Test: Worker SHALL NOT execute Nodes that have input Resources where the Resource’s <i>Status</i> Attribute has a value “lower” than the value specified in <i>MinStatus</i> , as defined in [JDF1.5] Table 3-10 in Section 3.8.3 “Abstract Resource”.
<i>ProcessUsage</i>		w← r			r w←		If multiple Resources of the same type are used by a Process, <i>ProcessUsage</i> SHALL be used to distinguish them as defined in [JDF1.5] Chapter 6 “Processes”. r-Test: The Manager and Worker SHALL conform to read requirements for the linked Resource as specified in other ICS’s.
<i>rRef</i>		w r			r w←		If a Worker adds a new ResourceLink, it SHALL write this value. This Attribute SHALL reference a Resource that is a direct child of a ResourcePool. r-Test: The Manager and Worker SHALL conform to read requirements for the linked Resource as specified in other ICS’s.
<i>Usage</i>		w			r		If a Worker adds a new ResourceLink, it

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
	r			w←			SHALL write this value. r-Test: The Manager and Worker SHALL conform to read requirements for the linked Resources as specified in other ICS's, and SHALL update Output ResourceLink Elements as specified in other ICS's. See [JDF1.5]
<i>Input</i>	w← r			r w←			SHALL be supplied for input resources. Not in [JDF1.5]
<i>Output</i>	w← r			r w←			SHALL be supplied for output resources. Not in [JDF1.5]
Part	w?			r			A Worker SHALL read and Support ResourceLink Elements that reference one or more Partitions of a Resource. r-Test: The Worker SHALL conform to read requirements for the linked Resource as specified in other ICS's. See [JDF1.5]

8.2 ComponentLink

8.2.1 ComponentLink (ResourceLinkPool)

Table 60: ComponentLink (ResourceLinkPool)

From: [JDF1.5] Table 3-16

Derived from: ResourceLink

Contained in: ResourceLinkPool

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ActualAmount</i>		r			w←		
<i>Amount</i>	w←			r			Specifies the number of copies. Exactly one of <i>Amount</i> or <i>AmountPool</i> SHALL be specified.
<i>Usage</i>	w			r			
<i>Output</i>	w			r			
AmountPool	w←	r		r	w←		Exactly one of <i>Amount</i> or <i>AmountPool</i> SHALL be specified. See Table 63: AmountPool

8.3 InkLink

Table 61: InkLink

From: [JDF1.5] Table 3-16

Derived from: ResourceLink

Referenced by: ResourceAudit

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Usage</i>	r?			w			
<i>Input</i>	r?			w			
AmountPool		r?			w		When describing ink, all units SHALL be in liters. See Table 63: AmountPool.

8.4 MediaLink

Table 62: MediaLink

From: [JDF1.5] Table 3-16

Derived from: ResourceLink

Referenced by: ResourceAudit

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Usage</i>	r?			w			
<i>Input</i>	r?			w			
AmountPool		r?			w		When describing media, all units SHALL be specified in square meters. See Table 63: AmountPool.

8.4.1 AmountPool

From [MIS-ICS]

Table 63: AmountPool
From: [JDF1.5] Table 3-18
From: [JDF1.5]Tables 3-18 and [MIS-ICS] Table 17
Referenced by: ComponentLink (ResourceLinkPool), InkLink, MediaLink

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
PartAmount		w	r		r	w	See Table 64 (as PartAmount).

8.5 PartAmount

From [MIS-ICS]

Table 64: PartAmount
From: [JDF1.5]Table 3-19 and [MIS-ICS] Table 16
Referenced by: AmountPool

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
ActualAmount			r			w	The Amount of the Resource that was produced or consumed during this PhaseTime. r-Test: The Manager SHALL create costing entries for quantity specified in this Attribute.
Amount		w			r		
Lot				r		w	SHALL be specified if Resource is lot controlled. SHALL NOT be supplied if AmountPool exists. r-Test: The Manager SHALL create costing entries based on the specified Lot. See Table 65: Lot.

Comment [r34]: Rgh: Amount deleted from MIS ICS. Should it be deleted here?
 Also rRef, Usage, AmountPool and Lot are in MIS ICS, but not here? Should they be added?

8.5.1 Lot

From [MIS-ICS]

Table 65: Lot
From: [JDF1.5]Table 3-20 and [MIS-ICS]Table 18
Referenced by: PartAmount

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ActualAmount</i>			r			w	r-Test: see <i>ActualAmount</i> in Table 64.
<i>LotID</i>			r			w	r-Test: The Manager SHALL create costing entries based on the specified Lot.
<i>Consumption</i>			r?			w	
<i>Full</i>			r?			w←	
<i>Partial</i>			r?			w←	

9 Conformance Tables – JMF Instances

See [JMF-ICS]and JMF part of [MIS-ICS].

10 References

10.1 Normative References

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- [Base-ICS] Base ICS, Version 1.5, published April 2014. Available at: <http://www.cip4.org>.
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- [UsageCtr-AN] UsageCounter (UsageCtr) Application Note, Copyright 2013, AN_UsageCounter_1_4.pdf, available at http://www.cip4.org/global/v3/index.php?content=/documents/jdf_specifications/application_notes

10.2 Informative References

- [Delmar97] Delmar's Dictionary of Digital Printing & Publishing, Frank J. Ramano, editor, Copyright 1997. See <http://www.delmarlearning.com>.
- [FileURL-AN] CIP4 Application Note: Use of the File URL in JDF, published 12 November 2003, available at <http://www.cip4.org>.
- [PWG-Counter-Std] The Printer Working Group (PWG) Candidate Standard IEEE-ISTO 5106.1-2005 - PWG Standard for Imaging System Counters, published September 23, 2005. Available at: <http://www.pwg.org>. This definition of "impression" goes on to say: "Source: This document defines Impression consistently with the usage in the Job Monitoring MIB [RFC2707] and IPP/1.1 [RFC2911]."
- [RFC2707] Job Monitoring MIB - V1.0, RFC 2707, November 1999. All IETF (Internet Engineering Task Force) RFCs (Request for Comments) are available at RFC Database search: <http://www.rfc-editor.org/rfcsearch.html>.
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